

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AMAZON.COM, INC., AMAZON.COM SERVICES LLC,

Petitioner,

v.

NOKIA TECHNOLOGIES OY,

Patent Owner.

Case No. IPR2024-00798

U.S. Patent 9,473,602

Declaration of Steven Visser

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I, Steven Visser declare as follows:

1. My name is Steven Visser. I am a Professor of Industrial Design at Purdue University, and I am also the founder of Steve Visser Design, a design consultancy. I have prepared this report as an expert witness retained by Amazon.com, Inc. and Amazon.com Services LLC. In this report I give my opinions as to whether certain claims of U.S. Patent No. 9,473,602 (“the ’602 patent”) are invalid. I provide technical bases for these opinions as appropriate.

2. This report contains statements of my opinions formed to date and the bases and reasons for those opinions. I may offer additional opinions based on further review of materials in this case, including opinions and/or testimony of other expert witnesses. I make this declaration based upon my own personal knowledge and, if called upon to testify, would testify competently to the matters contained herein.

I. BACKGROUND OF THE ’602 PATENT

3. Nokia is the assignee for the ’602 patent, which is directed to the form factor of portable electronic devices including mobile phones. Ex-1001, 1:19-21.

4. In the mid-2000s, flip phones, such as the Motorola RAZR, were popular. Flip phones (also known as a “clamshell” handset) could be flipped closed, making the phone more compact when not in use.

Motorola RAZR Flip Phone¹



5. The '602 patent is part of a continuation chain that claims priority to a patent application filed March 29, 2006 (the “Original Application”). That Original Application described Nokia’s attempt, in 2006, to implement and purportedly improve on the Motorola RAZR form factor, which it admits was prior art. Ex-1001, 1:23-35. The '602 patent shares the same specification as the Original Application.

6. According to Nokia’s Original Application (and by extension the '602 patent), there was a “desire” for “ultrathin” flip phones that “can maintain aesthetic balance in proportions, and allow added thickness to avoid a ‘squeezed’ appearance as seen with the RAZR™ mobile telephone.” Ex-1001, 1:35-39. Thus, the Original Application sought to have more balanced

¹ https://www.gsmarena.com/motorola_razr_v3-pictures-853.php.

proportions between the two halves of the flip phone to avoid the “squeezed” appearance of the RAZR, which had a thicker lower section (with the keypad) that appeared squeezed by the thinner upper section (with the display). Ex-1001, 1:35-39. This squeezed appearance is evident from a side view of the RAZR, for example in the below images, which I downloaded from the Mobile Phone Museum.² Ex-1008. I also watched a disassembly video to see how the Motorola v3 (2004) was assembled and housed the camera³.



² <https://www.mobilephonemuseum.com/phone-detail/razr-v3>. These images are consistent with my memory of the Motorola RAZR, which was popular and widespread in the mid-2000s.

³ https://www.youtube.com/watch?app=desktop&v=gmSoFe_saOU.

7. To achieve aesthetic balance in proportions, the Original Application's embodiments feature "a substantially uniform thickness lower section 12 and a substantially uniform thickness upper section 14 along their entire lengths except for at the hinge 16." Ex-1001, 3:4-20; *see* Figs. 1 and 3 below.

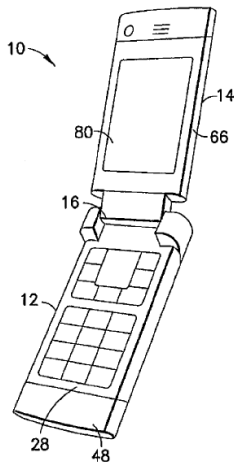


FIG. 1

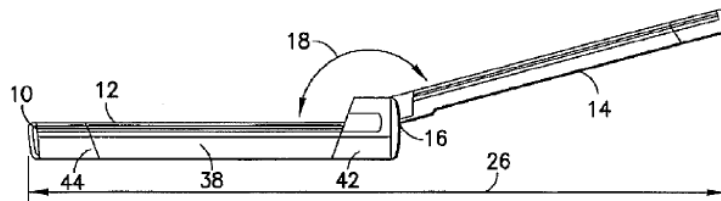


FIG. 3

8. The Motorola RAZR included a camera, and Nokia's Original Application followed suit. In the shared specification of the Original Application and the '602 patent, every embodiment that includes a camera is a flip phone with two sections connected by a hinge. Ex-1001, 1:43-64, Fig. 1.⁴ In each embodiment, the camera is located in the second (upper) section, near

⁴ All annotations and emphasis added unless stated otherwise.

the screen, while the battery, printed circuit board (“PCB”), and keypad are located in the first (lower) section. Ex-1001, 3:24-65, 4:52-5:25.

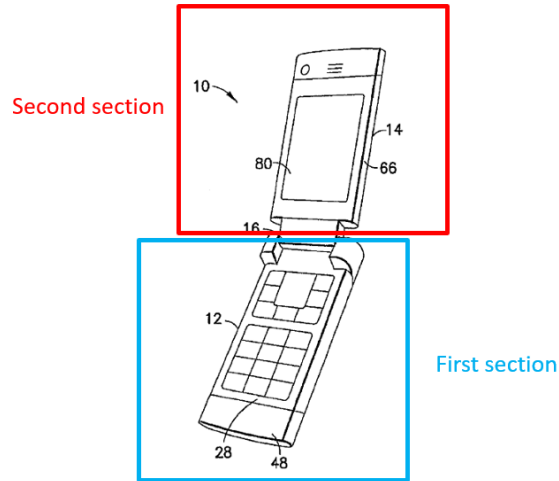


FIG.1

9. The claims of Nokia’s Original Application, filed in 2006, recited a form factor with two sections, consistent with the specification. Ex-1010 (the ’618 Patent FH), 000020-25 (claims 1, 7, 21).

10. Then, in January 2007, Apple announced the iPhone, which changed the landscape for mobile phone form factors. The iPhone form factor did not have a physical keypad and instead featured a large touchscreen on the front of the phone. In contrast to flip phones, the iPhone had a one-piece housing design with all internal components in the same housing, including the battery and a PCB with processor, memory, and wireless transceiver chips. The

iPhone also included a backwards-facing camera. Below is an example of the iPhone 3GS, which was launched in 2009.⁵



11. In 2010, Apple announced the iPad, which included similar features as the iPhone, but in a larger form factor. Like the iPhone, the iPad also featured a touchscreen for the majority of the front of the phone and a one-piece housing for holding the battery and PCBs (which included a processor, memory, and wireless transceiver). On March 2, 2011⁶ Apple introduced the iPad 2, which like the iPhone had a backwards-facing camera with optics located in an opening on the back surface of the housing.

12. In 2013, Nokia filed a continuation application, citing priority to the Original Application, that introduced new claims modeled after the

⁵ Images from https://www.gsmarena.com/apple_iphone_3gs-pictures-2826.php. These images are consistent with my memory of the iPhone 3GS.

⁶ <https://www.apple.com/newsroom/2011/03/02Apple-Launches-iPad-2/>.

iPad/iPhone form factor, with a one-piece housing design and a camera in the same housing as the user input, battery, and engine section (e.g., PCB), despite the absence of any written description in the specification supporting putting all these components together.

13. A subsequent application followed this approach and eventually issued as the '602 patent. Nokia then asserted the '602 patent against Apple, Inc., asserting that the '602 patent covered the iPhone and iPad form factors, as further explained below. *See* Section I.D.

14. However, as explained below, the specification of the '602 patent does not support the claims of the '602 patent. This is, of course, expected since the '602 patent shares the same specification as the Original Application, which was directed to an alleged improvement on the Motorola RAZR form factor. Therefore, the priority date for the Challenged Claims post-date the iPhone and iPad form factors that Nokia has already admitted satisfy the claims of the '602 patent. *See* Ex-1016 (ITC 337-TA-1038 Nokia's Infringement Contentions – iPhone 6s), Ex-1017 (ITC 337-TA-1038 Nokia's Infringement Contentions – iPhone 7), Ex-1020 (E. D. Tex. 2:16-cv-1441 Nokia's Original Complaint; *see* page 39 for all models of the Apple accused products, which included multiple iPhone and iPad models).

15. The '602 patent also recites conventional manufacturing steps, including extrusion. The specification contains minimal disclosure of how those manufacturing steps operate and therefore rely on the pre-existing knowledge of a person of ordinary skill in the art ("POSITA") for those steps. For example, the '602 specification contains only 3 sentences explaining that the tubular metal member (housing) "could be formed from an extruded member with holes punched into it after extrusion." Ex-1001, 3:30-36, 4:57-60, 6:8-11. The '602 patent includes no further explanation of how those housings are extruded. Nonetheless, those were conventional manufacturing approaches that were well known in the art of portable electronic devices. *See* Section IV.

A. Prosecution History and Priority Date

16. I have been asked to evaluate the priority date of the '602 patent. As I explain more in detail below, the challenged claims are not entitled to a priority date that is earlier than October 30, 2013.

17. I have been informed that to be entitled a priority date of an earlier-filed application, the earlier-filed application must provide support for the invention claimed in the later-filed application as required by the "written description" requirements of 35 U.S.C. § 112. I have been informed that an adequate written description requires showing that the inventor was in possession of the invention at the time of the patent application's filing.

18. I have been informed that in order to show the possession of the claimed invention, a POSITA must discern the claimed invention with all of its limitations based on disclosure of the patent at issue, including the originally filed claims, specifications, and/or the drawings.

19. I understand the '602 patent is a continuation patent application of U.S. patent application Ser. No. 14/067,249 filed October 30, 2013, now U.S. patent No. 8,953,780, which is a continuation patent application of U.S. patent application Ser. No. 13/741,781 filed January 15, 2013, now U.S. patent No. 8,615,077, which is a continuation patent application of U.S. patent application Ser. No. 12/860,234 filed August 20, 2010, now U.S. patent No. 8,363,824, which is a continuation patent application of U.S. patent application Ser. No. 11/393,510 filed March 29, 2006, now U.S. patent No. 7,787,618. Ex-1001, 1:6-14. All patents in this chain of continuations share the same specification, with the exception of cross-references to related applications.

1. The claims of the '602 patent are not entitled to a priority date earlier than October 30, 2013

20. The '602 patent is in a chain of continuation applications that begins with U.S. patent application Ser. No. 11/393,510 filed March 29, 2006, now U.S. Pat. No. 7,787,618. Because it is a continuation chain, the '602 patent has the same specification as the '618 patent. However, the shared specification does not provide written description for any claims of the '602

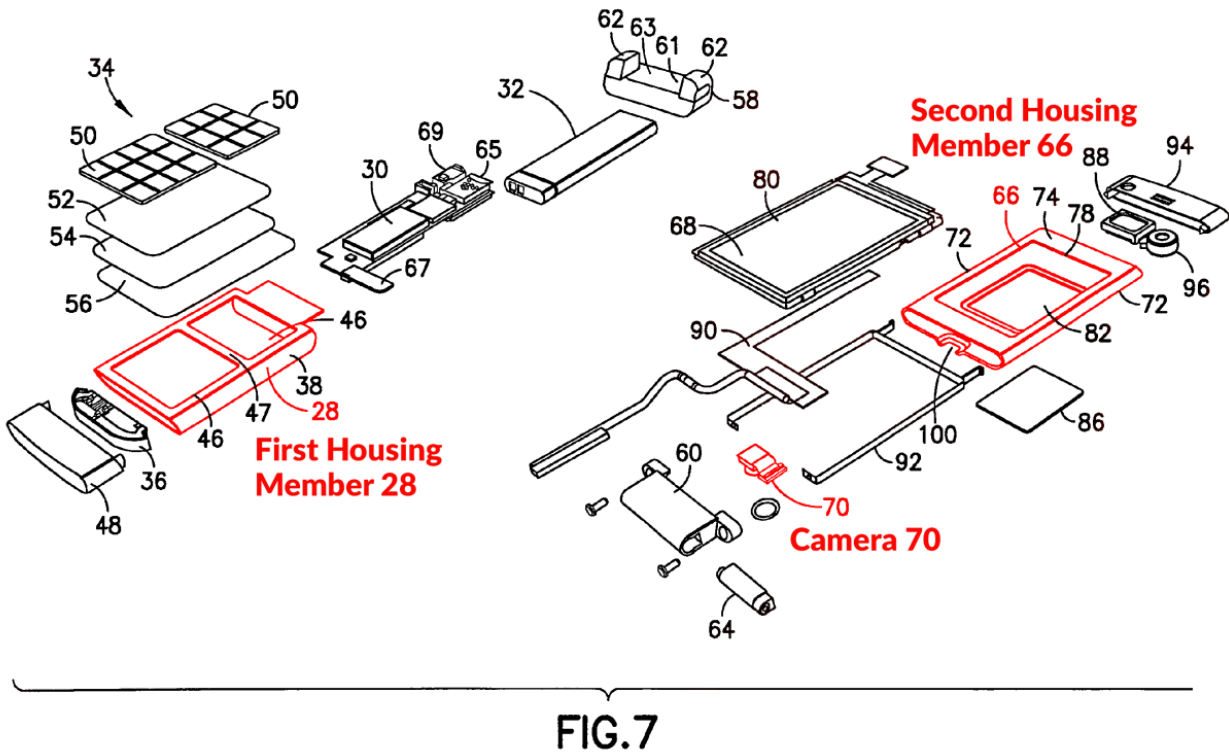
patent, which are therefore not entitled to the priority date of the original application (March 29, 2006).

21. The specification describes 2006-era feature phones—notably, a flip phone form factor with two sections, where the camera is located in the top section and the battery, engine,⁷ and user input are located in the bottom section. In contrast, the claims of the '602 patent (filed February 3, 2015), are directed to an iPad-like form factor with a one-piece housing for the camera, battery, engine, and user input—a configuration that has no written description in the specification.

22. In more detail, the shared specification of the '602 and '618 patents is directed to a flip phone comprising two sections connected by a hinge. Ex-1001 ('602 patent), 1:43-50; *see also* Ex-1009 ('618 Patent), 1:32-39. The first (bottom) section comprises, e.g., a first housing member, engine section, battery, and user input section. Ex-1001 ('602 patent), 3:24-44; Ex-1009 ('618 Patent), 3:11-31. The second (top) section comprises a second housing member, display, and camera. Ex-1001 ('602 patent), 4:52-5:6, 5:15-25; Ex-1009 ('618 Patent), 4:36-57. The specification states that “[t]he camera 70 extends to the rear side 76 of the second section 14” and is housed “at an

⁷ The “engine section” comprises a PCB with a processor, memory, and transceiver (e.g., limitation [1d]).

exterior side of the portable electronic device by a junction 98 of a cutout portion 99 of the second hinge member 60 and a cutout portion 100 of the second tubular housing member 66.” Ex-1009 (’618 Patent), 4:66-5:9. The claims of the ’618 patent are directed to a flip phone configuration comprising two sections. *See* Ex-1009 (’618 Patent), 6:6-8:35, Figs. 1-7; *see also* Ex-1010 (the ’618 Patent FH), 000020-25, 000166-172, 000200-205, 000237-242.

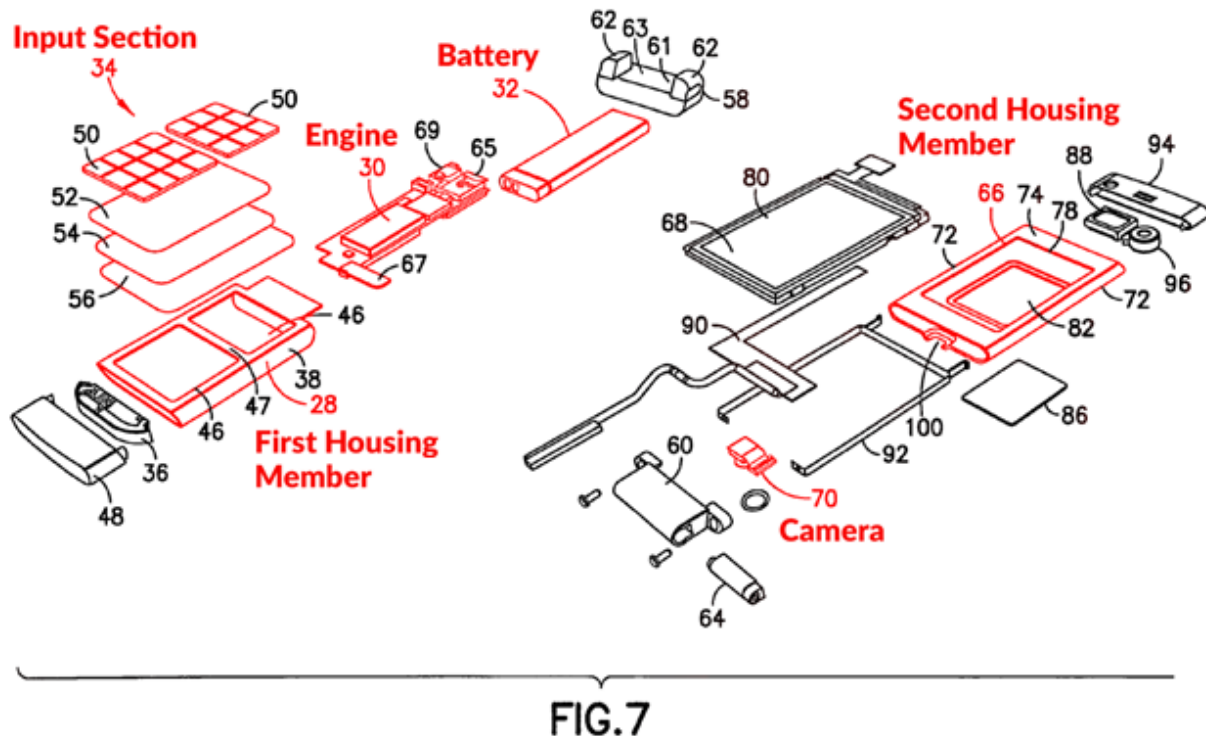


(Figure 7 from the ‘618 patent with annotations)

23. Since the specification is directed to a flip phone where the camera is in the second (top) section, the specification does not contain written description for a camera located in the same section or housing as the battery, engine, and user input, which are described as being in the first (bottom) section. Likewise, there is no disclosure of a camera that extends to a cutout of the housing that also includes the battery and engine section as required by the Challenged Claims, and there is no disclosure of the user input being located in an opening between lateral sides of a housing with a camera. *See generally* Ex-1009.

24. However, that is precisely what the '602 patent claims. All independent claims recite a one-piece housing (limitations [1a], [15a], and [22a]) that houses the battery and engine section (limitations [1f], [15c], and [22f]). All independent claims further require a cutout in the housing and a camera extending to the cutout. Limitations [1b], [1c], [22b] and [22c] recite “a cut out in the rear side of *said* housing” and “a camera located in said housing and extending to *said* cut out at said rear side,” with antecedent basis referring to the cutout of the one-piece housing recited in [1a] and [22a], respectively. Similarly, limitation [15c] recites “a cut out in the rear side of *said* housing, *said* cut out configured to receive at least part of a camera,” with antecedent basis referring to the cutout of the one-piece housing recited in [15a].

Therefore, the independent claims of the '602 patent require the camera, engine section, and battery to be housed in the same one-piece housing. Claims 1 and 22 require that the user input is located in an opening in this same housing (limitations [1f] and [22f]).



(Figure 7 from the '618 patent with annotations)

25. This configuration is not disclosed in the specification of the '618 patent filed on March 29, 2006. As explained above, there is no written description support for a camera in the same housing as the battery, engine, or user input section. Given this lack of written description in the '618 patent, a POSITA would not conclude that the inventor had possession of the invention

claimed by the '602 patent when the applicant filed for the '618 patent. It is therefore my opinion that the '602 patent is not entitled to the priority date of the filing date of the '618 patent (March 29, 2006).

26. Years after the iPhone and iPad were introduced, Nokia filed continuation applications with new claims aimed at the iPhone and iPad form factors, which featured a camera located in the same housing as the battery, engine, and touchscreen input, unlike the flip phone design that is described by the shared specification for the '602 patent family. Specifically, the application for U.S. Patent No. 8,953,780, filed on October 30, 2013, was the first application in the continuation chain that recites limitations for “a cut out in the rear side of said housing” and “a camera located in said housing and extending to said cut out at said rear side[.]” Ex-1011 (the '780 Patent FH), 000039. In preliminary amendments that the applicant made at the time of filing, newly-added claim 25 and other independent claims recite that a camera is located in the one-piece housing and extends to a cutout in the rear side of the housing. Ex-1011 (the '780 Patent FH), 000039.

25. (New) A portable electronic device comprising:

a one piece housing forming enclosed exterior lateral sides and a rear side;

a cut out in the rear side of said housing;

a camera located in said housing and extending to said cut out at said rear side;

an engine section comprising a printed circuit board, a transceiver, a processor and a memory;

a user input section located above the engine section and a battery, wherein the user input section is located adjacent the battery and the engine section;

wherein the battery and engine section are housed in the housing and the user input is located in a hole through a front side of the housing.

26. (New) A portable electronic device according to claim 25 wherein said one piece housing has a front side extending from and between the lateral sides.

27. Therefore, to the extent that the Patent Owner argues that claims filed by the applicant in prior patent applications provide support for the claims of the '602 patent, the earliest such claims were filed on October 30, 2013.

28. In analyzing the obviousness of claims in the '602 patent, for the purpose of this declaration, I consider the priority date of the claims of the '602 patent to be October 30, 2013 at the earliest. It does not matter whether the claims have a priority date of Feb. 3, 2015 (the filing date of the '602 patent) or October 30, 2013 (the filing date of the '780 patent) because the prior art relied on in this Declaration is prior art to both dates. I have analyzed obviousness

using the October 30, 2013 date, but my analysis remains consistent from October 30, 2013 through Feb. 3, 2015.

B. Additional Prosecution History Analysis

29. Following the addition of the “one piece housing” limitation during prosecution of the ’824 patent, the applicant continued to pursue claims with the “one piece housing” in the subsequent child patent applications. For example, during prosecution of the ’077 patent, on March 25, 2013, the examiner issued a non-final rejection of the claims, which recited the “one piece housing” limitation, based on U.S. Patent No. 7,515,431 to Zadesky. Ex-1012, 000098, 000077-78. Among the rejections, the examiner found that Zadesky anticipated the following claim 41 reproduced below:

41. (Previously presented) A housing for a portable electronic device comprising:

a one piece housing forming enclosed exterior lateral sides and a rear side;

said one piece housing has a front side extending from the lateral sides along at least two edges of the housing,

the front side extending between the lateral edges, said lateral sides and front side forming an aperture configured to receive a user input wherein the user input and the front side of the housing form a continuous front surface of the portable electronic device.

30. In response, the applicant amended claim 41, adding “a door in the one piece housing configured to receive and support an electronic module; and an engine section located in the housing comprising electrical connectors to couple the electronic module to the engine section.” Ex-1012, 000114. The applicant argued that Zadesky “fails to teach a door that is configured to receive and support an electronic module.” Ex-1012, 000119. Subsequently, the examiner allowed the ’077 patent. Ex-1012, 000135.

C. Challenged Claims

31. I understand that the Petitioner is challenging the validity of claims 1-36 of the ’602 patent in the Petition for Inter Partes Review to which this declaration will be attached. Those claims are reproduced in Appendix 3. In forming my opinions, I have considered all claims of the ’602 patent.

D. Prior Litigation

32. It is my understanding that the Patent Owner asserted the ’602 patent against Apple, Inc., alleging infringement by iPhone and iPad form factors, in concurrent litigation in the Eastern District of Texas and the International Trade Commission. It is my understanding that both cases terminated before any substantive decision or determination was made. *Nokia Technologies Oy et al v. Apple Inc.*, No. 2:16-cv-1441, Dkt. 34 (E.D. Tex. Jun.

6, 2017); *Electronic Devices, Including Mobile Phones, Tablet Computers, and Components Thereof*, Inv. No. 337-TA-1038, Order No. 26 (August 8, 2017).

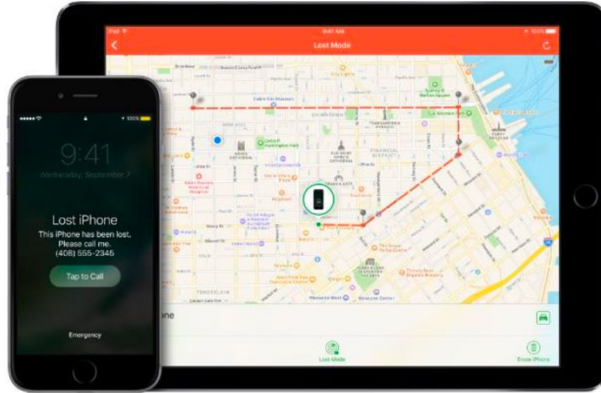
33. In the case before the ITC, the Patent Owner alleged that iPhone and iPad form factors infringed claims 1, 6-15, 17-18, 22, and 27-36 of the '602 patent. Ex-1013, 000023-26. In a prior district court litigation, the Patent Owner similarly alleged that iPhone and iPad form factors infringed at least claim 1 of the '602 patent. Ex-1020, 000039-44. The Patent Owner took the position that the iPad/iPhone form factor was a one-piece housing as claimed by the '602 patent. Ex-1020, 000039-44 (alleging, “the iPhone 6s has a one piece housing that forms enclosed exterior lateral sides (identified by the red arrows below) and a rear side (outlined in green below).”); *see also* Ex-1016 (ITC 337-TA-1038 Nokia’s Infringement Contentions – iPhone 6s), Ex-1017 (ITC 337-TA-1038 Nokia’s Infringement Contentions – iPhone 7).



34. Patent Owner further contended, for domestic industry, that the Microsoft Surface Pro and Samsung Galaxy Tab, which had form factors similar to that of the iPad, satisfied the limitations of the '602 patent. Ex-1013 (ITC 337-TA-1038 Complaint), 000055-56, 000062. The proceedings terminated prior to the claim construction determination.

35. However, in the cases with the general tablet form as seen in the Galaxy Tab and the Kindle, Nokia identified the one piece housing and lateral sides. Ex-1018 (ITC 337-TA-1038 Nokia's Infringement Contentions – Galaxy

Tab) and Ex-1019 (ITC 337-TA-1038 Nokia's Infringement Contentions – Surface Pro 4).

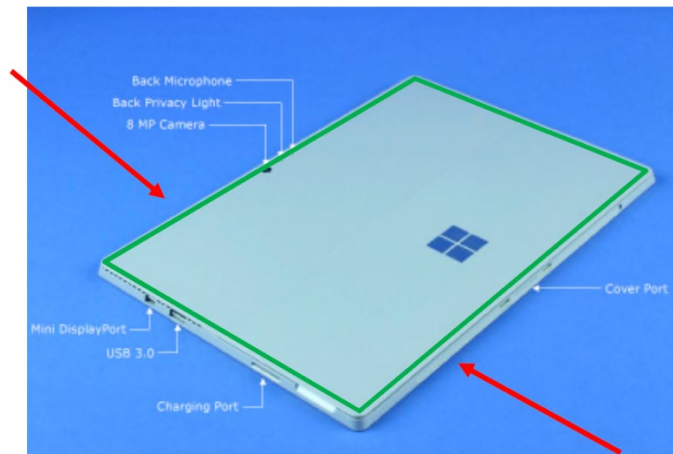


Ex. 1020 at 46.⁸



Ex. 1018 at 2 (Nokia's Infringement Contentions – Galaxy Tab).

⁸ <http://www.apple.com/icloud/find-my-iphone.html>.



Ex. 1019 at 2 (Nokia's Infringement Contentions – Surface Pro).

II. LEVEL OF ORDINARY SKILL IN THE ART

36. I have analyzed the '602 and determined that the field of the patent is the form factor design of portable electronic devices. For example, the '602 patent characterizes its alleged invention as being related to “a portable electronic device and, more particularly, to form factor configuration of a portable electronic device.” Ex-1001, 1:19-21. This is consistent with the specification, which describes a form factor for portable electronic devices, and the claims, which recite form factor limitations.

37. In determining the characteristics of a hypothetical POSITA of the '602 patent at the time of the claimed invention, I considered several things, including various prior art techniques relating to the field of form factor design of portable electronic devices, the type of problems that such techniques gave

rise to, and the rapidity with which innovations were made. I also considered the sophistication of the technologies involved, and the educational background and experience of those actively working in the field at the time. I also considered the level of education that would be necessary to understand the '602 patent. Finally, I placed myself back in the relevant period of time and considered the designers and engineers that I have worked with and managed in the field of form factor design of portable electronic devices.

38. I came to the conclusion that a person of ordinary skill in the field of art of the '602 patent would have been a person with a bachelor's degree in industrial design, fine arts, or a similar field with at least two years of experience in industrial design. A person with less education but more relevant practical experience may also meet this standard.

39. I would have satisfied the criteria for a POSITA because I received a Bachelor of Art with a major in Fine Art, received an MFA in Industrial Design and also have 38 years of experience in both the practical and academic areas of the industrial design, as explained in more detail below (in Section VI) and my attached CV. I have designed mobile phones, and other housings for electronics. For example, in 2006, I designed mobile phones for Samsung. In 2012, I designed a personal health video camera for use with mobile phones.

40. In the 2013 timeframe, a POSITA would have known and had the skills necessary to:

- Apply conventional arrangements of various internal components of a portable electronic device;
- Apply conventional methods for manufacturing portable electronic devices including, for example, extrusion, injection molding, casting, and stamping;
- Apply conventional ergonomics of various configurations of portable electronic devices.

III. CLAIM CONSTRUCTION

41. For purposes of this inter partes review, I have considered the claim language, specification, portions of the prosecution history, and publicly available claim construction briefs filed in relevant litigations, to determine the meaning of the claim language as it would have been understood by a POSITA at the time of the invention. The “plain and ordinary meaning” or *Phillips* standard has traditionally been applied in district court litigation, where a claim term is given its plain and ordinary meaning in view of the specification from the view point of a person of ordinary skill in the art.

42. I have applied the *Phillips* standard in my analysis. Unless otherwise stated, I have applied the plain and ordinary meaning to claim terms.

**A. “housing forming enclosed exterior lateral sides and a rear side”;
“housing...forming enclosed exterior lateral sides and a rear side”
(claims 1, 15, 22)**

43. In the prior ITC investigation (*Electronic Devices, Including Mobile Phones, Tablet Computers, and Components Thereof*, Inv. No. 337-TA-1038), the Patent Owner briefed the terms “housing forming enclosed exterior lateral sides and a rear side” (claims 1 and 15) and “housing...forming enclosed exterior lateral sides and a rear side” (claim 22). *See* Ex-1015 (Nokia’s Claim Construction Reply Brief), 000064-70.

44. The Patent Owner argued that the terms should be afforded their plain and ordinary meaning, or in the alternative, be construed as a “member that houses forming enclosed exterior lateral sides and a rear side.” Ex-1015 (Nokia’s Claim Construction Reply Brief), 000064-70. That is, a “housing” means “member that houses” and therefore this term requires a “member that houses forming enclosed exterior lateral sides and a rear side.”

45. The Patent Owner rejected Apple’s proposed construction of “tubular housing,” as being “much too narrow, particularly if it requires that the housing have a ‘front side.’” Ex-1015 (Nokia’s Claim Construction Reply Brief), 000064. The Patent Owner further argued that the term “housing” does not require an enclosed front side. Ex-1015 (Nokia’s Claim Construction Reply Brief), 000065-68. The Patent Owner also argued that the “housing” does not

need to have open top and bottom ends. Ex-1015 (Nokia's Claim Construction Reply Brief), 000065-68.

46. I explain below how the Patent Owner's proposed construction is satisfied by McClure-997, McClure-998, and Chiang, which invalidate the Challenged Claims regardless of whether the Patent Owner's proposed construction is adopted.

IV. BACKGROUND OF THE TECHNOLOGY

47. By 2013, portable electronic devices were well-known in the art and widespread in the market. This included the iPhone and iPad, which had been on the market for several years by that time.

48. Several techniques were known for manufacturing housings for portable electronic devices, including for example extruding a hollow tubular shape and subsequently machining or punching desired openings and holes. In 1991, I designed a radio frequency meter that has a tubular extruded aluminum one-piece housing with plastic end caps. It also had a hole cut into the housing for a speaker on the top of the product. One-piece housings manufactured in such manner were featured in various products including Apple's iPod minis released in 2004. *See* Ex-1014 (Apple's Claim Construction Response Brief), 000069.



49. In 2002, I.D. Magazine recognized the Samsung Personal MP3 Player that had an aluminum-extruded body that included a slide-out section providing a protected area for a SmartCard memory slot. Ex-1007⁹.



PERSONAL MP3 PLAYER

London-based Samsung Design Europe's Personal MP3 Player has an aluminum-extrusion body with rubberized plastic molding. The player's function keys are split into two categories and located in two different places. Primary functions, such as play, pause and stop, are located on the outside of the case around the LCD. Lesser-used secondary functions, such as the equalizer, are located on a slide-out section. Samsung says the benefit of such key placement is twofold: It makes the player easier to operate and provides a protected space for the USB connector and SmartCard memory slot.

INTEL PERSONAL AUDIO PLAYER 3000

Although Hillsboro, Ore.-based Intel Corp. designed its compact MP3 player with a customizable faceplate and expandable memory to attract the Generation Y market, Lovelady was

⁹ I have owned International Design ("I.D.") Magazine since around the time it was published in 2002.

V. INVALIDITY

50. There are a number of patents and publications that constitute prior art to the '602 patent. I have reviewed and considered the prior art discussed in this section, along with the materials listed in Appendix 2.

51. Based on my review and analysis of the materials cited herein, my opinions regarding the understanding of a POSITA in the 2013 timeframe, and my training and experience, it is my opinion that the challenged claims of the '602 patent are invalid based on the following grounds:

Grounds	Claims	Statutory Basis	Prior Art
1	1-8, 11-29, 32-36	§ 103	McClure-997
2	1-8, 11-29, 32-36	§ 103	McClure-997 and McClure-998
3	1-36	§ 103	McClure-997 and McClure-998 in view of Chiang

A. Grounds 1-2: McClure-997 Alone (Ground 1) and in Combination with McClure-998 (Ground 2)

52. McClure-997 teaches the iPad form factor, applied generally to portable electronic devices including mobile phones, which satisfies all limitations of the challenged claims (as listed in the chart of Invalidity Grounds above). McClure-997 incorporates a related patent, McClure-998 by reference. McClure-998 provides additional details that reinforce McClure-997's teachings and further teach various dependent claims and later independent

claims regarding mobile phones and the shape of the front of the housing. *E.g.*, Ex-1005 (McClure-998), ¶33, ¶¶39-42, ¶45, ¶¶58-59, ¶61, ¶68, ¶¶70-72, ¶89, ¶105, ¶111, ¶119, Figs. 1A-B, 3A-B, 5A, 11; *see* Section V.A.2.

53. It is my understanding that McClure-997 and McClure 998 are treated as one reference since they incorporate each other by reference. Regardless, a POSITA would have been motivated to combine McClure-997 and McClure-998 (Ground 2) for numerous reasons, explained below.

54. McClure-997 and McClure-998 are publications of Apple patent applications filed on the same day, January 21, 2011, sharing common inventors Stephen R. McClure, Sean S. Corbin, John P. Ternus, Keving Gibbs, Jeremy C. Franklin, Elvis M. Kibiti, John Raff, Jules B. Henry, Benjamin M. Rappoport, Erik A. Uttermann, and Carl Peterson. Both are directed to aspects of the iPad form factor, as explained below in Sections V.A.1-2. *See* Ex-1004 (McClure-997), Abstract, ¶¶14-15, Figs. 1-8; Ex-1005 (McClure-998), ¶¶10-11, ¶43, ¶40, Figs. 1A-B, 2, 3A-B.

McClure-997

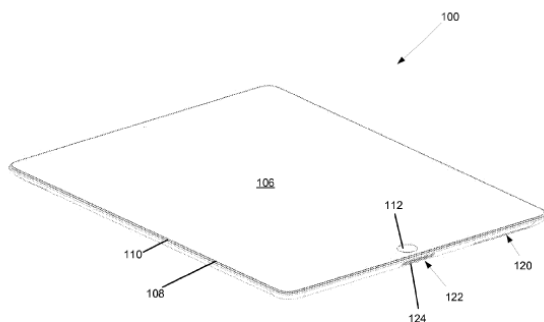


Fig. 2

Ex-1004 (McClure-997), Fig. 2

McClure-998

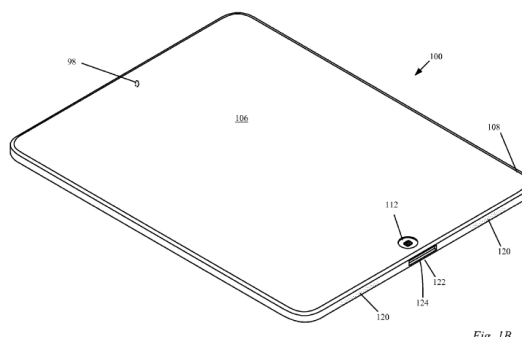


Fig. 1B

Ex-1005 (McClure-998), Fig. 1B

55. The references provide express motivation to combine by incorporating each other by reference. *See* Ex-1004 (McClure-997), ¶1, ¶3; Ex-1005 (McClure-998), ¶1. Since McClure-997 and McClure-998 are Apple iPad references filed the same day from mostly the same inventors, incorporating each other by reference, a POSITA would have had ample motivation to combine by applying their teachings to the iPad form factor, including those teachings described below. *See* Sections V.A.1 (McClure-997 teachings), V.A.2 (McClure-998 teachings). This would include full-sized tablets and also mobile phones because McClure-997 and McClure-998 both apply their teachings to tablets and mobile/cellular phones, which had scaled-down dimensions compared to tablets. *See* Ex-1004 (McClure-997), Abstract, ¶¶6-9,

¶38, ¶45; Ex-1005 (McClure-998), ¶5, ¶¶45-46, ¶56. Therefore, a POSITA would have applied the combined teachings to a full-sized iPad tablet form factor and a scaled-down iPad mobile phone form factor.

56. The teachings of McClure-997 and McClure-998 were meant to be used together, as evident from the fact that they incorporate each other by reference and teach complementary aspects of the iPad form factor. *See* Ex-1004 (McClure-997), ¶1, ¶3; Ex-1005 (McClure-998), ¶1. For example, McClure-997 teaches one-piece housing with a front opening through which internal components are assembled, with detailed figures regarding the precise location of internal components. *E.g.*, Ex-1004 (McClure-997), ¶¶38-39, ¶44, ¶61, Figs. 1-8. McClure-998 includes similar, though less detailed, figures showing the general location of internal components (Ex-1005 (McClure-998), Fig. 3A) with additional details, for example, regarding the ledges around the front of the iPad (*e.g.*, Ex-1005 (McClure-998), ¶¶58-59, ¶68, ¶70, ¶72, ¶89, ¶105, Figs. 3A-B, 5A). McClure-998 also teaches the use of the iPad for wireless data network, such as a cellular data network, as was widely known and used in the art and by consumers in general. Ex-1005 (McClure-998), ¶45, ¶56-57, ¶109. Therefore, a POSITA would have been motivated to combine McClure-997 and McClure-998 because it was a combination of prior art

elements according to known methods to yield predictable results, e.g., the iPad form factor and usage model taught by the McClure references.

