

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.

IPR2024-00799

U.S. Patent No. 9,473,602

PETITION FOR *INTER PARTES* REVIEW

OF U.S. PATENT NO. 9,473,602

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EXHIBIT LIST

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”)
1003	Declaration of Steven Visser
1004	U.S. Patent Application Publication No. 2003/0222845 (“Nguyen”)
1005	U.S. Patent No. 7,515,431 (“Zadesky”)
1006	European Patent Application Publication No. 1,482,733 (“Oda”)
1007	U.S. Patent No. 6,618,044 (“Gettemy”)
1008	U.S. Patent Application Publication No. 2006/0121938 (“Hawkins”)
1009	ITC 337-TA-1038 Apple's Opening Claim Construction Brief
1010	Haller, Design Secrets: Products 2
1011	U.S. Patent No. 7,787,618 (“the ’618 patent”)
1012	Prosecution File History for the ’618 patent
1013	Prosecution File History for U.S. Patent No. 8,953,780
1014	Prosecution File History for U.S. Patent No. 8,615,077
1015	V3-Razr Repair Manual, Motorola Technical Support Group
1016	ITC 337-TA-1038 Nokia Claim Construction Reply Brief
1017	Excerpts from Chris Lefteri, <i>Metals Materials for Inspirational Design</i>
1018	International Design Magazine, August 2002
1019	Innovation – Industrial Design Excellence Yearbook, Quarterly of the Industrial Designers Society of America
1020	Prosecution File History for U.S. Patent No. 8,363,824

The '602 patent is directed to the form factor of portable electronic devices and claims, e.g., a device with a one-piece housing that contains a battery, an engine section, a user input section, and a camera. However, by the time the earliest parent of the '602 patent was filed in 2006, this form factor was already known in the art and taught, for example, by prior art from Palm.

I. BACKGROUND

In the 1990s, electronic devices became smaller and more portable. By the mid-2000s, portable electronic devices were widespread. This included personal digital assistants (“PDAs”) such as the popular Palm Pilot devices, which had, e.g., a single body, a touchscreen on the front, and a battery and printed circuit board (“PCB”) inside the body. An exemplary Palm Pilot is shown below resting in its docking cradle:



By 2006, there were several variations of the Palm Pilot. Prior art shows that Palm was contemplating features that were popular at the time, including, e.g., a

backwards-facing camera (Ex-1004, ¶19) and cellphone service (Ex-1008, Abstract). Visser, ¶3.

Several techniques were known for manufacturing housings for portable electronic devices. Palm prior art taught the use of a unitarily-formed housing (e.g., Ex-1004, ¶24, ¶26), which was a widely-known design. A popular way to produce unitarily-formed housing was through an extrusion process, where metal was extruded through a die to form a housing with a hollow tubular shape. Subsequently, machining or punching was used to form openings and holes into the housing. Extruding a hollow tubular metal shape was known for reducing manufacturing costs and making devices lighter and more aesthetically pleasing. Extrusion housing was used in numerous devices including Apple iPods of the mid-2000s. *See*, e.g., Ex-1009, 000069; Visser, ¶¶3-5.



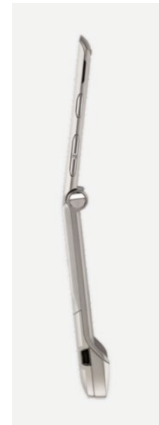
II. THE '602 PATENT

A. Overview

The '602 patent relates to the form factor of portable electronic devices (Ex-1001, 1:19-21) and describes Nokia's attempt, in 2006, to purportedly improve on the RAZR form factor, which it admits was prior art. Ex-1001, 1:23-35.

According to the '602 patent, there was a “desire” for “ultrathin” flip-phones, which it sought to improve with balanced proportions between the two halves of the flip phone that avoided the “squeezed” appearance of the RAZR. Ex-1001, 1:35-39; Ex-1015; Visser, ¶6.

Motorola RAZR:



To achieve balanced proportions, the 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; Visser, ¶7.

’602 Patent:

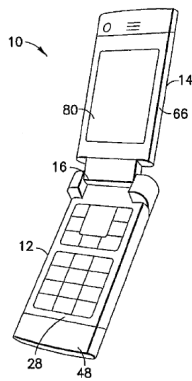


FIG.1

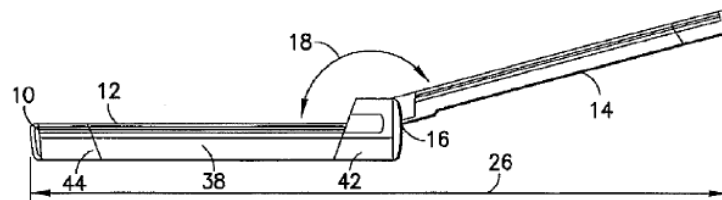


FIG.3

The ’602 patent describes a flip phone with two sections connected by a hinge, as shown below. *Id.*, 1:43-50; Fig. 1 (annotations added); Visser, ¶¶8-9.

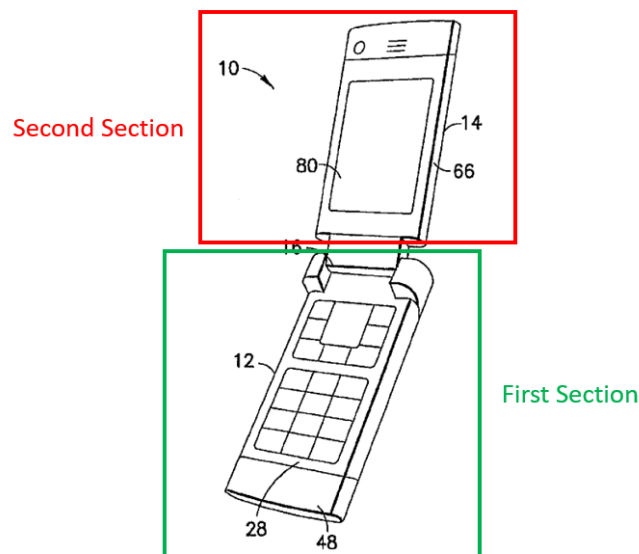


FIG.1

The ’602 patent, however, does not claim two sections of a device. Instead, the claims recite a one-piece housing, in which common components such as

cameras, a battery, and a PCB are housed. *See id.*, 6:21-8:46. The claims also recite other commonplace features including a user input section, as well as certain features such as a continuous surface that the '602 specification does not explain. Visser, ¶10.

However, this form factor was already known, including for Palm Pilots. As explained below, Palm prior art, alone and in combination with other common features, invalidates the Challenged Claims. Visser, ¶11.

B. Prosecution History

During prosecution of the '077 patent (a parent in the '602 patent family), the examiner rejected claims directed to a “one piece housing,” based on U.S. Patent No. 7,515,431 to Zadesky. Ex-1014, 000098, 000077-78. The applicant did not dispute that Zadesky teaches a “one piece housing.” Ex-1014, 000114-119. Instead, the applicant amended claim 41 and contended that “there is no teaching, disclosure, or suggestion, in Zadesky that the end caps, in any way, *support* any of the subassemblies or components.” Ex-1014, 000119-000120 (emphasis in original). Subsequently, the examiner allowed the '077 patent. Ex-1014, 000135. Visser, ¶¶12-15.

C. Priority Date

As explained in IPR2024-00798, the '602 patent is not entitled to a 2006 priority date. However, this Petition demonstrates invalidity as of March 29, 2006,

without regard to whether the '602 patent is entitled to that priority date. Visser, ¶16.

D. Related Prior Litigations

The '602 patent was previously asserted against Apple Inc. concurrently in the Eastern District of Texas and the International Trade Commission. Both cases were settled before any substantive decision or determination was made. *Nokia Technologies*, No. 2:16-cv-1441 (E.D. Tex.); *Electronic Devices*, Inv. No. 337-TA-1038 (ITC). Visser, ¶¶18-19.

III. FIELD AND LEVEL OF SKILL

The field of '602 patent is the form factor design of portable electronic devices. Ex-1001, 1:19-21. A POSITA at the time of alleged invention of the '602 patent would have had (1) a bachelor's degree in industrial design, fine arts, or a similar field, and (2) at least two years of practical experience in industrial design. Additional experience can substitute for the level of education, and vice-versa. Visser, ¶¶20-24.

IV. CLAIM CONSTRUCTION

Claims should be construed according to the ordinary and customary meaning as understood by a POSITA.

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

In a prior ITC investigation (Inv. No. 337-TA-1038), Nokia briefed that a “housing” means a “member that houses” and therefore this term requires a “member that houses forming enclosed exterior lateral sides and a rear side.” Ex-1016, 000064-70. Nokia disputed Apple’s proposed construction of “tubular housing” as being “much too narrow, particularly if it requires that the housing have a ‘front side.’” Ex-1016, 000064. Nokia argued that “housing” does not require an enclosed front side and does not require open top and bottom ends. Ex-1016, 000065-68; Visser, ¶¶27-29.

The Petition shows how Nokia’s prior proposed construction is satisfied by the prior art, regardless of whether it is adopted or not. Visser, ¶30.

V. INVALIDITY GROUNDS

Petitioner requests *inter partes* review and cancelation of the challenged claims on the following grounds:

Grounds	Claims	Statutory Basis	Prior Art
1	1, 11, 12, 15	§ 103	Nguyen
2	1-7, 9-13, 15-28, 30-34, 36	§ 103	Nguyen, Zadesky, Oda
3	1-36	§ 103	Nguyen, Zadesky, Oda, Gettemy

Visser, ¶31.