57. McClure-997 and McClure-998 teach various features and details of the iPad form factor, which they sometimes refers to as “embodiments.” I note that these embodiments are, for the most part, intended to be used together to describe related, complementary aspects of the iPad form factor and operation, including the structure of the external housing (e.g., Ex-1004 (McClure-997), ¶¶39-40; Ex-1005 (McClure-998), ¶¶52-53) and arrangement of internal components disposed within the housing (e.g., Ex-1004 (McClure-997), ¶61; Ex-1005 (McClure-998), ¶61). Indeed, the McClure references provide interrelated figures that depict different portions of an iPad. *See* Ex-1004 (McClure-997), Figs. 1-8; Ex-1005 (McClure-998), Figs. 1A-B, 2, 3A-B. A POSITA would have been motivated to combine the McClure references’ teachings together, with a reasonable expectation of success, because that is how the McClure references present them. *See* Ex-1004 (McClure-997), Figs. 4-6; Ex-1005 (McClure-998), Figs. 3A-B (showing the combined design of exterior housing and internal components). Moreover, by the relevant timeframe in 2013, the iPad was well-known in the art, which would have motivated a POSITA to apply teachings from the McClure references (an Apple patent application) to the iPad form factor.

58. A POSITA would have had a reasonable expectation of success in combining McClure-997 and McClure-998 because Ground 2 applies their teachings to an iPad form factor, which was the intended purpose of each reference. *E.g.*, Ex-1004 (McClure-997), ¶¶39-44, Figs. 1-8; Ex-1005 (McClure-998), ¶¶38-45, Figs. 1A-B, 2, 3A-B. Therefore, combining McClure-997 and McClure-998 would not have changed the principle of operation of either reference.

59. Based on my experience in the industry, a POSITA with two years of industrial design experience would have been able to apply teachings from McClure-997 and McClure-998 to a tablet or mobile phone form factor. This would have been well within the level of ordinary skill in 2013 (*see* Section II on the POSITA) because iPads and iPhones were well-known in the art, and the application of these teachings would have been simple changes to the design and appearance of a tablet and/or mobile phone.

1. U.S. Patent Application Publication No. 2012/0194997 (Ex-1004, “McClure-997”)

60. McClure-997 is a published US patent application from Apple, Inc. that was filed on January 31, 2011 and was published on August 2, 2012. Based on the earliest possible priority date of October 30, 2013 for the Challenged Claims, I understand McClure-997 is prior art to the '602 patent under AIA §§102(a)(1) and (2).

61. I have reviewed the McClure-997 reference. I understand that McClure-997 was not cited or considered during prosecution of the '602 patent, based primarily on the fact that McClure-997 is not cited on the face of the patent, nor have I seen the reference discussed in the prosecution history.

62. McClure-997 is an Apple patent application that describes the iPad form factor, which includes one-piece housing enclosing various internal components therein. *See, e.g.*, Ex-1004 (McClure-997), Abstract, ¶¶14-15, Figs. 1-8. McClure-997 teaches a one-piece housing having a front opening. Ex-1004, Abstract, ¶¶14-15, Figs. 1-8. Within the one-piece housing, internal components such as the PCB, memory, processor, and battery are housed. Ex-1004, ¶¶14-15, ¶39, ¶61, Figs. 1-8. To reduce the thickness, internal components are “substantially in the same plane.” Ex-1004, ¶59. Above the internal components, a large touchscreen display that allows user input is located, covering the majority of the front side. Ex-1004, Figs. 1-8.

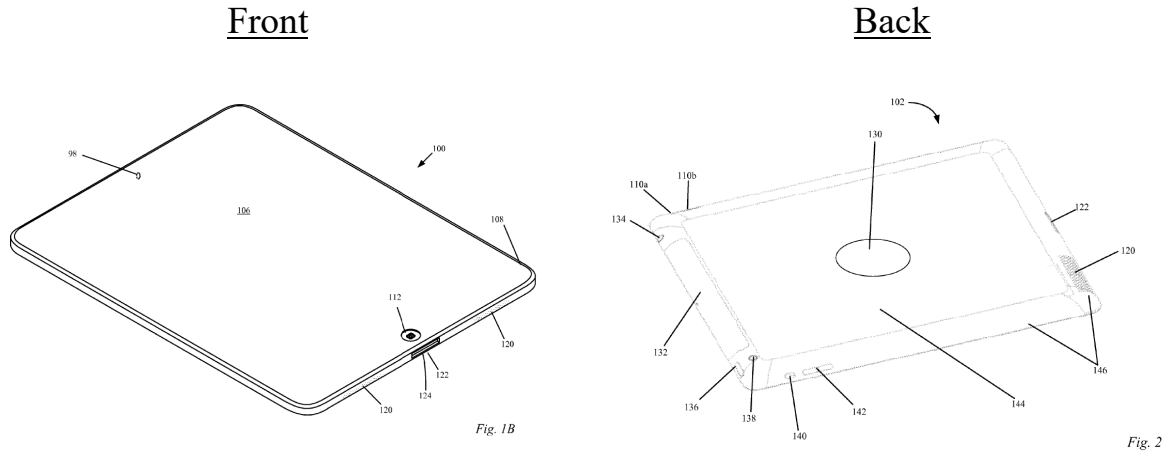
63. McClure-997 is analogous art because it is in the same field as the '602 patent (form factor of a portable electronic device, *see* Section II). McClure-997 teaches the form factor configuration of a portable electronic device, including the shape, structure, and components of a portable computing device. *See* Ex-1004 (McClure-997), ¶¶14-15. Therefore, McClure-997 is an analogous art to the claimed invention of the '602 patent.

2. U.S. Patent Application Publication No. 2012/0194998 (Ex-1005, “McClure-998”)

64. McClure-998 is a published US patent application from Apple, Inc. that was filed on January 31, 2011 and was published on August 2, 2012. Based on the earliest possible priority date of October 30, 2013 for claims of the '602 patent, I understand McClure-998 is prior art to the '602 patents under AIA §§102(a)(1) and (2).

65. I have reviewed the McClure-998 reference. I understand that McClure-998 was not cited or considered during prosecution of the '602 patent, based primarily on the fact that McClure-998 is not cited on the face of the patent, nor have I seen the reference discussed in the prosecution history.

66. Like McClure-997, McClure-998 is also an Apple patent application that describes the iPad form factor, which includes a touchscreen, “single piece housing,” a camera located in a cutout in the back side of the housing (e.g., Ex-1005 (McClure-998), ¶¶10-11, ¶40, ¶43, ¶54, Figs. 1A-B, 2, 3A-B), and internal components, including the battery, processor, memory, PCB, and wireless transceiver. Ex-1005, ¶39, ¶62, ¶44, ¶119.



67. McClure-998 teaches additional details regarding the front of the housing (e.g., Ex-1005 (McClure-998), ¶¶40-42, ¶33, ¶¶58-59, ¶68, ¶70, ¶72, ¶89, ¶105, Figs. 1A-B, 3A-B, 5A) and mobile phones, including the use of wireless data networks (Ex-1005, ¶45, ¶71, ¶61, ¶119, ¶111, ¶39, Figs. 3A-B, 11). These details are particularly relevant to various dependent claims and later independent claims.

68. McClure-998 is analogous art because it is in the same field as the '602 patent (form factor of a portable electronic device, *see* Section II). As with McClure-997, McClure-998 is directed to the form factor aspects of a portable electronic device. Ex-1005 (McClure-998), ¶10. Therefore, McClure-998 is analogous art to the claimed invention of the '602 patent.

3. Independent Claims 1, 22

69. It is my opinion that McClure-997 alone and further in view of McClure-998 renders Claims 1 and 22 obvious.

[1pre] A portable electronic device comprising:

[22pre] A mobile phone comprising:

70. McClure-997 and McClure-998 both teach **a portable electronic device**, including **a mobile phone**. For example, both apply their teachings to “portable computing devices” including laptop computers, tablet computers, PDAs, media players, and cellular phones. Ex-1004 (McClure-997), Abstract, ¶¶6-9, ¶38; Ex-1005 (McClure-998), ¶5, ¶45. A portable computing device is a portable electronic device because computing devices run on electricity and are therefore electronic devices. As was known in the art, a cellular phone is another name for a mobile phone. A mobile phone is also a type of portable electronic device.

71. To the extent the Patent Owner argues the iPad form factor does not teach a mobile phone, it would have been obvious to a POSITA. For example, iPhones, which are mobile phone devices with the form factor similar to that of iPad was widely known at the time. Indeed, both iPads and iPhones have one-piece housing with a large touchscreen display in front, cameras both on the front and back sides of the housing. The similarities between iPads and

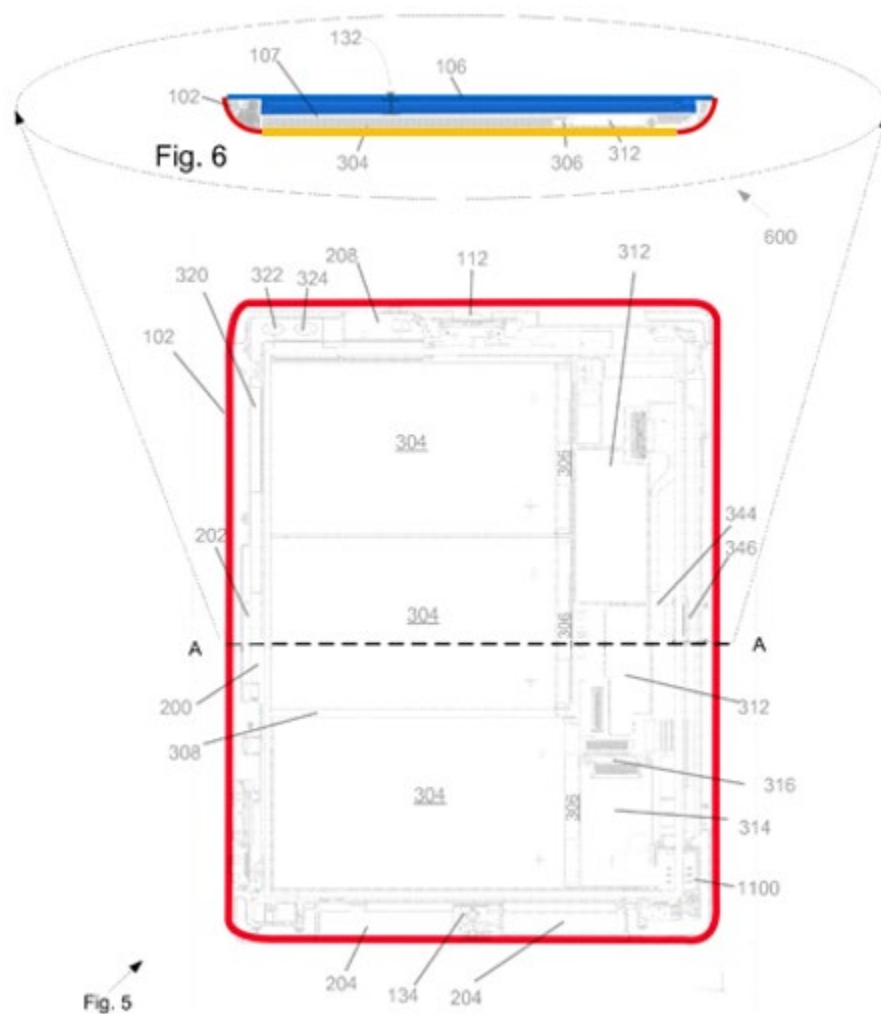
iPhones were much discussed in the industry at the time, with compatibility touted as a selling point for those Apple devices. The iPad form factor was a larger (scaled up) iPhone, thus a POSITA would have found mobile phones obvious based on the teachings of the McClure references.

- [1a] **a one piece housing forming enclosed exterior lateral sides and a rear side;**
- [22a] **a one piece housing of the mobile phone forming enclosed exterior lateral sides and a rear side of the mobile phone;**

Ground 1: McClure-997

72. McClure-997 teaches **a one piece housing forming enclosed exterior lateral sides and a rear side**. For example, McClure-997 teaches “a single piece housing” that includes a front opening and “an integral bottom and side walls that cooperate to form an interior cavity.” Ex-1004 (McClure-997), Abstract, ¶¶14-15, ¶39, ¶50, Figs. 1-8. As can be seen from annotated Figs. 5 and 6 below, the housing forms enclosed exterior lateral sides (highlighted in red)¹⁰ and a rear side (highlighted in yellow) such that various internal components are located within the enclosed interior cavity. Ex-1004 (McClure-997), Abstract, ¶¶14-15, ¶39, ¶50, Figs. 1-8.

¹⁰ It is my opinion that even if the lateral sides include only the longer sides of the one-piece housing, McClure-997 still teaches this claim.



73. That is, McClure-997 teaches a one-piece housing member that forms enclosed exterior lateral sides and a rear side. McClure-997 further teaches that the one-piece housing is formed of a single sheet or block of metal. Ex-1004 (McClure-997), ¶¶35-36.

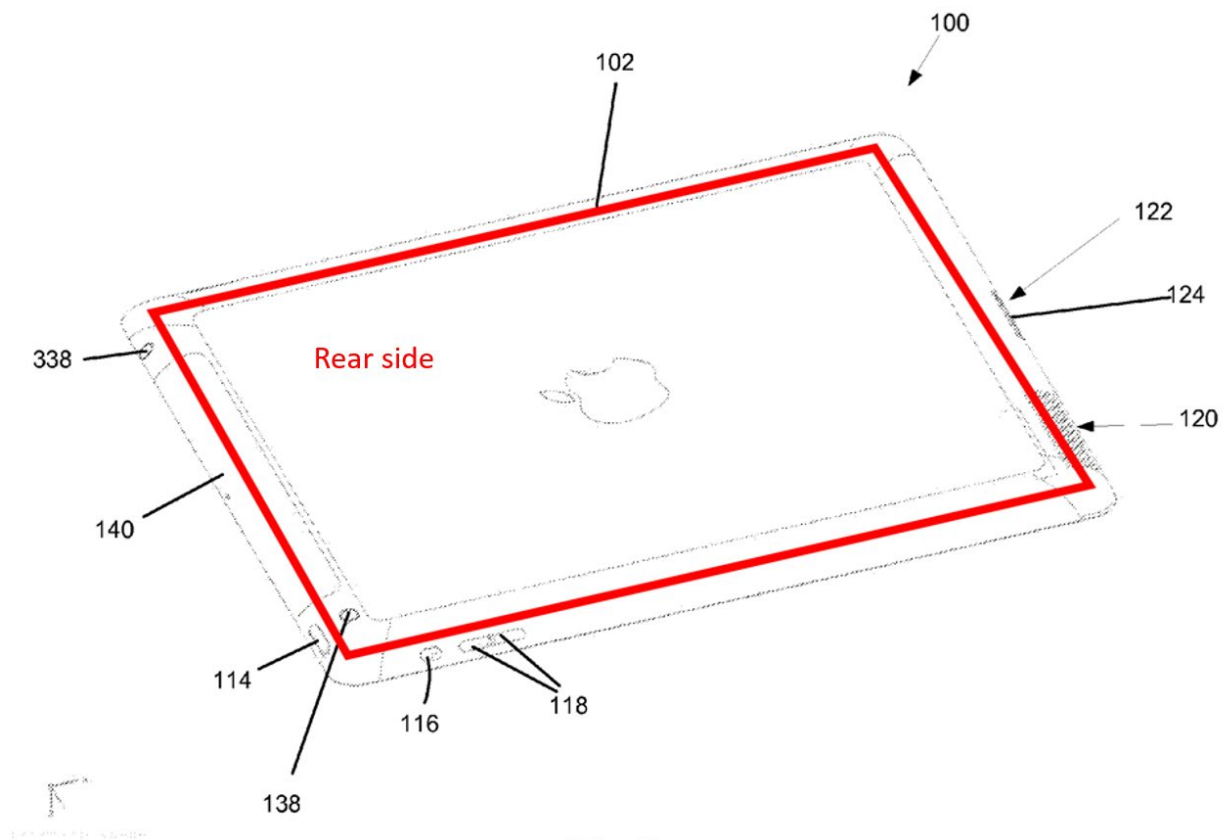


Fig. 3

74. In the above figure (Fig. 3), I have labelled the rear side with a red rectangle that shows the rear side of the housing before the steeper portion of the curvature and the lateral sides, which enclose and surround the rear side of the housing. In other words, the lateral sides are the portions of the housing outside the red rectangle. This is explained in more detail for the next limitation. *See* Section V.A.3[1b/22b].

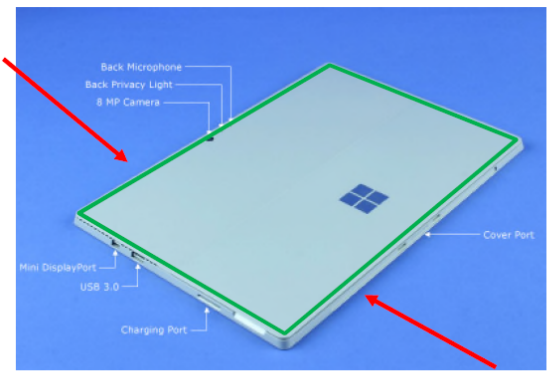
75. McClure-997 satisfies the Patent Owner’s construction: “member that houses [and forms] enclosed exterior lateral sides and a rear side.” Ex-

1015 (ITC 337-TA-1038 Nokia's Claim Construction Reply Brief), 000064-70; *See* Section III.A. McClure-997's one-piece housing is a member that houses internal components of the iPad (explained in sections below; *see also* Ex-1004, ¶¶47, ¶50, ¶¶53-56, ¶¶58-61, ¶¶14-15, ¶¶66-67, Figs. 1-2, 4-8) and forms enclosed exterior lateral sides and a rear side (as explained above; *see also* Ex-1004, Abstract, ¶¶14-15, ¶¶35-36, ¶39, ¶50, Figs. 1-8).

76. McClure-997 teaches a one-piece housing of the mobile phone forming enclosed exterior lateral sides and a rear side of the mobile phone. As explained above, McClure-997 applies its teachings to a mobile phone. *See* Section V.A.1[22pre].

77. Moreover, McClure-997 teaches a tablet form factor applied more generally to portable electronic devices. *See* Ex-1004 (McClure-997), Figs. 1-8. In prior and current litigation, Patent Owner asserted that a general tablet form factor infringes the '602 patent and satisfies limitation [1a]. Ex-1019 (Nokia's Infringement Contentions – Surface Pro), 000003; Ex-1022 (D. Del. 1:23-cv-01232 Nokia's Infringement Contentions – Kindle Fire), 000003; *see also* Ex-1018 (Nokia's Infringement Contentions – Galaxy Tab), 000003.

1.[A] A portable electronic device comprising: a one piece housing forming enclosed exterior lateral sides and a rear side;	Each of the Accused Products, such as the Fire HD 8, are “[a] portable electronic device comprising: a one piece housing forming enclosed exterior lateral sides and a rear side.” For example, and without limitation, the Fire HD 8 is a portable electronic device that comprises a one piece housing (shown in red below) forming enclosed exterior lateral sides and a rear side (shown in blue, below). 
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(a) a one piece housing forming enclosed exterior lateral sides and a rear side;	Each of the '602 Patent DI Devices includes a one piece housing forming enclosed exterior lateral sides and a rear side. For example, as shown below, the representative Microsoft Surface Pro 4 has a one piece housing that forms enclosed exterior lateral sides (identified by the red arrows below) and a rear side (outlined in green below).  (See, e.g., Ex. 67, TechInsights Microsoft Surface Pro 4 Teardown (“Surface Pro 4 Report”) at 10.)
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78. The iPad form factor is, in many respects, a large (scaled up) iPhone. Patent Owner alleged that the iPhone form factor infringes the '602 patent and satisfies limitation [1a]. Ex-1016 (Nokia’s Infringement Contentions

– iPhone 6s), 000003; Ex-1017 (Nokia’s Infringement Contentions – iPhone 7), 000003.

79. Therefore, McClure-997 teaches limitations [1a] and [22a].

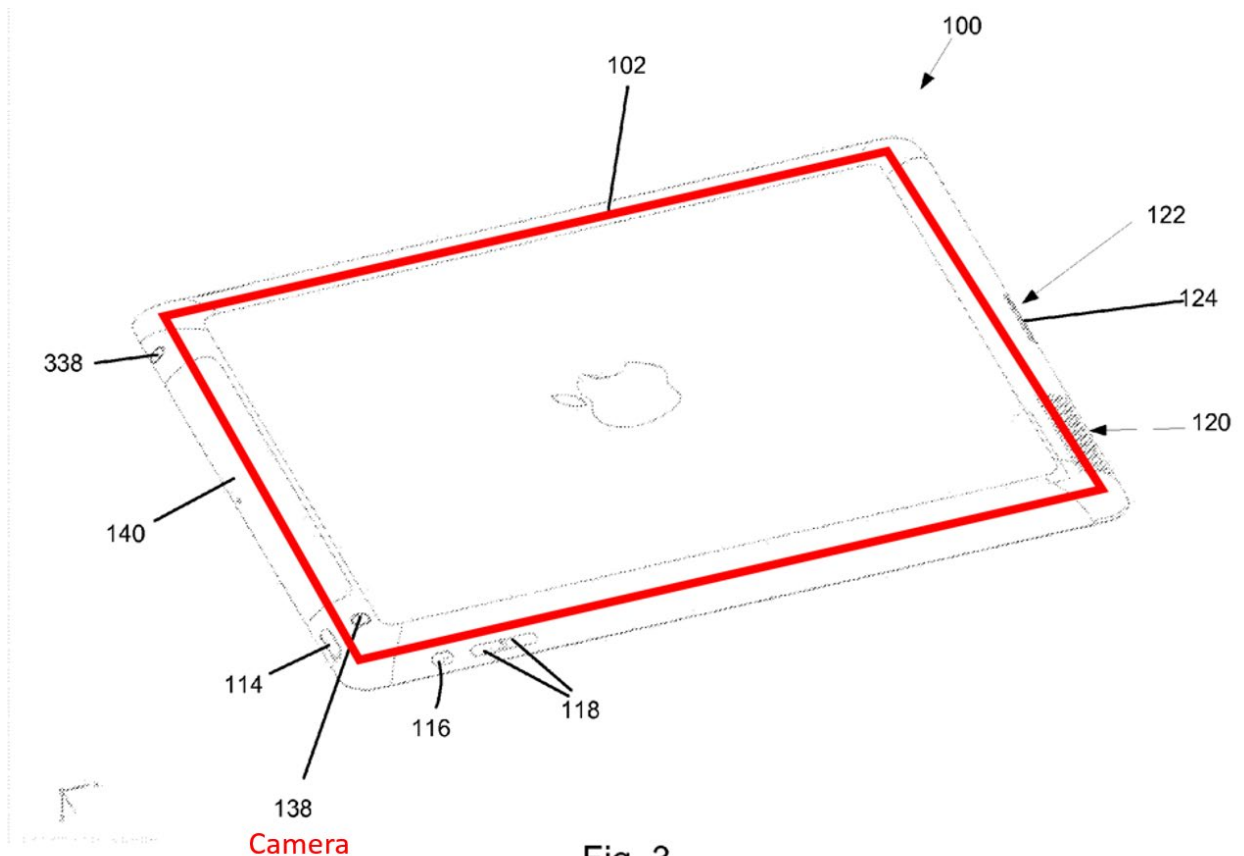
Ground 2: McClure-997 with McClure-998

80. McClure-998 provides similar teachings as those explained above for McClure-997. *See, e.g.*, Ex-1005 (McClure-998), Abstract, ¶¶10-11, ¶33, ¶¶51-53, Figs. 1A-B, 2. Therefore, the combination of McClure-997 and McClure-998 teaches limitations [1a] and [22a] as explained above. *See* Section V.A.

[1b/22b] a cut out in the rear side of said housing;
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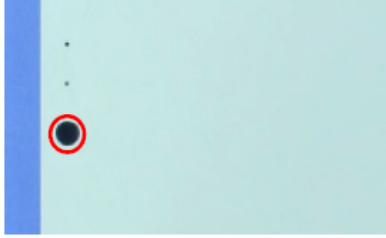
Ground 1: McClure-997

81. McClure-997 teaches **a cut out in the rear side of said housing**. For example, McClure-997 teaches that the metal housing of the iPad includes a cut out in the rear side, which is referred to as a camera window. Ex-1004 (McClure-997), ¶77, Fig. 3 (showing the rear camera window 138).



82. As shown by the annotated Figure 3 above, the red rectangle shows the rear side before the steeper portion of the curvature and the lateral sides. The portion within the red rectangle is shown as relatively flat. The camera window 138 is located within this flatter portion, and is depicted as being roughly parallel and in the same plane as the Apple logo on the rear side, as compared with power switch 114 or buttons 116 and 118, which are depicted at a roughly perpendicular angle relative to the logo. This is consistent with popular Apple products, which a POSITA would have been familiar with.

83. In prior and current litigation, Patent Owner asserted that a general tablet form factor infringes the '602 patent and satisfies limitation [1b]. Ex-1019 (ITC 337-TA-1038 Nokia's Infringement Contentions – Surface Pro), 000003-4; Ex-1022 (D. Del. 1:23-cv-01232 Nokia's Infringement Contentions – Kindle Fire), 000004; *see also* Ex-1018 (ITC 337-TA-1038 Nokia's Infringement Contentions – Galaxy Tab), 000003-4.

(b) a cut out in the rear side of said housing;	Each of the '602 Patent DI Devices includes a cut out in the rear side of said housing. For example, the representative Microsoft Surface Pro 4 includes a cut out in the rear of the housing, as shown below.
	 (See, e.g., Surface Pro 4 Report at 14.)

[B] a cut out in the rear side of said housing; a camera located in said housing and extending to said cut out at said rear side;	Each of the Accused Products, such as the Fire HD 8, includes “a cut out in the rear side of said housing; a camera located in said housing and extending to said cut out at said rear side.” For example, and without limitation, the Fire HD 8 includes a cut out in the rear side of said housing (shown in blue, below), with a camera located in the housing and extending to the cut out at the rear side (shown with red arrow, below). 
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84. The iPad form factor is, in many respects, a large (scaled up) iPhone. Patent Owner alleged that the iPhone form factor infringes the '602 patent and satisfies limitation [1b]. Ex-1016 (ITC 337-TA-1038 Nokia's Infringement Contentions – iPhone 6s), 000003-4; Ex-1017 (ITC 337-TA-1038 Nokia's Infringement Contentions – iPhone 7), 000003-4.

85. Therefore, McClure-997 teaches limitations [1b] and [22b].

Ground 2: McClure-997 with McClure-998

86. McClure-998 provides similar teachings as those explained above for McClure-997. *See, e.g.*, Ex-1005 (McClure-998), ¶43, ¶54, Fig. 2.

McClure-998 specifically teaches that “[c]loser to the substantially flat portion of the housing 144, opening 138 is provided for a rear facing image capture device.”). Therefore, the combination of McClure-997 and McClure-998 teaches limitations [1b] and [22b] as explained above. *See* Section V.A.

[1c/22c] a camera located in said housing and extending to said cut out at said rear side;
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Ground 1: McClure-997

87. McClure-997 teaches **a camera located in said housing and extending to said cut out at said rear side**. For example, McClure-997 teaches a camera located in the housing, extending to the back (rear-side) of the housing. Ex-1004 (McClure-997), ¶77 (“In some embodiments, portable computing device 100 can include a camera module 134 configured to provide still and video images. The placement may be widely varied and may include one or more locations, including for example front and back of the device, i.e., one through the back housing, the other through the display window.”), Fig. 3.

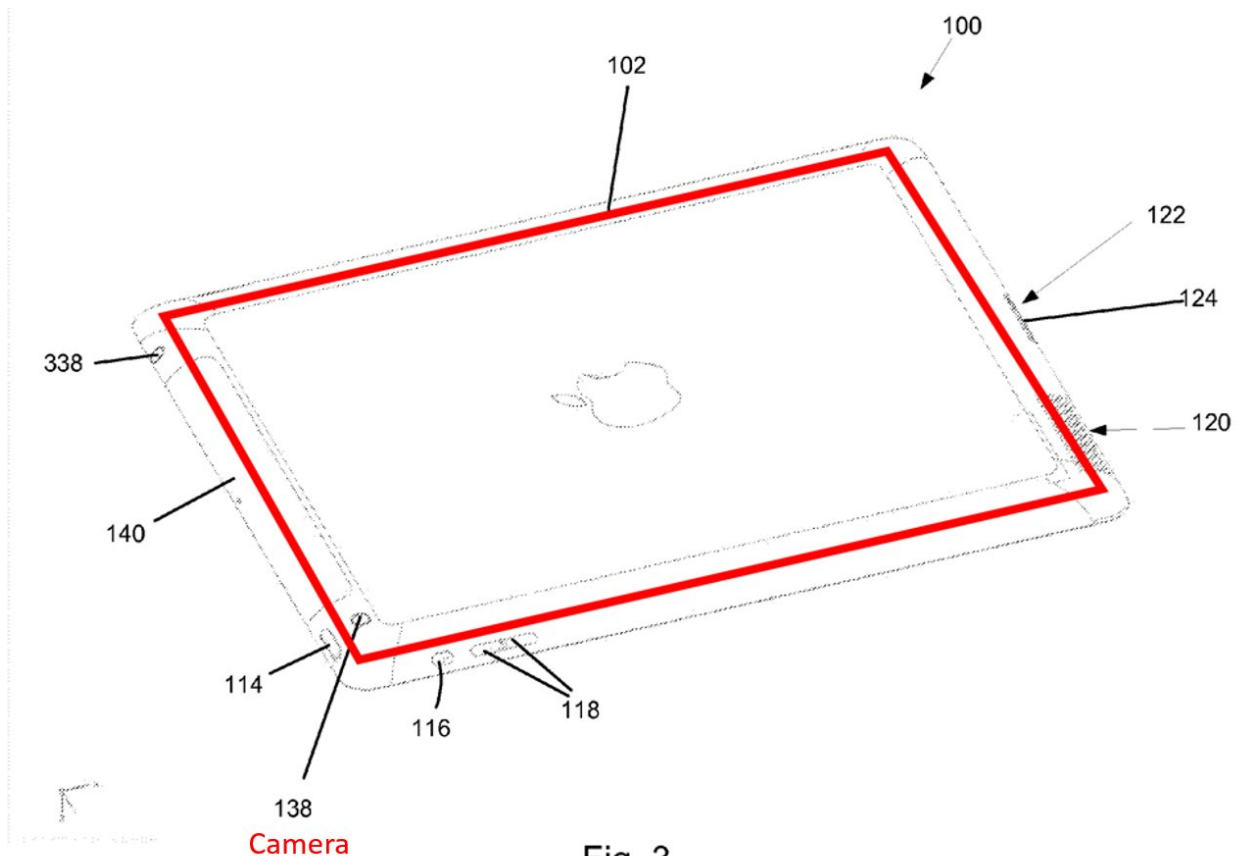


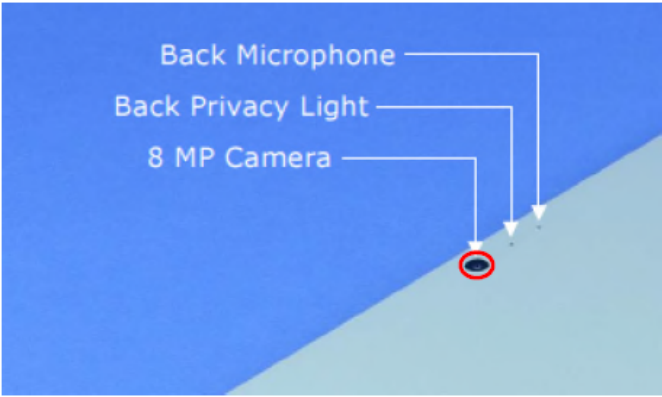
Fig. 3

88. Figure 3 shows the rear surface of the housing. Ex-1004 (McClure-997), Fig. 3. McClure-997 teaches a backwards-facing camera located inside the housing, pointing through an opening in the rear surface of the housing. Ex-1004 (McClure-997), ¶77. Therefore, the camera extends to the cutout at said rear side of the housing. Ex-1004 (McClure-997), ¶77; see Section V.A.3[1a/22a].

89. A POSITA would have been motivated to apply McClure-997's teachings for including a camera to iPad/iPhone form factors because, by the 2013 timeframe, cameras had become a standard feature of tablets, mobile

phones, and similar portable electronic devices. Ex-1004 (McClure-997), ¶77. By 2013, most tablets and smart phones included a backwards-facing camera, as taught by McClure-997, for taking pictures in that direction while the user could see what the camera was seeing on the screen.

90. In prior and current litigation, Patent Owner asserted that a general tablet form factor infringes the '602 patent and satisfies limitation [1c]. According to Patent Owner's contentions, limitations [1c] and [22c] are satisfied by a camera that points through an opening in the rear side of the housing. Ex-1019 (ITC 337-TA-1038 Nokia's Infringement Contentions – Surface Pro), 000004-5; Ex-1022 (D. Del. 1:23-cv-01232 Nokia's Infringement Contentions – Kindle Fire), 000004; *see also* Ex-1018 (ITC 337-TA-1038 Nokia's Infringement Contentions – Galaxy Tab), 000004-5.

(c) a camera located in said housing and extending to said cut out at said rear side;	Each of the '602 Patent DI Devices includes a camera located in said housing and extending to said cut out at said rear side. For example, in the representative Microsoft Surface Pro 4, a camera is located in the housing and extends to the cut out at the rear side of the housing, as shown below.  The diagram shows a blue rectangular area representing the rear housing of a device, with a light blue diagonal section at the bottom right representing the cutout. Three labels with arrows point to the cutout area: 'Back Microphone' (top arrow), 'Back Privacy Light' (middle arrow), and '8 MP Camera' (bottom arrow). A red circle highlights the camera's position within the cutout.
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[B] a cut out in the rear side of said housing; a camera located in said housing and extending to said cut out at said rear side;	Each of the Accused Products, such as the Fire HD 8, includes “a cut out in the rear side of said housing; a camera located in said housing and extending to said cut out at said rear side.” For example, and without limitation, the Fire HD 8 includes a cut out in the rear side of said housing (shown in blue, below), with a camera located in the housing and extending to the cut out at the rear side (shown with red arrow, below). 
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91. The iPad form factor is, in many respects, a large (scaled up) iPhone. Patent Owner alleged that the iPhone form factor infringes the '602 patent and satisfies limitation [1c]. Ex-1016 (ITC 337-TA-1038 Nokia's Infringement Contentions – iPhone 6s), 000004-6; Ex-1017 (ITC 337-TA-1038 Nokia's Infringement Contentions – iPhone 7), 000004-6.

92. Therefore, McClure-997 teaches limitations [1c] and [22c].

Ground 2: McClure-997 with McClure-998

93. McClure-998 provides similar teachings as those explained above for McClure-997. Ex-1005 (McClure-998), ¶54, ¶43, Fig. 2. Therefore, the

combination of McClure-997 and McClure-998 teaches limitations [1c] and [22c] as explained above. *See* Section V.A.

[1d/22d] an engine section comprising a printed circuit board, a transceiver, a processor and a memory;

Ground 1: McClure-997

94. McClure-997 teaches **an engine section comprising a printed circuit board, a processor and a memory**. For example, McClure-997 teaches a “main logic board (MLB)” with integrated circuits mounted on the board. Ex-1004 (McClure-997), ¶¶38-39, ¶61. A POSITA would have known that the main logic board would include a printed circuit board. The integrated circuits mounted on the board include at least a processor and a memory. Ex-1004 (McClure-997), ¶39 (“The integrated circuits can take the form of chips, chip sets, or modules, any of which can be surface mounted to a printed circuit board (PCB) or other support structure. For example, a main logic board (MLB) can have integrated circuits mounted thereon that can include at least a microprocessor, semi-conductor (such as FLASH) memory, various support circuits and so on.”).

95. **Transceiver**. McClure-997 further teaches that the portable computing device includes a wireless transceiver. Ex-1004 (McClure-997), ¶44 (“Portable computing device 100 can include a mechanism for *wireless*

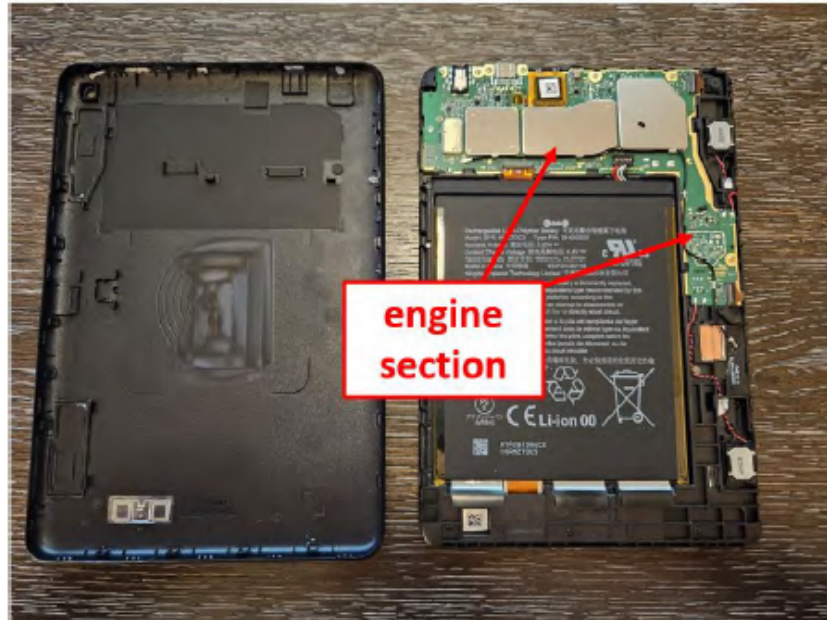
communications, as either a *transceiver* type device or receiver only, such as a radio.”). Therefore, McClure-997 teaches a circuitry (engine section) comprising a printed circuit board, a transceiver, a processor and a memory. Moreover, in the 2013 timeframe, it was typical for tablet devices to have electrical components such as processor, memory and transceiver mounted on the printed circuit board to perform the basic operation of a tablet.

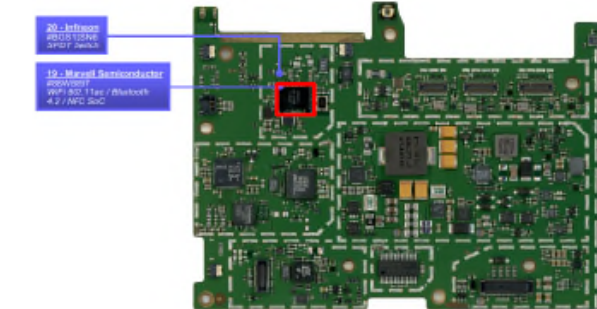
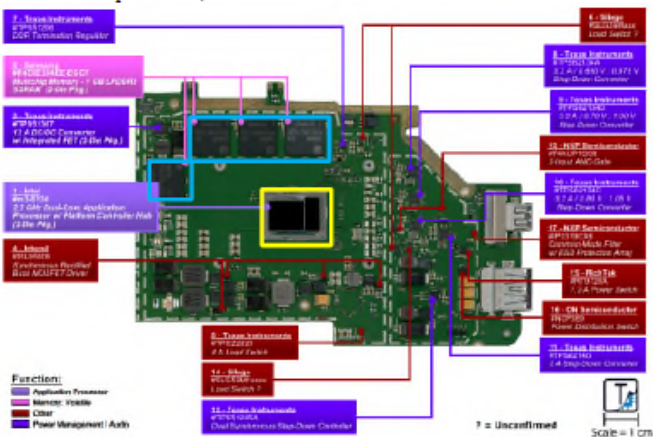
96. In prior and current litigation, Patent Owner asserted that a general tablet form factor infringes the '602 patent and satisfies limitation [1d]. Ex-1019 (ITC 337-TA-1038 Nokia's Infringement Contentions – Surface Pro), 000005-8; Ex-1022 (D. Del. 1:23-cv-01232 Nokia's Infringement Contentions – Kindle Fire), 000005; *see also* Ex-1018 (ITC 337-TA-1038 Nokia's Infringement Contentions – Galaxy Tab), 000005-8.

[C] an engine section comprising a printed circuit board, a transceiver, a processor and a memory;

Each of the Accused Products, such as the Fire HD 8, includes “an engine section comprising a printed circuit board, a transceiver, a processor and a memory.”

For example, and without limitation, the Fire HD 8 includes an engine section comprising a printed circuit board, a transceiver, a processor, and a memory (shown in red, below).



(d) an engine section comprising a printed circuit board, a transceiver, a processor and a memory;	Each of the '602 Patent DI Devices includes an engine section comprising a printed circuit board, a transceiver, a processor and a memory. For example, the representative Microsoft Surface Pro 4 contains an engine section comprising a printed circuit board (outlined in pink below).  (See, e.g., Surface Pro 4 Report at 24.) The printed circuit board contains a transceiver (outlined in red below), a processor (outlined in yellow below), and a memory (outlined in light blue below).  (See, e.g., Surface Pro 4 Report at 77.) 
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97. The iPad form factor is, in many respects, a large (scaled up) iPhone. Patent Owner alleged that the iPhone form factor infringes the '602 patent and satisfies limitation [1d]. Ex-1016 (ITC 337-TA-1038 Nokia's Infringement Contentions – iPhone 6s), 000007-10; Ex-1017 (ITC 337-TA-1038 Nokia's Infringement Contentions – iPhone 7), 000007-9.

98. Therefore, McClure-997 teaches limitations [1d] and [22d].

Ground 2: McClure-997 with McClure-998

99. McClure-998 provides similar teachings as those explained above for McClure-997. Ex-1005 (McClure-998), ¶39, ¶¶103-104, ¶114, ¶44.

100. As explained above, McClure-997 teaches the integrated circuits mounted on the printed circuit board, which includes at least a processor and a memory. McClure-998 provides additional teachings that supplement McClure-997's teachings. For example, similarly to McClure-997, McClure-998 teaches that various integrated circuit chips and other circuitry are mounted on a printed circuit board. Ex-1005 (McClure-998), ¶39. McClure-998 further teaches circuitry including a processor, memory, and an interface. Ex-1005 (McClure-998), ¶30, ¶111, Fig. 11. The interface includes a wireless transceiver. Ex-1005 (McClure-998), ¶119 ("The electronic device 950 can include an interface 961 that couples to a data link 962. The data link 962

allows the electronic device 950 to couple to a host computer or to accessory devices. The data link 962 can be provided over a wired connection or a wireless connection. In the case of a wireless connection, the interface 961 can include a wireless transceiver.”).

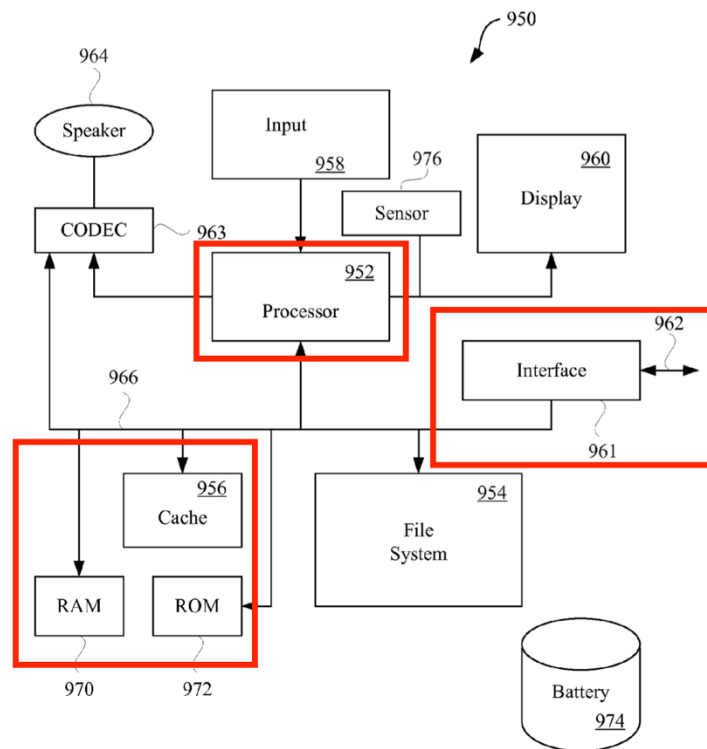


Fig. 11

101. A POSITA would have been motivated to combine McClure-998’s teachings regarding integrated circuit chips and other circuitry are mounted on a printed circuit board with McClure-997’s teachings because McClure-998 merely provides additional details regarding the elements taught by McClure-

997. Therefore, the combination of McClure-997 and McClure-998 teaches limitations [1d] and [22d]. *See* Section V.A.

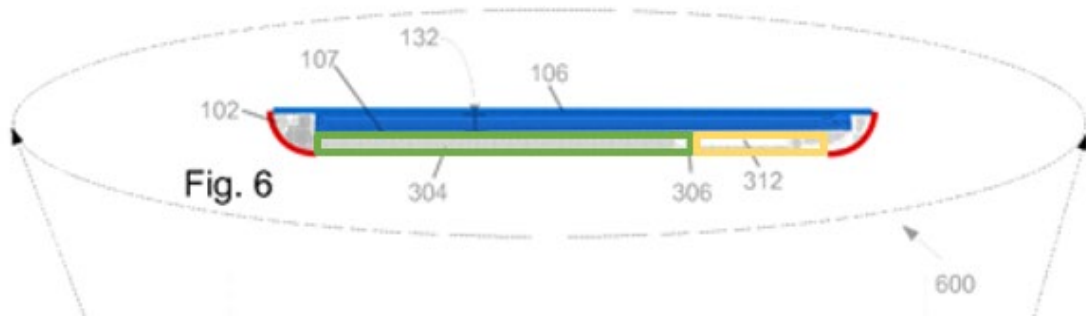
[1e/22e] a user input section located above the engine section and a battery, wherein the user input section is located adjacent the battery and the engine section;

Ground 1: McClure-997

102. McClure-997 teaches **a user input section located above the engine section and a battery**, including for example, “user input section” such as a “display system” with touch-sensitive capabilities. Ex-1004 (McClure-997), ¶40 (“In some embodiments, the display system can include touch sensitive capabilities providing the user with the ability to provide tactile inputs to portable computing device 100 using touch inputs.”), ¶¶67-68, ¶38. A POSITA would have been motivated to apply McClure’s teachings of a touch-sensitive display system because, by 2013, touch-sensitive displays were expected by tablet consumers and regarded as a basic feature for tablets, including iPads.

103. The display system of McClure-997 is located above the engine section and a battery. Ex-1004 (McClure-997), ¶¶66-67 (“As shown in FIGS. 6 and 7, the components, including the battery cells 304 and the MLB 312, under the display 132 are substantially in the same plane.”), ¶¶40-41, ¶47, ¶¶14-15,

Figs. 1-2, 4-8. Fig. 6 reproduced below shows the display system 132 (highlighted in blue) above the battery cells 304 (highlighted in green) and engine section 312 (highlighted in yellow).



104. McClure-997 further teaches that **the user input section is located adjacent the battery and the engine section**. As discussed above, McClure-997 teaches that the user input is located above the battery and the engine section. The battery and the engine section of McClure-997 are located side-by-side in the housing underneath the touchscreen display. Ex-1004 (McClure-997), ¶¶58-59 (“The operational components are organized substantially in a single layer to minimize the Z stack height of the portable computing device 100. Thus, most of the internal components of the portable computing device 100 are substantially in a single plane.”), ¶47, ¶¶53-54, ¶56, ¶¶66-68, ¶¶14-15, ¶38, ¶¶40-41, ¶61, ¶64, Figs. 1-2, 4-8. McClure-997 teaches that the display assembly is directly above the battery, which is in the same plane as the engine section, with nothing in-between: McClure-997 leaves a swell gap in the space

above the battery (between the top surfaces of the battery and the bottom surface of the display assembly) to allow for potential battery swelling. Ex-1004 (McClure-997), ¶55. The display assembly is therefore adjacent to the battery and the engine section. *See* Ex-1004 (McClure-997), ¶55.

105. To the extent the Patent Owner argues that this limitation requires that the user input section is located “next to”¹¹ the battery and the engine section, McClure-997 teaches this because its display assembly is located directly above the battery and the engine section. The display assembly is therefore next to the battery and engine section, with nothing in between.

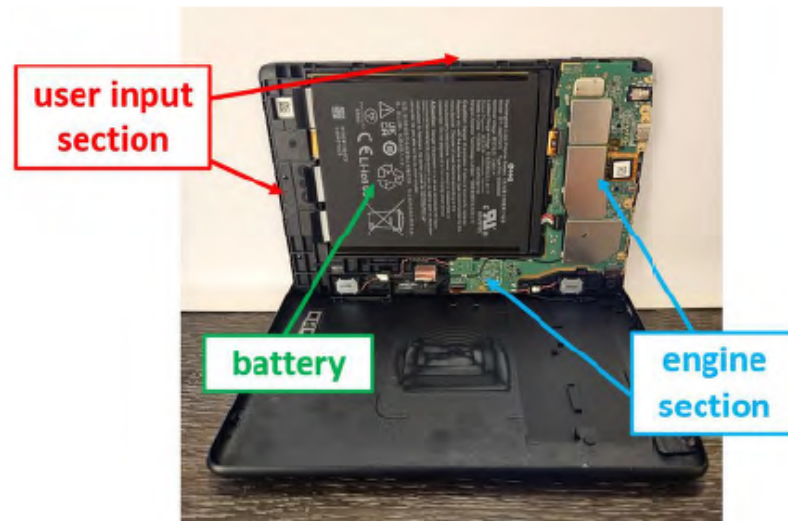
106. In prior and current litigation, Patent Owner asserted that a general tablet form factor infringes the ’602 patent and satisfies limitation [1e], by pointing to a touch display above a battery, which is in the same plane as the alleged engine section. Ex-1019 (ITC 337-TA-1038 Nokia’s Infringement Contentions – Surface Pro), 000008-10; Ex-1022 (D. Del. 1:23-cv-01232 Nokia’s Infringement Contentions – Kindle Fire), 000006; *see also* Ex-1018 (ITC 337-TA-1038 Nokia’s Infringement Contentions – Galaxy Tab), 000008-9.

¹¹ Nokia proposed a construction along these lines in prior litigation of the parent ’824 patent for the term “adjacent” in different claims. Ex-1023, 000100-103.

[D] a user input section located above the engine section and a battery, wherein the user input section is located adjacent the battery and the engine section;

Each of the Accused Products, such as the Fire HD 8, includes “a user input section located above the engine section and a battery, wherein the user input section is located adjacent the battery and the engine section.”

For example, and without limitation, the Fire HD 8 includes a user input section located above the engine section and a battery (shown with red arrows, below). The user input section is located adjacent the battery (shown with a green arrow, below) and the engine section (shown in blue, below).



(e) a user input section located above the engine section and a battery, wherein the user input section is located adjacent the battery and the engine section;	Each of the '602 Patent DI Devices includes a user input section located above the engine section and a battery, wherein the user input section is located adjacent the battery and the engine section. For example, the representative Microsoft Surface Pro 4 has a touch display, as shown below.
	 (See, e.g., Surface Pro 4 Report at 1.) When the touch display is removed, as shown below, it can be seen that the battery (outlined in yellow below) and the engine section (outlined in pink below) are directly beneath and adjacent to the touch display.
	 (See, e.g., Surface Pro 4 Report at 24.)

107. The iPad form factor is, in many respects, a large (scaled up) iPhone. Patent Owner alleged that the iPhone form factor infringes the '602 patent and satisfies limitation [1e]. Ex-1016 (ITC 337-TA-1038 Nokia's Infringement Contentions – iPhone 6s), 000010-11; Ex-1017 (ITC 337-TA-1038 Nokia's Infringement Contentions – iPhone 7), 000008-9.

108. Therefore, McClure-997 teaches limitations [1e] and [22e].

Ground 2: McClure-997 with McClure-998

109. McClure-998 provides similar teachings as those explained above for McClure-997. *See, e.g.*, Ex-1005 (McClure-998), ¶¶114-115, ¶61, ¶40, Figs. 1A-B, 3A-B. Therefore, the combination of McClure-997 and McClure-998 teaches limitations [1e] and [22e]. *See* Section V.A.3.

- [1f] **wherein the battery and engine section are housed in the housing and the user input is located in an opening between said exterior lateral sides of said one piece housing of the portable electronic device.**
- [22f] **wherein the battery and engine section are housed in the housing and the user input is located in an opening between said exterior lateral sides of said one piece housing of the mobile phone.**

110. Limitation [22f] is identical to [1f], except that it recites “the mobile phone” rather than “the portable electronic device.” Both limitations are taught by Grounds 1 and 2.

Ground 1: McClure-997

111. McClure-997 teaches a portable electronic device in which **the battery** (highlighted in green) **and engine section** (highlighted in yellow) **are housed in the housing**. *See* Sections V.A.4[1d]-[1e]; Ex-1004 (McClure-997), ¶47, ¶50, ¶¶53-56, ¶¶58-61, ¶¶14-15, ¶¶66-67, Figs. 1-2, 4-8.

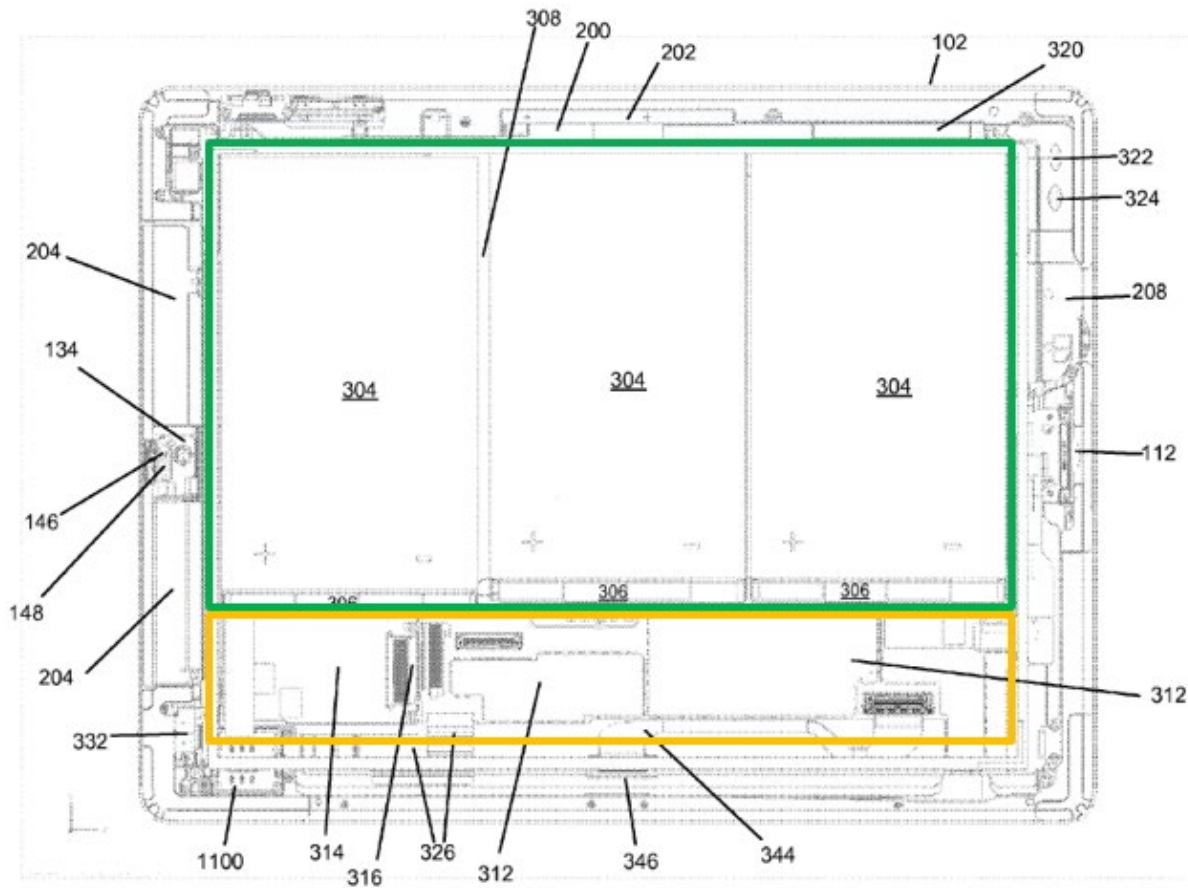
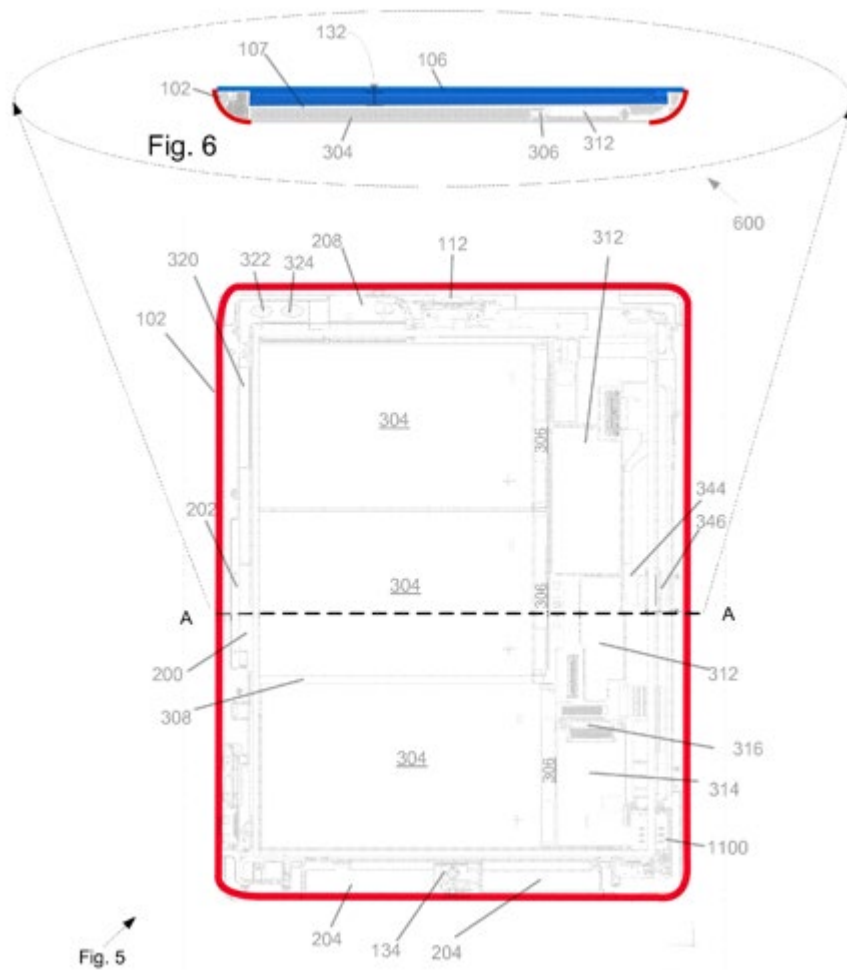


Fig. 5

112. McClure-997 further teaches that **the user input** (e.g., a touchscreen display assembly) **is located in an opening between exterior lateral sides of the one piece housing of the portable electronic device.** *See* Section V.A.4[1e/22e]; Ex-1004 (McClure-997), ¶40 (“Housing 102 can include opening 104 for placing internal components therein and may be sized to accommodate a display assembly or system suitable for providing a user with at least visual content, such as, for example, via a display. In some embodiments, the display system can include touch sensitive capabilities

providing the user with the ability to provide tactile inputs to portable computing device 100 using touch inputs.”), ¶47, ¶50, ¶¶53-56, ¶¶58-61, ¶¶66-67, ¶¶14-15, Figs. 1-2, 4-8. As I have highlighted below, McClure’s user input (highlighted in blue) is located in an opening in the housing between the exterior lateral sides of the housing (highlighted in red). Ex-1004 (McClure-997), ¶40, ¶47, ¶50, ¶¶53-56, ¶¶58-61, ¶¶66-67, ¶¶14-15, Figs. 1-2, 4-8.

113. Below Fig. 5 and 6 show the battery 304 and the engine 312 housed in the housing and the touchscreen display (highlighted in blue) located in an opening and between the exterior lateral sides (highlighted in red) of the one-piece housing.



114. The housing of the portable electronic device or mobile phone is a one-piece housing, as explained above. *See* Section V.A.3[1a/22a].

115. To the extent the Patent Owner argues that this limitation requires that the “user input is located in a hollow place in the housing,”¹² McClure-997 teaches this. For example, McClure-997 teaches that the user input is located in

¹² Nokia proposed a construction along these lines in prior litigation of the parent ’824 patent for the term “user input is located in a hole” in different claims. Ex-1023, 000095-100.

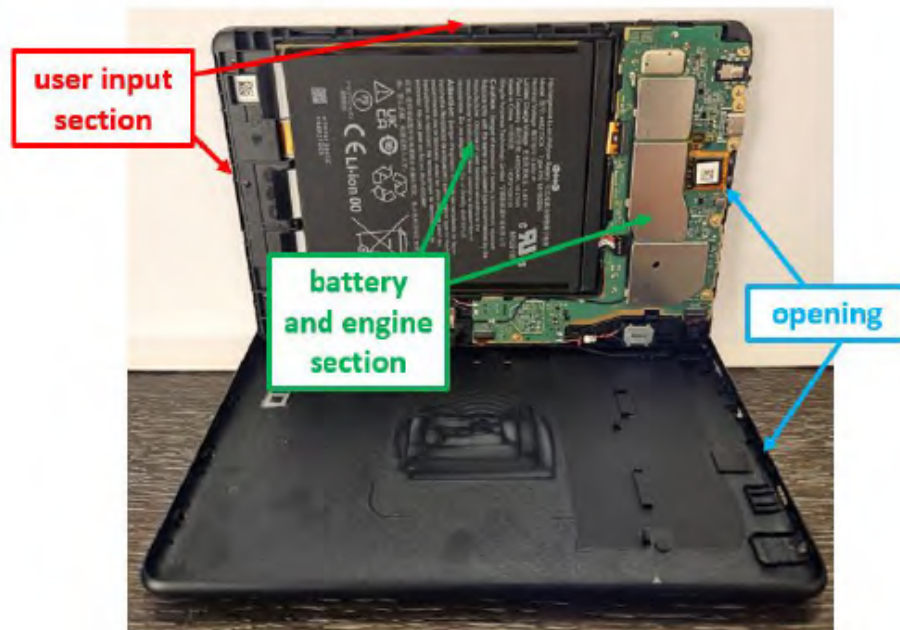
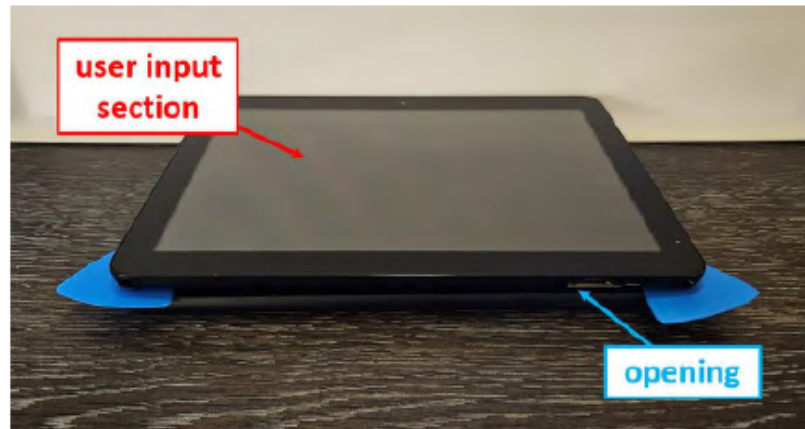
the hollow place in the housing. Ex-1004 (McClure-997), Figs. 5-6 (showing the user input 132 located in the hollow opening in the housing such that it forms a continuous top surface with the protective layer 106 of the display assembly). McClure-997 explains that “[t]he display system 132 can be formed of a number of layers. A separate transparent protective layer 106 formed of polycarbonate or other appropriate plastic or highly polished glass can be positioned over the display system 132. Using highly polished glass, protective layer 106 substantially filling opening 104.” Ex-1004 (McClure-997), ¶41. The opening 104 is in the one-piece housing 102.

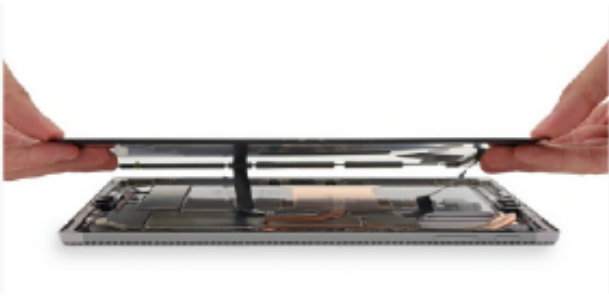
116. In prior and current litigation, Patent Owner asserted that a general tablet form factor infringes the ’602 patent and satisfies limitation [1f]. Ex-1019 (ITC 337-TA-1038 Nokia’s Infringement Contentions – Surface Pro), 000010-13; Ex-1022 (D. Del. 1:23-cv-01232 Nokia’s Infringement Contentions – Kindle Fire), 000007-8; *see also* Ex-1018 (ITC 337-TA-1038 Nokia’s Infringement Contentions – Galaxy Tab), 000009-13.

[E] wherein the battery and engine section are housed in the housing and the user input is located in an opening between said exterior lateral sides of said one piece housing of the portable electronic device.

Each of the Accused Products, such as the Fire HD 8, includes “wherein the battery and engine section are housed in the housing and the user input is located in an opening between said exterior lateral sides of said one piece housing of the portable electronic device.”

For example, and without limitation, the Fire HD 8 includes the battery and engine section are housed in the housing, as described with respect to element [1.D] above. The user input (shown with a red arrow, below) is located in an opening between said exterior lateral sides of said one piece housing of the portable electronic device (shown with a blue arrow, below).



(f) wherein the battery and engine section are housed in the housing and the user input is located in an opening between said exterior lateral sides of said one piece housing of the portable electronic device.	In each '602 Patent DI Device, the battery and engine section are housed in the housing and the user input is located in an opening between said exterior lateral sides of said one piece housing of the portable electronic device. For example, in the representative Microsoft Surface Pro 4, the battery (outlined in yellow below) and the engine section (outlined in pink below) are located within the housing.  (See, e.g., Surface Pro 4 Report at 24.) As can be seen in the pictures below, the touch display of the Surface Pro 4 is placed into the opening in the housing between the exterior lateral sides.  (See, e.g., Surface Pro 4 Report at 1.)  (See, e.g., Ex. 71, iFixit Microsoft Surface Pro 4 Teardown at 9.)
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117. The iPad form factor is, in many respects, a large (scaled up) iPhone. Patent Owner alleged that the iPhone form factor infringes the '602 patent and satisfies limitation [1f]. Ex-1016 (ITC 337-TA-1038 Nokia's

Infringement Contentions – iPhone 6s), 000011-14; Ex-1017 (ITC 337-TA-1038 Nokia’s Infringement Contentions – iPhone 7), 000010-12.

118. Therefore, McClure-997 teaches limitations [1f] and [22f].

Ground 2: McClure-997 with McClure-998

119. McClure-998 provides similar teachings as those explained above for McClure-997. *See, e.g.*, Ex-1005 (McClure-998), Figs. 1A-B, 3A-B, ¶¶39-40, ¶¶61-62, ¶¶103-104, ¶114. Therefore, the combination of McClure-997 and McClure-998 teaches limitations [1f] and [22f]. *See* Section V.A.

4. Dependent Claims 2, 23

120. It is my opinion that McClure-997 alone and further in view of McClure-998 renders Claims 2 and 23 obvious.

[2] A portable electronic device according to claim 1

[23] A mobile phone according to claim 22

wherein said one piece housing has a front side extending from and between the lateral sides.

121. McClure-997 alone and further in view of McClure-998 teaches the portable electronic device according to claim 1 and the mobile phone according to claim 22. *See* Section V.A.3. McClure-997 alone and further in view of McClure-998 further teaches the additional limitation of claims 2 and 23.

Ground 1: McClure-997

122. McClure-997 teaches that **one piece housing has a front side extending from and between the lateral sides**. For example, the iPad form factor taught by McClure-997 includes a racetrack that defines the uppermost portion of the housing and surrounds the cover glass layer of the display assembly. Ex-1004 (McClure-997), ¶42 (“In this embodiment, racetrack 110 can be defined as the uppermost portion of the housing 102 that surrounds cover glass layer 106.”). That is, racetrack 110 of McClure-997 forms the lip of the one-piece housing. The lip of the housing teaches a front side of the housing that extends from and between the lateral sides. For example, when viewed from the front, the racetrack 110 forming the lip of the housing forms a front side extending from and between the lateral sides. Ex-1004 (McClure-997), Figs. 1-2 (showing the racetrack 110 annotated in yellow surrounding the front, and extending from and between the lateral sides).

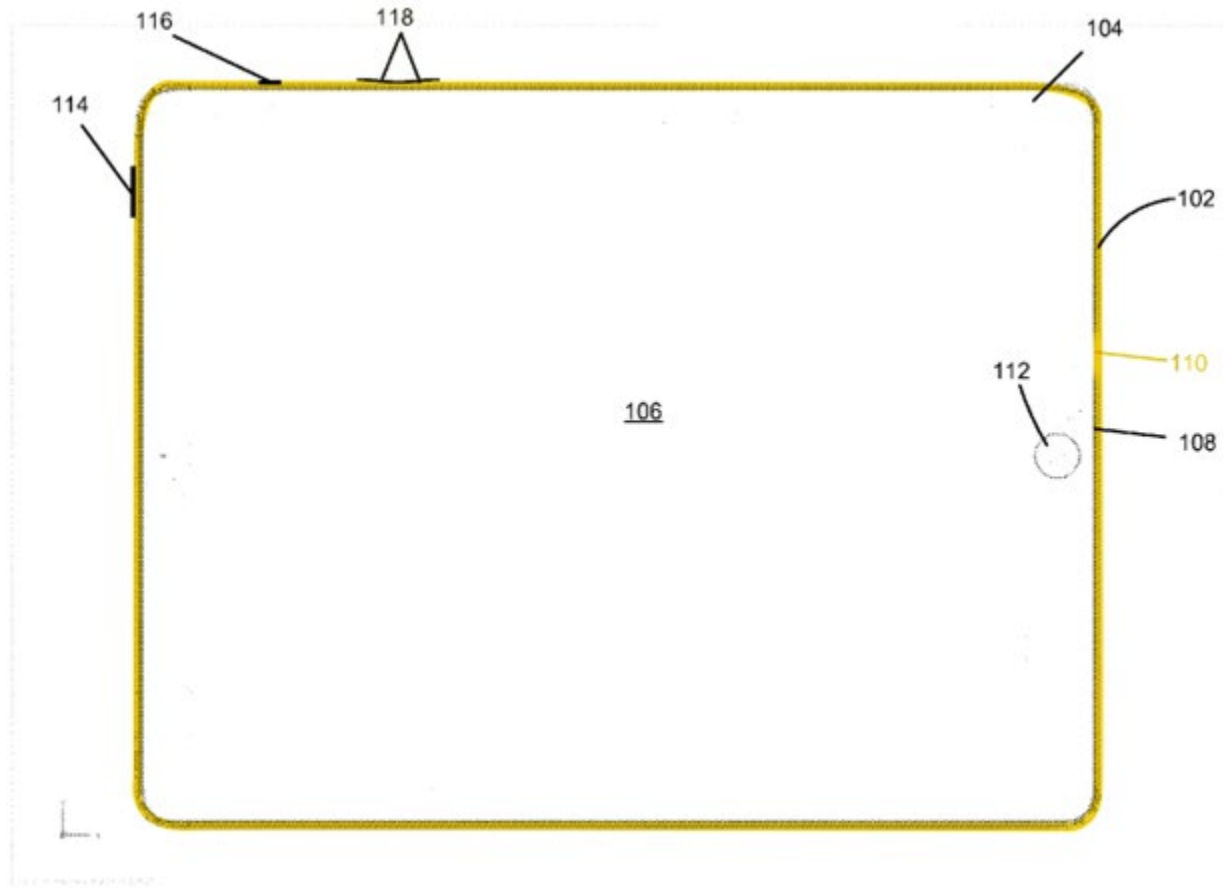


Fig. 1

123. McClure-997 further teaches ledges 156. Ex-1004 (McClure-997), ¶47, ¶67, Fig. 4. As shown in Fig. 4 (reproduced below), ledge 156 forms front side of the one-piece housing.

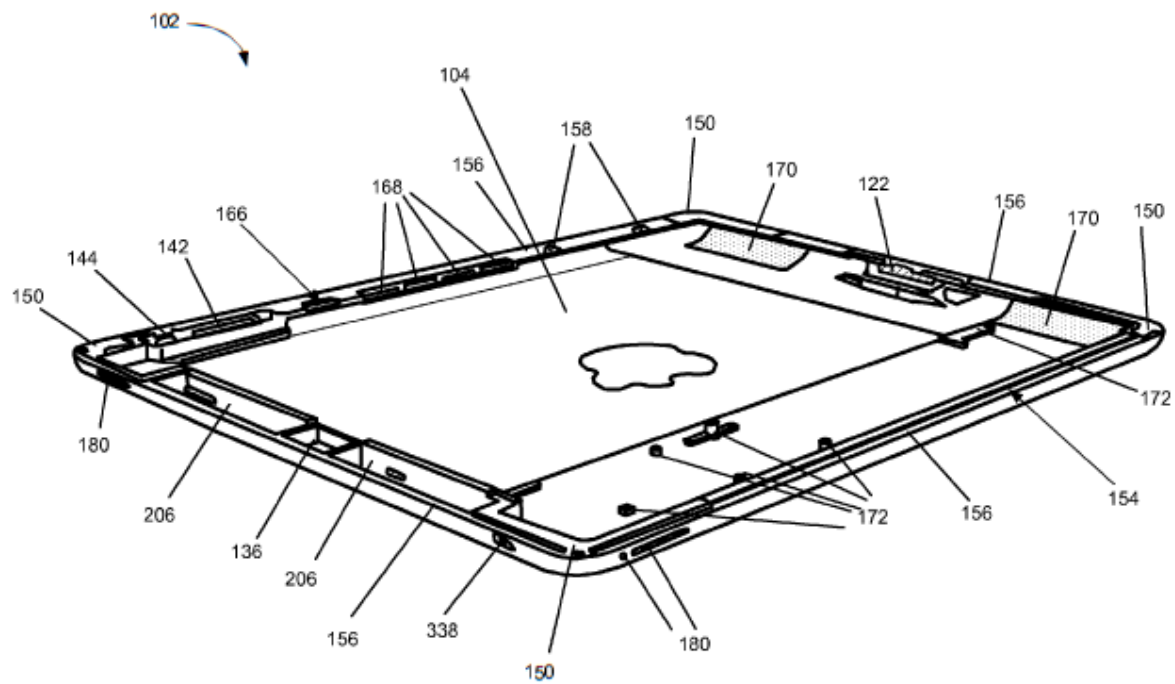


Fig. 4

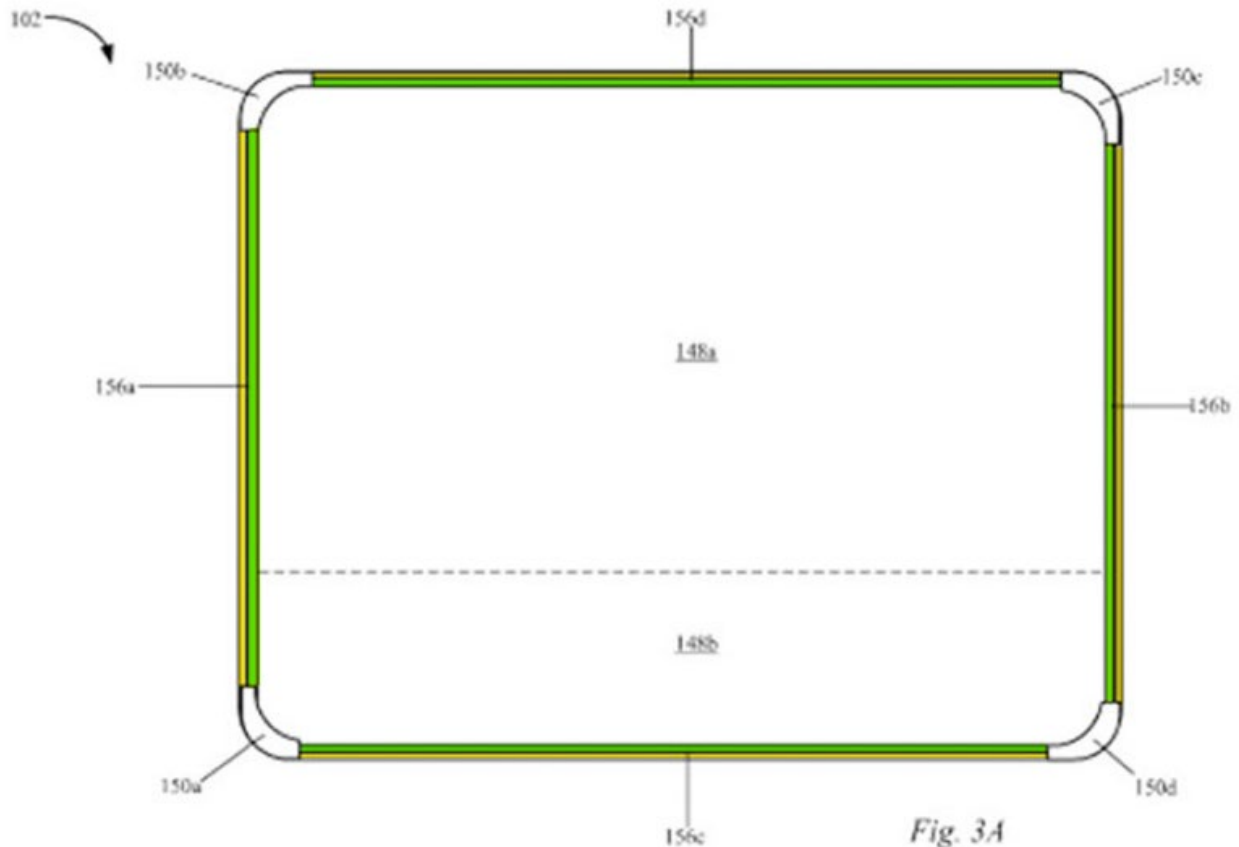
124. Therefore, McClure-997 teaches these claims.

Ground 2: McClure-997 with McClure-998

125. McClure-998 provides similar teachings as those explained above for McClure-997. *See, e.g.*, Ex-1005 (McClure-998), Figs. 1A-B.

126. As discussed above, McClure-997 teaches racetrack and ledge forming the front side of the housing. McClure-998 provides additional teachings that supplement McClure-997's teachings. For example, McClure-998 teaches sidewalls that extend from the lateral sides, forming ledges that extend into the center of the cavity of the sidewalls. Ex-1005 (McClure-998), ¶¶58-59, ¶68, ¶70, ¶72, ¶89, ¶105, Figs. 3A-B, 5A. The ledges 156a-d of

McClure-998 has a width such that when viewed from the front, the ledges (annotated in green) form a surface that extends inwardly toward the center of the cavity from the sidewalls (annotated in yellow). Ex-1005 (McClure-998), ¶¶58-59, ¶68, ¶70, ¶72, ¶89, ¶105, Figs. 3A-B, 5A.