The Grounds render the challenged claims obvious because any differences between the claimed subject matter and the prior art are such that the subject

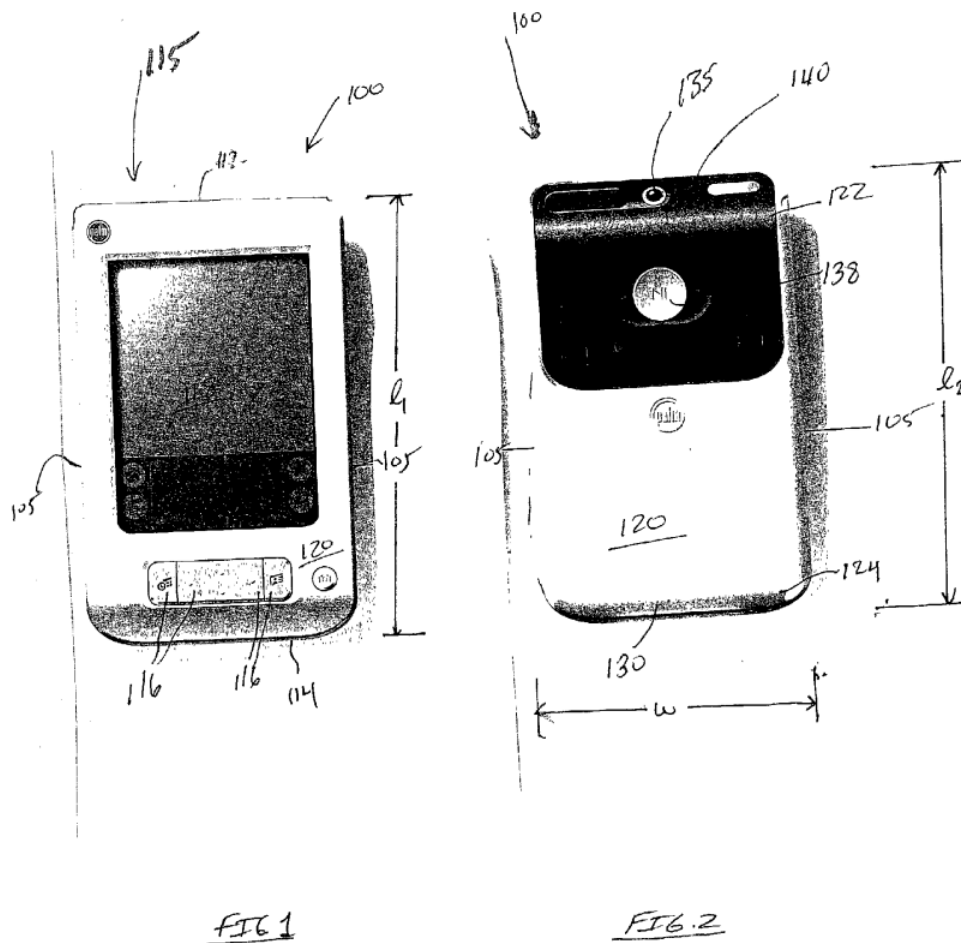
matter, as a whole, would have been obvious at the time the invention was made to POSITA to which the subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007).

A. Ground 1

1. Nguyen (Ex-1004)

U.S. Patent Application Publication 2003/0222845 was filed on May 31, 2002 from Palm Inc., published on December 4, 2003, and is prior art under pre-AIA §§102(a)(1) and (2). Visser, ¶¶33-34.

Nguyen is directed to a Palm Pilot handheld computer. *See* Ex-1004, Abstract, ¶¶1-2. Nguyen teaches that the device has a “unitarily formed” housing with a touchscreen display in the front and a rear-facing camera. Ex-1004, ¶¶24-26, ¶¶21-22, Figs. 1-2; Visser, ¶35.



Within the unitarily-formed housing, Nguyen's device includes internal components such as a processor, memory, and a battery. Ex-1004, ¶34. Nguyen also teaches that the handheld computer includes a wireless communication transmitter and receiver. Ex-1004, ¶39; Visser, ¶36.

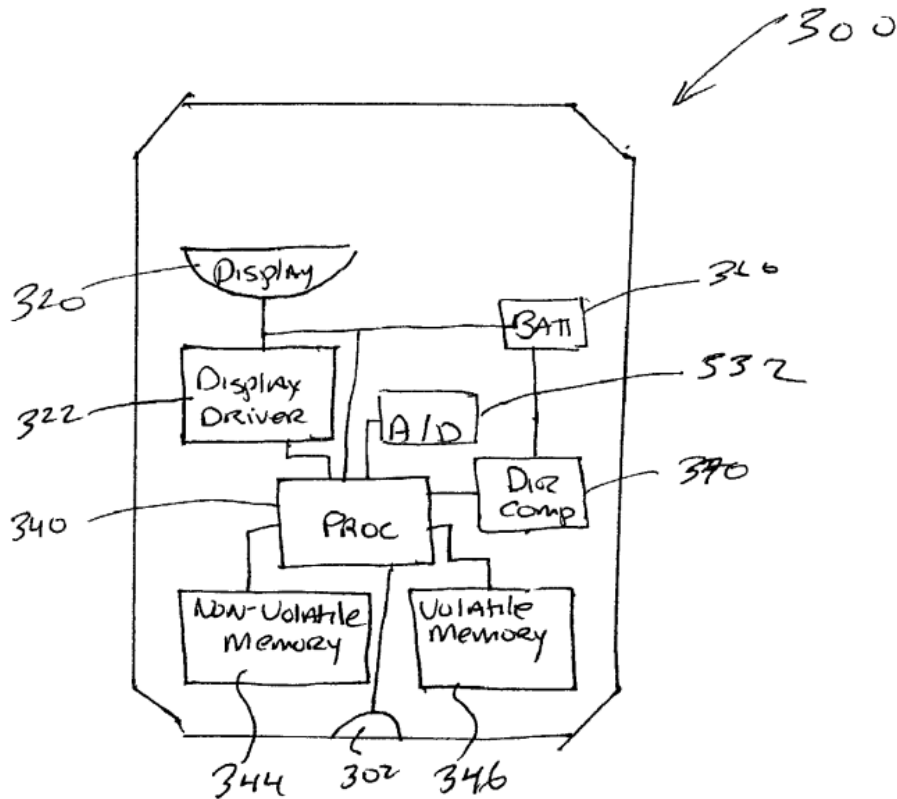


FIG. 4

Nguyen is analogous art to the '602 patent because it is directed to a portable electronic device. Ex-1004, Abstract. For example, Nguyen's teachings concern the design and components of a portable electronic device, e.g., a handheld computer such as a Palm Pilot PDA. Ex-1004, ¶7; Visser, ¶37.

2. Independent Claim 1

[1pre] A portable electronic device comprising:

Ground 1 teaches [1pre], **a portable electronic device**. For example, Nguyen teaches a handheld computer, e.g., in a Palm Pilot form factor. See Ex-

1004, Abstract, ¶¶1-2, 13, 15, Figs. 1-4. A handheld computer is an electronic device and is portable. Visser, ¶¶39-41.

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

Ground 1 teaches [1a]. For example, Nguyen teaches a housing with “a front face and a *back face*.” Ex-1004, ¶15. The housing includes “lateral sides 105” (Ex-1004, ¶21) and “[t]he width of *back face* 120 may extend between lateral sides 105, so as to be the same as front face 110.” Ex-1004, ¶25; *see also* Ex-1004, ¶21; Visser, ¶42.

Nguyen teaches that the housing forms a rear side (labeled as 120) and enclosed exterior lateral sides around the rear side. Ex-1004, ¶¶10, 21, Figs. 1, 2. Fig. 3 is a side view of the device showing one of the exterior lateral sides. Ex-1004, ¶11. This housing forms a tray-like shape, with raised edges, that houses the components of the handheld computer. Visser, ¶43.

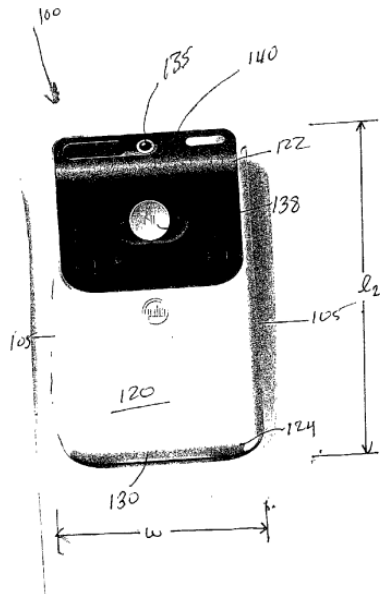


FIG. 2

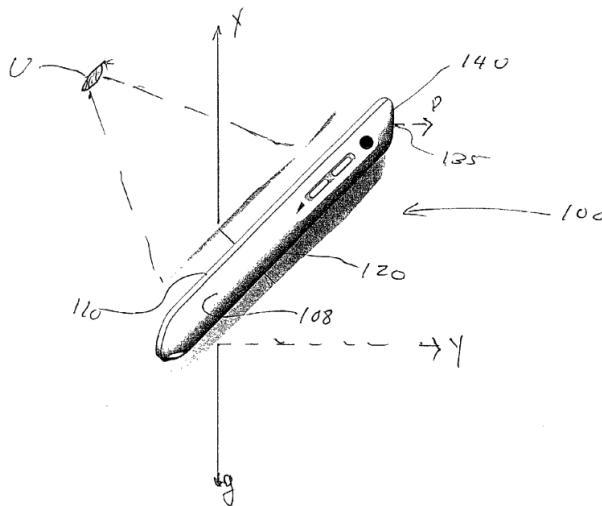


FIG. 3

Nguyen teaches that the housing is a one-piece housing. For example, Nguyen teaches a mobile device “having a housing that is shaped to orient a surface component on the handheld computer.” Ex-1004, ¶7. Nguyen teaches that “[a]s with the bottom slanted surface 130, the top slanted surface 140 may be *unitarily formed* as part of the housing that includes back face 120.” Ex-1004, ¶¶26-27. The lateral sides are also unitarily formed as a one piece housing together with the top slanted surface and the back face. A POSITA would have understood this or at least found it obvious because Nguyen teaches that the above-described housing, i.e., the entire tray-shaped housing with a back face surrounded by enclosed exterior lateral sides, is formed as a unitary (one-piece) housing. *Id.*, Figs. 2-3; Visser, ¶¶44-45.

Nguyen also teaches this limitation under Nokia's construction: a member that houses forming enclosed exterior lateral sides and a rear side. Nguyen's one-piece housing is a member that houses internal components, such as the engine section and battery. *See* Section §§V.A.2[1d], [1f]. Nguyen's one-piece housing also forms enclosed exterior lateral sides and a rear side. Visser, ¶45.

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

Ground 1 teaches [1b]. For example, Nguyen teaches a backwards-facing camera that extends from the back face. Ex-1004, ¶¶19, 27. Nguyen teaches that the camera optics are provided through an opening in the housing. Ex-1004, ¶27. Therefore, Nguyen teaches a cut out in the rear side of the housing to allow for the rear-facing camera's optics. Visser, ¶46.

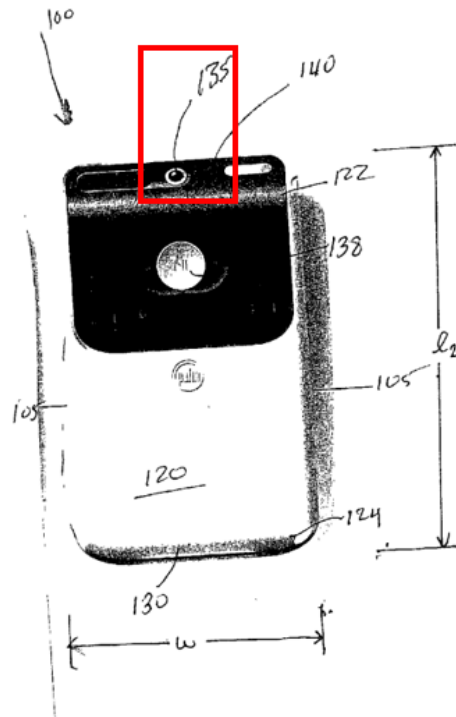


FIG. 2

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

Ground 1 teaches [1c]. Nguyen teaches a backwards-facing camera and a cut out at the rear side for the camera. Nguyen further teaches that that the camera is located in the housing and extends to the cut out, with the optics of the camera (including its lens) extending to and through the cut out. Ex-1004, ¶27. The camera includes a lens and other internal components, such as a processor, that are inside the handheld computer, which means that they are located inside the one piece housing. Ex-1004, ¶27, ¶28, ¶30. For example, Nguyen teaches that a

sensor, e.g., light-detecting material, is located under the lens. Ex-1004, ¶27.

Thus, Nguyen teaches a camera located in the one piece housing extending to the cut out. Visser, ¶¶48-49.

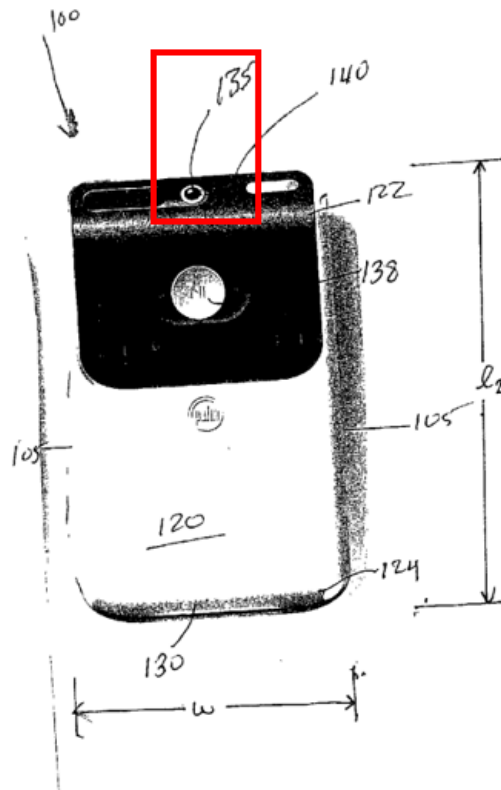


FIG. 2

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

Ground 1 teaches [1d]. For example, Nguyen teaches that an engine section comprises a printed circuit board in its teaching that the handheld computer uses printed circuit board technology. Ex-1004, ¶5. Nguyen further teaches that an

engine section comprises a transceiver, for example, through its teaching that the handheld computer includes “a wireless communication transmitter” and “a wireless communication receiver.” Ex-1004, ¶39. In addition, Nguyen teaches a processor and a memory. Ex-1004, ¶34; Visser, ¶50.

As also shown in the hardware diagram illustrated in Fig. 4, Nguyen teaches that the processor 340 is coupled with a non-volatile memory 346 and a volatile memory 344. The printed circuit board, the transceiver, the processor, and the memory modules are all included in the engine section. Visser, ¶51.

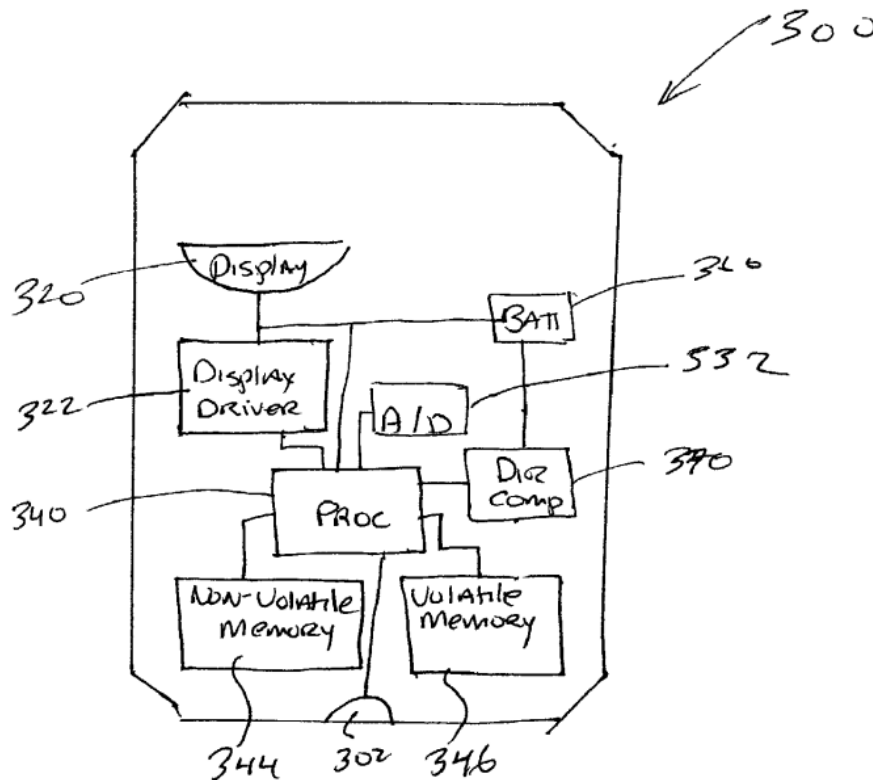


FIG. 4

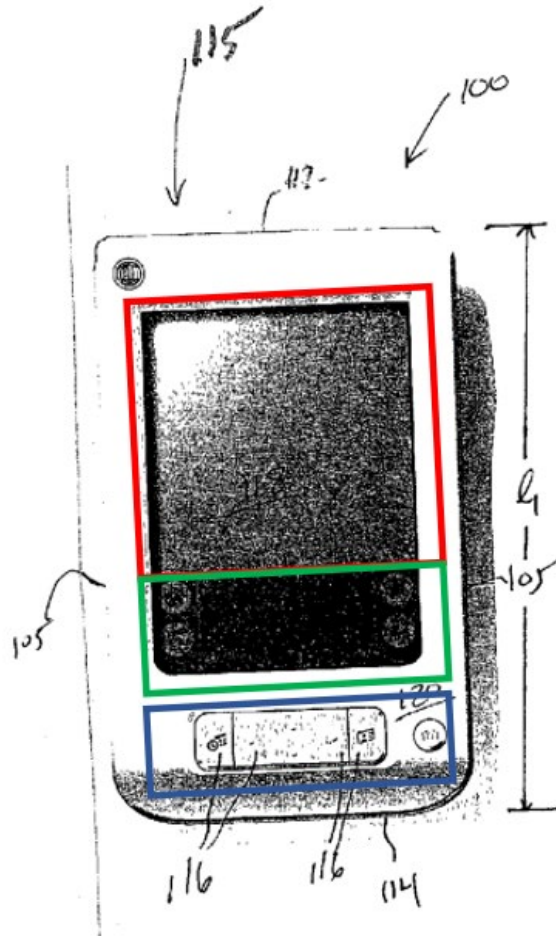
[1e] a user input section located above the engine section and a battery, wherein the user input section is located adjacent the battery and the engine section;
--

Ground 1 teaches [1e]. For example, Nguyen teaches that “[t]he display 118 may be contact sensitive.” Ex-1004, ¶22. Nguyen’s “contact sensitive” display (touch screen) was used for providing user input to the device. *See id.* Indeed, a touchscreen display had been a standard feature for Palm Pilots and other PDAs since the 1990s. Visser, ¶53.

In addition, Nguyen teaches an alphanumeric input area and application buttons, which are also part of the user input section. Ex-1004, ¶22. Nguyen teaches that the alphanumeric input area is “a handwriting recognition area.” *Id.* Nguyen further teaches that the alphanumeric input area can be a keyboard. In addition, Nguyen teaches that the input section includes application buttons that receive input from the user to perform a variety of operations. *Id.*; Visser, ¶54.