127. The surface formed of width of ledges 156a-d teaches a front surface that extends from and between the lateral sides. Therefore, McClure-998 teaches that the one-piece housing has a front side on the front faces of the ledges, which extend from and between the lateral sides. Ex-1005 (McClure-998), ¶¶58-59, ¶68, ¶70, ¶72, ¶89, ¶105, Figs. 3A-B, 5A.

128. Additionally, the size, shape and inclusion of a front side, e.g., through the use of such sidewalls, is a design choice made for primarily aesthetic, non-functional purposes. With or without a larger front face, the portable electronic device taught by McClure-997 and McClure-998 operates in substantially the same way, for substantially the same purpose, to produce substantially the same result, and therefore the choice of whether to include a larger front face and the dimensions of the front face are merely a choice of design. A POSITA would have been motivated to combine McClure-998's teachings with McClure-997's teachings because McClure-998 merely provides additional details regarding the element taught by McClure-997. Therefore, the combination of McClure-997 and McClure-998 teaches these claims. *See* Section V.A.

5. Dependent Claims 3, 24

129. It is my opinion that McClure-997 alone and further in view of McClure-998 renders Claims 3 and 24 obvious.

[3] A portable electronic device according to claim 2 [24] A mobile phone according to claim [23]¹³ wherein the front side extends parallel to the lateral edges.
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Ground 1: McClure-997

130. McClure-997 alone and further in view of McClure-998 teaches the portable electronic device according to claim 2 and the mobile phone according to claim 23. *See* Section V.A.4. I note that the phrase “lateral edges” does not have any antecedent basis because the phrase does not appear in claims 1, 2, 22 or 23 from which claims 3 and 24 depend. I understand “lateral edges” as the edges of the lateral sides recited in claims 1 and 22. McClure-997 alone and further in view of McClure-998 teaches the additional limitation of claims 3 and 24.

131. McClure-997 teaches that the front side (racetrack 110) extends parallel to the edges of the lateral sides. Ex-1004 (McClure-997), ¶42, Figs. 1-2 (showing the racetrack 110 extending parallel to the edges of the lateral sides).

¹³ Claim 24 contains a typographical error which omits the claim number from which the claim is dependent. I understand that claim 24 depends from claim 23 based on prosecution history of the '602 patent. *See* Ex-1002, 000696 (claim 48 in the application stage, which corresponds to claim 24 of the '602 patent as issued, depends from claim 47), 000733 (showing claim 47 in the application stage corresponds to claim 23 of the '602 patent as issued).

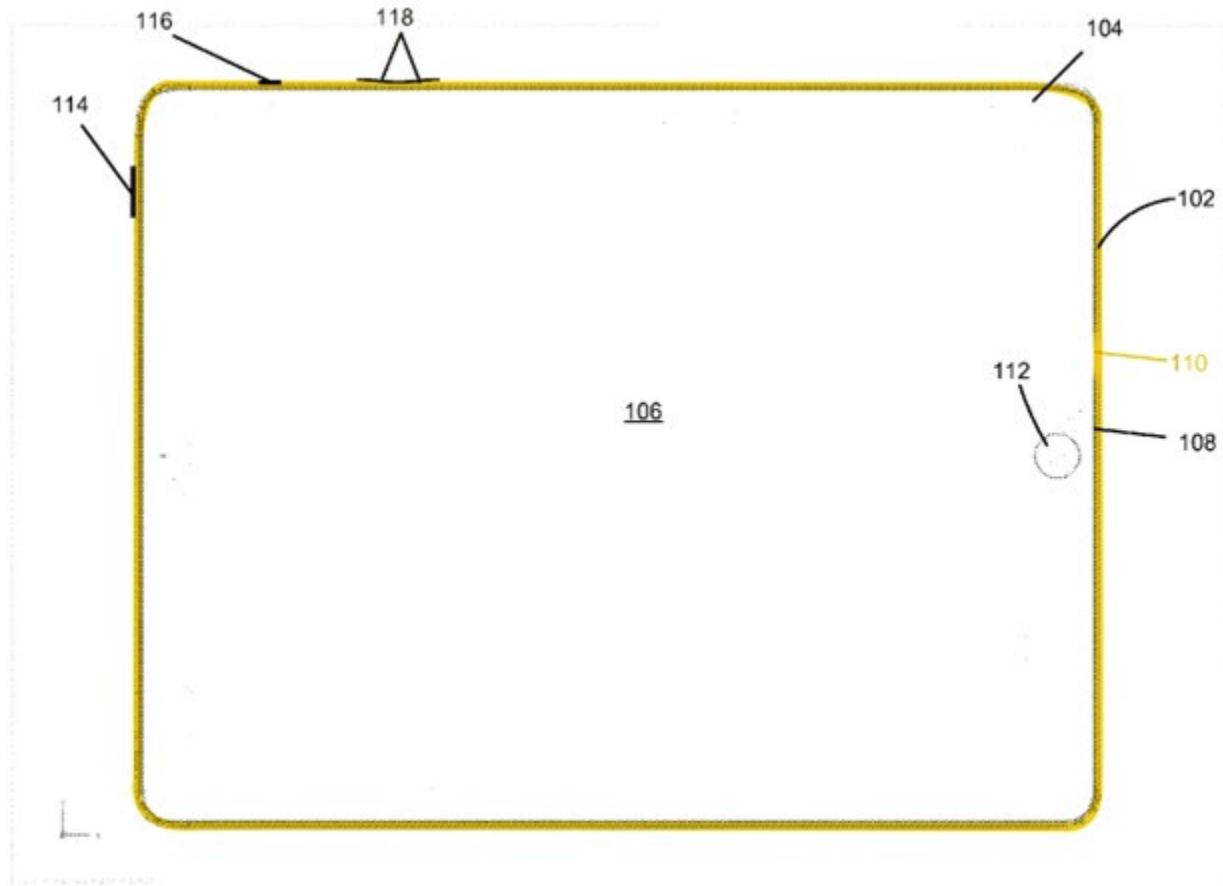


Fig. 1

132. Therefore, McClure-997 teaches these claims.

Ground 2: McClure-997 with McClure-998

133. McClure-998 provides similar teachings as those explained above for McClure-997. *See, e.g.*, Ex-1005 (McClure-998), Figs. 1A-B. In addition, McClure-998 provides teachings that supplement McClure-997 with descriptions of ledges that extend from the lateral sides and surround the touch screen display, as I explained above for claims 2 and 23. *See* Section V.A.4; Ex-1005 (McClure-998), ¶¶58-59, ¶68, ¶70, ¶72, ¶89, ¶105, Figs. 3A-B, 5A.

Therefore, since the ledges extend from the lateral sides along the edges to the display, they extend parallel to the lateral edges of the housing.

134. Therefore, the combination of McClure-997 and McClure-998 teaches these claims. *See* Section V.A.

6. Dependent Claims 4, 25

135. It is my opinion that McClure-997 alone and further in view of McClure-998 renders Claims 4 and 25 obvious.

[4] A portable electronic device according to claim 3

[25] A mobile phone according to claim 24

wherein the front side forms at least a side of the opening through which the input device is located.

136. McClure-997 alone and further in view of McClure-998 teaches the portable electronic device according to claim 3 and the mobile phone according to claim 24. *See* Section V.A.5.

137. I note that the phrase “the input device” does not have any antecedent basis because the phrase does not appear in claims 1-3 or 22-24 from which claims 4 and 25 depend. To the extent that this claim can be understood, I interpret the phrase to mean “the user input section” of claims 1 and 22. McClure-997 alone and further in view of McClure-998 further teaches the additional limitation of claims 4 and 25.

Ground 1: McClure-997

138. McClure-997 teaches that **the front side forms at least a side of the opening through which the input device is located.** For example, the iPad form factor disclosed by McClure-997 teaches a racetrack that defines the uppermost portion of the housing and surrounds the cover glass layer of the display assembly. Ex-1004 (McClure-997), ¶¶40-42, 47. When viewed from the front, the racetrack 110 forms at least a side of the opening 104 through which the touchscreen display (input device) is located. Ex-1004 (McClure-997), Figs. 1-2, 4 (showing racetrack 110 surrounding the front, forming at least a side of the opening through which the touchscreen display is located).

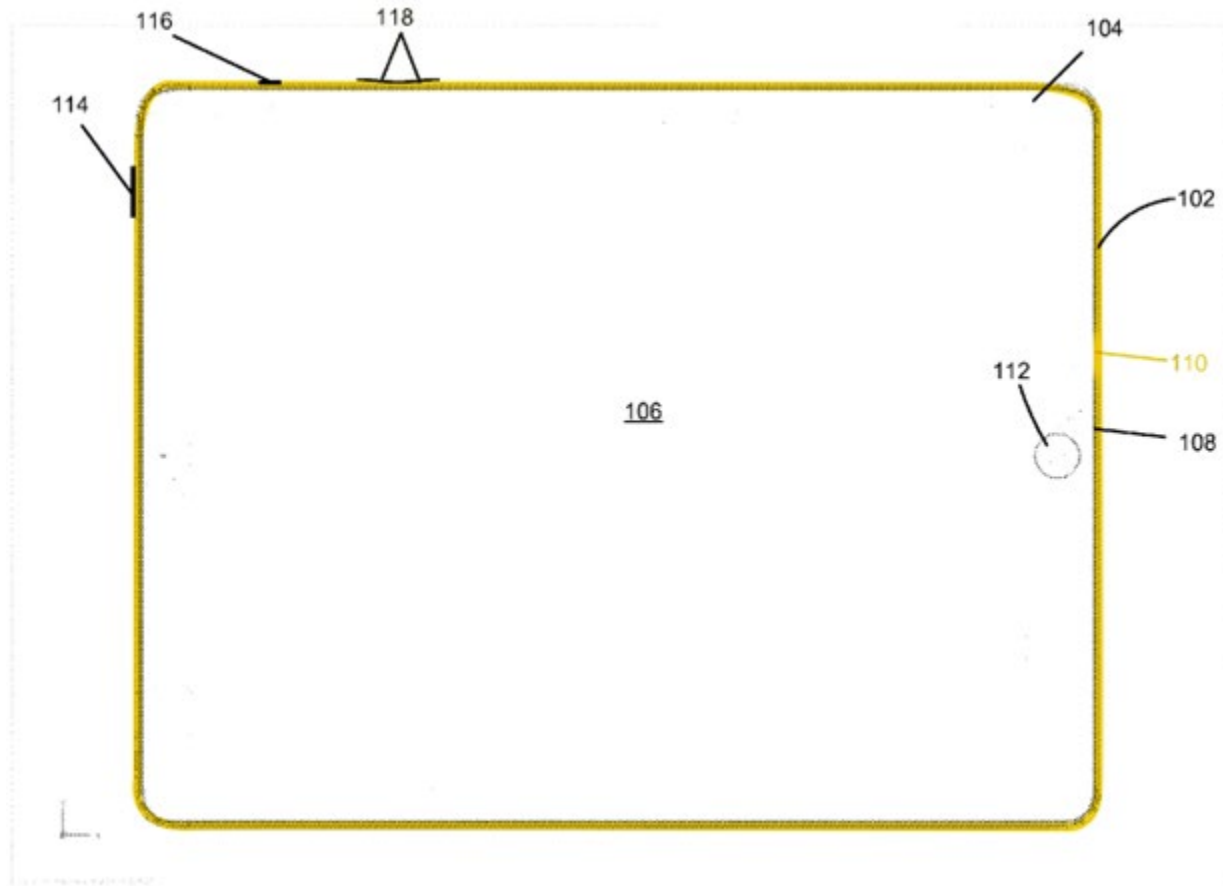


Fig. 1

139. Therefore, McClure-997 teaches these claims.

Ground 2: McClure-997 with McClure-998

140. McClure-998 provides similar teachings as those explained above for McClure-997. *See, e.g.*, Ex-1005 (McClure-998), Figs. 1A-B. In addition, McClure-998 provides teachings that supplement McClure-997 with descriptions of ledges that extend from the lateral sides and surround the touchscreen display, as I explained above for claims 2 and 23 and limitation [1e/22e]. *See* Sections V.A.3[1e/22e], V.A.4-5; Ex-1005 (McClure-998), ¶33,

¶40, ¶42, ¶58, ¶¶114-115, ¶61, Fig. 1A-B, 3A-B. Therefore, the combination of McClure-997 and McClure-998 teaches these claims because the ledges comprise a front side that forms a side of the opening through which the touchscreen display is located. *See* Section V.A.

7. Dependent Claims 5, 26

141. It is my opinion that McClure-997 alone and further in view of McClure-998 renders Claims 5 and 26 obvious.

[5] A portable electronic device according to claim 1

[26] A mobile phone according to claim 22

wherein the user input and a front side of the housing lie in a side by side arrangement.

142. McClure-997 alone and further in view of McClure-998 teaches the portable electronic device according to claim 1 and the mobile phone according to claim 22. *See* Section V.A.3.

143. I note that the phrase “the user input” does not have any antecedent basis because the phrase does not appear in claims 1 or 22 from which claims 5 or 26 depend. To the extent that this claim can be understood, I interpret the phrase to mean “the user input section” of claims 1 and 22. McClure-997 alone and further in view of McClure-998 further teaches the additional limitation of claims 5 and 26.

Ground 1: McClure-997

144. McClure-997 teaches that **the user input and a front side of the housing lie in a side by side arrangement**. For example, as I explained above, McClure-997 teaches that the front side forms at least a side of the opening through which the input device is located. *See* Sections V.A.3[1e/22e], V.A.6; Ex-1004 (McClure-997) ¶¶41-42. The user input (106, annotated in blue) and the front side (110, annotated in yellow) lie in a side-by-side arrangement—as shown in McClure-997, they are adjacent to each other, side-by-side. *See, e.g.*, Ex-1005 (McClure-998), Figs. 1-2, 4-6.

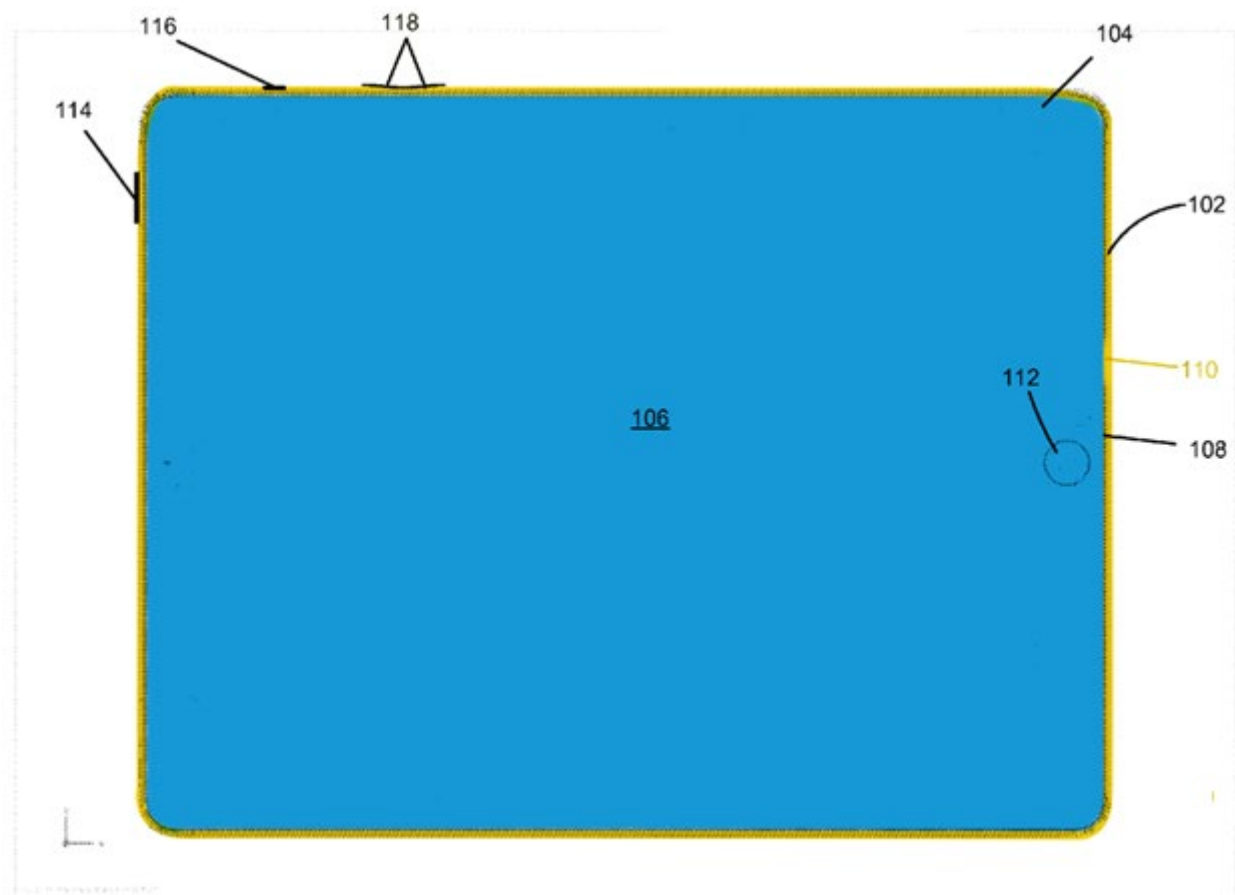


Fig. 1

145. Therefore, McClure-997 teaches these claims.

Ground 2: McClure-997 with McClure-998

146. McClure-998 provides similar teachings as those explained above for McClure-997. *See, e.g.*, Ex-1005 (McClure-998), Figs. 1A-B. Therefore, the combination of McClure-997 and McClure-998 teaches these claims. *See* Section V.A.

8. Dependent Claims 6, 27

147. It is my opinion that McClure-997 alone and further in view of McClure-998 renders Claims 6 and 27 obvious.

- [6] **A portable electronic device according to claim 1 wherein the one piece housing and the user input form a continuous surface of the portable electronic device.**
- [27] **A mobile phone according to claim 22 wherein the one piece housing and the user input form a continuous surface of the mobile phone.**

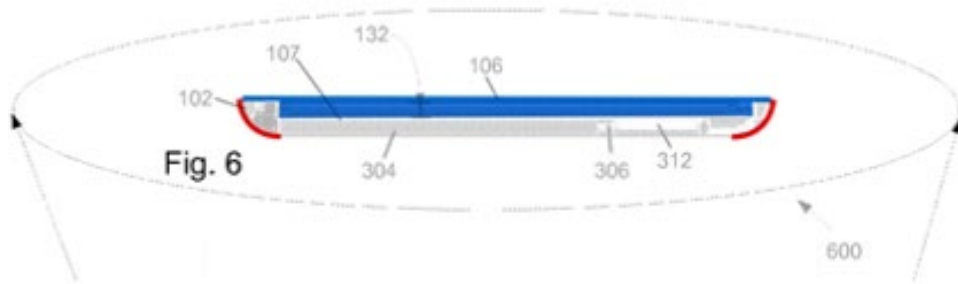
148. Claim 27 is identical to claim 6 except 27 recites “the mobile phone” of [22pre]. McClure-997 alone and further in view of McClure-998 teaches the portable electronic device according to claim 1 and the mobile phone according to claim 22. *See* Section V.A.3.

149. I note that the phrase “the user input” does not have any antecedent basis because the phrase does not appear in claims 1 or 22 from which claims 6 or 27 depend. To the extent that this claim can be understood, I interpret the phrase to mean “the user input section” of claims 1 and 22. McClure-997 alone and further in view of McClure-998 further teaches the additional limitation of claims 6 and 27.

Ground 1: McClure-997

150. McClure-997 teaches that **the one piece housing and the user input form a continuous surface of the portable electronic device.** As

discussed above, McClure-997 teaches that the user input is located in an opening between the lateral sides of the housing. *See* Section V.A.3[1f/22f]; Ex-1004 (McClure-997), ¶¶66-67, ¶¶70-75, ¶¶14-15, ¶40, ¶42, ¶47, ¶50, ¶¶53-56, ¶¶58-61, Figs. 1-2, 4-8. McClure-997 teaches when assembled, the housing and user input (display system, highlighted in blue) forms a continuous surface of the device. Ex-1004 (McClure-997), Figs. 1-2, 6-7 (showing a continuous front surface).



151. McClure-997 further teaches the portable electronic device as a mobile phone, as explained above. *See* Section V.A.3[1pre/22pre].

152. Therefore, McClure-997 teaches these claims.

Ground 2: McClure-997 with McClure-998

153. McClure-998 provides additional teachings that supplement McClure-997's teachings that **the one piece housing and the user input form a continuous surface of the portable electronic device**. For example, McClure-998 teaches that the touchscreen display and cover glass is provided

as an integrated unit for installation into the housing. Ex-1005 (McClure-998),

¶41. The integrated unit of display and cover glass is installed into the front

opening of the housing, forming a continuous surface. Ex-1005 (McClure-998),

¶33, ¶¶40-42, ¶58, Figs. 1A-B; *see* Section V.A.3[1e/22e].

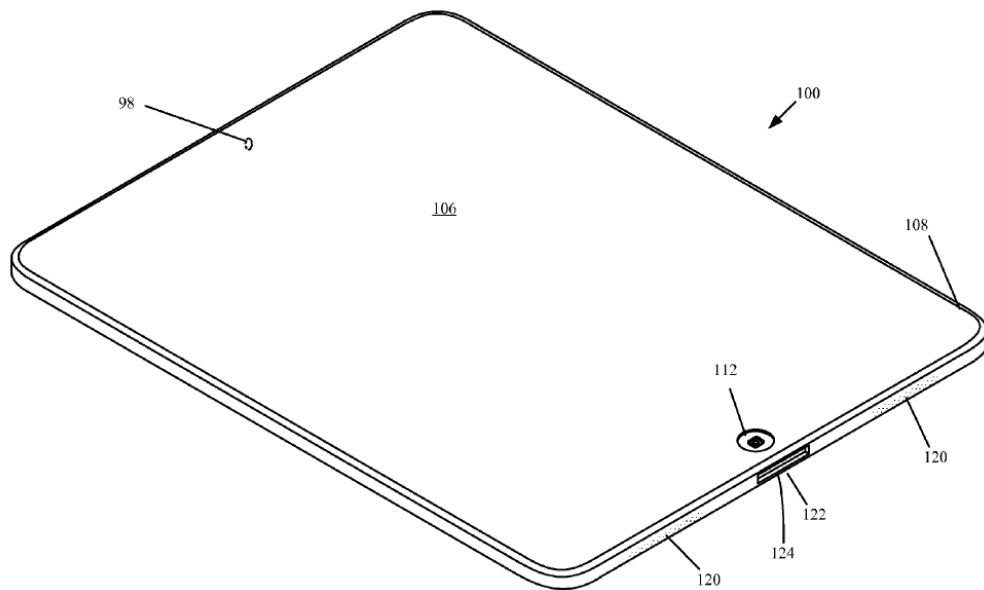


Fig. 1B

154. Therefore, the combination of McClure-997 and McClure-998 teaches these claims. *See* section V.A.

9. Dependent Claims 7, 28

155. It is my opinion that McClure-997 alone and further in view of McClure-998 renders Claims 7 and 28 obvious.

[7] **A portable electronic device according to claim 6**

[28] **A mobile phone according to claim 27**

further comprising a bracket wherein the user input section and the one piece housing define an interior volume and the bracket is configured to support said user input section.

156. McClure-997 alone and further in view of McClure-998 teaches the portable electronic device according to claim 6 and the mobile phone according to claim 27. *See* Section V.A.8. McClure-997 alone and further in view of McClure-998 further teaches the additional limitation of claims 7 and 28.

Ground 1: McClure-997

157. McClure-997 further teaches the additional limitation of claims 7 and 28, **further comprising a bracket wherein the user input section and the one piece housing define an interior volume and the bracket is configured to support said user input section.** As discussed previously, McClure-997 teaches the user input section and the one piece housing defining an interior volume such that the battery and the engine section are housed in the housing. *See* Section V.A.3. McClure-997 further teaches a trim bead that forms a seal between the cover glass of the display assembly and the housing. The trim bead of McClure-997 is positioned between the housing and the user input section

round 2: McClure-997 with McClure-998

159. As discussed above, McClure-997 teaches trim bead. McClure-998 provides additional details that supplement McClure-997's trim bead teachings. For example, similarly to McClure-997, McClure-998 teaches a display assembly having touch sensitivity capabilities and integrated to a cover

159. As discussed above, McClu
998 provides additional details that supp
teachings. For example, similarly to Mc
display assembly having touch sensitivity

Amazon.com, Inc., Amazon.com Services LLC - Ex. 1003, Page 000090

glass (the user input section). See section V.A.4[1e/22e]; Ex-1005 (McClure-998), ¶¶40-41. McClure-998 further teaches the user input section and the housing defining an interior volume and the trim bead supporting the user input section. Ex-1005 (McClure-998), ¶67, ¶¶88-89, Figs. 7A-B (showing trim bead 108 supporting the cover 106 that includes the user input section, interior volume defined between cover 106 and housing 102, and internal components 234 disposed in the interior volume). That is, McClure-998 teaches the one-piece housing and user input section defining an interior volume, and the trim bead (i.e., bracket) configured to support the user input section.

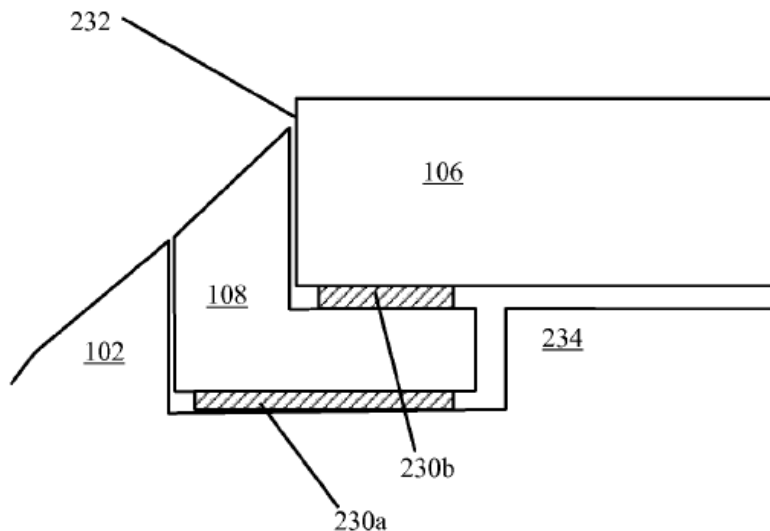


Fig. 7A

160. McClure-998 further teaches that the trim bead forms a gasket between the cover glass 106 and the housing 102, and is formed of a resilient

material such as a plastic to provide protection against environmental contaminants from entering the interior of the device. *E.g.*, Ex-1005 (McClure-998), ¶39. McClure-998's teaching that the trim bead is formed of a resilient material further teaches that the bracket (i.e. the trim bead) is configured to support the user input section. A POSITA would have been motivated to apply McClure-998's trim bead teachings to McClure-997's teachings because McClure-998 merely provides additional details of the element disclosed by McClure-997.

161. McClure-998 further teaches a corner bracket configured to support the user input section. Ex-1005 (McClure-998), ¶12, ¶60, ¶70, ¶¶72-73, ¶108. For example, McClure-998 teaches that corner brackets "include a surface for receiving the trim bead 108 that aligns with the surface for receiving the trim bead formed in the side ledges." Ex-1005, ¶70. As discussed above, the trim bead of McClure-998 is configured to support the user input section, and thus the corner brackets, which support the trim bead, also supports the user input section.

162. A POSITA would have been motivated to combine teachings of McClure-998 and McClure-997 because McClure-998 provides additional details regarding the corner bracket taught by McClure-997. *See* Ex-1004

(McClure-997), ¶48. Therefore, the combination of McClure-997 and McClure-998 teaches these claims. *See* Section V.A.

10. Dependent Claims 8, 29

163. It is my opinion that McClure-997 alone and further in view of McClure-998 renders Claims 8 and 29 obvious.

[8] A portable electronic device to claim 1

[29] A mobile phone according to claim 22

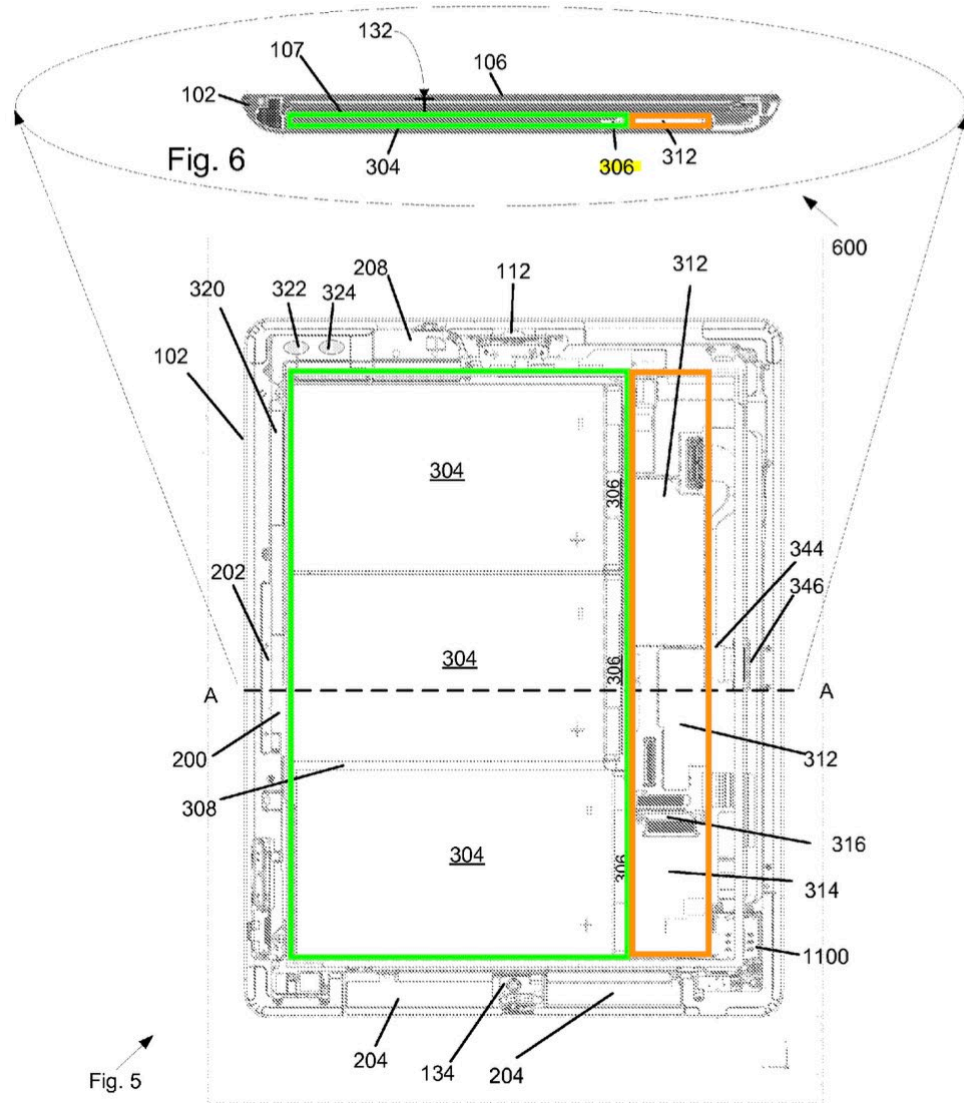
wherein the battery is located adjacent the engine section in a side by side arrangement.

164. McClure-997 alone and further in view of McClure-998 teaches the portable electronic device according to claim 1 and the mobile phone according to claim 22. *See* Section V.A.3. McClure-997 alone and further in view of McClure-998 further teaches the additional limitation of claims 8 and 29.

Ground 1: McClure-997

165. McClure-997 teaches that **the battery** (highlighted in green) is **located adjacent the engine section** (highlighted in orange) **in a side by side arrangement**. *See* section V.A.3[1e/22e]; Ex-1004 (McClure-997), ¶¶14-15, ¶38, ¶¶40-41, ¶47, ¶¶53-54, ¶56, ¶¶58-¶61, ¶64, ¶¶66-68, Figs. 1-2, 4-8. As can

be seen in the annotated figure below, the battery (in green) is located side-by-side to the engine section (in orange).



166. Therefore, McClure-997 teaches these claims.

Ground 2: McClure-997 with McClure-998

167. McClure-998 provides similar teachings as those explained above for McClure-997. *See, e.g.*, Ex-1005 (McClure-998), Fig. 3A, ¶61, ¶58. Therefore, the combination of McClure-997 and McClure-998 teaches these claims. *See* Section V.A.

11. Dependent Claims 11, 33

168. It is my opinion that McClure-997 alone and further in view of McClure-998 renders Claims 11 and 33 obvious.

[11] A portable electronic device according to claim 1 [33] A mobile phone according to claim [22]¹⁴ further comprising a door configured to support an electronic module.

169. McClure-997 alone and further in view of McClure-998 teaches the portable electronic device according to claim 1 and the mobile phone according to claim 22. *See* Section V.A.3. McClure-997 alone and further in view of McClure-998 further teaches the additional limitation of claims 11 and 33.

¹⁴ Claim 33 contains a typographical error which omits the claim number from which the claim is dependent. I understand that claim 33 depends from claim 22 based on prosecution history of the '602 patent. *See* Ex-1002, 000697 (claim 57 in the application stage, which corresponds to claim 22 of the '602 patent as issued, depends from claim 46), 000733 (showing claim 46 in the application stage corresponds to claim 22 of the '602 patent as issued).

Ground 1: McClure-997

170. McClure-997 teaches **a door configured to support an electronic module**. For example, McClure-997 teaches a SIM card tray (door, annotated in red) that supports a SIM card (electronic module) that is inserted into the door. Ex-1004 (McClure-997), ¶44, ¶64, ¶69, Fig. 5.

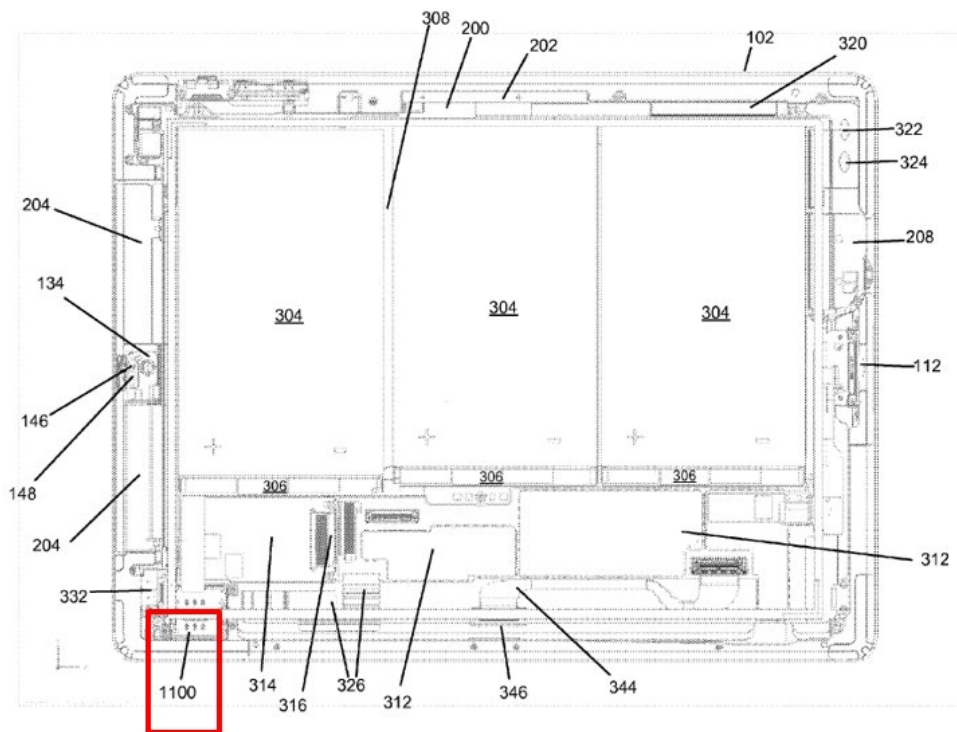


Fig. 5

171. Therefore, McClure-997 teaches these claims.

Ground 2: McClure-997 with McClure-998

172. As discussed above, McClure-997 teaches a SIM card and SIM card tray. McClure-998 provides additional teachings that supplement

McClure-997's teachings of the SIM card and SIM card tray. For example, McClure-998 teaches an opening in the housing that allows a SIM tray (door) for supporting a SIM card (an electronic module). Ex-1005 (McClure-998), ¶13 ("In yet other embodiments... a first opening in the single piece housing can be formed to allow a SIM tray for supporting a SIM card to extend from the interior cavity through and above one of the sidewalls..."), ¶45 ("In one embodiment, the device 100 can include an opening 110b that allows a SIM card to inserted or removed. In a particular embodiment, the SIM card can be carried on a SIM card tray that can extend from a side of the housing 102. The housing can include an opening 110a that allows an ejector for the SIM card tray to be actuated such that the SIM card tray is extended from the housing."), ¶65, ¶105, Fig. 3B, Claim 4.

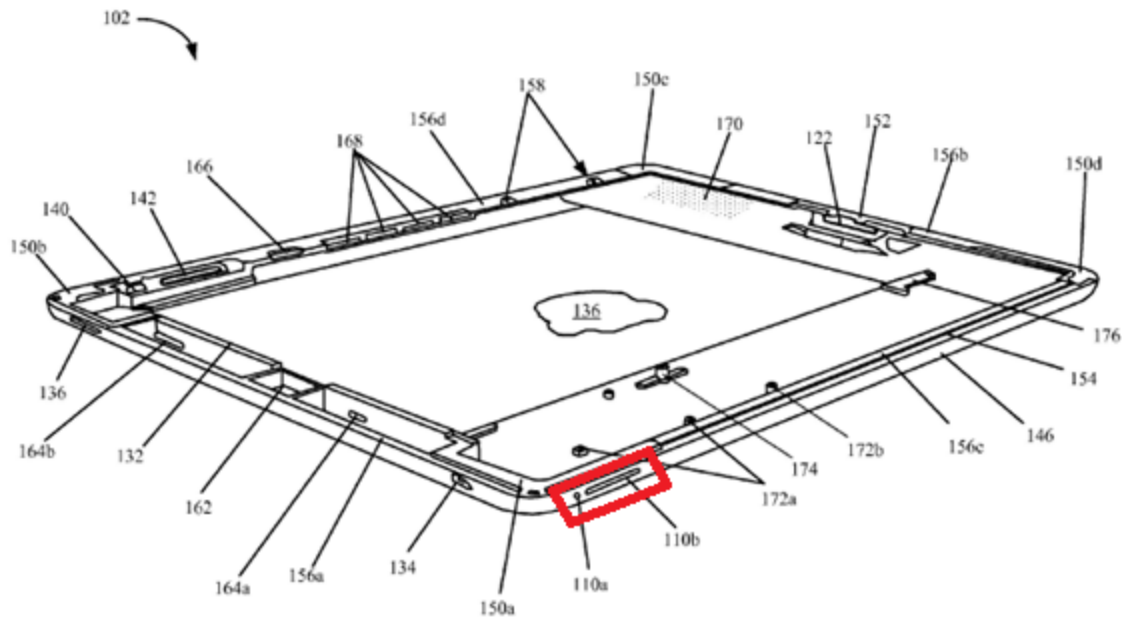


Fig. 3B

173. A POSITA would have been motivated to combine McClure-998's teachings with McClure-997's teachings because McClure-998 merely provides additional details regarding the SIM card and SIM card tray disclosed by McClure-997. Therefore, the combination of McClure-997 and McClure-998 teaches these claims. *See* Section V.A.