The user input section is highlighted in Fig. 1 below, which includes a touch screen (highlighted in red), an alphanumeric input area (highlighted in green), and application buttons (highlighted in blue)¹. Visser, ¶55.

¹ The display 118 is labeled in the middle of the display and difficult to see. The alphanumeric input area 119 is not clearly labeled on this figure.



Nguyen teaches that **the user input section is located above the engine section and a battery, wherein the user input section is located adjacent the battery and the engine section.** Nguyen teaches that the user input section, including the touchscreen, alphanumeric input area, and buttons, are located on the front face (Ex-1004, ¶¶21-22, Fig. 1) above and adjacent to the internal components of the device, which include the engine section and battery (Ex-1004, ¶¶34-35, Fig. 4); Visser, ¶¶56-57.

Additionally, it would have been obvious for the input section to be located above and adjacent to the engine section and battery because Nguyen teaches a

compact form factor for its handheld device, where the internal components such as the engine and battery would have been in close proximity to the user input section on the front face. *See* Ex-1004, ¶6; Visser, ¶¶58-59.

[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.

Ground 1 teaches [1f]. Nguyen teaches that the battery and the engine section are internal components of the handheld computing device, which means they are housed in the housing. Ex-1004, ¶27, ¶¶34-35, Fig. 4. Moreover, it would have been obvious that Nguyen's battery and engine section—which includes the PCB, processor, transceiver, and memory—were housed in the housing. These components require the protection of the housing. It would be an absurd design to place them outside the housing. Visser, ¶60.

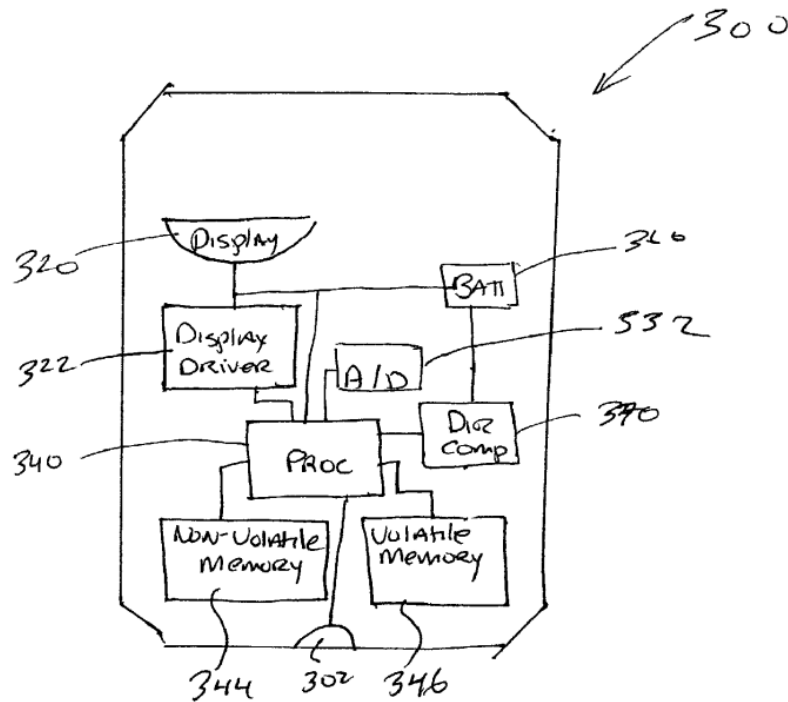
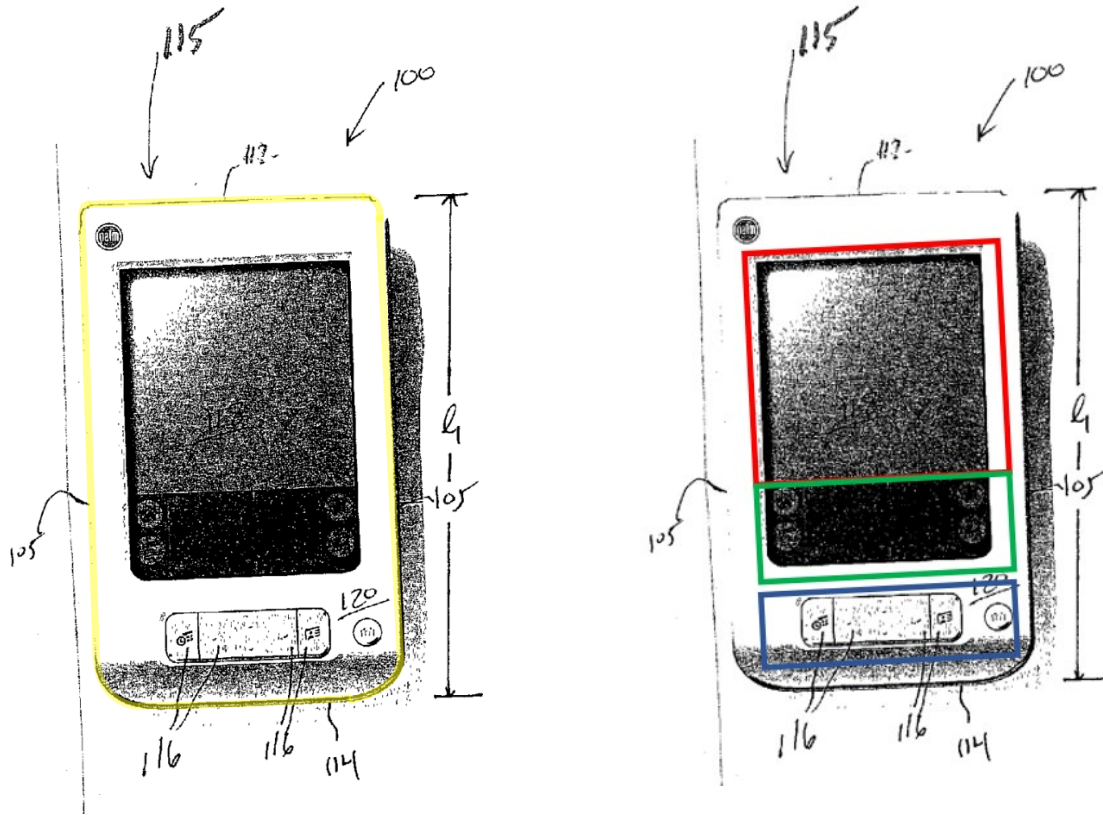


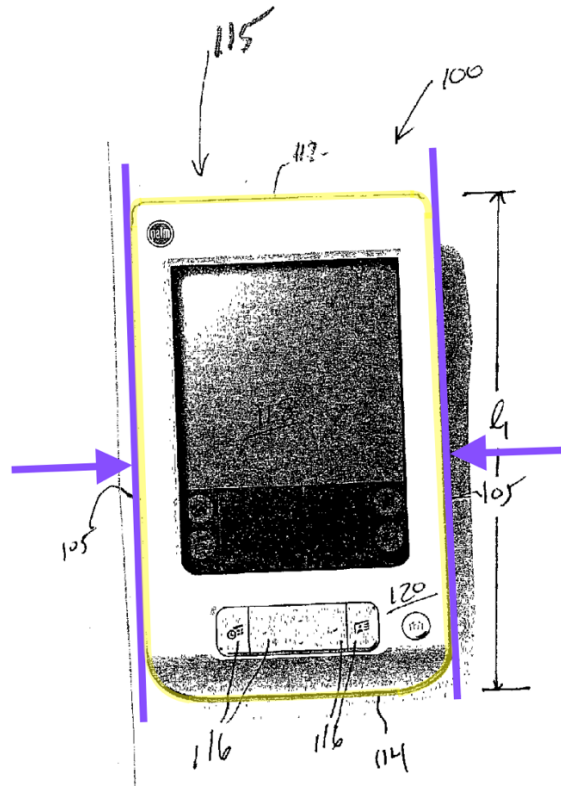
FIG. 4

Nguyen teaches that **the user input is located in an opening between said exterior lateral sides of said one piece housing of the portable electronic device.** Nguyen teaches an opening between the exterior lateral sides of the housing, which forms a tray-like shape with the rear and lateral sides. Ex-1004, ¶21, Figs. 1, 4. The user input (including the touch screen highlighted in red, alphanumeric input area highlighted in green, and buttons highlighted in blue) is located in this opening, which is highlighted in yellow below.



Visser, ¶61.

Even if the lateral sides, highlighted in purple below, were considered to be only the left and right sides of the device, Nguyen's user input would be located in an opening between the left and right lateral sides of the housing, as illustrated below, and therefore would still satisfy the claims. Visser, ¶62.



Further, Nguyen’s touch screen and alphanumeric input area are recessed relative to the front face of the device. The touch screen and alphanumeric input also have their own thickness. Ex-1004, Fig. 4. Therefore, when viewed from the side, at least a portion of the thickness of Nguyen’s user input is located in the opening between the lateral sides. Visser, ¶63.

3. Dependent Claim 11

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

Ground 1 teaches claim 11. For example, Nguyen teaches that the handheld computer 300 includes “one or more expansion ports for coupling to accessory devices,” such as “CompactFlash slots.” Ex-1004, ¶37, Fig. 4. The expansion port

302 (highlighted below in Fig. 4) “enables one or more types of expansion modules to be connected to processor 340.” Ex-1004, ¶37, Fig. 4; Visser, ¶¶65-67.

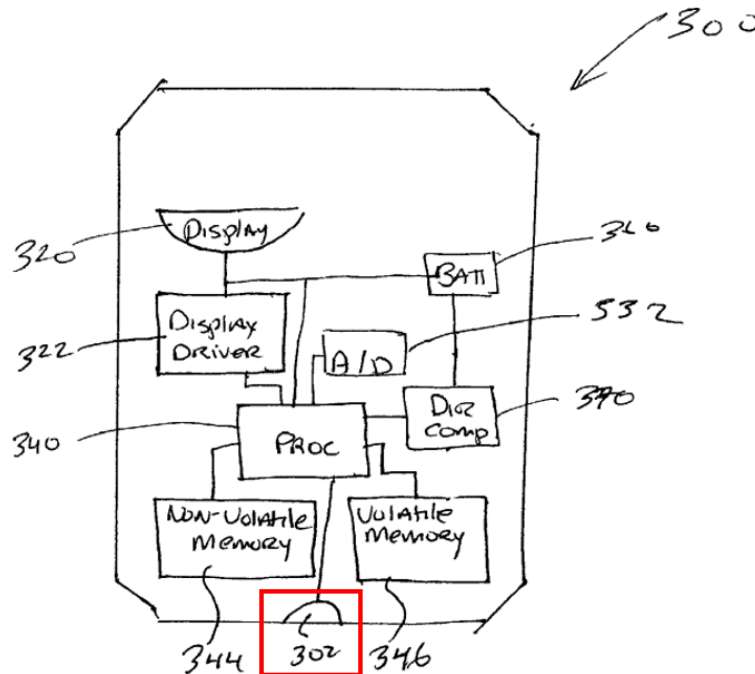


FIG. 4

The expansion port 302, e.g., a CompactFlash slot, includes an opening that allows contact with the inside of the portable device and protects the internal electronic components from outside dust and contamination. Ex-1004, ¶37. Thus, Nguyen teaches that, as part of the exterior of the device, the expansion port comprises a door that separates internal components from unwanted objects outside the device and supports the electronic module such as a CompactFlash card. *See id.* The CompactFlash card is an electronic module because it provides data storage for the device by allowing the device to read and write data and requires electricity to function. The expansion port supports the CompactFlash

card by keeping it steady and preventing it from moving or falling out. Visser, ¶¶68-69.

Moreover, it would have been obvious to include a swinging cover for the port because Nguyen states that the port can be used for a wide variety of interfaces. It was common in 2006 for expansion ports to include covers that kept out dust and other particles. Ex-1004, ¶37. This was a simple mechanism that a POSITA would have found basic and obvious. Therefore, a POSITA would have understood Nguyen's expansion port teachings to encompass a door with a cover. Visser, ¶69.

4. Dependent Claim 12

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

Ground 1 teaches claim 12. For example, Nguyen teaches that the expansion slot 302 “enables one or more types of expansion modules to be connected to processor 340,” as shown in Fig. 4 below. Ex-1004, ¶37. As is also shown, the processor is part of an engine section as it is connected with other parts of the engine section such as memory. Visser, ¶¶71-73.

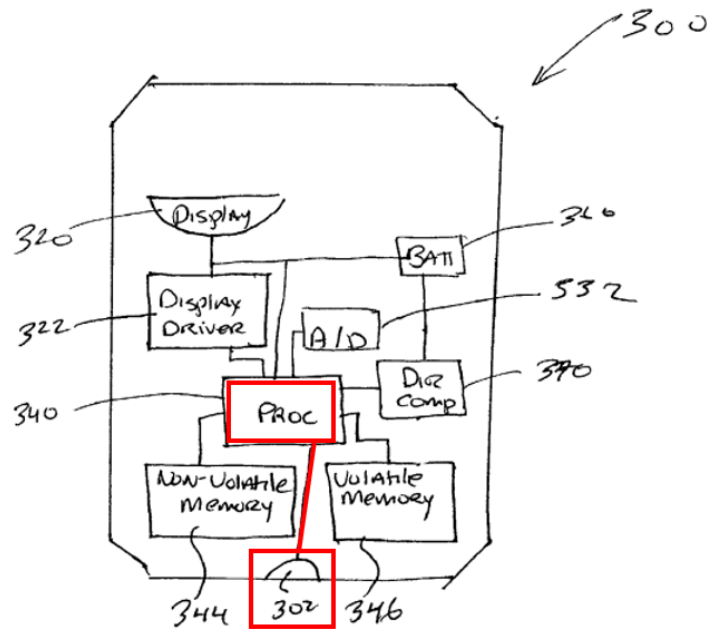


FIG. 4

A CompactFlash card is a storage card that interfaces to the engine section, for example a processor. This is required for the device to read and write data with the CompactFlash card. Visser, ¶¶74-75.

5. Independent Claim 15

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

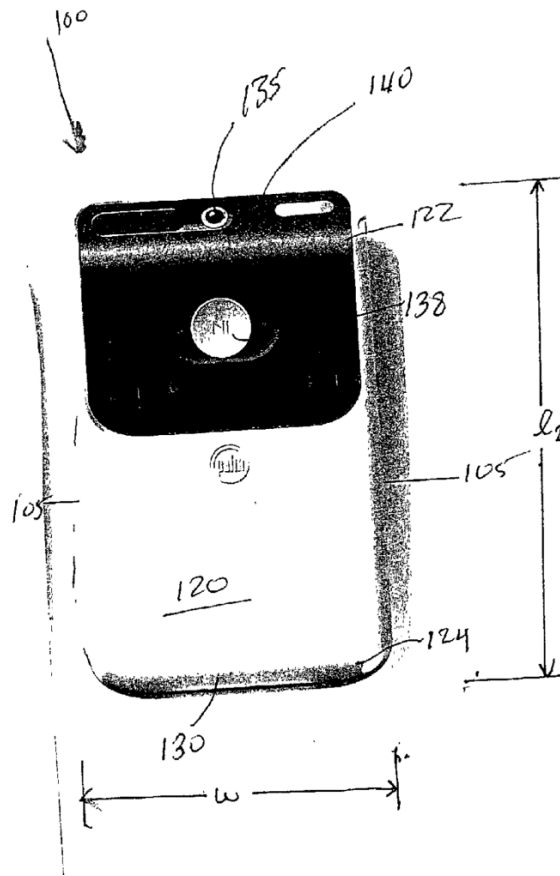
Limitation [15pre] is analogous to limitation [1pre]. Thus, the analysis from limitations [1pre] and [1a] applies. See §§V.A.2[1pre], V.A.2[1a]; Visser, ¶¶77-78.

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

Limitation [15a] is analogous to limitation [1a]. The analysis from limitation [1a] applies. *See* §V.A.2[1a]; Visser, ¶79.

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

Limitation [15b] is analogous to limitations [1b] and [1c]. The analysis from limitations [1b] and [1c] also applies. *See* §§V.A.2[1b], V.A.2[1c]. Further, a POSITA would understand that, in Nguyen, the lens 135 which is visible on the exterior the device as seen in Fig. 2, would need to be located in a cut out to allow the light to pass through the housing for an image to be captured. This cut out in the rear housing is configured to receive at least the lens portion of the camera. Ex-1004, ¶¶27-28; Visser, ¶¶80-81.



Limitation [15c] is analogous to the combination of limitations [1e] and [1f].

Further, since Nguyen teaches that the battery and engine section are housed in the housing, Nguyen teaches that the housing is configured to receive the battery and the engine section. Visser, ¶¶82-84.

B. Ground 2

Nguyen teaches a handheld computer with a “unitarily formed” housing. *Supra* §V.A.2[1a]. Zadesky provides additional teachings regarding the one-piece, unitarily-formed housing, which reinforces Nguyen’s teachings and provides further details of the design and form factor that are recited by several dependent claims (e.g., claims 2-7 and 16-17). For example, Zadesky teaches a hollow tubular extruded metal housing with a flat front and rear surface. *See* §V.B.3[1a/22a]. Additionally, Oda teaches a “cellular phone” with two cameras, relevant to independent claim 22 and several dependent claims (for example, claims 9, 10, 13, and 20-36). A POSITA would have been motivated to combine these known elements of handheld devices because it would have been a combination of prior art elements according to known methods to yield predictable results, as explained below. Visser, ¶85.

Indeed, the references teach common features of handheld devices. Nguyen teaches a “handheld computer;” similarly, Zadesky teaches a “handheld computing device.” *See* §V.A.2[1pre]; Ex-1005, Abstract. The portable devices in Nguyen and Zadesky serve similar functionalities and include similar components. For example, Nguyen and Zadesky teach similar user input components and internal hardware components. *See* §V.B.3[1e/22e]; Ex-1005, 6:4-26. A POSITA would have been motivated to combine Nguyen with Zadesky’s teachings for

manufacturing a unitary housing, which provides and houses similar components, through an extrusion process. This would have improved similar devices in the same way, with a unitary housing. Visser, ¶86.

A POSITA would also have been motivated to apply these teachings in a mobile phone because mobile phones were one of the most popular types of portable electronic devices. Oda also provides express motivation to apply its teachings to PDAs, explaining that its teachings were “described in connection with the camera-equipped cellular phone” but “may be widely applied to camera-equipped portable devices such as a PDS (Personal Digital Assistant)[.]” Ex-1006, ¶117; Visser, ¶87.

In addition, Oda also teaches an angled camera orientation. Ex-1006, ¶¶9-11. Oda teaches that this design allows a natural posture when taking pictures. *See* Ex-1006, ¶¶7-8. Similarly, Nguyen includes teachings where the camera has a slight angle because a different orientation of lens allows the user to “operate handheld computer ... in a normal manner.” Ex-1004, ¶¶19, 30, 32. The combination furthers the goals of the references because Oda’s teachings achieve the goal of an angled camera on an essentially flat rear surface as taught in Zadesky. Ex-1006, ¶¶9-11, Fig. 14; Visser, ¶88.

Further, in the 2006 timeframe, there was a desire for a compact design of portable electronic devices and for reducing the costs of design and manufacturing.

See §V.B.3[1a], V.B.3[1c/22c]. This goal would further motivate a POSITA to combine Oda, Nguyen, and Zadesky. Visser, ¶89.