12. Dependent Claims 12, 34

174. It is my opinion that McClure-997 alone and further in view of McClure-998 renders Claims 12 and 34 obvious.

[12] **A portable electronic device according to claim 11**

[34] **A mobile phone according to claim 33**

wherein the electronic module is configured to interface to the engine section.

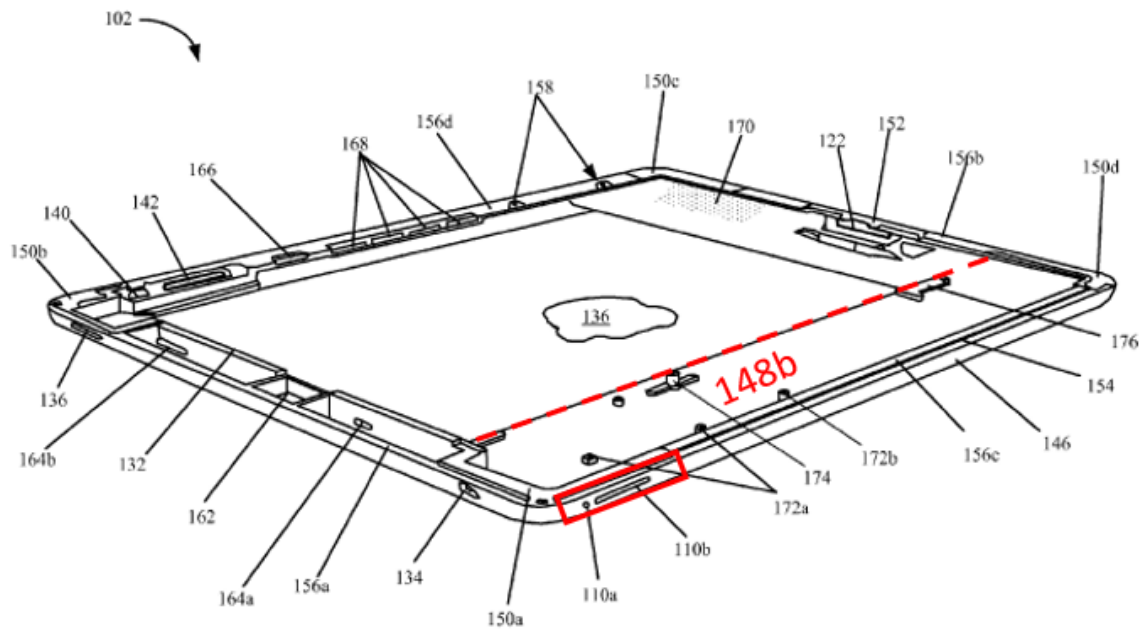
175. McClure-997 alone and further in view of McClure-998 teaches the portable electronic device according to claim 11 and the mobile phone according to claim 33. *See* Section V.A.12. McClure-997 alone and further in view of McClure-998 teaches the additional limitation of claims 12 and 34.

Ground 2: McClure-997 with McClure-998

176. McClure-998 provides additional teachings of **wherein the electronic module is configured to interface to the engine section**. McClure-998 teaches, “The portable computing device can be used on a wireless data network, such as a cellular data network. Access to the cellular data network can require the use of a Subscriber Identity Module (SIM) or SIM card.” Ex-1005 (McClure-998), ¶44, ¶45, ¶65, ¶71, ¶13. Therefore, McClure-998 teaches that the purpose of the SIM card is to interface with the engine section, which comprises the processor, memory, and wireless transceiver, so that the device can access a wireless data network. Additionally, this would have been obvious to a POSITA because that is the purpose of a SIM card. Otherwise, if the SIM card (electrical module) did not interface with the engine section, the portable

computing device would not provide access to the wireless data network, such as the cellular data network, which as McClure-998 teaches requires the use of a SIM card.

177. McClure-998 further teaches the SIM card tray located near the engine section. *See* Ex-1005 (McClure-998), ¶61 (teaching that PCBs to be placed in region 148b), ¶71, Figs. 3A-B. It would have been obvious to a POSITA that when the SIM card tray 110b holding the SIM card is closed, the SIM card interfaces with the printed circuit board of the engine section located in region 148b.



merely provides additional details of the SIM card disclosed by McClure-997.

See Section V.A.11. Therefore, the combination of McClure-997 and McClure-998 teaches these claims.

13. Dependent Claims 13, 32

179. It is my opinion that McClure-997 alone and further in view of McClure-998 renders Claims 13 and 32 obvious.

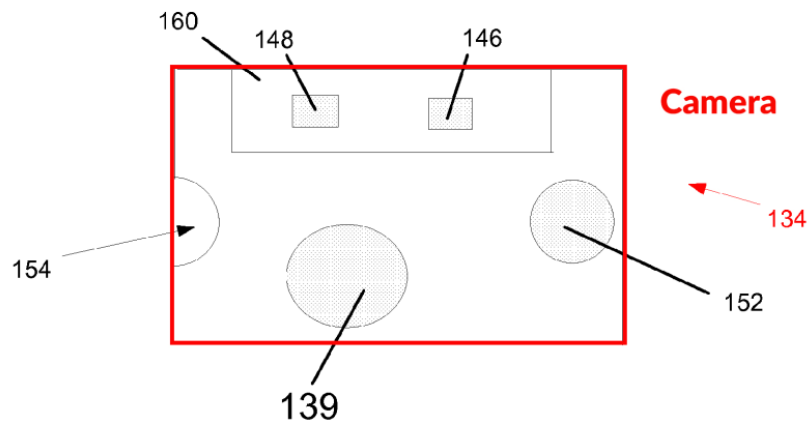
- [13] **A portable electronic device according to claim 1 further comprising a second camera located on a front side of the portable electronic device.**
- [32] **A mobile phone according to claim 22 further comprising a second camera on a front side of the mobile phone.**

180. Claim 32 is identical to claim 13 except 32 recites “the mobile phone” of [22pre]. McClure-997 alone and further in view of McClure-998 teaches the portable electronic device according to claim 1 and the mobile phone according to claim 22. *See* Section V.A.3. McClure-997 alone and further in view of McClure-998 further teaches the additional limitation of claims 13 and 32.

Ground 1: McClure-997

181. McClure-997 teaches **a second camera located on a front side of the portable electronic device**. For example, McClure-997 teaches a camera module 134 that is placed through the camera window 139 on the front side of

the device. Ex-1004 (McClure-997), ¶77 (“A front camera window 139 (FIG. 13) can also be provided for a front-facing camera through the display window.”), ¶¶78-82, Figs. 12-13. McClure-997 further teaches a camera module aligned with the display on the front side of the device by using alignment pins 130. Ex-1004 (McClure-997), ¶¶77-82, Figs. 12-13.

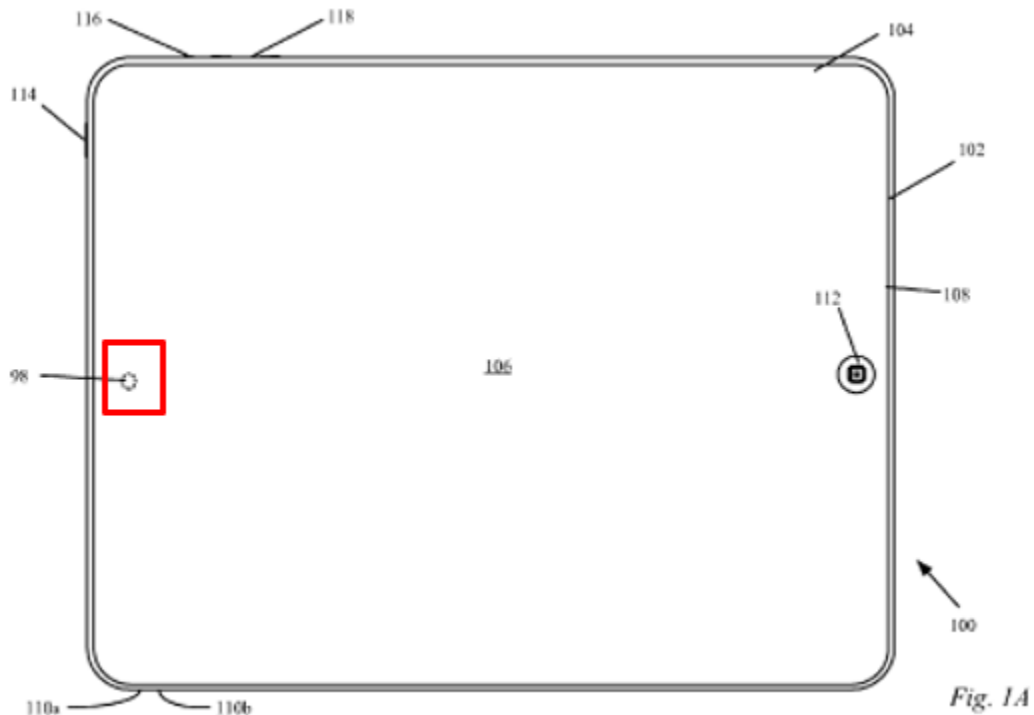


182. McClure-997 further teaches the portable electronic device as a mobile phone, as explained above. *See* Section V.A.3[1pre/22pre].

183. Therefore, McClure-997 teaches these claims.

Ground 2: McClure-997 with McClure-998

184. McClure-998 provides similar teachings as those explained above for McClure-997. *See, e.g.*, Ex-1005 (McClure-998), ¶43, Figs. 1A-B, 2 (showing an image capture module 98).



185. Therefore, the combination of McClure-997 and McClure-998 teaches these claims. *See* Section V.A.3.

14. Dependent Claims 14, 35

186. It is my opinion that McClure-997 alone and further in view of McClure-998 renders Claims 14 and 35 obvious.

[14] A portable electronic device according to claim 1

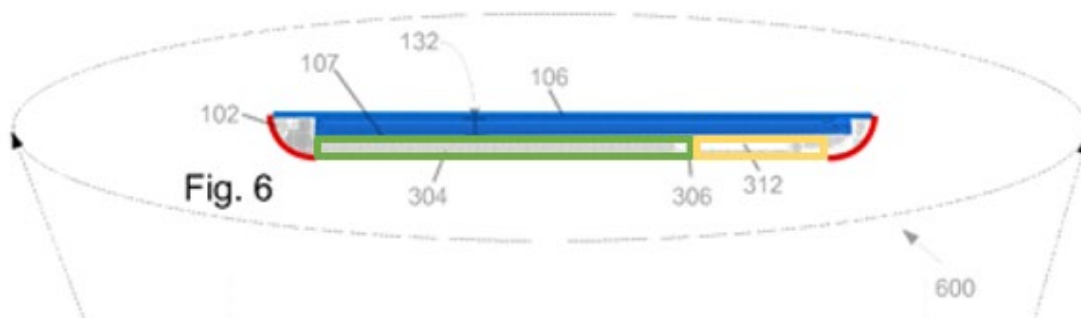
[35] A mobile phone according to claim 22

wherein the user input section is located directly adjacent the battery and the engine section.

187. McClure-997 alone and further in view of McClure-998 teaches the portable electronic device according to claim 1 and the mobile phone according to claim 22. *See* Section V.A.3. McClure-997 alone and further in view of McClure-998 further teaches the additional limitation of claim 14, **wherein the user input section is located directly adjacent the battery and the engine section.**

Ground 1: McClure-997

188. As discussed previously, McClure-997 teaches the user input section (highlighted in blue) located adjacent the battery (highlighted in green) and the engine section (highlighted in yellow). *See* Section V.A.3[1e/22e]; Ex-1004 (McClure-997), ¶¶53-54, ¶56, ¶¶58-59, ¶61, ¶¶66-68, ¶38, ¶¶40-41, ¶47, ¶¶14-15, Figs. 1-2, 4-8.



189. McClure-997 teaches this with its teaching that the display assembly that is directly above the battery, which is in the same plane as the engine section. *See* Section V.A.3[1e/22e]. When the display assembly is directly above the battery and the engine section, the display assembly is directly adjacent to the battery and the engine section. Therefore, McClure-997 teaches these claims.

Ground 2: McClure-997 with McClure-998

190. McClure-998 provides similar teachings as those explained above for McClure-997. *See, e.g.,* Ex-1005 (McClure-998), ¶15, ¶37, ¶40, ¶61, Figs. 1A-1B, 3A-B, 2 (showing portions 148a and 148b). Therefore, the combination of McClure-997 and McClure-998 teaches these claims. *See* Section V.A.

15. Independent Claim 15

191. It is my opinion that McClure-997 alone and further in view of McClure-998 renders Claim 15 obvious.

[15pre] A housing for a portable electronic device comprising:

192. Limitation [15pre] is analogous to limitation [1pre] except that [15pre] recites, “[a] housing for a portable electronic device,” rather than “[a] portable electronic device.” This addition does not materially alter my analysis because while [15pre] might be narrower than [1pre], it is satisfied by the teachings of McClure-997 and McClure-998. *See* Sections V.A.3[1pre]-[1a]. The analysis from limitations [1pre] and [1a] applies here. *See* Sections V.A.3[1pre]-[1a]. Thus, for the reasons explained above, McClure-997 alone and further in view of McClure-998 renders this limitation obvious. *See* Section V.A.

[15a] a one piece housing forming enclosed exterior lateral sides and a rear side;

193. Limitation [15a] is analogous to limitation [1a]. The analysis from limitation [1a] applies here. *See* Section V.A.3[1a]. Thus, for the reasons explained above, McClure-997 alone and further in view of McClure-998 renders this limitation obvious. *See* Section V.A.

[15b] a cut out in the rear side of said housing, said cut out configured to receive at least part of a camera;

194. The language “**a cut out in the rear side of said housing**” of [15b] is identical to limitation [1b]. Therefore, analysis from limitation [1b] applies. *See* Section V.A.3[1b].

Ground 1: McClure-997

195. McClure-997 further teaches **the cut out configured to receive at least part of a camera**. *See* Section V.A.3[1c]; Ex-1004 (McClure-997), ¶38, ¶40, ¶¶67-68. The display system of McClure-997 is located above the engine section and a battery. Ex-1004 (McClure-997), ¶¶14-15, ¶¶40-41, ¶47, ¶¶66-67, ¶77 (teaching camera module 134 has a rear camera window 138 through the housing 10), Figs. 1-8. Cameras have optics. Here, the rear camera window 138 is part of camera optics.

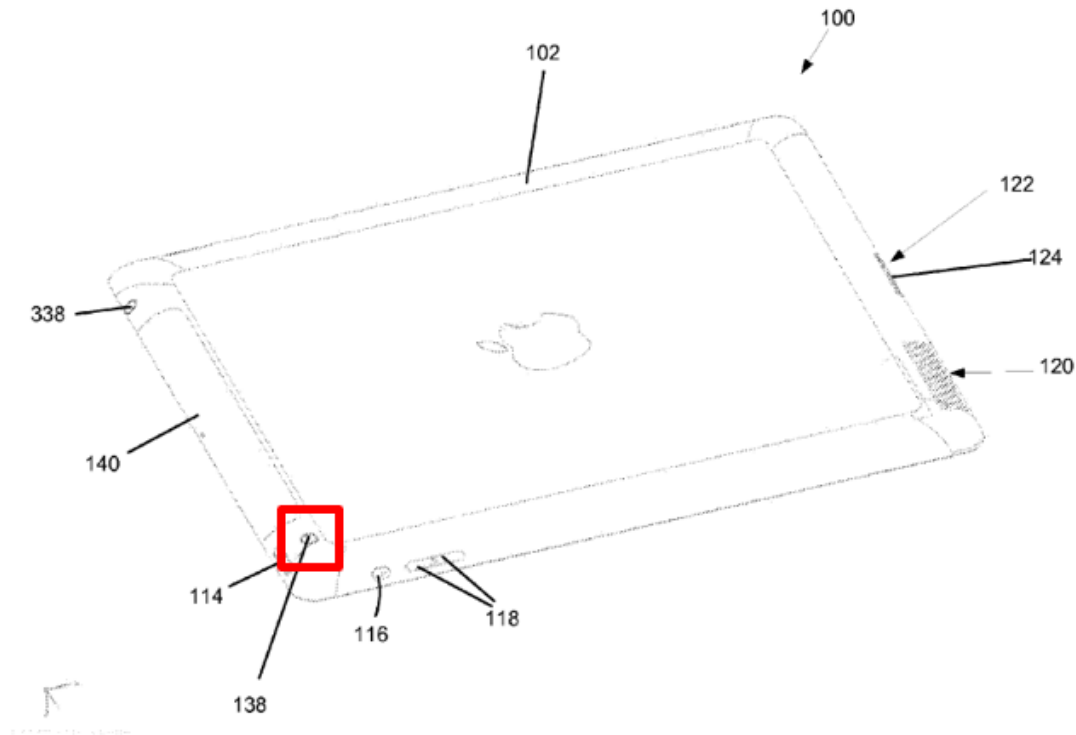


Fig. 3

196. In previous litigation, the Patent Owner alleged that when a device is configured such that a camera extends to a cutout, the cutout is configured to receive at least a part of the camera, and therefore the analysis from [1b] and [1c] is sufficient to satisfy [15b]. Ex-1016 (ITC 337-TA-1038 Nokia's Infringement Contentions – iPhone 6s), 000015; Ex-1017 (ITC 337-TA-1038 Nokia's Infringement Contentions – iPhone 7), 000013. McClure-997 teaches [1b]-[1c], as explained above. *See* Sections V.A.3[1b]-[1c].

197. Therefore, McClure-997 teaches limitation [15b].

Ground 2: McClure-997 with McClure-998

198. McClure-998 provides similar teachings as those explained above for McClure-997. *See, e.g.*, Ex-1005 (McClure-998), ¶54, Fig. 2. Therefore, the combination of McClure-997 and McClure-998 teaches limitation [15b].

See Section V.A.

[15c] wherein the housing is configured to receive a battery and an engine section, wherein a user input is located in an opening between said exterior lateral sides of said one piece housing of the portable electronic device, wherein the battery and engine section are configured to be housed in the housing such that the user input section is located above the engine section and the battery, and wherein the user input section is located adjacent the battery and the engine section.

Ground 1: McClure-997

199. McClure-997 teaches that **the housing is configured to receive a battery and an engine section.** *See* Sections V.A.3[1d]-[1f]; Ex-1004 (McClure-997), ¶38, ¶40, ¶¶67-68, ¶¶14-15, ¶¶40-41, ¶47, ¶¶66-67, Figs. 1-2, 4-8. McClure-997 illustrates this with the housing (102) being configured to receive a battery (304) and an engine section (312).

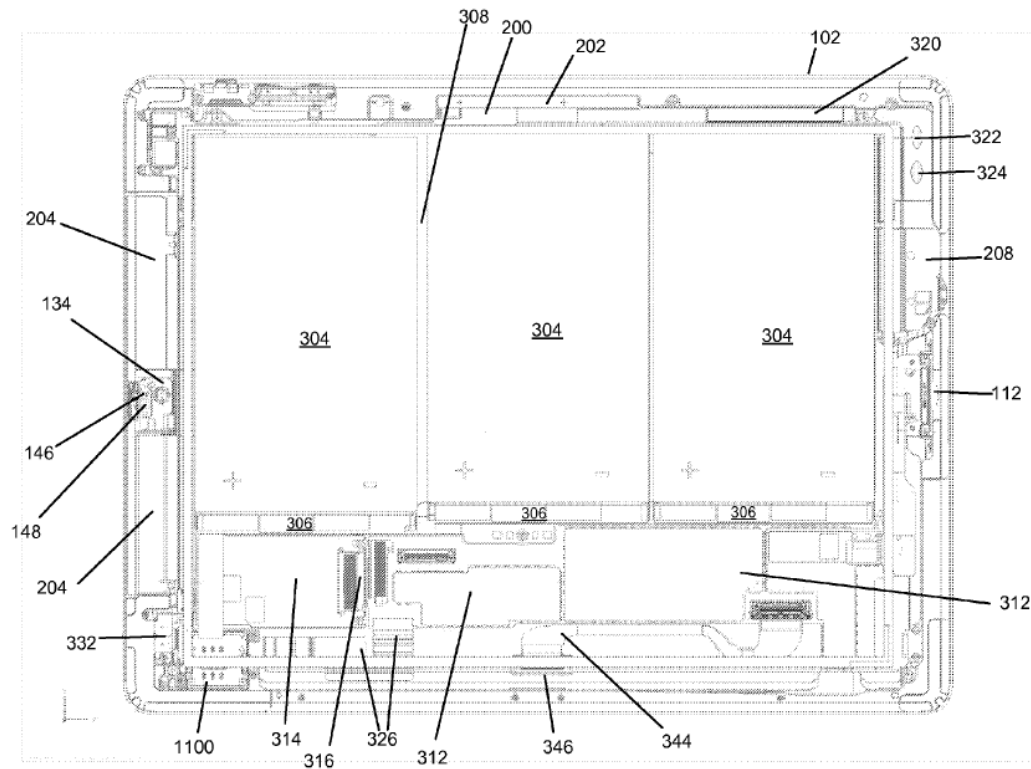


Fig. 5

200. The housing, battery, and engine sections were explained above.
See Sections V.A.3[1a], V.A.3[1d].

201. The language “**wherein a user input is located in an opening between said exterior lateral sides of said one piece housing of the portable electronic device**” is identical to the language from [1f]. Therefore, the analysis from [1f] applies. *See* Section V.A.3[1f].

202. The language “**wherein the battery and engine section are configured to be housed in the housing**” is analogous the language from [1f] reciting “wherein the battery and engine section are housed in the housing[.]”

Since McClure-997 teaches that the battery and engine sections are designed to be housed in the housing, they are also configured to be housed in the housing. The language “**the user input section is located above the engine section and the battery**” is analogous to the language from [1e] reciting “a user input section located above the engine section and a battery[.]” Therefore, the analysis from [1e]-[1f] applies here. *See* Sections V.A.3[1e]-[1f].

203. The language “**wherein the user input section is located adjacent the battery and the engine section**” is identical to the language from [1e]. Therefore, the analysis from [1e] applies. *See* Section V.A.3[1e].

204. In previous litigation, the Patent Owner alleged that when a battery and an engine section are housed in the housing, the housing is configured to receive a battery and an engine section, and therefore the analysis from [1d]-[1f] is sufficient to satisfy [15c]. Ex-1016 (ITC 337-TA-1038 Nokia’s Infringement Contentions – iPhone 6s), 000015; Ex-1017 (ITC 337-TA-1038 Nokia’s Infringement Contentions – iPhone 7), 000013. McClure-997 teaches [1d]-[1f], as explained above. *See* Sections V.A.3[1d]-[1f]. Therefore, McClure-997 teaches limitation [15c].

Ground 2: McClure-997 with McClure-998

205. McClure-998 provides similar teachings as those explained above for McClure-997. *See* Ex-1005 (McClure-998), ¶¶39-40, ¶¶103-104, ¶114, Fig. 3B. Therefore, the combination of McClure-997 and McClure-998 teaches limitation [15c]. *See* Section V.A.

16. Dependent Claim 16

206. It is my opinion that McClure-997 alone and further in view of McClure-998 renders Claim 16 obvious.

[16] A housing for a portable electronic device according to claim 15 further comprising: a front side extending between the lateral edges, said lateral sides and front side forming an aperture configured to receive the user input wherein the user input and the front side of the housing form a continuous front surface of the portable electronic device.
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207. McClure-997 alone and further in view of McClure-998 teaches the housing for a portable electronic device according to claim 15. *See* Section V.A.15. McClure-997 alone and further in view of McClure-998 further teaches the additional limitation of claim 16.

Ground 1: McClure-997

208. McClure-997 teaches **a front side extending between the lateral edges**. Ex-1004 (McClure-997), ¶42, Figs. 1-2 (showing racetrack 110 surrounding the front); *see* Section V.A.4.

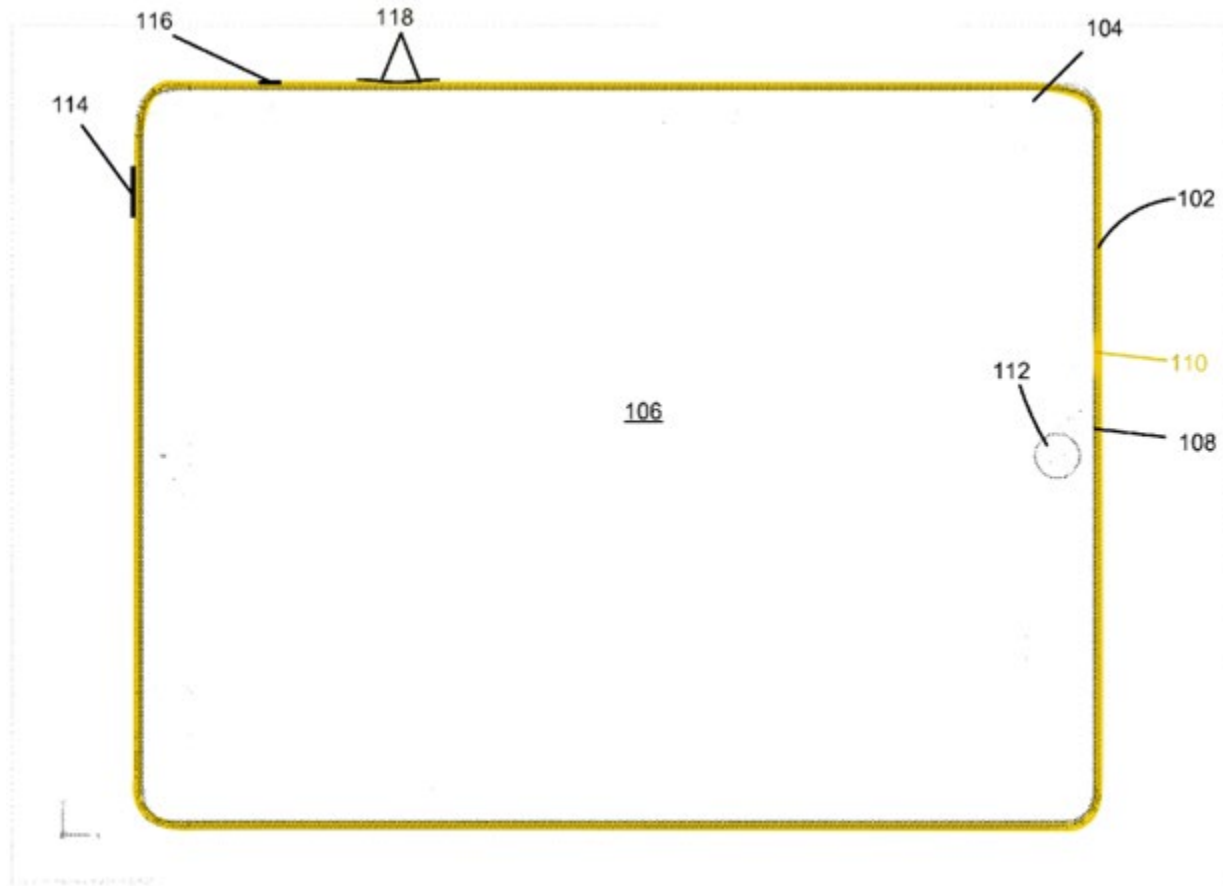
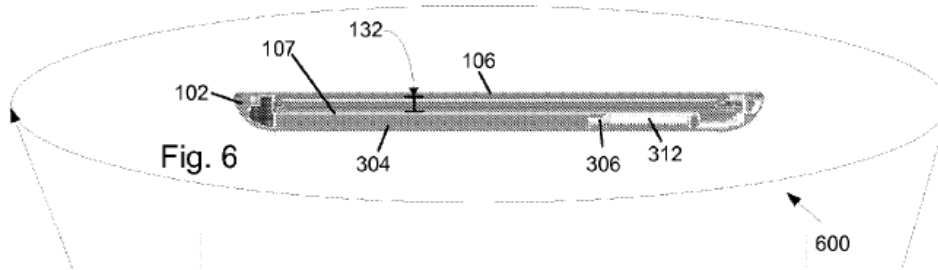


Fig. 1

209. McClure-997 further teaches **the lateral sides and front side forming a aperture configured to receive the user input**. For example, as can be seen in Fig. 1 above, the lateral sides and front side (racetrack 110) forms an aperture configured to receive the user input. Ex-1004 (McClure-997), ¶¶41-42, Figs. 1-2; *see* Section V.A.6.

210. McClure-997 further teaches that **the user input and the front side of the housing form a continuous front surface of the portable electronic device**. For example, as shown in Fig. 1 above, the user input and

the front side of the housing forms a continuous front surface. Ex-1004 (McClure-997), ¶¶66-67, ¶¶70-75, ¶¶14-15, ¶40, ¶42, ¶47, ¶50, ¶¶53-56, ¶¶58-61, Figs. 1-2, 4-8; *see* Section V.A.8.



211. Therefore, McClure-997 teaches this claim.

Ground 2: McClure-997 with McClure-998

212. McClure-998 provides similar teachings as those explained above for McClure-997. Ex-1005 (McClure-998), ¶33, ¶¶40-42, ¶¶58-59, ¶61, ¶68, ¶70, ¶72, ¶89, ¶105, ¶¶114-115, Figs. 1A-B, 3A-B, 5A. Therefore, the combination of McClure-997 and McClure-998 teaches this claim. *See* Section V.A.

17. Dependent Claim 17

213. It is my opinion that McClure-997 alone and further in view of McClure-998 renders Claim 17 obvious.

[17] A housing according to claim 15 wherein the one piece housing has been extruded.

214. McClure-997 alone and further in view of McClure-998 teaches the housing for a portable electronic device according to claim 15. *See* Section V.A.15. McClure-997 alone and further in view of McClure-998 further teaches the additional limitation of claim 17.

Ground 1: McClure-997

215. McClure-997 teaches that **the one piece housing has been extruded**. For example, McClure-997 teaches that “an extrusion process” was a known and “preferred” method of manufacturing housings. Ex-1004 (McClure-997), ¶87. McClure-997 further explains that any suitable manufacturing process can be used to manufacture its one-piece housing into the desired shape: “[t]he single piece housing can be machined, forged, molded, or otherwise processed into a desired shape.” Ex-1004 (McClure-997), ¶36, ¶39. Therefore, McClure-997 teaches manufacturing its one-piece housing by extruding it.

216. The use of an extruded block is consistent with McClure-997’s teachings of forming the housing from an extruded metal and then further machining it. McClure-997 explains that the housing is “formed from a single sheet or block of metal (such as aluminum) and formed into an appropriate

shape using, for example, core metal forming techniques well known to those skilled in the art.” Ex-1004 (McClure-997), ¶50. Extrusion processes were known to form the housing from a single block of metal into an appropriate shape, and extrusion was one of the core metal-forming techniques known in the art. Moreover, extrusion was typically used to process metal close to the desired shape, which was then machined to further refine the housing, as McClure-997 teaches. Ex-1004 (McClure-997), ¶36 (machining metal to form the housing to form various openings in the housing), ¶87, ¶76. Collectively, these teachings would have informed a POSITA, or at least suggested, that the housing that has been extruded to form a single block of metal into an appropriate shape and then further refined with machining. Furthermore, McClure 997 specifically teaches that “an extrusion process is preferred method of manufacturing the integral tube[.]” Ex-1004 (McClure-997), ¶87.

217. Therefore, McClure-997’s teachings encompass a housing that has been extruded. This would have been further obvious to a POSITA because, as known in the art, a housing formed from a single sheet or block of metal was typically produced by cutting flat bar stock or by cutting from larger sheet of aluminum. Using extrusion would have been obvious because it was one of the well-known ways to manufacture housings, and a POSITA would have had good reason to pursue the known options within a finite number of identified,

predictable solutions. Bar stock in aluminum was typically extruded, and this was widely known in the art. For example, in a well-known textbook, Chris Lefteri in *Metals Materials for Inspirational Design* in reference to extrusion states “**Typical Applications.** The process is universal and can be applied to most areas of design and engineering, including tubing, sheet materials, structure and body frames for motor vehicles, furniture, and components for consumer electronics[.]”. Ex-1024¹⁵. A POSITA would have understood that the “block” discussed in McClure-997 would have been cut from an extruded aluminum bar because that was one of the commonly known methods of manufacturing for implementing McClure-997’s teachings. Therefore, a POSITA would have found it obvious, based on McClure-997’s teachings, for the one piece housing to have been extruded.

218. Therefore, McClure-997 teaches this claim.

Ground 2: McClure-997 with McClure-998

219. McClure-998 provides similar teachings as those explained above for McClure-997. Ex-1005 (McClure-998), ¶33, ¶51, ¶123. McClure-997 and McClure-998 teach, or at least suggest, that the housing has been extruded.

¹⁵ I have owned *Metals Materials for Inspirational Design* by Chris Lefteri since around the time it was published in 2004.

Additionally, it would have been obvious for reasons explained above for McClure-997. Therefore, the combination of McClure-997 and McClure-998 teaches this claim. *See* Section V.A.

18. Dependent Claim 18

220. It is my opinion that McClure-997 alone and further in view of McClure-998 renders Claim 18 obvious.

[18] A housing according to claim 15 wherein the one piece housing comprises a metal.

221. McClure-997 alone and further in view of McClure-998 teaches the housing according to claim 15. *See* Section V.A.15. McClure-997 alone and further in view of McClure-998 further teaches the additional limitation of claim 18.

Ground 1: McClure-997

222. For example, McClure-997 teaches that **the one piece housing comprises a metal**. Ex-1004 (McClure-997), ¶39 (“Portable computing device 100 can include single piece housing 102 that can be formed of any number of materials, such as plastic or metal, which can be machined, forged, molded, or otherwise processed into a desired shape.”), ¶¶49-50 (“[S]ingle piece housing 102 can be formed from a single sheet or block of metal (such as aluminum) and formed into an appropriate shape using, for example, core metal forming

techniques well known to those skilled in the art.”). Therefore, McClure-997 teaches this claim.

Ground 2: McClure-997 with McClure-998

223. McClure-998 provides similar teachings as those explained above for McClure-997. Ex-1005 (McClure-998), Abstract ¶33, ¶38, ¶55. Therefore, the combination of McClure-997 and McClure-998 teaches this claim. *See* Section V.A.

19. Dependent Claim 19

224. It is my opinion that McClure-997 alone and further in view of McClure-998 renders Claim 19 obvious.

[19] A housing according to claim 15 wherein the housing has substantially at least one of an open top or bottom aperture.
--

225. McClure-997 alone and further in view of McClure-998 teaches the housing according to claim 15. *See* Section V.A.15. McClure-997 alone and further in view of McClure-998 further teaches the additional limitation of claim 19.

Ground 1: McClure-997

226. McClure-997 teaches that **the housing has substantially at least one of an open top or bottom aperture**. For example, McClure-997 teaches

the top of the housing having the antenna window 140 over recess 206 to receive an RF antenna 204. Ex-1004 (McClure-997), ¶¶44-45, ¶47, ¶¶50-51, ¶63, ¶66, Figs. 3-5. Prior to the assembly of the antenna window 140, the top of the housing has a substantially open top aperture 206.

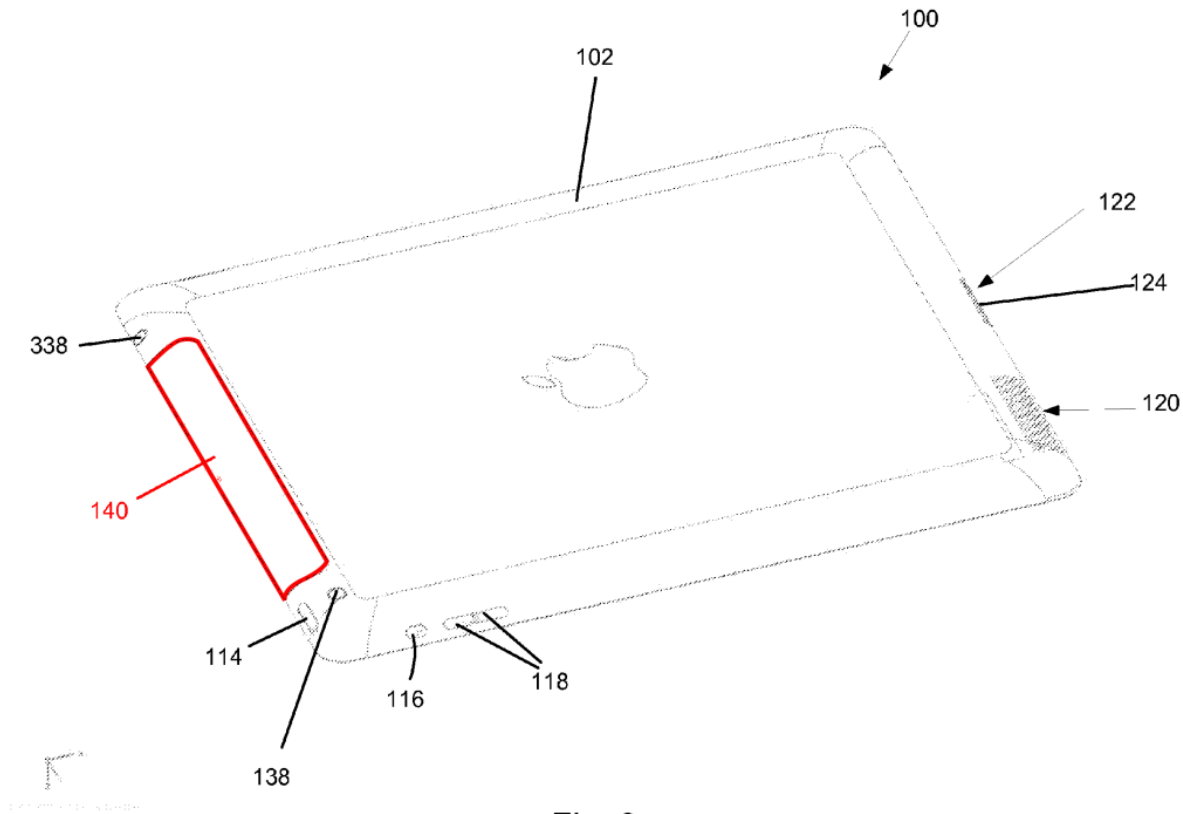


Fig. 3

227. As another example, McClure-997 teaches a plurality of openings and holes for buttons, switches, and speakers. Ex-1004 (McClure-997), ¶48 (teaching, for example, speaker grill 170 located at the bottom side of the one-piece housing), Fig. 4. McClure-997 also teaches that a data port openings 122 is located at the bottom side of the one-piece housing. Ex-1004 (McClure-997), ¶45, Fig. 4. That is, McClure-997 teaches a plurality of openings located at the

bottom side. When plurality of openings and holes are formed on at least one of a top or bottom surface, the housing has substantially at least one of an open top or bottom aperture.