A POSITA would have had a reasonable expectation of success when combining the references. Their teachings are complementary and would not have changed the principle of operation. The operation of internal electronic components in the combination would perform in the same way as they do in Nguyen, Zadesky, and Oda. The motivation to combine and expectation of success are further explained in the sections below. Visser, ¶¶90-91.

1. Zadesky (Ex-1005)

U.S. Patent No. 7,515,431 was filed July 2, 2004, issued in 2009, and is prior art under pre-AIA §102(e). Visser, ¶¶92-93.

Zadesky teaches techniques for using unitary housings for portable computing devices, such as Apple iPods, formed by a hollow extruded tube formed from a single piece of metal. Ex-1005, Abstract, 5:8-55, 9:13-12:13, 17:15-32, 19:3-23, Figs. 1, 2, 9A; Visser, ¶¶94-95.

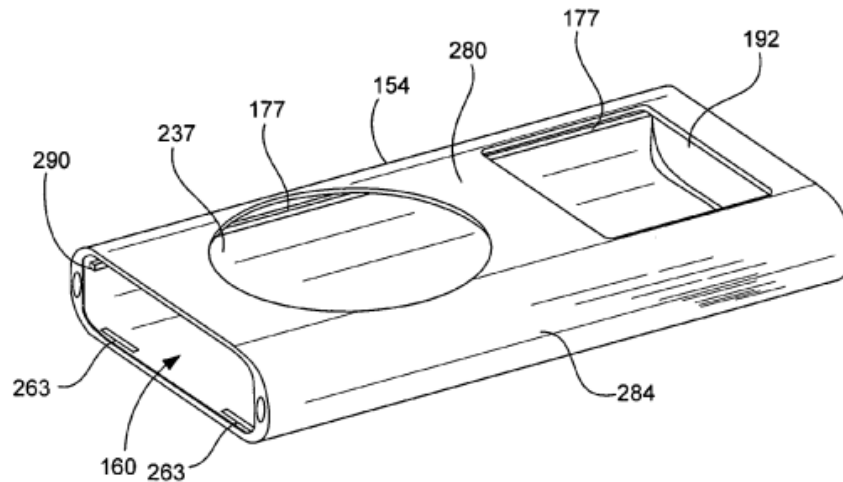


FIG. 9A

Zadesky is in the same field as the '602 patent (form factor of a portable electronic device, *see* §III). For example, Zadesky's teachings concern the shape, structure, and components of an electronic device. Ex-1005, 1:23-27; Visser, ¶¶96.

2. Oda (Ex-1006)

European Patent Application Publication No. 1,482,733 was filed on March 2, 2004 and was published on December 1, 2004, and therefore is prior art under pre-AIA §§102(a) and (e). Visser, ¶¶97-98.

Oda is directed to a mobile phone that comprises two cameras, one on the front and the other on the rear. Ex-1006, ¶115; Visser, ¶¶99-101.

Oda is analogous art to the '602 patent and in the same field of invention because it is directed to a portable electronic device (e.g., a mobile phone). Ex-1006, Abstract, ¶37, ¶117; *see* §III. For example, Oda's teachings concern the

design, structure, and components of a portable electronic device. Ex-1006, ¶9, ¶37; Visser, ¶102.

3. Independent Claims 1, 22

[1pre] A portable electronic device comprising:

Nguyen teaches **a portable electronic device**. See §V.A.2[1pre].

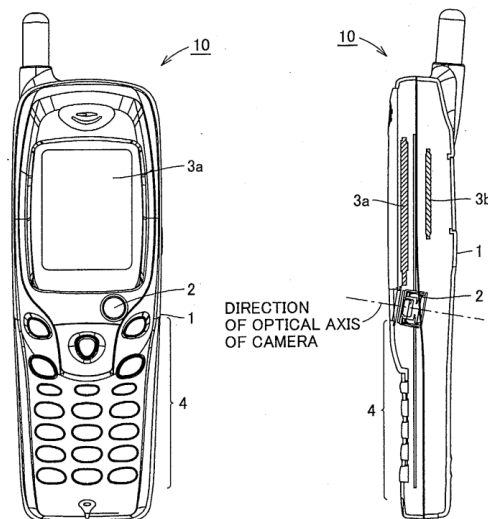
Therefore, Ground 2 teaches [1pre]. Visser, ¶103.

[22pre] A mobile phone comprising:

Ground 2 further teaches [22pre]. Oda teaches **a mobile phone**. For example, Oda teaches that its embodiments are “described in connection with the cellular phones,” specifically “in connection with the camera-equipped cellular phone.” Ex-1006, ¶117. An exemplary embodiment of a cellular phone taught in Oda is shown in Figs. 17A and 17B, below.

FIG.17A

FIG.17B



Visser, ¶¶104-105.

A POSITA would have been motivated to apply Oda’s mobile phone teachings with Nguyen and Zadesky. *See* §V.B. Since mobile phones were commonplace handheld devices, Ground 2 combines prior art elements according to known methods to yield predictable results (e.g., a handheld computing device with mobile phone functionality). Visser, ¶106.

Indeed, by 2006, it was well-known for portable electronic devices to include cellular phone capabilities, and therefore the prior art provides express teaching, suggestion, and motivation to combine a handheld computing device with mobile phone capabilities. For example, Hawkins teaches that an “organizer,” in particular “electronic handheld computers, such as the PalmPilot,” may include a cellular component to act as a cellular phone. Ex-1008, Abstract, ¶5, ¶9; *see also* Ex-1010, 1; Visser, ¶107.

[1a]	a one piece housing forming enclosed exterior lateral sides and a rear side;
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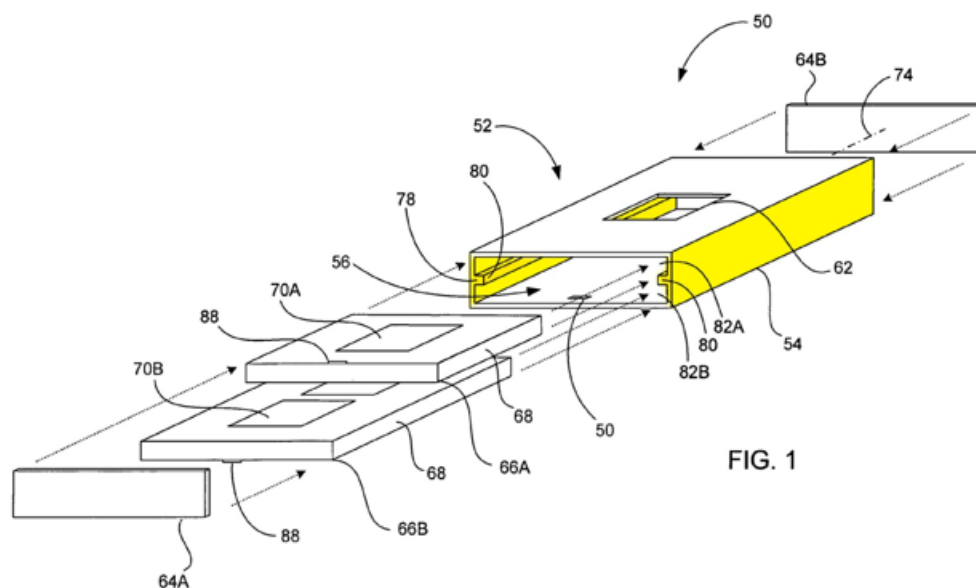
[22a]	a one piece housing of the mobile phone forming enclosed exterior lateral sides and a rear side of the mobile phone;
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Ground 2 teaches [1a]. Nguyen teaches [1a]. *See* §V.A.2[1a]. Zadesky provides additional and complementary teachings for **a one piece housing forming enclosed exterior lateral sides and a rear side**. With Nguyen’s teaching that the housing is “unitarily formed,” (*see* §V.A.2; Ex-1004, ¶¶26-27), Zadesky’s

teachings explain a preferable method of how the “unitarily formed,” one piece housing is achieved. Visser, ¶¶110-112.

For example, Zadesky teaches that the housing is a seamless enclosure formed by a single piece of material. Ex-1005, 11:66-12:13, 4:39-67. Zadesky teaches that the main body is “a single complete unit” in the form of “an integral tube.” Ex-1005, 5:16-35. Zadesky further teaches that the housing is formed from an extruded hollow tube, which is formed as a single piece material. Ex-1005, 2:27-35, 8:34-51; Visser, ¶113.

Zadesky also teaches that its housing forms enclosed exterior lateral sides and a rear side. Zadesky teaches a housing with square or rounded sides; either teaching satisfies the claims. For example, in an embodiment with square sides, Zadesky teaches that the device 50 includes “a housing 52 that encloses and supports internally various electrical components.” Ex-1005, 5:16-55. The lateral sides are highlighted in yellow in Fig. 1 below. The rear side is the bottom side. Visser, ¶¶113-114.



For rounded sides, Zadesky teaches that “the computing device 100 includes a housing 102 that encloses and supports internally various electrical components,” as shown in Fig. 9A below. Ex-1005, 9:36-54; *see also* Fig. 2. The housing in this embodiment also forms enclosed exterior lateral sides and a rear side. The lateral sides are highlighted in yellow in Fig. 9A below. The rear side is the bottom side. Visser, ¶115.

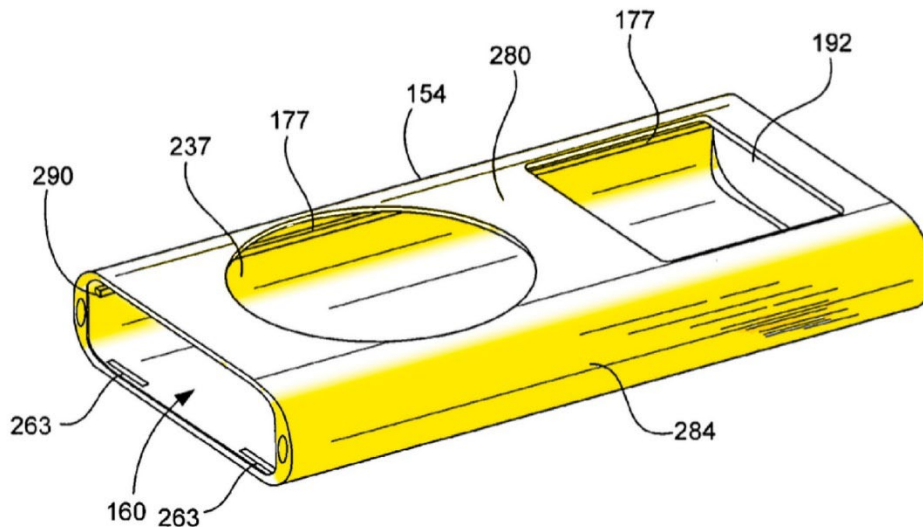


FIG. 9A

The combination also teaches this limitation under Nokia's construction: a member that houses forming enclosed exterior lateral sides and a rear side. Zadesky's one-piece housing is a member that houses internal components, such as the engine section and a battery. *See* §§V.B.3[1d], [1f]. Zadesky's one-piece housing also forms enclosed exterior lateral sides and a rear side. Visser, ¶127.

Motivation to Combine. A seamless one-piece housing was common and well-known for handheld computing devices in the 2006 timeframe. A POSITA would have been fully aware and knowledgeable of this type of housing, e.g., a seamless, one-piece housing manufactured via an extruded tube of metal from a single-piece of metal. *See* Ex-1005, 2:26-34, 8:52-63, 12:27-33; Visser, ¶¶116-121; Ex-1017; Ex-1018; Ex-1019.

In addition, in the combination of Nguyen, Zadesky, and Oda, a POSITA would have been motivated to adopt a rectilinear form factor, with an essentially

straight (flat) rear side, for the extruded housing, which was common and widely adopted in the 2006 time frame. Moreover, Nguyen's teaching that the housing is "unitarily formed" provides further motivation to use a rectilinear form factor with an essentially straight rear side. *See* §V.A.2[1a]; Visser, ¶¶122-123.

A POSITA would have been motivated to apply Zadesky's teachings of a one piece housing to Nguyen. For example, Zadesky describes that one of its goals is to make the enclosure of the portable electronic device lighter, thinner, stronger, and more rigid. *See* Ex-1005, 1:39-53, 2:14-22. A lighter and thinner enclosure contemplated in Zadesky would further a major goal of Nguyen: increasing the mobility of portable devices. *See* Ex-1004, ¶2. A POSITA would also have understood that a stronger and a more rigid housing is more desirable in Nguyen, as it reduces the impact of collision or deformation in the daily use. Visser, ¶124.

In view of the similar and/or complementary design goals, Zadesky teaches a seamless enclosure formed from an extruded tube. *See* Ex-1005, 2:26-34, 2:54-60, 5:26-29. Zadesky teaches that this design is "stronger and more aesthetically pleasing." *Id.*, 9:37-54. Zadesky further teaches that the material of the one-piece housing is selected based on strength (tensile), density (lightweight), strength to weight ratio, etc. *Id.*, 8:52-63. Applying Zadesky's teachings of the enclosure to Nguyen thus improves the mobility, strength, and desirability for the device. Visser, ¶125.

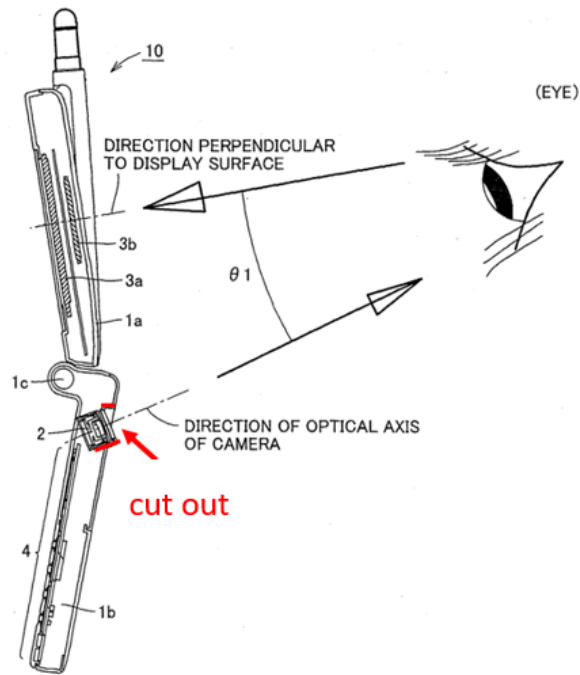
Reasonable Expectation of Success. The combination of Nguyen, Zadesky, and Oda teaches an extruded one piece housing that has a primarily rectangular profile with essentially flat rear side and integral edges. A POSITA would have found this design to be obvious and have a reasonable expectation of success in doing so. Indeed, a POSITA would have understood that such a design is easy to achieve, as it is the typical outcome of the extrusion process. Visser, ¶¶126-127.

[1b/22b] a cut out in the rear side of said housing;

Ground 2 teaches limitations [1b] and [22b]. The combination of Nguyen, Zadesky, and Oda teaches a one piece housing with a flat rear side. *See* §V.B.3[1a]. Nguyen teaches a cut out in the rear side of the housing. In the combination, the cut out is placed on the rear surface taught in Zadesky. Visser, ¶¶128-129.

Oda reinforces this teaching. For example, as shown in Fig. 14 below, Oda teaches a cut out on the (flat) rear side of a housing:

FIG.14



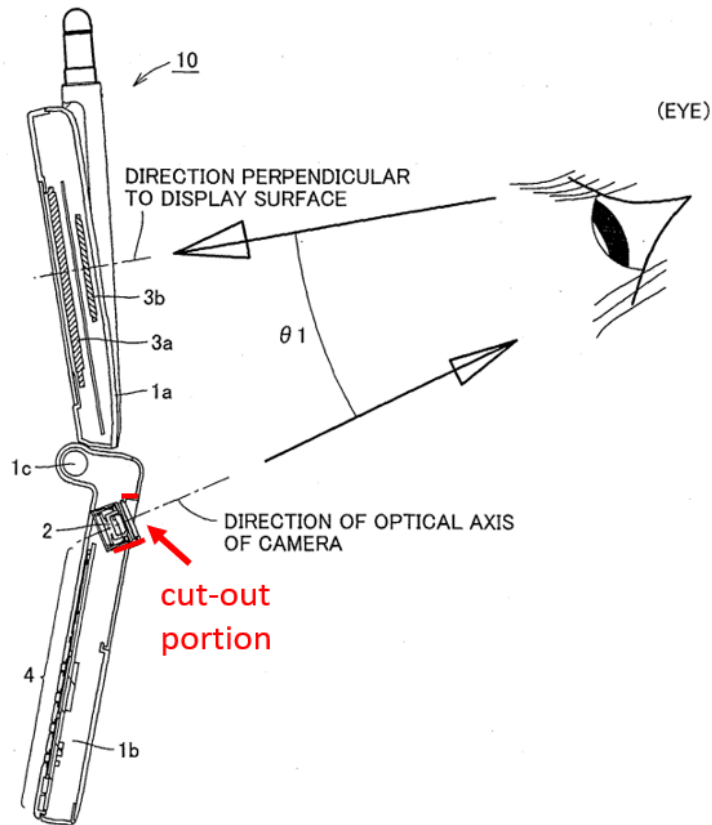
Visser, ¶¶130-131.

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

Ground 2 teaches limitations [1c] and [22c]. Nguyen teaches [1c]. See §V.A.2[1c]; Visser, ¶¶132-133.

Oda further teaches **a camera located in said housing and extending to said cut out at said rear side**. For example, as shown in Fig. 14 below, Oda teaches a camera located in said housing and extending to said cut out at said rear side. Visser, ¶134.

FIG.14



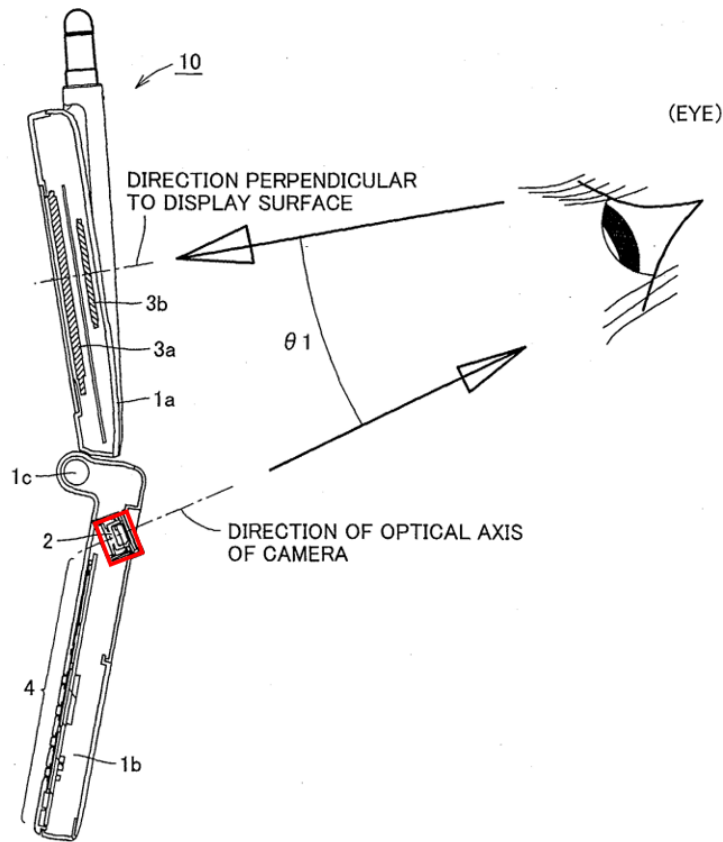
Motivation to Combine and Expectation of Success. Nguyen teaches a mobile device with a compact design where the camera is tilted at an angle, instead of pointing straight backwards, which maintains the display at “an optimal viewing position for the user” when taking pictures. Ex-1004, ¶2, ¶19, ¶27, ¶¶30-32. Oda provides a mechanism for tilting a camera in a mobile device by teaching a mechanism for angling the optical axis in the space-constrained design of Fig. 14. Ex-1006, ¶¶78-79, Fig. 14. While camera tilt is not required by the Challenged Claims, it nonetheless provides one motivation for a POSITA to combine these

teachings from Oda with the device taught by the combination of Nguyen and Zadesky because Nguyen provides express motivation to tilt the camera. Visser, ¶135.