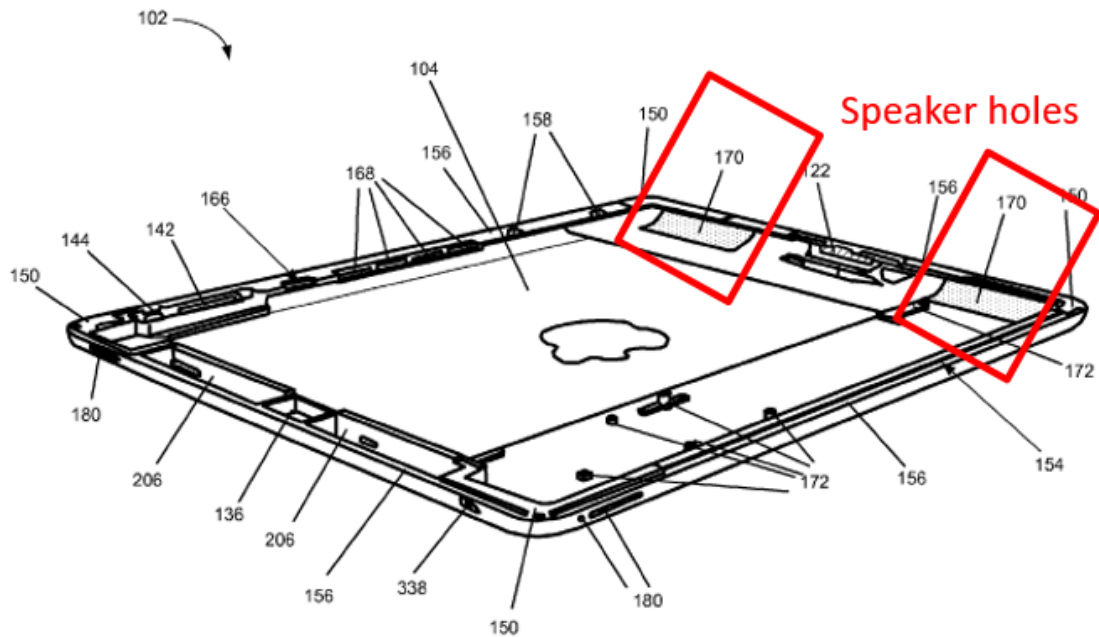


Fig. 4

228. Therefore, McClure-997 teaches this claim.

Ground 2: McClure-997 with McClure-998

229. McClure-998 provides additional teachings that supplement McClure-997's teachings of **the housing has substantially at least one of an open top or bottom aperture**. For example, McClure-998 teaches that "a number of openings can be machined into the single piece housing to provide access to the interior cavity from the exterior of the housing." Ex-1005

(McClure-998), ¶13. Similarly to McClure-997, McClure-998 teaches a number of openings in the sidewall that allow sound from a speaker to exit the opening. Ex-1005 (McClure-998), ¶13, ¶¶64-65, Fig. 2. In addition, McClure-998 teaches openings on the sidewalls for switches and external connectors. Ex-1005 (McClure-998), ¶¶53-54. McClure-998 teaches, as shown below, openings 134 and 136, located on the top, are for a power control switch and an audio port, respectively. Ex-1005 (McClure-998), ¶¶55-57. McClure-998 teaches having a cutout in the housing for receiving antenna window 132, which is shown at the top end of the device. The plurality of such openings of the top and/or bottom sidewalls forms substantially at least one of an open top or bottom aperture.

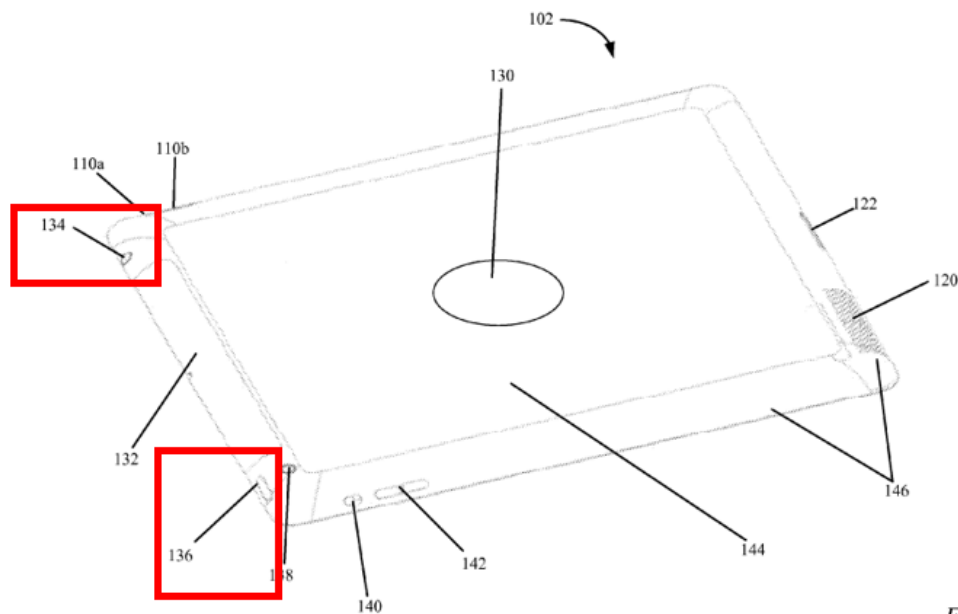


Fig. 2

230. Therefore, the combination of McClure-997 and McClure-998 teaches this claim. *See* Section V.A.

20. Dependent Claim 20

231. It is my opinion that McClure-997 alone and further in view of McClure-998 renders Claim 20 obvious.

[20] A housing according to claim 19 wherein a antenna module is located at a aperture in the housing.

232. McClure-997 alone and further in view of McClure-998 teaches the housing according to claim 19. *See* Section V.A.19. McClure-997 alone and further in view of McClure-998 further teaches the additional limitation of claim 20.

Ground 1: McClure-997

233. McClure-997 teaches **an antenna located at an aperture in the housing**. For example, McClure-997 teaches the top of the housing having the antenna window 140 over recess 206 to receive an RF antenna 204, as seen below. Ex-1004 (McClure-997), ¶¶44-45, ¶47 (“For example, an RF antenna 204 is positioned in an RF antenna recess 206[.]”), ¶¶50-51, ¶63 (“Portable computing device 100 can also include a number of antennae used for both transmission and reception of RF energy. For example, at least one RF antenna 204 can be incorporated into recess 206 in the housing 102.”), ¶66, Figs. 3-5.

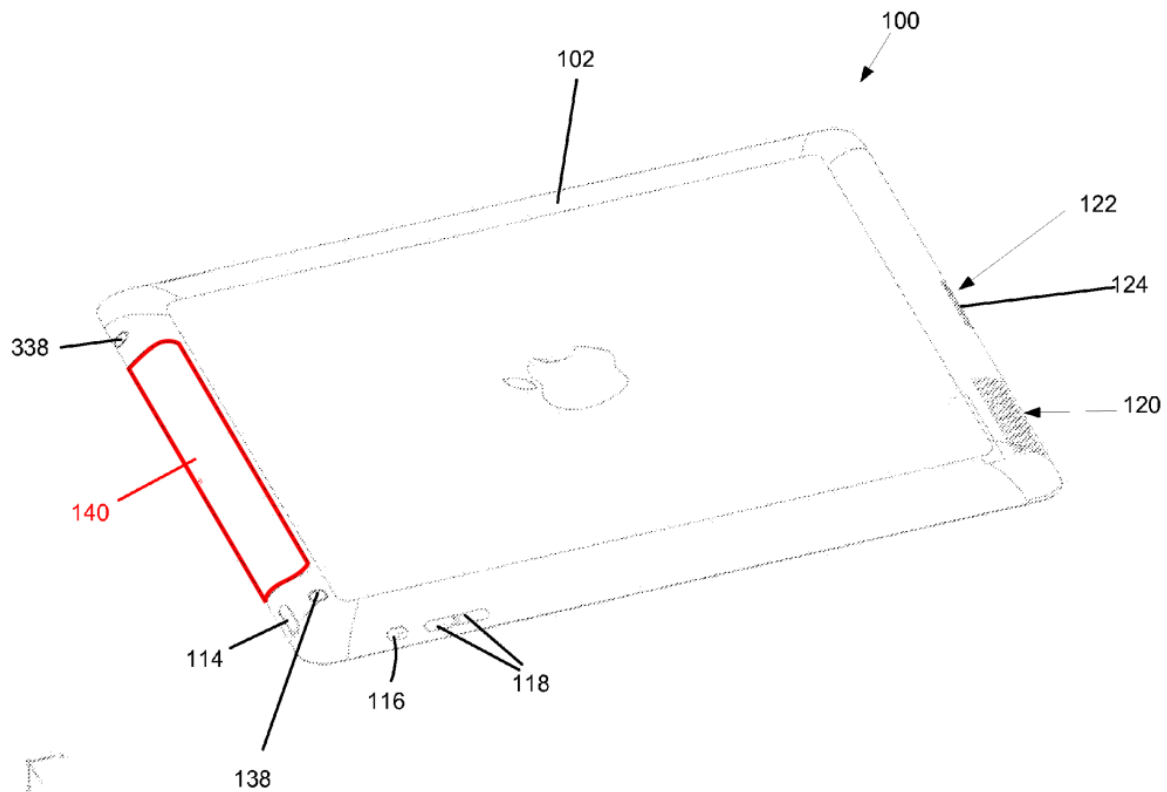


Fig. 3

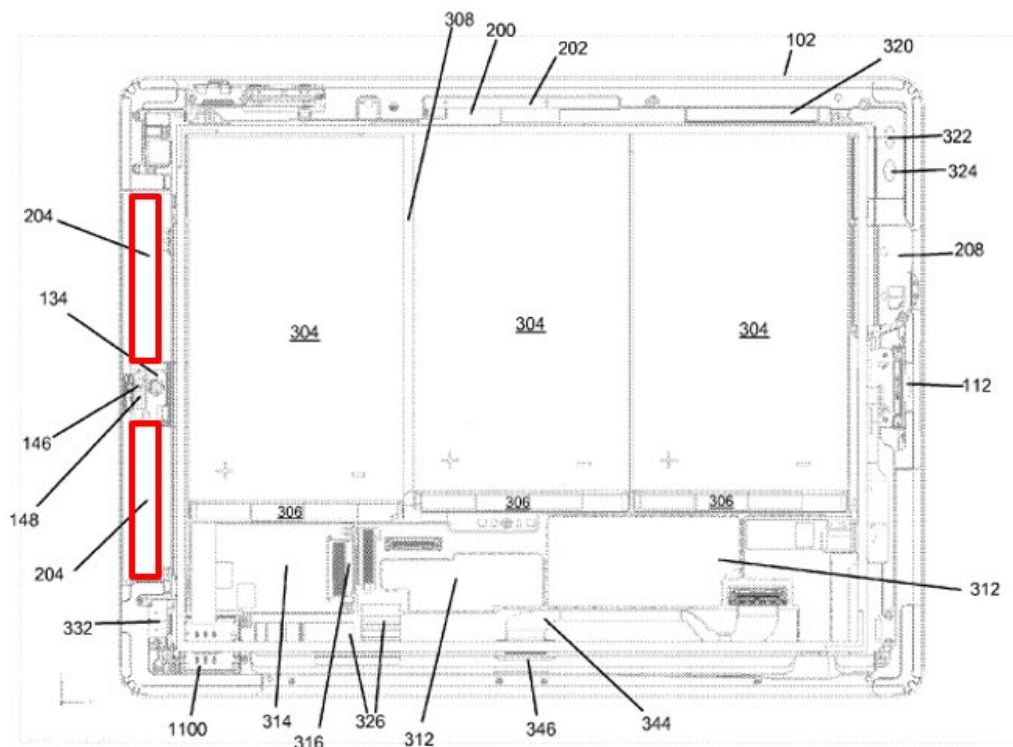


Fig. 5

234. Therefore, McClure-997 teaches this claim.

Ground 2: McClure-997 with McClure-998

235. McClure-998 provides additional teachings that supplement McClure-997's teachings of **an antenna located at an aperture in the housing**. For example, McClure-998 teaches an antenna window 132 that supports the antenna within cavities of the window. Ex-1005 (McClure-998), ¶55 (“The housing 102 can be formed from a radio opaque material, such as a metal. In a particular embodiment, the housing can include a cut-out portion for placement an RF antenna window to support one or more antennas.”), ¶¶84-86 (“The RF antenna window can be configured to support one or more antenna carriers within cavities of the window.”), ¶34, ¶38, ¶¶56-57, ¶109, Fig. 3B.

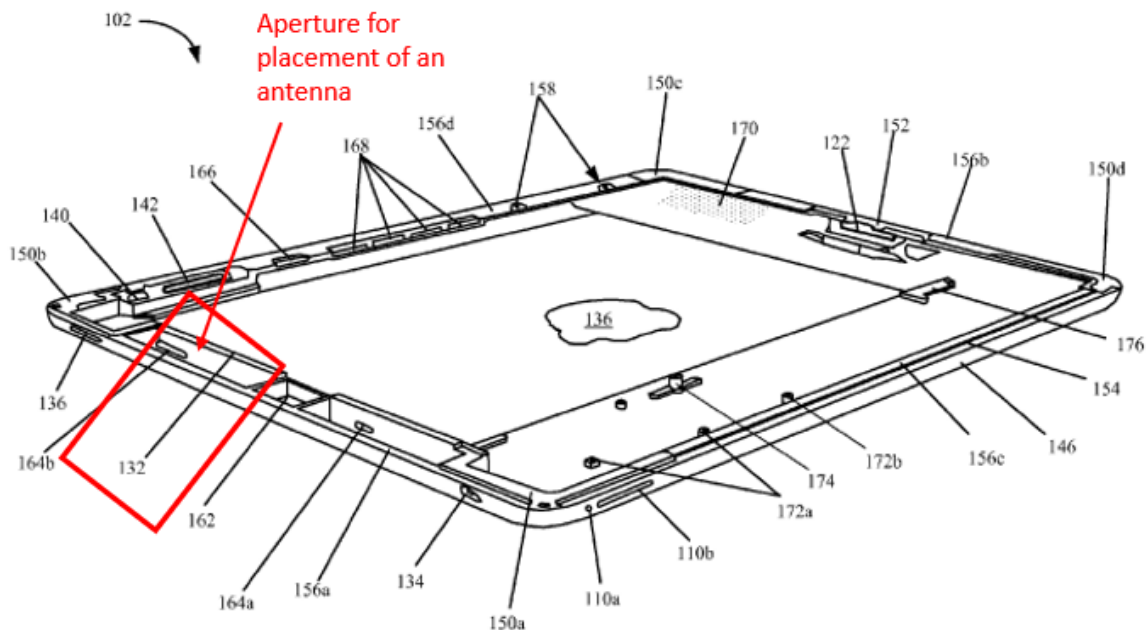


Fig. 3B

236. Therefore, the combination of McClure-997 and McClure-998 teaches this claim. See Section V.A.

21. Dependent Claim 21

237. It is my opinion that McClure-997 alone and further in view of McClure-998 renders Claim 21 obvious.

[21] A housing according to claim 20 wherein the antenna module is enclosed by a antenna cover.

238. McClure-997 alone and further in view of McClure-998 teaches the housing according to claim 20. See Section V.A.20. McClure-997 alone and further in view of McClure-998 further teaches the additional limitation of claim 21.

Ground 1: McClure-997

239. McClure-997 teaches **the antenna module enclosed by an antenna cover**. For example, McClure-997 teaches an antenna enclosed by an antenna window. Ex-1004 (McClure-997), ¶44, ¶47, ¶51, ¶63, ¶66 (“In order to avoid unnecessary interference with RF transmissions from the RF antenna 204, the antenna window 140 can be formed of radio transparent material, such as plastic, glass, ceramic and so on.”). Therefore, McClure-997 teaches this claim.

Ground 2: McClure-997 with McClure-998

240. McClure-998 provides additional teachings that supplement McClure-997’s teachings of **the antenna module enclosed by an antenna cover**. For example, McClure-998 teaches an antenna enclosed by an antenna window. *See* Section V.A.20; Ex-1005 (McClure-998), Fig. 3B (showing antenna window 132, enclosing the aperture in which antenna may be located), ¶34 (“[I]f an RF antenna is present within the housing, then at least a portion of the housing (if metal) is given over a radio transparent portion.”), ¶44, ¶55, ¶38. Therefore, the combination of McClure-997 and McClure-998 teaches this claim. *See* Section V.A.

22. Dependent Claim 36

241. It is my opinion that McClure-997 alone and further in view of McClure-998 renders Claim 36 obvious.

[36] A mobile phone according to claim 22 wherein the transceiver is a mobile phone transceiver.

242. McClure-997 alone and further in view of McClure-998 teaches the mobile phone according to claim 22. *See* Section V.A.3. McClure-997 alone and further in view of McClure-998 further teaches the additional limitation of claim 36.

Ground 1: McClure-997

243. McClure-997 teaches that **the transceiver is a mobile phone transceiver**. McClure-997 teaches a portable electronic device, including a mobile phone (Ex-1004 (McClure-997), Abstract, ¶¶6-9, ¶38; *see* Section V.A.3[1pre]/[22pre]) and that a “[p]ortable computing device 100 can include a mechanism for wireless communications, as either a transceiver type device or receiver only, such as a radio.” Ex-1004 (McClure-997), ¶44; *see also* Section V.A.3[1d/22d]. A POSITA would have understood that a transceiver included in a mobile phone for 2G and 3G wireless protocol is a mobile phone transceiver. Therefore, McClure-997 teaches this claim.

Ground 2: McClure-997 with McClure-998

244. McClure-998 provides similar teachings as those explained above for McClure-997. Ex-1005 (McClure-998), ¶5, ¶¶44-45.

245. McClure-998 provides additional teachings that supplement McClure-997's teachings that **the transceiver is a mobile phone transceiver**. For example, McClure-998 teaches that "[t]he portable computing device can be used on a wireless data network, such as a cellular data network." Ex-1005 (McClure-998), ¶45. A POSITA would know that a "cellular" is another name for "mobile". A POSITA would have been motivated to combine teachings of McClure-997 and McClure-998 because McClure-998 merely provides additional details regarding wireless communication of a portable electronic device.

246. Therefore, McClure-997 alone and in combination with McClure-998 teaches this claim. *See* Section V.A.

B. Ground 3: McClure-997 and McClure-998 in View of Chiang

247. It is my opinion that a POSITA would have found the challenged claims obvious based McClure-997 and McClure-998 (as listed in the chart of Invalidity Grounds above). Chiang provides additional teachings regarding the form factor, placement, and appearance of a camera in a portable electronic device, as summarized below. *See* Section V.B.1. In particular, Chiang

provides details regarding a cut-out portion around the camera that projects from the housing. Ex-1006 (Chiang), ¶¶18-20, Figs. 1, 3.

248. A POSITA would have been motivated to combine this concept from Chiang with the iPad form factor taught by McClure-997 and McClure-998, so that the camera is situated in a cutout portion that projects outward from the housing. This would have been a combination of prior art elements according to known methods to yield predictable results because it simply combines the prior art iPad form factor taught by the McClure references with the prior art camera details taught by Chiang, as further explained below. See Section V.B.2 (discussing claims 9 and 30). The combination of these known elements would have yielded the predictable result of an iPad form factor having a camera located in a cutout portion that projects outward, as taught by Chiang. Ex-1006 (Chiang), ¶¶18-20, Figs. 1, 3. This motivation and the reasonable expectation of success are further explained in the claim analysis below.

**1. U.S. Patent Application Publication No. 2004/0214619
("Chiang") (Ex-1006)**

249. I have reviewed the Chiang reference. I understand that Chiang was not cited nor considered during prosecution of the '602 patent, based primarily on the fact that Chiang is not cited on the face of the patent, nor have I seen the reference discussed in the prosecution history.

250. Chiang was filed on October 9, 2003 and was published on October 28, 2004. Based on the priority date of October 30, 2013 of the '602 patent, I understand Chiang is prior art to the '602 patents under AIA §§102(a) and (b).

251. Chiang is directed to aspects of portable electronic devices, including mobile phones with built-in cameras. Ex-1006 (Chiang), Abstract, ¶¶1-2, ¶16, ¶¶19-20, Figs. 1, 3. Chiang provides details regarding the form factor, placement, and appearance of the camera, including a cut-out portion around the camera that projects outward from the rear side of the housing.

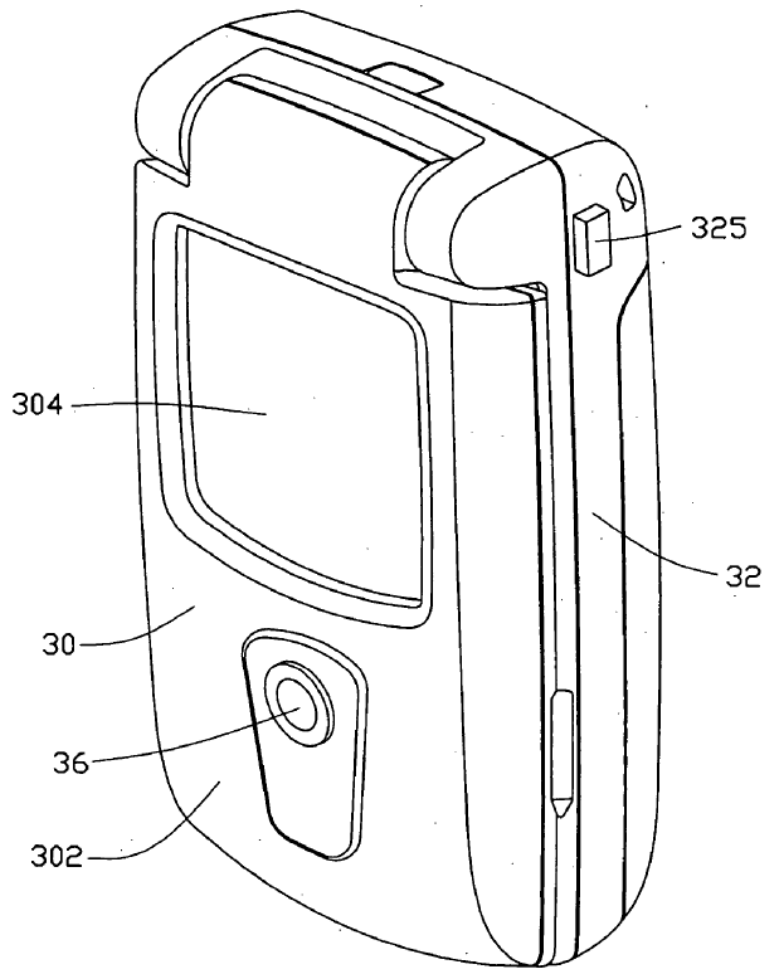


FIG. 1

252. Chiang is in the same field as the '602 patent, i.e., form factor of a portable electronic device. For example, Chiang is directed to the form factor configuration of a portable electronic device, including the shape, structure, and components of an electronic device such as a mobile phone. Ex-1006 (Chiang), ¶¶1-2, ¶¶8-10. Therefore, Chiang is an analogous art to the claimed invention of the '602 patent.

2. Dependent Claims 9, 30

253. It is my opinion that McClure-997 and McClure-998 in view of Chiang render Claims 9 and 30 obvious.

- [9] **A portable electronic device according to claim 1**
- [30] **A mobile phone according to claim 22**
- further comprising a cut out portion wherein the cut out portion projects from the rear side of the housing.**

254. McClure-997 and McClure-998 teach the portable electronic device according to claim 1 and the mobile phone according to claim 22. *See* Section V.A.3. Chiang provides additional teachings that supplement McClure-997 and McClure-998's teachings of the additional limitation of claims 9 and 30.

255. Chiang teaches a **cut out portion projecting from the rear side of the housing**. For example, Chiang teaches a camera 36, which included a lens portion, that extended to a cut out in the rear side of the housing. Ex-1006 (Chiang), ¶¶18-20, Figs. 1, 3. This was a common and conventional arrangement for mobile devices. For example, in 2004, Nokia introduced the 6630¹⁶ and Motorola introduced Razr v3¹⁷. All of these mobile devices had a

¹⁶ https://www.gsmarena.com/nokia_6630-pictures-811.php.

¹⁷ https://www.gsmarena.com/motorola_razr_v3-pictures-853.php.

camera including lens portion that extended to a cut out in the housing and the cut out portion projected from the rear side of the housing.

Nokia 6630



Motorola Razr V3



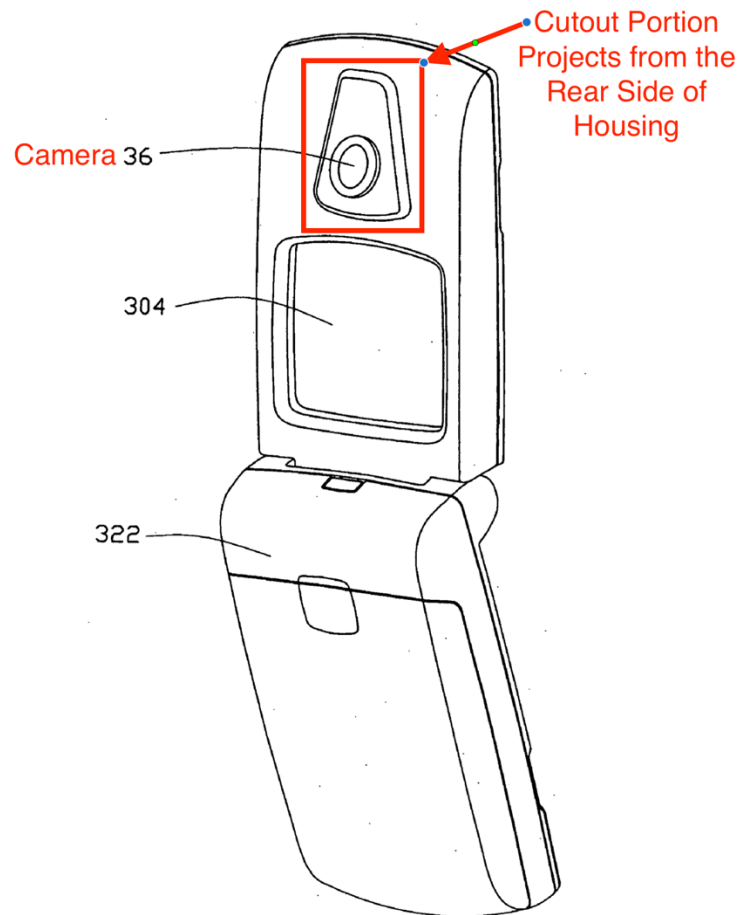


FIG. 3

256. As can be seen in annotated Figure 3, the cutout portion in which a camera is located projects outwardly from the rear side of the housing. The camera of Chiang is located on the rear side of the housing because Chiang teaches a flip phone, which includes a camera located on the rear side when the flip phone is open to capture an image. When positioning a camera within a portable electronic device, it was common to arrange the camera such that the camera protrudes through an opening in the housing and occupies less space within the device housing, which had limited space. Chiang teaches this

arrangement. Ex-1006 (Chiang), ¶¶18-20, Figs. 1, 3. However, the protruding camera was vulnerable to damage. For additional protection, it was common to include a projecting portion of the housing, as shown in Figure 3 above, that surrounds the protruding portion of the camera to provide additional protection. Beyond its physical utility, this configuration was a known design detail to draw users' attention to the camera. In the 2013 timeframe, camera lens of a portable electronic device was located at inconsistent locations, which made it difficult for subjects to locate and users to position the camera without accidentally blocking the image. Including the projecting portion allowed the subjects to recognize the location of the camera lens and users to position the camera more easily without blocking the image.

257. As discussed previously, it would have been obvious to a POSITA to position a cutout and camera on the rear side of the device housing because it makes it easier for the user to face a target and point the device at a target to take a picture of it while viewing that target on the screen. *See* Sections V.A.3[1b/22b]-[1c/22c]. For the same reasons, it would have been obvious to a POSITA to position Chiang's cutout within a projecting portion, as taught by Chiang, on the rear side of the housing taught by McClure 997 and/or McClure-998.

258. A POSITA would have been motivated to combine the teachings of McClure references regarding the cutout portion of the rear side with Chiang's teachings regarding the cutout portion projecting from the housing for reasons explained above. *See* Section V.B. Therefore, Ground 3 teaches claims 9 and 30.

259. **Motivation to Combine.** A POSITA would have been motivated to combine Chiang's teachings with McClure-997 and McClure-998 because the combination would have yielded several advantages. For example, having the cutout portion project outward would have allowed the housing to be thinner while still fitting a larger camera. The projecting portion would have allowed the person being photographed to quickly see where the camera was located on the device, and also would have allowed the user to tactilely find the location of the camera lens and avoid accidentally blocking part of the image. The projecting portion would have also allowed the designer to emphasize the camera as a selling feature.

260. The combination would not have changed the principle of operation of any of the references. Instead, the combination of Chiang with the McClure references would simply have changed the appearance and physical characteristics of the form factor near the camera.

261. A POSITA would have had a reasonable expectation of success when combining the teachings of McClure-997, McClure-998, and Chiang. This was explained for the combination of the McClure references for Ground 2. *See* Section V.A. Additionally, for the combination with Chiang, a POSITA would have had a reasonable expectation of success because the references are all directed to the shape, structure, layout, and components of portable electronic devices and their combination would not have changed the principle of operation of any of the references, as explained above. Indeed, the teachings of the references are compatible and complementary because McClure-997 and McClure-998 both teach a backwards-facing camera, while Chiang teaches additional details applicable to the backwards-facing camera and housing. *E.g.*, Ex-1004 (McClure-997), ¶77, Fig. 3; Ex-1005 (McClure-998), ¶54, ¶43, Fig. 2; Ex-1006 (Chiang), ¶¶18-20, Figs. 1, 3. These teachings naturally fit together and would have given a POSITA a motivation and reasonable expectation of success in combining the references.

262. Furthermore, the McClure references and Chiang do not limit themselves to the disclosed embodiments. For example, the McClure references explicitly state, “While the embodiments have been described in terms of several particular embodiments, there are alterations, permutations, and equivalents, which fall within the scope of these general concepts. It

should also be noted that there are many alternative ways of implementing the methods and apparatuses of the present embodiments.” Ex-1005 (McClure-998), ¶87; Ex-1005 (McClure-998), ¶123. Similarly, Chiang claims that “various changes may be made.” Ex-1006 (Chiang), ¶22.

263. Based on my experience in the industry, a POSITA with two years of industrial design experience would have been able to combine teachings from McClure-997, McClure-998, and Chiang to either an iPad or iPhone form factor, which differ primarily in size. This would have been well within the level of ordinary skill (*See* Section II) because iPads with cameras were well-known in the art, and the application of these teachings would have been simple changes to the design and appearance of an iPad, and a POSITA would have had industrial design experience in the designing the appearance of portable electronic devices such as iPads.

3. Dependent Claims 10, 31

264. It is my opinion that McClure-997 and McClure-998 in view of Chiang render Claims 10 and 31 obvious.

[10] A portable electronic device according to claim 9

[31] A mobile phone according to claim [30]¹⁸

where the camera is partially located in the cut out portion.

265. McClure-997 and McClure-998 in view of Chiang teach the portable electronic device according to claim 1 and the mobile phone according to claim 22. *See* Section V.B.2. Chiang provides additional teachings that supplement McClure-997 and McClure-998's teachings of the additional limitation of claims 10 and 31.

266. Chiang teaches that **the camera is partially located in the cut out portion**. For example, Chiang teaches a camera with one portion located within the housing (including the sensor and other electronic components) and an optics portion (including the lens portion) that projects outward from the housing. The camera includes an optical portion that is located in the cutout portion, and the cutout is in the projecting cutout portion of the rear surface that was explained for claims 9 and 30. Ex-1006 (Chiang), ¶¶18-20, Figs. 1, 3.

¹⁸ Claim 31 contains a typographical error which omits the claim number from which the claim is dependent. I understand that claim 31 depends from claim 30 based on prosecution history of the '602 patent. *See* Ex-1002, 000697 (claim 55 in the application stage, which corresponds to claim 31 of the '602 patent as issued, depends from claim 54), 000733 (showing claim 54 in the application stage corresponds to claim 30 of the '602 patent as issued).

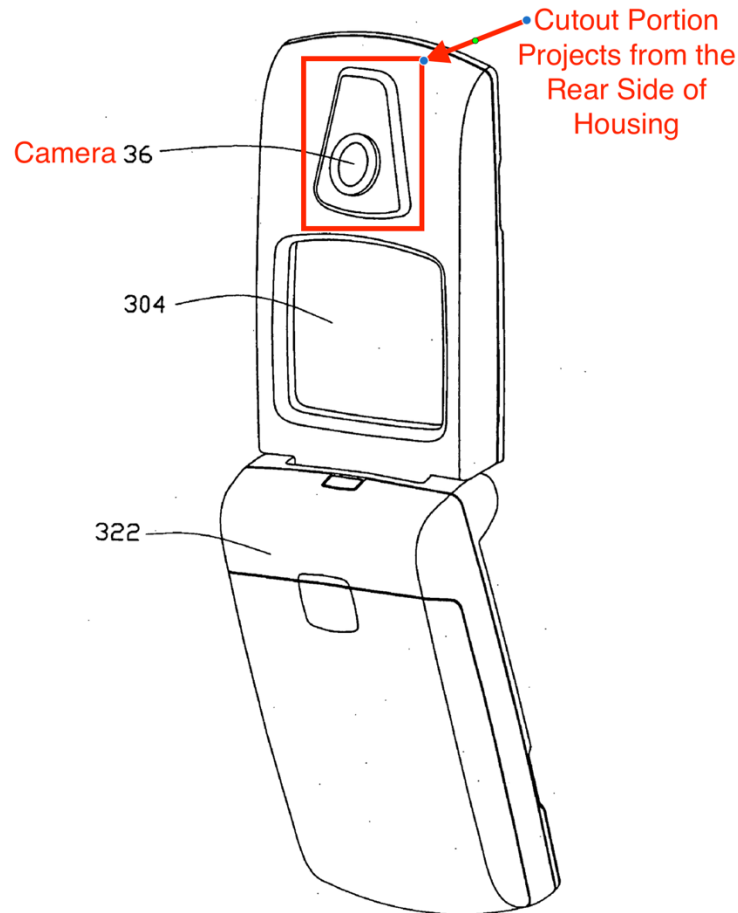


FIG. 3

267. As can be seen in Figure 3, the camera 36 protrudes through the cutout portion annotated in red and therefore is at least partially located in the cutout portion.

268. Therefore, Ground 3 teaches claims 10 and 31.

269. The motivation and reasonable expectation of success in combining Chiang's teachings with McClure-997 and McClure-998 were explained above in the section for claims 9 and 30.

4. Claims 1-8, 11-29, 32-36

270. McClure-997 and McClure-998 teach these claims, as explained for Ground 2. *See* Sections V.A, V.B.

VI. BACKGROUND AND QUALIFICATIONS

271. This section contains a summary of my educational background, career history, publications, and other relevant qualifications. My full curriculum vitae is attached as Appendix 1 to this declaration.

272. I am currently a tenured Full Professor at Purdue University in the Industrial Design Program. I have been teaching at Purdue since 1989. In 1996–97, I served as a Fulbright Professor at the University of Art and Design Helsinki. I have been involved in industrial design for 38 years and have experience in both the practical and academic areas of the industrial design field.

273. I received a Master of Fine Arts degree in Industrial Design in 1988 from the University of Illinois at Urbana-Champaign. I have also received a Bachelor of Art degree with a major in Fine Art in 1982 from Northwestern College, Orange City, Iowa.

274. Before teaching, I worked as an industrial designer at Hari and Associates in Skokie, Illinois. I have designed a variety of products as an industrial designer. I have designed consumer products including electronics and other product designs during my 30+ years of design experience, a few

examples are: cell phones for Samsung, an iPod speaker for Klipsch, a hand controller for BraunAbility, and a video game controller for ExerTron for use with a Nintendo video game system, fishing pliers, handheld deep tissue therapy tools, the Kudo Crafters Clamp and a USB drive for Filadex.

275. I have participated in numerous design competitions and exhibitions worldwide, and my design work has been recognized nationally and internationally. My designs have received recognition at various international design competitions, including; Award of Excellence in the Taiwan International Design Competition, Finalist in the Korean International Travel Souvenir Design Competition, Second Place in Neste Forma Finlandia 3 International Plastic Design Competition, and Silver Winner in Idea95 Industrial Designers Excellence Award, A'Design Gold, and an IDA Gold.

276. My designs have been exhibited both nationally and internationally, including at the Museum of Modern Art in New York, the Cooper Hewitt National Design Museum (Smithsonian) in New York, the Groninger Museum (Netherlands), the Veletrzní Palác Prague (Czech Republic), and the Biennale Internationale Design 2000 and 2002, which was sponsored by the Museum of Modern Art in Saint-Étienne (France).

277. I am a named inventor of 12 issued patents, and my designs have been reproduced in various publications. For example, my designs have been

published in several periodicals: I.D. Magazine, Domus Magazine, Innovation (IDSA), Design (London), Plastics, Design Kunststoff (Germany), Design (Taiwan), and Machine Design. My designs have also been published several books; Chair Show 4, Mutant Materials in Contemporary Design (MOMA), Design Now, Convergence of Art and Design International, and Access by Design.

A. Compensation

278. For my efforts in connection with the preparation of this declaration I have been compensated at my standard rate for this type of consulting activity. My compensation is in no way contingent on the results of these or any other proceedings relating to the above-captioned patent.

B. Materials and Other Information Considered

279. I have considered information from various sources in forming my opinions. I have reviewed and considered each of the exhibits listed in the attached Appendix 2 (Materials Considered in the Preparation of This Declaration) in forming my opinions.

VII. UNDERSTANDING OF THE LAW

280. I am not an attorney. In forming my opinions in this Declaration, I applied the relevant legal principles provided to me by counsel, which are summarized in Appendix 4.

VIII. RESERVATION OF RIGHTS

281. My opinions are based upon the information that I have considered to date. I am unaware of any evidence of secondary considerations with respect to the '602 Patent that would render any of the challenged claims non-obvious. I reserve the right, however, to supplement my opinions in the future to respond to any arguments raised by the owner of the '602 Patent and to take into account new information that becomes available to me.

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

Executed on June 28, 2024.

By:



Steven Visser

APPENDIX 1: CURRICULUM VITAE OF STEVE VISSER

Curriculum Vitae

Steve Visser

Education

- 1988 **University of Illinois at Champaign-Urbana**
MFA in Industrial Design
- 1982 **Northwestern College**
BA in Fine Arts, Sculpture

Academic Appointments

- 2006-Present **Professor**
Industrial Design
Patti and Rusty Rueff School of Design, Art and Performance
Purdue University
- 1996-2006 **Associate Professor**
Industrial Design
Patti and Rusty Rueff School of Visual and Performing Arts
Purdue University
- 1990-1996 **Assistant Professor**
Industrial Design
Department of Visual and Performing Arts
Purdue University
- 1989-1990 **Visiting Assistant Professor**
Industrial Design
Department of Creative Arts
Purdue University
- 1986-1988 **Teaching Assistant**
University of Illinois at Champaign-Urbana

Professional Positions

- 1990-Present **Steve Visser Design**
Industrial Design Consultant
West Lafayette, IN
- 2005-2014 **DesigNapkin**
Co-Founder
West Lafayette, IN
- 1988-1989 **Hari and Associates**
Industrial Designer
Skokie, IL

Awards and Honors

2021	DAC World's Leading Designers World's 7 th Best Designer in 2021 Leading Expert in Differently Abled and Senior's Assistance Design
2019	Distinguished Professor (2019-2022) School of Art and Design, Wuhan University of Technology, Wuhan, China
2018	Appliance Design: Excellence in Design Award Gold Prize (see Design Competitions and Exhibitions)
2017	A'Design Award & Competition Gold Award (see Design Competitions and Exhibitions)
2015	SAI Faculty Fellow Domus Academy, Milan, Italy (see Fellowships and Residencies)
2014	Associate Fellow American Academy in Rome, Rome, Italy (see Fellowships and Residencies)
2007	Honorary Professor Nanjing University of Science and Technology, Nanjing, China
2005	Regional Competition: Indiana Venture Idol Winner: Coolest Idea (see Design Competitions and Exhibitions)
2004	National Design Competition: ID Magazine Honorable Mention (see Design Competitions and Exhibitions)
2003	Taiwan International Design Competition Award of Excellence (see Design Competitions and Exhibitions)
2003	International Eyewear Design Competition: Opus Design Award Award Winner (see Design Competitions and Exhibitions) Japan
1999	Malaysian Polytechnic Curriculum Development Project Politeknik Johor Bahru, Pasir Gudang, Malaysia (see Grants)
1997	Fulbright Scholar University of Art & Design Helsinki, Helsinki, Finland (see Fellowships and Residencies)
1995	National Design Competition: Idea95 Industrial Designers Excellence Award Silver Winner (see Design Competitions and Exhibitions)
1993	Neste Forma Finlandia 3 International Plastic Design Competition 2 nd Place (see Design Competitions and Exhibitions) Finland

Membership

1992-Present	Industrial Designers Society of America (IDSA)
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Design Competitions and Exhibitions

- 2021 **Red Dot Award**
Finalist
4110 entries from 49 countries
Design Concept 2021
Category: Bathroom and Hygiene
July 4
Pompeii Washbasin
- 2019 2019 KSBDA World Culture and Shaping Invitational Exhibition
Russian State University
Moscow, Russia
August 20-30, 2019
Industrial Designer: Steve Visser
Herculano Coffee Table
- 2018 **Convergence Art & Design International**
Best Creativity Award
Professional Exhibition
Shaoxing, China
November 15-18
Industrial Designer: Steve Visser
Herculano Coffee Table
- 2018 **Appliance Design: Excellence in Design Award**
Gold Prize 2018
Medical Equipment and Devices Category
Troy, MI
June 1
Industrial Designers: Steve Visser, Max Cao
Engineers: Rob Bettcher, Justin Kline
BraunAbility Q Series Wheelchair Lift
Published online
<https://www.appliancedesign.com/articles/95865-autoadapt-q-series-mobile-access-lift>
- 2018 **11th Annual IDA Awards Competition**
Gold Award
1st place in Design for Society / Design for Elders
Thousands of entries from 95 countries
Los Angeles, CA
May 22
Industrial Designers: Steve Visser, Max Cao
Engineers: Rob Bettcher, Justin Kline
BraunAbility Q Series Wheelchair Lift
Published in
IDA Design Awards 2017, page 209
- 2018 **A'Design Award & Competition**
Bronze A'Design Award
Furniture, Decorative Items and Homeware Design Category
Milan, Italy
April 15
Industrial Designer: Steve Visser
Herculano Coffee Table
Published in
<https://competition.adesignaward.com/design.php?ID=58604>
A'Design Award & Competition Award Winning Designs 2017-2018, Page 1082

2017-2018

A'Design Award & Competition
Golden A'Design Award in Differently Abled and Seniors' Assistance Design Category
Golden awards given to the top 3%
Milan, Italy
April 15
Industrial Designers: Steve Visser, Max Cao
Engineers: Rob Bettcher, Justin Kline
BraunAbility Q Series Wheelchair Lift
Published in
A'Design Award Winning Entries 2016-2017 Award Winning Product Design. 160.

Traveling Exhibition: *A'Design Award Winning Entries 2016-2017*

Italy	MOOD Museum of Design, Como	June 6-26, 2017
India	Festival of Architecture and Interior Designing, Mumbai	September 22-23, 2017
Hungary	Budapest Projekt Galéria, Budapest	October 8-31, 2017
China	International Industrial Design Fair, Shezhen	November 5-7, 2017
China	Utopa International Design Exhibition, ZhuZhou City	December 26, 2017-March 20, 2018

2017

SOFA Exhibit
Co-lead group of 10 students who developed exhibit for *Connect* at the Sculptural Object
Functional Art and Design Expo at Navy Pier
2017 Connect Winner
Chicago, IL
November 2-5
Nature or Nurture: A 3D Printed Space

2016

Juror
1st Greater China Smart Home Appliances Design Competition
Hong Kong
November 4

2016

Juror
Appliance Design Excellence in Design Competition
Troy, MI

2016

Juror
International Housewares Association Student Design Competition
Chicago, IL
January 13-14

2015

One-Person Design Exhibition
Domus Academy/NABA
Milan, Italy
July 21-August 4
Inspirations from Ancient Rome

2013

Invitational International Design Exhibition
4th International Innovation Design and Education Forum Exhibition
Nanjing, China
September 18-19
Exclamation Stacking Chair
Published in
Cross-Disciplinary and Integration: Portfolio of "Nanjing Innovation" International Universities' Design Exhibition. Pages 20-24

2012-2013

Juror
Appliance Design Excellence in Design Competition
Troy, MI

- 2012 **Invitational International Exhibition**
Groovy Stuff Booth
International Casual Furniture and Accessories Market
The Merchandise Mart
Chicago, IL
September 20-23, 2012
Apple² Pedestal Table
- 2012 **Juror**
Nanjing Innovation Design Competition
Nanjing, China
August 13-14
- 2011 **Poster Session**
Mudd Design Workshop
Claremont, CA
May 28-30
Design for Relieving: Home-based Healthcare Products
Primary Author: Cheryl Qian
Poster Layout and Co-Author: Steve Visser
- 2009 **Invitational International Design Summit and Exhibition**
Nanjing, China
October 25-26
StoneStalk Bench
- 2009 **Juried National Exhibition**
BECA Gallery "Next" exhibition
New Orleans, LA
February 5-28
Woodstalk Bench
- 2007 **Invitational International Design Summit and Exhibition**
Nanjing, China
November 7-8
Astro Lounge Chair
- 2006 **Juried Exhibition at the Industrial Designers Society of America**
National Education Conference
Austin, TX
September 17-20
Astro Lounge Chair
- 2005 **Juried Exhibition at the Industrial Designers Society of America**
National Education Conference
Washington, D.C.
August 21-23
Giwa: Build-it-yourself Souvenir
BLU Network: Borrow Lend Unite
Safety Stove: for South Africa
Flip: Invertible Organizer
- 2005 **International Travel Souvenir Design Competition**
Selected Design (about 630 entries from 39 countries, 142 selected)
Ministries of: Culture & Tourism, Commerce, Industry & Energy,
Korean Association of Industrial Design, ICSID
Kintex Exposition Center
Gyeonggi, South Korea
April 14-17
Giwa: Build-it-yourself Souvenir
Published in
International Travel Souvenir Design Competition 2005 Korea
(Seoul, South Korea: Gyeonggi Tourism Organization), 41

- 2005 **Satellite Salone International Invitational Design Exhibition**
(Only two schools from the USA were invited to exhibit in the Satellite Salone, Purdue University and Pratt Institute)
Milan Furniture Fair
Milan, Italy
April 13-18
Giwa: Build-it-yourself Souvenir
Safety Stove: for South Africa
- 2004 **50th Annual International Design Competition: I.D. Magazine**
Honorable Mention (over 2000 entries/ 159 selected)
New York, NY
July
Design Team: Steve Visser and Scott Shim
BLU Network: Borrow Lend Unite
Published in
I.D. Magazine 50th Annual Design Review
Volume 52, number 5, (July 2004): 184
- 2004 **International Aluminum Extrusion Competition**
Selected for Exhibition (109 entries from 9 countries/ 36 selected)
ET Foundation
International Aluminum Extrusion Seminar and Exposition
Orlando, FL
May 18-21
Design Team: Scott Shim and Steve Visser
Birdie Aluminum Extrusion Concept
- 2003 **International Eyewear Design Competition: Opus Design Award 2003**
Award Winner (1771 entries from 62 countries/ 313 winners)
Eyeteck Co., Ltd.
Tokyo, Japan
December 1
Design Team: Steve Visser and Scott Shim
Shades Eyewear
- 2003 **Taiwan International Design Competition: Creating a Digital Culture Design**
Award of Excellence (356 entries from 25 countries/ 20 selected)
Taiwan Design Center
Taiwan Industrial Development Bureau
Taipei, Taiwan
November 8-30
Design Team: Steve Visser and Scott Shim
BLU Network: Borrow Lend Unite
Published in
Taiwan Design Center, 2003 Taiwan Creative Design Expo (Taipei, Taiwan: Taiwan Industrial Development Bureau), 115.
- 2002 **Invitational Exhibition at the Biennale Internationale Design 2002**
Museum of Modern Art, Saint-Étienne
Saint-Étienne, France
November 16-24
Civil Interactive Play Table
- 2001-2002 **29th Annual National Juried Toys Designed by Artists Exhibition**
Decorative Arts Museum
Arkansas Art Center
Little Rock, AR
November 22, 2001-January 6, 2002
Principal Designer: Steve Visser
Designer: Nicolé Visser
Herman the Dino

- 2001-2002 **National Furniture Design Competition: The Chair Show 4**
 Selected Design (234 entries, 45 selected)
 Southern Highland Craft Guild
 Asheville, NC
Quantum Armchair
- Traveling Exhibition: The Chair Show 4
 Asheville, NC Folk Art Center September 30, 2001-January 13, 2002
 Wausaw, WI L. Y. W. Art Museum February 2-April 7
 Greenville, NC Wellington Gray Gallery June 6-September 21
 Published in
 David McFadden, *The Chair Show 4* (Asheville, NC: Southern Highland), 44.
- 2001 **International Eyewear Design Competition: Opus Design Award 2001**
 Award Winner (1639 entries from 30 countries/ 138 award winners)
 (The only winner from the USA)
 Eyetec Co., Ltd.
 Tokyo, Japan
 September 13-14
Egypt Eyewear
- 2001 **Herman Miller Office-Supply Creation National Competition**
 Honorable Mention
 Herman Miller
 www.hermanmillerred.com
 Zeeland, MI
 Principal Designer: Steve Visser
 Designer: Nicolé Visser
Herman the Dino
- 2000 **Biennale Internationale Design 2000 Invitational Exhibition**
 Museum of Modern Art, Saint-Étienne
 Saint Étienne, France
 October 7-15
Egypt Eyewear
Demi Fruit Bowl
- 2000 **2000 Objects for the New Millennium Juried Exhibition**
 Gallery 91
 New York, NY
 July-September
Forest Eyewear
- 2000 **Mid-States Crafts Regional Juried Exhibition**
 Evansville, IN
 January-March
Forest Eyewear
- 1998-1999 **Unlimited by Design National Invitational Exhibition**
 Cooper Hewitt National Design Museum (Smithsonian)
 New York, NY
 November 17, 1998-March 21, 1999
 Principal Designer: Steve Visser
 Engineer: Ashok Midha
Compliers® Flexural Fishing Pliers

- 1995-1997 **Mutant Materials in Contemporary Design International Invitational Exhibition**
Museum of Modern Art
New York, NY
May 24-August 22
Principal Designer: Steve Visser
Design Team: Miro Tasic and Brian McGreevy
Engineer: Ashok Midha
Compliant Fishing Pliers
Published in
Paola Antonelli, *Mutant Materials in Contemporary Design Exhibition Bulletin* (New York: Museum of Modern Art), 6.
- Traveling Exhibition: Mutant Materials
Netherlands Groninger Museum, Groninger September 13-December 7, 1997
Czech Republic Veletržní Palác, Prague May 15-August 17, 1997
- 1996-1997 **Innovations for Living/Industrial Design Excellence Awards 1989-1995**
National Invitational Exhibition
Brook Steven's Gallery at Milwaukee Institute of Design
Milwaukee, WI
October 18, 1996-August 23, 1997
Design Team: Kyle Bennett and Steve Visser
Kudo Crafters Clamp
- 1995-1996 **National Design Competition: Good Design Award Exhibition**
Selected Design (500 entries/ 120 selected)
The Chicago Athenaeum: Museum of Architecture and Design
Chicago, IL
October 24, 1995-January 13, 1996
Principal Designer: Steve Visser
Design Team: Don Herring, Dan Julian and Don Woods
ExerTron™ Video Game Controller
- 1995-1996 **National Design Competition: Good Design Award**
Good Design Award (Nearly 500 entries/ 80 selected)
The Chicago Athenaeum: Museum of Architecture and Design
Chicago, IL
October 24, 1995-January 13, 1996
Principal Designer: Steve Visser
Engineer: Ashok Midha
Compliers® Flexural Fishing Pliers
- 1995 **Idea95: National Design Competition**
Silver Winner for New Product Concepts (766 entries/ 56 selected)
Industrial Designers Excellence Award
IDSA National Conference
Santa Fe, NM
September 13-16
Design Team: Kyle Bennett and Steve Visser
Kudo Crafters Clamp
Published in
Innovation: Journal of the Industrial Designers Society of America, 14, no. 4, (Fall 1995): 207.
Cited in
Business Week (June 7, 1993): 102.
- 1995 **Permanent Collection**
The Chicago Athenaeum: Museum of Architecture and Design
Chicago, IL
Principal Designer: Steve Visser
Engineer: Ashok Midha
Compliers® Flexural Fishing Pliers

- 1994 **94 Nagaoka International Design Competition**
 Selected Design (615 entries from 40 nations/ 57 selected)
 Shinanogawa Technopolis
 Nagaoka City, Japan
 October 21-23
 Design Team: Bennett Kyle and Visser Steve
Kudo Crafters Clamp
 Published in
Interior Exterior International Design Competition 9 (Nagaoka, Japan: Shinanogawa Technopolis), 59
- 1994 **Permanent Collection**
 Museum Die Neue Sammlung (Invitational)
 Industrial Design Collection
 Munich, Germany
 Principal Designer: Steve Visser
 Design Team: Miro Tasic and Brian McGreevy
 Engineer: Ashok Midha
Compliant Fishing Pliers
- 1993 **Idea93: National Design Competition**
 Silver Winner, for New Product Concepts (678 entries/ 26 selected)
 Industrial Designers Excellence Award
 IDSA National Conference
 Atlanta, GA
 August 11-14
 Principal Designer: Steve Visser
 Designers: Miro Tasic and Brian McGreevy
 Engineer: Ashok Midha
Compliant Fishing Pliers
 Published in
Innovation: Journal of the Industrial Designers Society of America 12, no. 4 (Fall 1993): 125.
 Cited in
Business Week (June 7, 1993): 78.
- 1993 **Neste Forma Finlandia: International Plastics Design Competition 3**
 Second Prize \$18,000 (576 entries from 36 countries/ 2nd)
 Neste Corporation
 Espoo, Finland
 Principal Designer: Steve Visser
 Design Team: Miro Tasic and Brian McGreevy
 Engineer: Ashok Midha
Compliant Fishing Pliers
- | | | |
|---|--|-----------------|
| Traveling Exhibition: Neste Forma Finlandia 3 | | |
| Finland | Tapiola, Espoo | April 19-25 |
| Sweden | Svenska Måssan in Gothenburg | May 10-15 |
| France | Parc de la Villette, Paris | June 7-13 |
| Germany | Rhein Ruhr Center, Mulheim-Ruhr | June 21-27 |
| Belgium | Zuiderdokken, Antwerp | September 20-26 |
| Italy | Milan | October 4-10 |
| Portugal | Espinho, near Oporto | October 20-26 |
| UK | National Exhibition Center, Birmingham | November 7-11 |
- Published in
 David Vickery, *Neste Forma Finlandia International Plastic Design Competition 3* (Helsinki: Abbeygate), 12
- 1992 **Architectonics: Regional Juried Exhibition**
 Performing Arts Center
 Fort Wayne, IN
 October 22-November 20
Nurkka Corner Floor Lamp

1984 **Solo Exhibition of Recent Sculptures**
Concordia College
Seward, NE

Patents

2019 **Soft Tissue Therapy Tool**
Issued July 16
Design Patent Number D854,178
Inventors: Michael Cochard and Steven Visser

2018 **Vehicle Lift Platform Hand Switch**
Issued September 4
Design Patent Number D827,586
Inventors: Robert E. Bettcher, Justin M. Kline, Austin Metzger, Steven Visser, Yingxiao Cao

2017 **Vertical Channel Vehicle Lift Arm**
Issued October 31
Design Patent Number D801,619
Inventors: Robert E. Bettcher, Justin M. Kline, Steven Visser, Yingxiao Cao

2017 **Closed Vehicle Lift Arm**
Issued October 10
Design Patent Number D799,776
Inventors: Robert E. Bettcher, Justin M. Kline, Steven Visser, Yingxiao Cao

2017 **Vehicle Lift Platform**
Issued September 12
Design Patent Number D797,396
Inventors: Robert E. Bettcher, Justin M. Kline, Steven Visser, Yingxiao Cao

2002 **Support Structure for a Chair**
Issued October 8
Design Patent Number D463,925
Inventor: Steve Visser

2001 **Rotary Assembly Table**
Issued April 24
Design Patent Number D440,786
Inventors: Steve Visser, Sang-Gyeun Ahn, Laura Drake, Haolong Ma, Seung-Jo Park

1997 **Resilient Clamp**
Issued May 6
Patent Number 5,625,931
Inventors: Steve Visser and Kyle Bennett

1997 **Video Game Controller**
Issued August 19
Design Patent Number D382,604
Inventor: Steve Visser

1996 **Compliant Pliers**
Issued June 4
Patent Number 5,522,290
Inventors: Ashok Midha and Steve Visser

- 1996 **Video Game Controller**
 Issued November 12
 Design Patent Number D375,531
 Inventor: Steve Visser
- 1996 **Video Game Controller**
 Issued October 29
 Patent Number 5,568,928
 Inventors: Bruce Munson and Steve Visser

Designs Reproduced in Publications

- 2019 **Steve Visser, “Herculano” Coffee Table**
 Published in
 2019 KSBDA Purdue International Invitational Exhibition
 July 26, (West Lafayette, IN USA), 24-25
- 2018 **Steve Visser, “Herculano” Coffee Table**
 Published in
 2018 CADI Convergence Art & Design International
 November 11, 2018 (Shaoxing, China), 90
- 2013 **Steve Visser, “Exclamation” Chair**
 Published in
 Cross-Disciplinary and Integration: Portfolio of “Nanjing Innovation” International Universities’
 Design Exhibition
 July 25, 2013 (Nanjing, China), 20-21
- 2009 **Steve Visser, “StoneStalk” Pedestal**
 Published in
 Portfolio of '09 International Universities Design
 09 国际校际设计作品展组委会
 南京理工大学设计艺术系 2009 年 9 月 10 日 (Nanjing, China) 8-9
- 2008 **Steve Visser and Scott Shim, Timex Season and profile of DesignNapkin design firm**
 Published in
 Charlotte and Peter Fiell, *Design Now*
 (London: Taschen Publishing) 118-123
- 2004 **Steve Visser and Scott Shim “BLU Network: Borrow Lend Unite”**
 Published in
Design (Taipei, Taiwan)
 Vol.114 (December/January): 71
- 2002 **Steve Visser, “Quantum Armchair”**
 Published in
American Style Magazine
 (Winter 2001-2002): 16
- 2001 **Steve Visser, “Ateria Reliquary”**
 Published in
 Luisa Collina and Giuliano Simonelli, Eds.
Designing Designers: Training Strategies for the Third Millennium
 (Milan, Italy: Politecnico di Milano), 73
- 1997 **Steve Visser and Kyle Bennett, “Kudo Crafters Clamp”**
 Published in
 George Covington and Bruce Hannah, *Access by Design*
 (New York: Van Nostrand Reinhold), 201

- 1996 **Steve Visser and Kyle Bennett, “Kudo Crafters Clamp”**
Published in
Universal Design Excellence Project
(Takoma Park, MD: Universal Designers and Consultants, Inc. in cooperation with The National Endowment for the Arts and the National Building Museum) slides.
- 1996 **Steve Visser, and Ashok Midha, “Compliers™ Flexural Fishing Pliers”**
Published in
Design Report (Hamburg, Germany)
(January/February 1996)
- 1995 **Steve Visser, and Ashok Midha, “Compliers™ Flexural Fishing Pliers”**
Published in
Plastics
(May 1995): 7
- 1994 **Steve Visser, Miro Tasic, and Ashok Midha, “Compliant Fishing Pliers”**
Published in
Taka Sihvola, Mikko, *Design in Finland 1994*
(Helsinki: The Finnish Foreign Trade Association), 60
- 1994 **Steve Visser, Miro Tasic, and Ashok Midha, “Compliant Fishing Pliers”**
Published in
Innovation: Award-Winning Industrial Design
(Glen Cove, NY: PBC International, Inc.), 82
- 1993 **Steve Visser, Miro Tasic, and Ashok Midha, “Compliant Fishing Pliers”**
Published in
Paola Antonelli, *Mutant Materials in Contemporary Design*
(New York: Museum of Modern Art and Rizzoli Press), 35
- 1993 **Steve Visser, Miro Tasic, and Ashok Midha, “Compliant Fishing Pliers”**
Published in
Design (London) 534 (June 1993): 8
Form Function Finlandia (Helsinki) no. 2 (June 1993): 91
K Plastic & Kautscherl Zeikey (Germany) (May 1993): 10
Plastverarbeiter (Heidelberg, Germany) 44 no. 5 (1993): 73
Form (Zurich, Germany) no. 143 (1993): 129
Design in Kunststoff (Germany) no. 44 (1993): 72-74
Domus (Milan, Italy) no. 752 (September 1993): 80-81
Kunstof Magazine (Doetinchem, Netherlands) no. 5 (May 1993): 32
Machine Design (July 9, 1993): 12

Industrial Design Activities

- 2022 **Polar Ice Coffee Table (furniture design)**
Steve Visser Design
West Lafayette, IN
- 2021 **Pompeii Washbasin (fixture design)**
Steve Visser Design
West Lafayette, IN
- 2020 **Root Coffee Table (furniture design)**
Root Coffee Table (furniture design)
Steve Visser Design
West Lafayette, IN

2018-2019	Neonatal Crib (medical design) Save The Children Blantre, Malawi (Africa) Design Director: Steve Visser Design Team: Qiuying Joyce Xu, Lauren Para, Daniel Madrinan-Chiquito, Engineering Team: Yuehwern Yih, Sidi Deng, Maxwell Silla, Francis Masi Medical Team: Bina Valsangkar, Queen Dube, Nenani Chisema
2018-2019	Kangaroo Mother Care Hospital Bed (furniture design) Save The Children Blantre, Malawi (Africa) Design Director: Steve Visser Design Team: Dewey Yu, Daniel Madrinan-Chiquito, Engineering Team: Yuehwern Yih, Maxwell Silla, Francis Masi Medical Team: Bina Valsangkar, Queen Dube, Nenani Chisema
2018	Walnut and Cast Pewter Inlay Coffee Bar (furniture design and development) Revolution Community Church Logansport, IN Design Director: Steve Visser Design Team: David Marchese and Keith Williams
2017	Herculaneum Coffee Table II (furniture design) Steve Visser Design West Lafayette, IN
2017	Truss Arch (public space design) City of West Lafayette West Lafayette, IN
2016	Fuzion Mini (product design) FASTR, Inc. Indianapolis, IN
2015-2016	Herculaneum Coffee Table (furniture design) Steve Visser Design West Lafayette, IN
2015	River Desk and Silver Apple² Pedestal (furniture design and development) Steve Visser Design West Lafayette, IN
2015	Hand Pendant (product design) Braun-Ability Winamac, IN Design Team: Steve Visser and Yingxiao Cao
2015	QLD Wheelchair Lift (product design) Design Team: Steve Visser and Yingxiao Cao Braun-Ability Winamac, IN
2014	Balance Stool, Egg Bowls, Umbrella Birdfeeder, and Button Clock (product design) Association of Craft Producers Kathmandu, Nepal
2014	3 Horned Trivet, Copper Candle Holder (product design) Design Team: Sari Visser and Steve Visser Association of Craft Producers Kathmandu, Nepal

2011-2014	Mini Massage Tool (product design) Soft Tissue Therapy Tools, Inc. Indianapolis, IN
2013	Circle Chair (furniture design and development) DesigNapkin West Lafayette, IN
2012	Exclamation Chair (concept development) DesigNapkin West Lafayette, IN
2011-12	Apple² table line (furniture design and development) DesigNapkin West Lafayette, IN
2009-2010	Fuzion ST3 (product design and development) Soft Tissue Therapy Tools, Inc. Indianapolis, IN
2007	Pendant Lighting Design, Origins 212 Collection (product design) Omega Lighting Tupelo, MS Principal Design: Steve Visser and Scott Shim
2006-2007	Track Lighting Design (product design) Omega Lighting Tupelo, MS Principal Design: Steve Visser and Scott Shim Design Team: Milan Jovanovic,
2006-2007	Bike Seat Design (product design) David Porter Kansas City, MO Principal Design: Scott Shim and Steve Visser
2006	Cell Phone Design (product design) Samsung Electronics Sacramento, CA Principal Design: Scott Shim and Steve Visser
2006	MXR programmable light (product design) Apollo Design Technology, Inc. Ft. Wayne, IN Principal Design: Scott Shim and Steve Visser
2005-2006	Portable Electronics (product design) Klipsch Audio Corp. Indianapolis, IN Principal Design: Steve Visser and Scott Shim Design Team: Nick Poteracki, Milan Jovanovic, Faraz Shah and Scott Collins
2005-2006	Wardrobe Valet (product design) Proman Products, LLC. Loves Park, IL Principal Design: Scott Shim and Steve Visser

2005	Identity Mouth Guard (product design) Reliance, Inc. Taipei, Taiwan Principal Designers: Scott Shim and Steve Visser Design Team: Nick Poteracki, Colt Stander, Bria Helgersen, Jason Boyer, and Brian Beaver
2005	USB Drive (concept design) Filadex, Inc. West Lafayette, IN
2004-2005	Contact Lens Travel Case (product design) Reliance, Inc. Taipei, Taiwan
2004	Sanitary Toilet Care System (product design) Dr. Seok-Jin Kim Indianapolis, IN Principal Designer: Steve Visser Design Team: Milan Jovanovic and Alex Cantoni
2001	Civil Interactive Play Table (furniture design) Imagination Station West Lafayette, IN
2001	Knock-Down Stool (concept development) Matt Striebel Bloomington, IN Principal Designer: Steve Visser Design Team: Laura Drake and Kyungsook Song
2001	Interactive Trolley Exhibit (exhibit design) Imagination Station/CityBus West Lafayette, IN Principal Designer: Steve Visser Design Team: Nathaniel Grady, Michael Lah and Kiley Reed
2001	Quantum Armchair (furniture design) Patent assigned to Purdue Research Foundation West Lafayette, IN
1999-2000	Fiber Optic Cross (design/ build commission) St. Thomas Aquinas Church West Lafayette, IN
1999	Wooden Decorative Products (product design) Reliance, Inc. Taipei, Taiwan Principal Designer: Steve Visser Design Team: Braden Smith and Haolong Ma
1999	Self-Watering Flowerpots (concept design) Reliance, Inc. Taipei, Taiwan
1998	Faucet Design (product design) Delta Faucet Indianapolis, IN Principal Designer: Judd Lord Design Team: Steve Visser and Loren Hill

1995-1996	Portable Bassinet (product design) Redmon, Inc. Peru, IN Principal Designer: Steve Visser Design Team: Don Herring, Don Woods and Dan Julian
1993-1995	Compliers® Flexural Fishing Pliers (product design) Compliers, Inc. West Lafayette, IN Principal Designer: Steve Visser Engineer: Ashok Midha
1994	Stenfors Temperature Control System (product design) Stenfors, OY Oulu, Finland Principal Designer: Steve Visser Design Team: Kyle Bennett and Don Woods
1994	Computer Interface Device (product graphics) Interserve, Inc. Rockford, IL
1994-1995	ExerTron™ Video Game Controller (product design) ExerTron, Inc. Muncie, IN Principal Designer: Steve Visser Design Team: Don Herring and Scott Jost
1994	Tele-Talker™ (product design) Amuze Technologies Indianapolis, IN Principal Designer: Steve Visser Design Assistant: Braden Smith
1994	Kudo Crafters Clamp (product design) Fiskars, Inc. Madison, WI Design Team: Kyle Bennett and Steve Visser
1993	Mini Printer (concept design) Quixale America, Inc. NPC Limited Taipei, Taiwan Principal Designer: Chao-Hsi Wu Design Team: Steve Visser and Brian McGreevy
1993	ZARD printer sharing system (concept design) Power Print Systems Rossville, IN Principal Designer: Steve Visser Design Team: David Winn and Brian McGreevy
1992	Trim Line Vending Machine (concept design) Standard Changemakers, Inc. Indianapolis, IN

1992 **Display Case** (furniture design commission)
Elastic Mechanism Lab
Mechanical Engineering Building
Purdue University

1992 **River Valley Evangelical Free Church** (logo design)
West Lafayette, IN

1991 **Tricorder Radio Frequency Meter** (product design)
Trilithic, Inc.
Indianapolis, IN
Principal Designer: Steve Visser
Design Assistant: Braden Smith

1991 **Water Soluble Packaging System** (concept development)
Great Lakes Chemical
West Lafayette, IN
Principal Designer: Steve Visser
Design Assistant: Richard Johnson

1991 **ECG Analyzer** (product graphics)
Vetronics, Inc.
Lafayette, IN

1990 **KG Software** (logo design)
Micro Data Base Systems, Inc.
Lafayette, IN

1989 **Ansco Vision AL 35mm camera** (product design)
Haking, Inc.
Hong Kong
Principal Designer: Hari Matsuda
Design Assistant: Steve Visser

1989 **Whistler 750 radar detector** (product design)
Whistler, Inc.
Westford, MA
Principal Designer: Hari Matsuda
Design Assistant: Steve Visser

1989 **Shure Beta 58 wireless microphone** (design detailing)
Shure Brothers, Inc.
Chicago, IL

1989 **Whistler 2se radar detector** (product graphics)
Whistler, Inc.
Westford, MA

1989 **Point of purchase poster** (graphic design)
Ansco, Inc.
Glen View, IL

1989 **Coulter blood analyzer** (product design)
Coulter, Inc.
Miami, FL
Principal Designer: Robert Coons
Design Assistant: Steve Visser

- 1989 **Ansco Vision Gift Pack (package design)**
 Ansco, Inc.
 Glen View, IL
 Principal Designer: Hari Matsuda
 Design Team: Peter Langmar and Steve Visser
- 1988 **Top Flight Video Game Clam Pack (package design)**
 Konomi, Inc.
 Chicago, IL
 Principal Designer: Hari Matsuda
 Design Assistant: Steve Visser
- Expert Witnessing**
- 2022-2023 **Molo Design Ltd. vs. Chanel Inc. Canada (expert witness, utility patent)**
 Gowling WLG LLP.
 Ottawa Canada
 - Work on Expert Report on Validity, November 2022-March 2023
- 2022 **Hasbro Inc. vs. GelBlasters et. al.(expert witness, utility patents)**
 Fish & Richardson P. C.
 Boston MA
 - Review and Analyze Infringement Contentions, August- October 2022
- 2021-2023 **Sure Fit Home Products LLC vs. Maytex Mills (expert witness, design patents)**
 Goldberg Cohen LLP
 New York, NY.
 - Submit Expert Report on Infringement, November 21, 2022
 - Review claim construction
- 2021 **Gunner Kennels vs. Luck Duck (expert witness, utility patents)**
 Banner & Witcoff, Ltd.
 Washington DC/ Chicago IL
 - Work on Expert Report on Validity, November-December 2021
 - Submit Expert Report on Infringement, November 5, 2021
- 2021 **Greenfield vs. Mold-Rite Plastics LLC (expert witness, design patents)**
 Bond, Schoeneck & King PLLC
 Syracuse, NY.
 - Prepare preliminary opinions on infringement/validity, August 2021
- 2020-2022 **Samuel Stamping Technologies vs. Therma-Tru Corp. (expert witness, design patent)**
 Vorys, Sater, Seymour and Pease, LLP
 Cleveland, OH
 - Review and Analyze Validity Contentions, October 2022
 - Declaration regarding claim construction brief, February 18, 2021
 - Prepare rebuttal expert report on §112 issue, December 15, 2020
- 2019-2021 **RTC Industries, Inc. vs. Fasteners For Retail, Inc. (expert witness, utility patent)**
 Banner & Witcoff, LTD
 Washington, DC/ Chicago, IL
 - Completed deposition as expert, May 5, 2020
 - Declaration in IPR2019-00994, January 28, 2020
 - Declaration in IPR2019-00994, August 8, 2019
- 2018-2021 **J.R. Simplot vs. McCain Foods USA, Inc. (expert witness, design patents)**
 Jones Day
 Cleveland, Ohio
 - Give deposition on invalidity, validity, infringement and non-infringement, September 29, 2021
 - Prepare rebuttal expert report on invalidity, August 20, 2021

- Prepare rebuttal expert report on infringement, August 21, 2021
 - Prepare expert report on infringement, July 9, 2021
 - Prepare expert report on invalidity, July 9, 2021
- 2019-2020 **Gamevice, Inc. vs. Nintendo Co. Ltd. (expert witness, utility patents)**
 Quinn Emanuel Trial Lawyers, and LTL Attorneys, LLP
 Los Angeles, CA
- Prepare declaration regarding Daubert motion, April 6, 2020
 - Give deposition on invalidity, February 18, 2020
 - Give deposition on non-infringement, February 17, 2020
 - Prepare rebuttal expert report on non-infringement, February 6, 2020
 - Prepare expert report on invalidity, December 20, 2019
 - Declaration regarding claim construction, March 12, 2019
- 2019-2020 **Pavo Solutions, LLC. vs. Kingston Technology (expert witness, utility patent)**
 Russ, August & Kabat
 Los Angeles, CA
- Testified at trial, Santa Ana, CA, March 3-4, & 11, 2020
 - Declaration regarding Daubert motion, August 2, 2019
 - Completed deposition as expert witness, June 4, 2019
 - Prepare expert report on validity, April 5, 2019
 - Prepare expert report on infringement, March 8, 2019
- 2018 **Honeywell vs. Aprilaire (expert witness, design patent)**
 Kirkland and Ellis, LLP
 Washington, DC
- Completed deposition as expert, December 11, 2018
 - Gave declaration in summary judgment motion, December 4, 2018
 - Prepare expert report on validity, September 27, 2018
 - Prepared expert report on infringement, August 20, 2018
- 2018 **J.R. Simplot vs. McCain Foods, Ltd. (expert witness, design patent)**
 Norton Rose Fulbright Canada, LLP
 Toronto, Canada
- Review design patents, October 2018
- 2017 **C&S Marketing vs. GoPro (expert witness, design patent)**
 Kilpatrick Townsend & Stockton, LLP
 San Francisco, CA
- Prepare declaration on invalidity, May 21, 2017
 - Prepare expert report on invalidity, February 10, 2017
 - Prepare expert report of non-infringement, March 31, 2017
- 2017 **Nordock, Inc. vs. Systems, Inc. (expert witness, design patent)**
 Sokol Law Office
 Milwaukee, WI
- Prepare supplemental declarations for summary motion, September 14, 2017
 - Prepare declaration for summary motion, August 24, 2017
- 2017 **Gamon vs. Campbell Soup (expert witness, utility, and design patents)**
 Reed Smith, LLP
 Philadelphia, PA
- Completed deposition as expert, Indianapolis, IN, November 10, 2017
 - Prepare declarations on invalidity 111', D646', and D645', October 13, 2017
- 2015-2017 **Luv N' Care vs. Sauvinex (expert witness, contract dispute)**
 Banner & Witcoff, Ltd.
 Washington, DC
- Completed deposition as expert, Lafayette, IN, August 25, 2017
 - Prepare rebuttal expert report on copying, June 21, 2017
 - Completed deposition as expert, Lafayette, IN, September 4, 2015

- Prepared expert report on copying, June 18, 2015
- 2016 **Gamon vs. Campbell Soup (expert witness, utility patents)**
Cozen O'Connor
New York, NY
 - Prepared declarations on invalidity 111' and 326', October 14, 2016
- 2016 **IGT vs. Aristocrat Technologies (expert witness, design patent)**
Covington and Burling, LLP
Washington, DC
 - Prepared declaration on invalidity, March 15, 2016
- 2015-2016 **Sonos vs. Denon (expert witness, design patent)**
Lee Sullivan Shea & Smith, LLP
Chicago, IL
 - Prepare declaration on validity, October 26, 2016
 - Prepare declaration on claim construction, September 9, 2016
- 2015-2016 **Sonos vs. Denon (expert witness, design patent)**
KPPB, LLP
Anaheim, CA
 - Prepare supplemental declaration on validity, September 29, 2016
 - Prepared declaration on validity, March 30, 2016
 - Completed informal interview with USPTO, Alexandria, VA, February 13, 2016
- 2015 **CATR vs. Kingston Electronics (expert witness, utility patent)**
Renaissance IP Law Group, LLP
Portland, OR
 - Completed deposition as expert, Lafayette, IN, September 21, 2015
 - Prepared declaration on validity, July 16, 2015
- 2014-2015 **Cablz vs. Chums (expert witness, utility patent)**
Stoel Rives, LLP
Salt Lake, UT
 - Prepare declaration on invalidity, January 22, 2015
 - Completed deposition as expert, Dallas, TX, August 15, 2014
 - Prepared declaration on invalidity, August 1, 2014
 - Prepared rebuttal report on invalidity, August 1, 2014
 - Prepared report on invalidity, May 26, 2014
- 2013-2014 **PNY vs. Phison Electronics (expert witness, utility patent)**
Fish and Richardson, PC
Dallas, TX
 - Completed deposition as expert, Dallas, TX, July 23, 2014
 - Prepare declaration on validity, July 8, 2014
- 2013-2014 **M-Edge vs. Amazon (expert witness, utility patent)**
Alston and Bird, LLP
Washington, DC
 - Completed deposition as expert, Chicago, IL, April 10, 2014
 - Prepared report on non-infringement, March 7, 2014
 - Prepared report on invalidity, January 30, 2014
- 2012-2013 **MSA vs. Nifty Home Products (expert witness, design patent)**
Gibson & Demier, LLP
Woodbridge, NJ
 - Completed deposition as expert, Woodbridge, NJ, May 8, 2013
 - Prepared report on infringement, March 15, 2013

- 2012-2013 **Frito-Lay vs. Medallion Foods, Inc. (expert witness, trademark)**
Baker Botts, LLP
Dallas, TX
- Testified at trial, Sherman, TX, February 15, 2013
 - Completed deposition as expert, Dallas, TX, November 20, 2012
 - Prepared report on trademark, October 8, 2012
- 2012-2013 **Nordock, Inc. vs. Systems, Inc. (expert witness, design patent)**
Sokol Law Office
Milwaukee, WI
- Testified at jury trial, Milwaukee, WI, March 19 & 25, 2013
 - Testified in claim construction hearing, Milwaukee, WI, January 30, 2013
 - Gave declaration in summary judgment motion, November 5, 2012
 - Prepared rebuttal report, July 20, 2012
 - Prepared report on infringement/validity, June 20, 2012
- 2012 **Sofpool, LLC vs. Kmart and Big Lots (expert witness, design patent)**
Troutman Sanders, LLP
Irvine, CA
- Gave declaration in summary judgment motion, October 29, 2012
 - Gave declaration in claim construction hearing, June 18, 2012
 - Prepared report on infringement, March 2, 2012
 - Prepared report on validity, February 10, 2012
- 2010-2011 **Spellbound vs. Pacific Handy Cutter/Stanley Black & Decker (expert witness, utility patents)**
Miller Canfield
Chicago, IL
- Prepared rebuttal second supplemental report, October 11, 2011
 - Gave declaration on statement of facts, September 26, 2011
 - Gave declaration in support of summary judgment, August 5, 2011
 - Prepared second supplemental report, August 5, 2011
 - Gave declaration in support of summary judgment, February 7, 2011
 - Prepared rebuttal expert report, February 14, 2011
 - Prepared supplemental expert report, December 29, 2010
 - Gave declaration on infringement and validity, December 17, 2010
 - Prepared expert report, December 7, 2010
- 2010-2011 **Microsoft vs. Datel, Inc. (expert witness, design patents)**
Howard, Rice, Nemerovski, Canady, Falk & Rabkin, PC
San Francisco, CA
- Completed deposition as expert, June 8, 2011
 - Prepared rebuttal report, May 27, 2011
 - Prepared expert report, April 11, 2011
 - Worked on ITC expert report, June-August 2010
- 2010 **Magnadyne vs. Best Buy/EverWin (expert witness, design patent)**
Troutman Sanders, LLP
Irvine, CA
- Completed deposition as expert, Detroit, MI, June 3, 2010
 - Prepared supplemental expert report on invalidity, May 19, 2010
 - Prepare declaration, April 12, 2010
 - Prepared expert report on invalidity, March 24, 2010
- 2009 **Plastipak (expert witness, design patent)**
Dykema Gossett, LLP
Chicago, IL
- Provided opinion on patent infringement, September 2009

- 2008 **Trover Group, Inc. vs. Diebold (expert witness, design patent)**
Thompson & Knight, LLP
Dallas, TX
- Prepared preliminary reports on invalidity and non-infringement, September–November 2008
- 2008 **Hanamint Corp. vs. Home Casual (expert witness, design patent)**
Fabyanske, Westra, Hart & Thomson, P.A.
Minneapolis, MN
- Completed deposition on expert report, July 10, 2008
 - Prepared supplemental expert report on invalidity, April 30, 2008
 - Prepare expert report on invalidity, March 28, 2008
- 2007-2008 **Sofpool, LLC vs. Intex Recreational Corp. (expert witness, design patents)**
Baker & Daniels, LLP
Indianapolis, IN
- Testified in jury trial as a design expert, Marshall, TX, April 15, 2008
 - Prepared expert report on non-infringement March 7, 2008
 - Gave declaration for markman hearing February 19, 2008
 - Prepared expert report on invalidity, February 18, 2008
- 2006-2007 **Calphalon vs. Meyer (expert witness, design patent)**
Dykema Gossett, LLP
Chicago, IL
- Testified in jury trial as a design expert, June 12, 2007
 - Completed deposition on expert report, Chicago, IL, May 9, 2006
 - Prepared expert report for Meyer Inc. in a design patent dispute, April 22, 2006
- 2006 **Zuna Corporation vs. Atico, Walgreen & Target (expert witness, utility patent)**
Wiley Rein & Fielding, LLP
Washington, D.C.
- Reviewed patents, claim construction and manufactured products in view of a utility patent owned by Zuna Corporation, February-March
- 2005-2006 **Fisher-Price vs. Evenflo (expert witness, utility patent)**
Milbank, Tweed, Hadley & McCloy, LLP
Washington, D.C.
- Testified in preliminary injunction hearing as a design expert, May 24, 2006
 - Completed deposition on the expert report, Buffalo, NY, December 22, 2005
 - Prepared expert report on infringement, October 11, 2005
- 2005 **Fabio Perini S.p.A. vs. Chan Li Machinery Co. Ltd. (expert witness, utility patent)**
Baker & McKenzie, LLP
Washington, D.C.
- Worked as non-testifying expert in an International Trade Regulation & Customs case involving an Italian manufacturer and a Taiwanese Manufacturer. October-December
 - Created visual images to help explain the issues involved in the case.
 - Created claim charts for US patents 5,979,818 and Re 35,729
- 2003-2004 **Fisher-Price vs. Graco (expert witness, utility patent)**
Milbank, Tweed, Hadley & McCloy, LLP
Washington, D.C.
- Assisted in preparation for Markman hearing, Philadelphia, PA, March 2004
 - Testified in Preliminary Injunction hearing, Philadelphia, PA, November 2003
 - Prepared a preliminary report for a lawsuit between Fisher-Price and Graco, Inc. concerning a product that Graco, Inc. produces and patent 6,520,862 that Fisher-Price owns, July-September 2003

- 2001-2003 **Fisher-Price vs. Safety Ist (expert witness, utility and design patents)**
 Milbank, Tweed, Hadley & McCloy, LLP
 Washington, D.C.
- Testified in a trial concerning seven products and on four patents in dispute, Wilmington, DE, January 14-15, 2003
 - Gave declaration for court on claim construction, March 28, 2002
 - Prepared expert report on five products that Safety Ist produces and five patents that Fisher-Price owns, January 15, 2002
- 2001 **Stein Industries vs. Display Specialties (expert witness, design patent)**
 Fish & Richardson, PC
 Minneapolis, MN
- Reviewed patent history and depositions in the case, July-August 2001
- 2001 **The Kong Company vs. Mann Design (expert witness, utility patent)**
 Fish & Richardson, PC
 Minneapolis, MN
- Gave opinions on definition of claim language in patent 6,129,053 and visual comparisons with design patent 388,559, March, 2001
- 2000 **3-M vs. Cabot (expert witness, utility, and design patents)**
 Fish & Richardson, PC
 Minneapolis, MN
- Completed deposition, Indianapolis, IN, September 2000
 - Gave declaration, April 2000
 - Prepared expert report, March 21, 2000

International Fellowships and Residencies

- 2022-2023 **Purdue Sabbatical: Design Process from the Real World**
 Selected for full year sabbatical with the support of the College of Liberal Arts at Purdue University. The project involved interviewing designers from around the world about the design processes they use. Interviews were conducted in 6 continents with industrial designers working on a variety of products.
 Buenos Aires Argentina, Sydney Australia, Prague Czech Republic, Helsinki Finland, Budapest Hungary, Turin Italy, Rabat Morocco, Bangkok Thailand, and Providence RI and Santa Barbara, CA.
 July 2022-May 2023
- 2015 **SAI Faculty Fellow**
 Selected for four-week residency at Domus Academy in Milan. The project was focused on industrial design inspiration from Etruscan objects.
 Milan, Italy
 July 19-August 14
- 2014 **Designer in Residence**
 Served as a designer in residency at the Association of Craft Producers in Nepal. The project was focused on designing crafts for fair trade industry.
 Kathmandu, Nepal
 September 1-October 22
- 2014 **American Academy in Rome Associate Fellow**
 Selected for four-week residency at the American Academy in Rome. The project was focused on industrial design inspiration from 1st Century Rome.
 Rome, Italy
 April 28-May 24
- 2013 **International Workshop**
 Organized and team-taught 48 students during an intensive 48-hour design challenge with student in China.
 Nanjing, China
 September 20-22

- 2002 **Study Abroad Program**
Taught British Style course at Oxford University.
Oxford, UK
June 30-August 4
- 2000 **International Faculty Exchange**
Taught at the University of Lapland for six weeks; included a Product Design course for international students from several countries within Europe, and an Advanced Research and Design course with a group of Finnish students designing a robot for domestic yard work.
Rovaniemi, Finland
April 1-May15
- 1999 **Malaysian Polytechnic Curriculum Development Project Phase II**
One of 16 professors that consulted for the Malaysian Ministry of Education, by assisting with the development and implementation of a new curriculum at Politeknik Johor Bahru, Pasir Gudang, Malaysia. The grant included support for one month in the USA and one month in Malaysia. Funding was provided through the World Bank.
Johor Bahru, Pasir Gudang, Malaysia
July and September 1999
- 1996-1997 **Fulbright Scholar**
Won a scholarship to teach and research at the University of Art and Design Helsinki. Teaching included courses in Industrial Design, Materials and Processes and Compliant Mechanisms. Research focused on creative endeavors with computer aided industrial design.
Helsinki, Finland
August 1996-August 1997
- Lectures**
- 2022 **The Good The Bad and The Ugly**
University of Illinois at Champaign/Urbana
Champaign IL
March 3
- 2021 **MFA Guest Critique**
University of Illinois at Champaign/Urbana
Champaign IL
December 10
- 2020 **Order in a Chaotic World: Gestalt Theory and Design Perception**
Universidad del Norte
Bogotá, Columbia (Virtual due to COVID)
September 30
- 2019 **NSF Workshop for Engineering Design and Systems Engineering**
Discussion Leader "The Future of Work" Breakout Session
West Lafayette, IN
October 7
- 2019 **Employing Design Perception to Drive Product Creation**
Huazhong University of Science & Technology
Wuhan, China
March 12
- 2019 **Design Perception, How We See Products**
Design Education Symposium
Lecture at Wuhan University of Science and Technology
Wuhan, China
March 11

- 2017 **The Entrepreneurial Designer: Design Focused Entrepreneurship, Product Design, and Business Models**
Design innovation & Entrepreneurship Forum
Busan, South Korea
December 14
- 2016 **Panelist: Industrial Design Education Symposium**
National Conference IDSA
Detroit, MI
August 17
- 2015 **Domus Academy**
Perception: How We Identify Great Design
Milan, Italy
July 28
- 2013 **Keynote Lecture at the 4th International Innovation Design Education Forum**
Perceiving Design: Design Perceived
Nanjing, China
September 19
- 2013 **Breaking the Rules of Visual Perception**
Steve Visser and Cheryl Qian
IDSA National Education Symposium
Chicago, IL
August 21
Published online:
www.idsa.org/sites/default/files/Visser_Paper_Breaking_the_rules_of_Visual_Perception.pdf
- 2013 **Beyond the Computer Screen: Applying Information Visualization in Product Design**
Cheryl Qian, Steve Visser and Victor Chen
IDSA National Education Symposium
Chicago, IL
August 21
Published online:
www.idsa.org/sites/default/files/Qian-Paper_BeyondTheComputerScreen.pdf
- 2012 **What You Can Get From 48 Hours: The Future of Design Leadership**
Steve Visser, Cheryl Qian and Victor Chen
IDSA National Education Symposium
Boston, MA
August 15
Published online:
<http://www.idsa.org/what-you-can-get-48-hours-future-design-leadership>
- 2011 **A Collaborative Effort: Integrating Interaction Design Evaluation Into Product Design Process**
Cheryl Qian and Steve Visser
Eastman IDSA National Education Conference
New Orleans, LA
September 14
Published online:
www.idsa.org/sites/default/files/ACollaborativeEffortIXDEvaluation.pdf
- 2011 **Keynote Lecture at the International Innovation Design & Education Forum**
Integrating Interaction Design and Industrial Design
Nanjing, China
August 15

- 2011 **Integrating User Experience Research Into Industrial Design**
Education: Interaction Design Program at Purdue
Cheryl Qian, Steve Visser and Victor Chen
National Collegiate Inventors and Innovators Alliance Conference
Washington, DC
March 25
Published online:
<http://nciia.org/sites/default/files/u7/Qian.pdf>
- 2010 **Interaction Design at Purdue University**
Cheryl Qian and Steve Visser
Eastman IDSA National Education Conference
Portland, OR
August 5
- 2010 **The Interactive Face of Design**
Cheryl Qian, Petronio Bendito and Steve Visser
Faces of Design, IDSA Mideast Conference
Grand Rapids, MI
May 1
- 2009 **Panelist: Industrial Design Education**
Midwest District Conference IDSA
Minneapolis, MN
April 4
- 2007 **Keynote Lecture at the ICHEM Conference**
How to Effectively Incorporate Corporate Sponsored Projects and Design Competition into Design Curriculum
Wuxi, China
November 6
- 2007 **Keynote Lecture at International Nanjing Forum of Industrial Design Education**
How to Effectively Incorporate Corporate Sponsored Projects and Design Competition into Design Curriculum
Nanjing, China
November 8
- 2006 **Workshop Co-Leader with Jim O'Grady from Calgary Canada**
National Collegiate Inventors and Innovators Alliance conference
Portland, OR
March 23
- 2005 **Panel Leader: Design Competitions and Tenure**
Eastman IDSA National Education Conference
Washington, D.C.
August 22
- 2005 **Entrepreneurship in Industrial Design: A Case Study**
Kookmin University
Seoul, South Korea
April 19
- 2005 **Entrepreneurship in Industrial Design Lecture and Workshop**
Seoul National University
Seoul, South Korea
April 18

- 2004 **Panelist: Industry Sponsored Student Research Models**
Eastman IDSA National Education Conference
Art Center
Pasadena, CA
October 24-26
- 2003 **Strategies: Corporate vs. Entrepreneurial Design**
Notre Dame University
Notre Dame, IN
November 4
- 2001 **Entrepreneurship/Corporate Sponsorship: Purdue's Two-Sided Gold Coin**
International Convention of University Courses in Industrial Design:
Milan International Furniture Fair
Milan, Italy
April 7-8
Published in:
Designing Designers. Training Strategies for the Third Millennium
p. 69-74
- 2001 **Seminar on Entrepreneurial Design**
IDSA Midwest District Conference: Designing the Experience
Chicago, IL
March 23
- 2001 **Entrepreneurship/Corporate Sponsorship: Purdue's Two-Sided Gold Coin**
Published in:
IDSA Design Education Proceedings
p. 405-412
- 2000 **Design in the USA**
University of Lapland
Rovaniemi, Finland
April 18
- 1999 **Finding Opportunities**
Seminar: Designing In the New Millennium
Politeknik Johor Bahru
Pasir Gudang, Malaysia
July 24
- 1999 **Brainstorming Workshop**
IDSA Midwest District Conference: The Creative Culture
Madison, WI
April 9
- 1998 **Compliance: Utilizing Plastic's Flexible and Rigid Characteristics.**
In IDSA Design Education Proceedings: Why Design?
Long Beach, CA
September 22-24, CD ROM
- 1997 **Entrepreneurial Design Center: Blurring the Boundaries Between Design Education, Business and Manufacturing**
Co-Authored: Steve Visser and Tom Gatis
Published in:
IDSA Design Education Proceedings
Washington, D.C.
June 23-25, CD ROM

- 1997 **Compliant Mechanism Workshop**
Two-week workshop for 20 students at The University of Lapland
Rovaniemi, Finland
April 28-May 7
- 1997 **American Design & Compliers® Design Process**
To 40 students at the University of Lapland
Rovaniemi, Finland
May 6
- 1997 **East Meets West: The Design Cultures of Asia and America**
Joint lecture with Professor Lee of South Korea
Approximately 150 students and faculty attended
University of Art and Design
Helsinki, Finland
January 15
- 1996 **Machine Age Design in America**
To Industrial Design Freshmen
University of Art and Design Helsinki
Helsinki, Finland
December 12
- 1996 **An Introduction to Industrial Design**
To 40 students at the Tampere Polytechnic
Tampere, Finland
November 5
- 1996 **Venturing In Industrial Design**
American Voices conference
Turku, Finland
October 10
- 1996 **Venturing Organizations, a Case Study**
To 70 Industrial Design/Business Management students
University of Art and Design Helsinki
Helsinki, Finland
September 12
- 1996 **The Design Process for Compliers®**
To Industrial Design Freshmen
University of Art and Design Helsinki
Helsinki, Finland
December 5
- 1995 **Entrepreneurs: A Natural Resource in Short Supply and Educating**
Design Students in the Art of Venturing
IDSA Design Education Conference
Santa Fe, NM
September 13-16
- 1994 **Inventionalism: Designers Reject Expressionistic Pleasures of the 80's and Replace Them with an Adoration for Innovation**
Co-Authored; Steve Visser and John Peasley
Dearborn, MI
August 16-18
Published in:
IDSA Design Education Conference Proceedings: Design Futures
p. 133-139

- 1994 **Compliant Mechanisms: Materials and Processes**
Lecture and mini workshop
University of Michigan
Ann Arbor, MI
March 8
- 1993 **Drawing Workshop**
Taught a three-day workshop on design drawing techniques to twelve students from Helsingin Taideteollinen Korkeakoulu (University of Art and Design Helsinki)
Helsinki, Finland
April 20-22
- 1993 **Plastic Design**
Helsingin Taideteollinen Korkeakoulu (University of Art and Design Helsinki)
Helsinki, Finland
April 22
- 1993 **Parallel Design at Purdue: Mechanical Engineering and Industrial Design Team-Up.**
Co-Authored; Steve Visser and Ashok Midha
Georgia Institute of Technology
Atlanta, GA
August 10-12
Published in:
IDSA Design Education Conference Proceedings
p. 245-249
- 1991 **Industrial Design Process and Education**
Rovaniemi Institute of Industrial Arts and Handicrafts
Rovaniemi, Finland
December 18
- 1991 **Industrial Design Process and Education**
Helsingin Taideteollinen Korkeakoulu (University of Art and Design Helsinki)
Helsinki, Finland
December 17
- 1991 **What is Industrial Design?**
Lecture including a three-screen multi-media presentation developed by students in A&D 355
Presentation Techniques
Purdue University
October 29
- 1990 **Art Education vs. Design Education**
University of California
San Bernardino, CA
April 10
- Major Professor Master's in Industrial Design**
- 2021 Jae Chae
2020 Keith Williams and Daniel F. Mandrinan Chiquito
2019 Xiao Ma
2018 Yingxiao Max Cao
2016 Amie Barnes, Wilson Zhang and Hongmin Jin
2015 Angie Wang
2013 Zoey Feng and Robert Sibley
2011 Di Wu
2010 Xi Chen, Sara Rockwell and Larry Fenske
2009 Hao Hua

Grants/Corporate Sponsorship

2019	LumiSource, LLC Organized a design project for the design of lamps for millennials. Chicago, IL
2018-2019	Save the Children Co-PI for a project to reduce infant mortality by integrating family-centered kangaroo mother (KMC) care into health systems. Designed and developed smart furniture for use in neonatal and KMC facilities in resource limited countries Malawi, Africa
2015-2016	Hasbro, Inc. Co-led student interdisciplinary design project working with major toy manufacturer to explore concepts focused on solar powered and mechanical toys. Providence, RI
2015	BraunAbility (3 Co-PI's) Co-PI for the BraunAbility Queensland project. It was a project to re-design a wheelchair lift for the European Market. The team of three professors and three RA's worked together for 12 months to improve the design of a wheelchair lift by reducing the weight, reducing noise and improving the visual design of the lift. Winamac, IN
2015	Evonik Organized a 48-hour intensive design project. The goal was to develop new ways to promote Evonik plastics to Industrial Designers. Lafayette, IN
2014	Kimberly Clark Professional Co-Organized student design project working with major safety manufacturer to explore concepts focused on the clean-room gowns. Atlanta, GA
2014	Hasbro, Inc. Directed a student design project to explore toy concepts focused on Play-Doh. Providence, RI
2013	GE Appliance Organized graduate student design project working with major appliance manufacturer to explore concepts focused on the laundry. Louisville, KY
2013	National Furniture Arranged corporate sponsored project exploring office stool designs for the Junior Industrial Design Students. Worked with Glen Fuller who taught the class. Jasper, IN
2013	HON Furniture Arranged 48-2-Design workshop for 96 industrial design students. The project was to design furniture for the office storage accessories. Muscatine, IA
2013	Hasbro, Inc. Arranged student design project working with major toy manufacturer to explore toy concepts focused on preschool children. Providence, RI
2012	Caterpillar Arranged Corporate sponsored project for senior industrial design students. The project was to explore how Caterpillar could expand its brand. Peoria, IL
2012	Weber Grill Arranged 48-2-Design workshop for 50 industrial design students. The project was to design products to improve the grilling experience. Chicago, IL

2011	National Furniture Arranged corporate sponsored project exploring occasional table designs for the Junior Industrial Design Students. Worked with Victor Chen who taught the A&D 305 class. Three of the students were hired to bring their designs to production. The production designs were introduced at Neocon 2012. Jasper, IN
2010	GE Healthcare Arranged multi-course project exploring home monitoring of patients with: multiple sclerosis, cerebral palsy, arthritis, and Parkinson's. Milwaukee, WI
2010	The Hon Company Arranged 48-2-Design workshop for 50 industrial design students. The project was to design furniture for the future of education. Muscatine, IA
2010	Hasbro, Inc. Led student design project working with major toy manufacturer to explore toy concepts focused on the Stretch Armstrong movie. Providence, RI
2009	DePuy, Inc. a Johnson & Johnson Company Arranged sponsored project with DePuy, Inc. for the juniors. This project focused on designing for the Paralympics. Warsaw, IN
2009	MCS Frames Arranged sponsored project focusing on future frame trends. Chicago, IL
2008	Whirlpool interaction Design Grant to develop new interaction design area within industrial design at Purdue University. Benton Harbor, MI
2007	Rolodex (Newell Rubbermaid) Managed students design project sponsored by office-supply manufacturer, researched millennial's organizational needs and helped identify new market opportunities for the company. Chicago, IL
2007	Radio Flyer Led student design project sponsored by toy manufacturer to create future concept for ride-on toys. Chicago, IL
2004	Whirlpool Corp. Organized student design project exploring new concepts for refrigeration storage. This innovative intensive project spanned two weekends and included 32 students creating 256 concepts within 48 hours. Benton Harbor, MI
2001	Hill-Rom Led Packadorm Project: design project sponsored by a major manufacturer of hospital beds and equipment. The project was to design a safer and more efficient method of transporting equipment and patients in the hospital environment. Batesville, IN
2001	Campbell Hausfeld Led power paint equipment research and design project. Student project to explore what women want in power paint equipment. Nashville, TN
2000	International Programs Global Initiative Initiated an exchange program with the University of Lapland and Purdue University. Rovaniemi, Finland
1999	Dr. Martens Shoes Organized a corporate sponsored project for the junior level Industrial Design students. The project included a five-day trip to New York provided by Dr. Martens for all participating students and faculty. The students also had a chance to work with professional designers, marketers, and executives from Dr. Martens. New York, NY

1999

Samsung Corporation

Campus liaison for the Prometheus Design Competition.
Seoul, South Korea

1995

Purdue Research Foundation

Summer Faculty Grant
Computer Design of Complex Compliant Mechanisms

APPENDIX 2: MATERIALS CONSIDERED IN THE PREPARATION OF THIS DECLARATION

Exhibit No.	Description
1001	U.S. Patent No. 9,473,602 to Jorgensen (“the ’602 patent”)
1002	Prosecution File History for the ’602 patent (“Prosecution History”)
1004	U.S. Patent Application Publication No. 2012/0194997 (“McClure-997”)
1005	U.S. Patent Application Publication No. 2012/0194998 (“McClure-998”)
1006	U.S. Patent Application Publication No. 2004/0214619 (“Chiang”)
1007	International Design Magazine, August 2002
1008	Motorola Razr v3 Repair Manual, April 2005
1009	U.S. Patent No. 7,787,618 (“the ’618 patent”)
1010	Prosecution File History for the ’618 patent (“the ’618 patent FH”)
1011	Prosecution File History for U.S. Patent No. 8,953,780
1012	Prosecution File History for U.S. Patent No. 8,615,077
1013	Complaint, <i>Electronic Devices, Including Mobile Phones, Tablet Computers, and Components Thereof</i> , ITC 337-TA-1038
1014	ITC 337-TA-1038 Apple's Claim Construction Response Brief
1015	ITC 337-TA-1038 Nokia's Claim Construction Reply Brief
1016	ITC 337-TA-1038 Nokia's Infringement Contentions - iPhone 6s
1017	ITC 337-TA-1038 Nokia's Infringement Contentions - iPhone 7
1018	ITC 337-TA-1038 Nokia's Infringement Contentions - Galaxy Tab A
1019	ITC 337-TA-1038 Nokia's Infringement Contentions - Surface Pro 4
1020	Complaint, <i>Nokia Techs. Oy v. Apple Inc.</i> , 2:16-cv-1441 (E.D. Tex. Dec. 21, 2016), ECF No. 1
1021	First Amended Complaint, <i>Nokia Corp. v. Amazon.com, Inc.</i> , No. 1:23-cv-01232 (D. Del. Oct. 31, 2023), ECF No. 5
1022	<i>Nokia Corp. v. Amazon.com, Inc.</i> , No. 1:23-cv-01232 (D. Del.) Nokia's Infringement Contentions – Fire HD 8
1023	ITC 337-TA-885 Nokia's Reply Claim Construction Brief
1024	Excerpts from Chris Lefteri, <i>Metals Materials for Inspirational Design</i>

APPENDIX 3: CHALLENGED CLAIMS

[1pre] A portable electronic device comprising:

[1a] a one piece housing forming enclosed exterior lateral sides and a rear side;

[1b] a cut out in the rear side of said housing;

[1c] a camera located in said housing and extending to said cut out at said rear side;

[1d] an engine section comprising a printed circuit board, a transceiver, a processor and a memory;

[1e] a user input section located above the engine section and a battery, wherein the user input section is located adjacent the battery and the engine section;

[1f] wherein the battery and engine section are housed in the housing and the user input is located in an opening between said exterior lateral sides of said one piece housing of the portable electronic device.

[2] A portable electronic device according to claim 1 wherein said one piece housing has a front side extending from and between the lateral sides.

[3] A portable electronic device according to claim 2 wherein the front side extends parallel to the lateral edges.

[4] A portable electronic device according to claim 3 wherein the front side forms at least a side of the opening through which the input device is located.

[5] A portable electronic device according to claim 1 wherein the user input and a front side of the housing lie in a side by side arrangement.

[6] A portable electronic device according to claim 1 wherein the one piece housing and the user input form a continuous surface of the portable electronic device.

[7] A portable electronic device according to claim 6 further comprising a bracket wherein the user input section and the one piece housing define an interior volume and the bracket is configured to support said user input section.

[8] A portable electronic device to claim 1 wherein the battery is located adjacent the engine section in a side by side arrangement.

[9] A portable electronic device according to claim 1 further comprising a cut out portion wherein the cut out portion projects from the rear side of the housing.

[10] A portable electronic device according to claim 9 where the camera is partially located in the cut out portion.

[11] A portable electronic device according to claim 1 further comprising a door configured to support an electronic module.

[12] A portable electronic device according to claim 11 wherein the electronic module is configured to interface to the engine section.

[13] A portable electronic device according to claim 1 further comprising a second camera located on a front side of the portable electronic device.

[14] A portable electronic device according to claim 1 wherein the user input section is located directly adjacent the battery and the engine section.

[15pre] A housing for a portable electronic device comprising:

[15a] a one piece housing forming enclosed exterior lateral sides and a rear side;

[15b] a cut out in the rear side of said housing, said cut out configured to receive at least part of a camera;

[15c] wherein the housing is configured to receive a battery and an engine section, wherein a user input is located in an opening between said exterior lateral sides of said one piece housing of the portable electronic device, wherein the battery and engine section are configured to be housed in the housing such that the user input section is located above the engine section and the battery, and wherein the user input section is located adjacent the battery and the engine section.

[16] A housing for a portable electronic device according to claim 15 further comprising:

a front side extending between the lateral edges, said lateral sides and front side forming an aperture configured to receive the user input wherein the user input and the front side of the housing form a continuous front surface of the portable electronic device.

[17] A housing according to claim 15 wherein the one piece housing has been extruded.

[18] A housing according to claim 15 wherein the one piece housing comprises a metal.

[19] A housing according to claim 15 wherein the housing has substantially at least one of an open top or bottom aperture.

[20] A housing according to claim 19 wherein an antenna module is located at an aperture in the housing.

[21] A housing according to claim 20 wherein the antenna module is enclosed by an antenna cover.

[20] A housing according to claim 19 wherein an antenna module is located at an aperture in the housing.

[21] A housing according to claim 20 wherein the antenna module is enclosed by an antenna cover.

[22pre]A mobile phone comprising:

[22a] a one piece housing of the mobile phone forming enclosed exterior lateral sides and a rear side of the mobile phone;

[22b] a cut out in the rear side of said housing;

[22c] a camera located in said housing and extending to said cut out at said rear side;

[22d] an engine section comprising a printed circuit board, a transceiver, a processor and a memory;

[22e] a user input section located above the engine section and a battery, wherein the user input section is located adjacent the battery and the engine section;

[22f] wherein the battery and engine section are housed in the housing and the user input is located in an opening between said exterior lateral sides of said one piece housing of the mobile phone.

[23] A mobile phone according to claim 22 wherein said one piece housing has a front side extending from and between the lateral sides.

[24] A mobile phone according to claim wherein the front side extends parallel to the lateral edges.

[25] A mobile phone according to claim 24 wherein the front side forms at least a side of the opening through which the input device is located.

[26] A mobile phone according to claim 22 wherein the user input and a front side of the housing lie in a side by side arrangement.

[27] A mobile phone according to claim 22 wherein the one piece housing and the user input form a continuous surface of the mobile phone.

[28] A mobile phone according to claim 27 further comprising a bracket wherein the user input section and the one piece housing define an interior volume and the bracket is configured to support said user input section.

[29] A mobile phone according to claim 22 wherein the battery is located adjacent the engine section in a side by side arrangement.

[30] A mobile phone according to claim 22 further comprising a cut out portion wherein the cut out portion projects from the rear side of the housing.

[31] A mobile phone according to claim where the camera is partially located in the cut out portion.

[32] A mobile phone according to claim 22 further comprising a second camera on a front side of the mobile phone.

[33] A mobile phone according to claim further comprising a door configured to support an electronic module.

[34] A mobile phone according to claim 33 wherein the electronic module is configured to interface to the engine section.

[35] A mobile phone according to claim 22 wherein the user input section is located directly adjacent the battery and the engine section.

[36] A mobile phone according to claim 22 wherein the transceiver is a mobile phone transceiver.

APPENDIX 4: UNDERSTANDING OF THE LAW

I have applied the following legal principles provided to me by counsel in arriving at the opinions set forth in this report.

Legal Standard for Prior Art

I am not an attorney. I have been informed by attorneys of the relevant legal principles and have applied them to arrive at the opinions set forth in this declaration.

I understand that the petitioner for inter partes review may request the cancelation of one or more claims of a patent based on grounds available under 35 U.S.C. § 102 and 35 U.S.C. § 103 using prior art that consists of patents and printed publications.

Anticipation and Prior Art

I understand that § 102 specifies when a challenged claim is invalid for lacking novelty over the prior art, and that this concept is also known as “anticipation.” I understand that a prior art reference anticipates a challenged claim, and thus renders it invalid by anticipation, if all elements of the challenged claim are disclosed in the prior art reference. I understand the disclosure in the prior art reference can be either explicit or inherent, meaning it is necessarily present or implied. I understand that the prior art reference does not have to use the same words as the challenged claim, but all of the requirements of the claim

must be disclosed so that a person of ordinary skill in the art could make and use the claimed subject-matter.

In addition, I understand that § 102 also defines what is available for use as a prior art reference to a challenged claim.

Under § 102(a)(1), a challenged claim is anticipated if it was patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention.

Under § 102(a)(2), a challenged claim is anticipated if it was described in a patent or in a published patent application, in which the patent or application names another inventor and was effectively filed before the effective filing date of the claimed invention.

I understand that the filing date of a patent is generally the filing date of the application filed in the United States that issued as the patent. However, I understand that a patent may be granted an earlier effective filing date if the patent owner properly claimed priority to an earlier patent application.

I understand that when a challenged claim covers several structures, either generically or as alternatives, the claim is deemed anticipated if any of the structures within the scope of the claim is found in the prior art reference.

I understand that when a challenged claim requires selection of an element from a list of alternatives, the prior art teaches the element if one of the alternatives is taught by the prior art.

Legal Standard for Obviousness

I understand that even if a challenged claim is not anticipated, it is still invalid if the differences between the claimed subject matter and the prior art are such that the claimed subject matter would have been obvious to a person of ordinary skill in the pertinent art at the time the alleged invention.

I understand that obviousness must be determined with respect to the challenged claim as a whole.

I understand that one cannot rely on hindsight in deciding whether a claim is obvious.

I also understand that an obviousness analysis includes the consideration of factors such as (1) the scope and content of the prior art, (2) the differences between the prior art and the challenged claim, (3) the level of ordinary skill in the pertinent art, and (4) “secondary” or “objective” evidence of non-obviousness.

Secondary or objective evidence of non-obviousness includes evidence of: (1) a long felt but unmet need in the prior art that was satisfied by the claimed invention; (2) commercial success or the lack of commercial success of the claimed invention; (3) unexpected results achieved by the claimed invention; (4)

praise of the claimed invention by others skilled in the art; (5) taking of licenses under the patent by others; (6) deliberate copying of the claimed invention; and (7) contemporaneous and independent invention by others. However, I understand that there must be a relationship between any secondary evidence of non-obviousness and the claimed invention.

I understand that a challenged claim can be invalid for obviousness over a combination of prior art references if a reason existed (at the time of the alleged invention) that would have prompted a person of ordinary skill in the art to combine elements of the prior art in the manner required by the challenged claim. I understand that this requirement is also referred to as a “motivation to combine,” “suggestion to combine,” or “reason to combine,” and that there are several rationales that meet this requirement.

I understand that the prior art references themselves may provide a motivation to combine, but other times simple common sense can link two or more prior art references. I further understand that obviousness analysis recognizes that market demand, rather than scientific literature, often drives innovation, and that a motivation to combine references may come from market forces.

I understand obviousness to include, for instance, scenarios where known techniques are simply applied to other devices, systems, or processes to improve them in an expected or known way. I also understand that practical and common-

sense considerations should be applied in a proper obviousness analysis. For instance, familiar items may have obvious uses beyond their primary purposes.

I understand that the combination of familiar elements according to known methods is obvious when it yields predictable results. For instance, obviousness bars patentability of a predictable variation of a technique even if the technique originated in another field of endeavor. This is because design incentives and other market forces can prompt variations of it, and predictable variations are not the product of innovation, but rather ordinary skill and common sense.

I understand that a particular combination may be obvious if it was obvious to try the combination. For example, when there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. This would result in something obvious because the result is the product not of innovation but of ordinary skill and common sense. However, I understand that it may not be obvious to try a combination when it involves unpredictable technologies.

It is further my understanding that a proper obviousness analysis focuses on what was known or obvious to a person of ordinary skill in the art, not just the patentee. Accordingly, I understand that any need or problem known in the field

of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.

It is my understanding that the Manual of Patent Examining Procedure §2143 sets forth the following as exemplary rationales that support a conclusion of obviousness:

- Combining prior art elements according to known methods to yield predictable results;
- Simple substitution of one known element for another to obtain predictable results;
- Use of known technique to improve similar devices (methods, or products) in the same way;
- Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;
- Choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success;
- Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art;

- Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

A person of ordinary skill in the art looking to overcome a problem will often use the teachings of multiple publications together like pieces of a puzzle, even though the prior art does not necessarily fit perfectly together. Therefore, I understand that references for obviousness need not fit perfectly together like puzzle pieces. Instead, I understand that obviousness analysis takes into account inferences, creative steps, common sense, and practical logic and applications that a person of ordinary skill in the art would employ under the circumstances.

I understand that a claim can be obvious in light of a single reference, if the elements of the challenged claim that are not explicitly or inherently disclosed in the reference can be supplied by the common sense of one of skill in the art.

I understand that obviousness also bars the patentability of applying known or obvious design choices to the prior art. One cannot patent merely substituting one prior art element for another if the substitution can be made with predictable results. Likewise, combining prior art techniques that are interoperable with respect to one another is generally obvious and not patentable.

In order for a claim to be found invalid based upon a modification or combination of the prior art, there must be reasonable expectation that a person of ordinary skill would have successfully modified or combined the prior art to arrive at the claimed arrangement. This does not mean that it must be certain that a person of ordinary skill would have been successful – the law only requires that the person of ordinary skill in the art would have perceived a reasonable expectation of success in modifying or combining the prior art to arrive at the claimed invention.

In sum, my understanding is that obviousness invalidates claims that merely recite combinations of, or obvious variations of, prior art teachings using understanding and knowledge of one of skill in the art at the time and motivated by the general problem facing the inventor at the time. Under this analysis, the prior art references themselves, or any need or problem known in the field of endeavor at the time of the invention, can provide a reason for combining the elements of or attempting obvious variations on prior art references in the claimed manner.

Legal Standard for Claim Construction

I understand that before any invalidity analysis can be properly performed, the scope and meaning of the challenged claims must be determined by claim construction.

I understand that a patent may include two types of claims, independent claims and dependent claims. I understand that an independent claim stands alone

and includes only the limitations it recites. I understand that a dependent claim depends from an independent claim or another dependent claim. I understand that a dependent claim includes all the limitations that it recites in addition to the limitations recited in the claim (or claims) from which it depends.

In comparing the challenged claims to the prior art, I have carefully considered the patent and its file history in light of the understanding of a person of skill at the time of the alleged invention.

I understand that to determine how a person of ordinary skill would have understood a claim term, one should look to sources available at the time of the alleged invention that show what a person of skill in the art would have understood disputed claim language to mean. It is my understanding that this may include what is called “intrinsic” evidence as well as “extrinsic” evidence.

I understand that, in construing a claim term, one should primarily rely on intrinsic patent evidence, which includes the words of the claims themselves, the remainder of the patent specification, and the prosecution history. I understand that extrinsic evidence, which is evidence external to the patent and the prosecution history, may also be useful in interpreting patent claims when the intrinsic evidence itself is insufficient. I understand that extrinsic evidence may include principles, concepts, terms, and other resources available to those of skill in the art at the time of the invention.

I understand that words or terms should be given their ordinary and accepted meaning unless it appears that the inventors were using them to mean something else or something more specific. I understand that to determine whether a term has special meaning, the claims, the patent specification, and the prosecution history are particularly important, and may show that the inventor gave a term a particular definition or intentionally disclaimed, disavowed, or surrendered claim scope.

I understand that the claims of a patent define the scope of the rights conferred by the patent. I understand that because the claims point out and distinctly claim the subject matter which the inventors regard as their invention, claim construction analysis must begin with and is focused on the claim language itself. I understand that the context of the term within the claim as well as other claims of the patent can inform the meaning of a claim term. For example, because claim terms are normally used consistently throughout the patent, how a term is used in one claim can often inform the meaning of the same term in other claims. Differences among claims or claim terms can also be a useful guide in understanding the meaning of particular claim terms.

I understand that a claim term should be construed not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the entire specification. I understand that because the

specification is a primary basis for construing the claims, a correct construction must align with the specification.

I understand that the prosecution history of the patent as well as art incorporated by reference or otherwise cited during the prosecution history are also highly relevant in construing claim terms. For instance, art cited by or incorporated by reference may indicate how the inventor and others of skill in the art at the time of the invention understood certain terms and concepts. Additionally, the prosecution history may show that the inventors disclaimed or disavowed claim scope, or further explained the meaning of a claim term.

With regard to extrinsic evidence, I understand that all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises, can also be considered. For example, technical dictionaries may indicate how one of skill in the art used or understood the claim terms. However, I understand that extrinsic evidence is considered to be less reliable than intrinsic evidence, and for that reason is generally given less weight than intrinsic evidence.

I understand that in general, a term or phrase found in the introductory words or preamble of the claim, should be construed as a limitation if it recites essential structure or steps, or is necessary to give meaning to the claim. For instance, I understand preamble language may limit claim scope: (i) if dependence

on a preamble phrase for antecedent basis indicates a reliance on both the preamble and claim body to define the claimed invention; (ii) if reference to the preamble is necessary to understand limitations or terms in the claim body; or (iii) if the preamble recites additional structure or steps that the specification identifies as important.

On the other hand, I understand that a preamble term or phrase is not limiting where a challenged claim defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention. I understand that to make this determination, one should review the entire patent to gain an understanding of what the inventors claim they invented and intended to encompass in the claims.

I understand that 35 U.S.C. § 112(f) created an exception to the general rule of claim construction called a “means plus function” limitation. These types of terms and limitations should be interpreted to cover only the corresponding structure described in the specification, and equivalents thereof. I also understand that a limitation is presumed to be a means plus function limitation if (a) the claim limitation uses the phrase “means for”; (b) the “means for” is modified by functional language; and (c) the phrase “means for” is not modified by sufficient structure for achieving the specified function.

I understand that a structure is considered structurally equivalent to the corresponding structure identified in the specification only if the differences between them are insubstantial. For instance, if the structure performs the same function in substantially the same way to achieve substantially the same result. I further understand that a structural equivalent must have been available at the time of the issuance of the claim.