Oda and Nguyen share the goal of pointing the camera lens at an angle, which allows the user to operate the device more naturally. Oda provides a simple mechanism for accomplishing this goal when the lens is placed in a cut out located on an essentially flat rear surface—which is precisely the scenario presented by the extruded one-piece housings taught in Zadesky. *See, e.g.*, Ex-1006, ¶79.

Therefore, Oda’s teachings maintain the advantages of both Nguyen and Zadesky; a POSITA would have found such a design desirable, have been motivated to implement this teaching in the combination of Nguyen, Zadesky, and Oda, and have a reasonable expectation of success of doing so because Oda teaches this design on a flat rear surface, just like the rear flat surface in Zadesky. Ex-1006, Fig. 14, ¶¶37, 42-45, 79; Visser, ¶136.

FIG.14



Furthermore, the camera design taught in Oda is also intended to make the device compact and keep the manufacturing costs low. *See* §§V.B.3[1a], V.B.3[1c/22c]; Ex-1006, ¶9, ¶12. Therefore, Oda's teachings further the goal of Nguyen and Zadesky. *See* §V.B; Visser, ¶137.

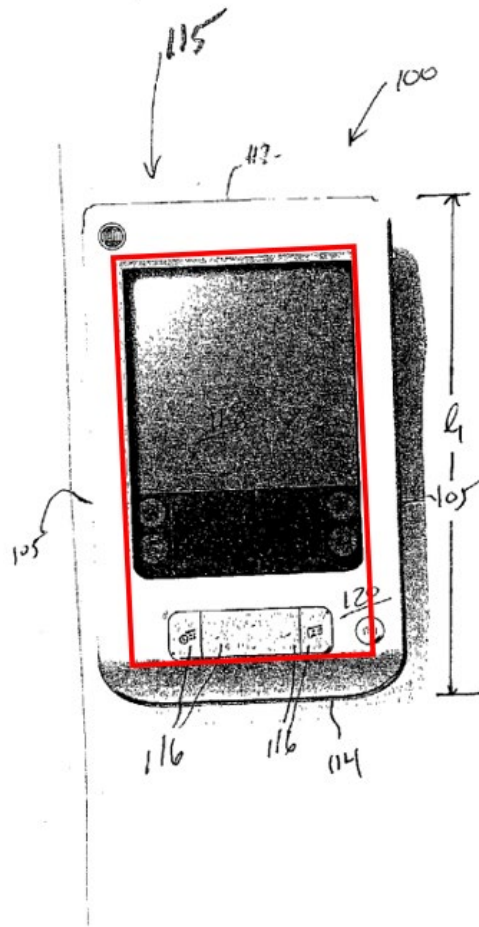
Indeed, Oda expressly teaches that the arrangement of cameras is applicable to portable electronic devices that are not limited to mobile phones, such as the devices taught by the combination of Nguyen and Zadesky. This provides a further motivation to combine Oda with Nguyen and Zadesky. Visser, ¶138.

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

Ground 2 teaches limitations [1d] and [22d]. Nguyen teaches limitation [1d]. *See* §V.A.2[1d]. Oda reinforces the teaching of a transceiver. For example, Oda teaches that its embodiments are “described in connection with the cellular phones.” Ex-1006, ¶117. A POSITA would have understood that a cellular phone includes a cellular phone transceiver to allow the device to wirelessly transmit and receive data. *See* Ex-1006, ¶117, ¶2; Visser, ¶¶140-143.

[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 2 teaches limitations [1e] and [22e]. Nguyen teaches limitation [1e]. *See* §V.A.2[1e]. Nguyen’s user input section is shown below.



Visser, ¶¶144-145.

Zadesky reinforces Nguyen’s teachings. Like Nguyen, Zadesky also teaches user input devices that include “touch screens” and buttons. Ex-1005, 6:4-27, 9:66-10:10. Furthermore, like Nguyen, Zadesky teaches that the user input section is located on the front surface of the portable electronic device. *See* Ex-1005, Figs. 1, 9A. Zadesky’s exemplary user input sections are shown below, which include a touch pad 108A and buttons 108B. Ex-1005, 9:66-10:10; Visser, ¶146.

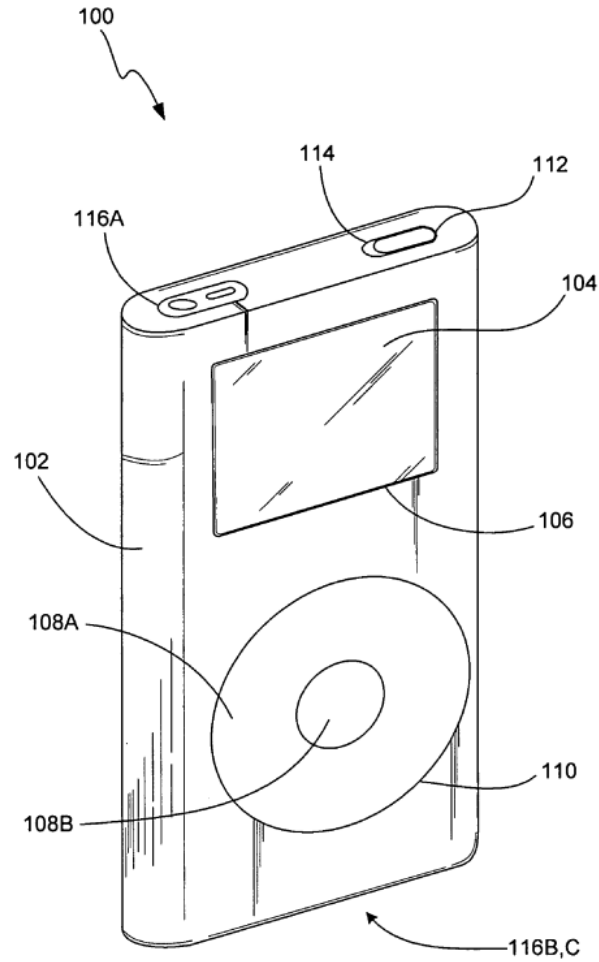


FIG. 2

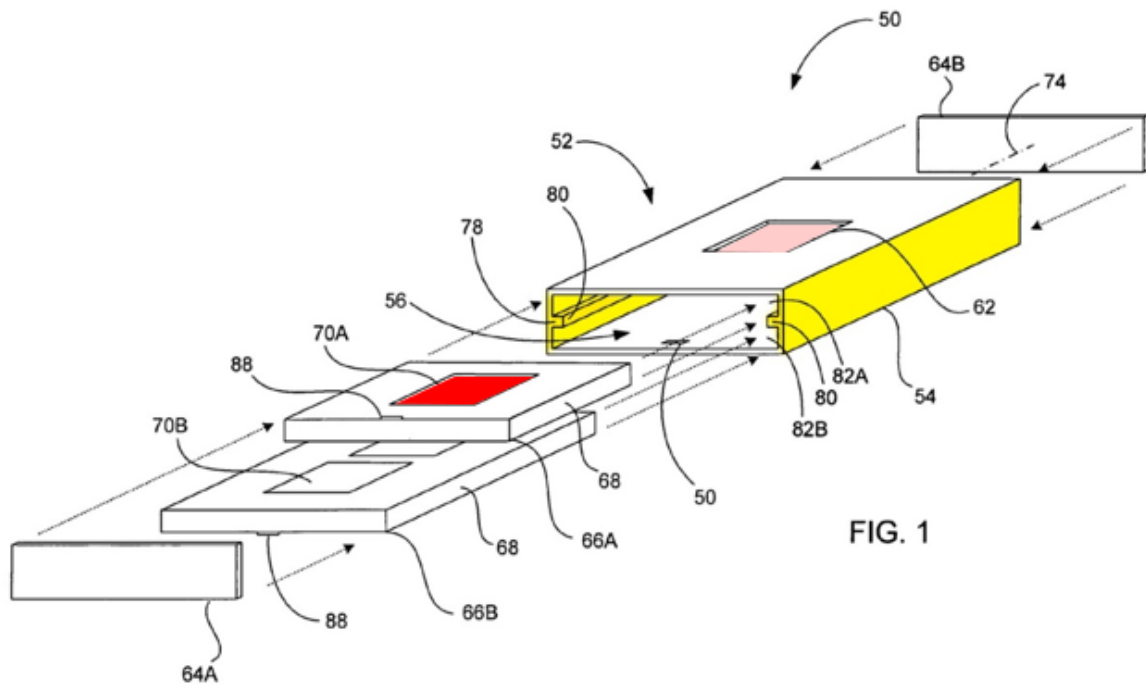
A POSITA would also have been motivated to combine the teachings on user input sections taught in Nguyen and Zadesky based on their similar components and locations. The combination of Nguyen and Zadesky would result in a user input section located on the front surface of the extruded one piece housing. In the combination, the user input section is located above the engine section and a battery, wherein the user input section is located adjacent the battery and the engine section. Combining Nguyen and Zadesky regarding the user input

elements amounts to the use of known technique to improve a familiar system in the same way. A POSITA would have had a reasonable expectation of success for this combination. Visser, ¶¶147-148.

- [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.**

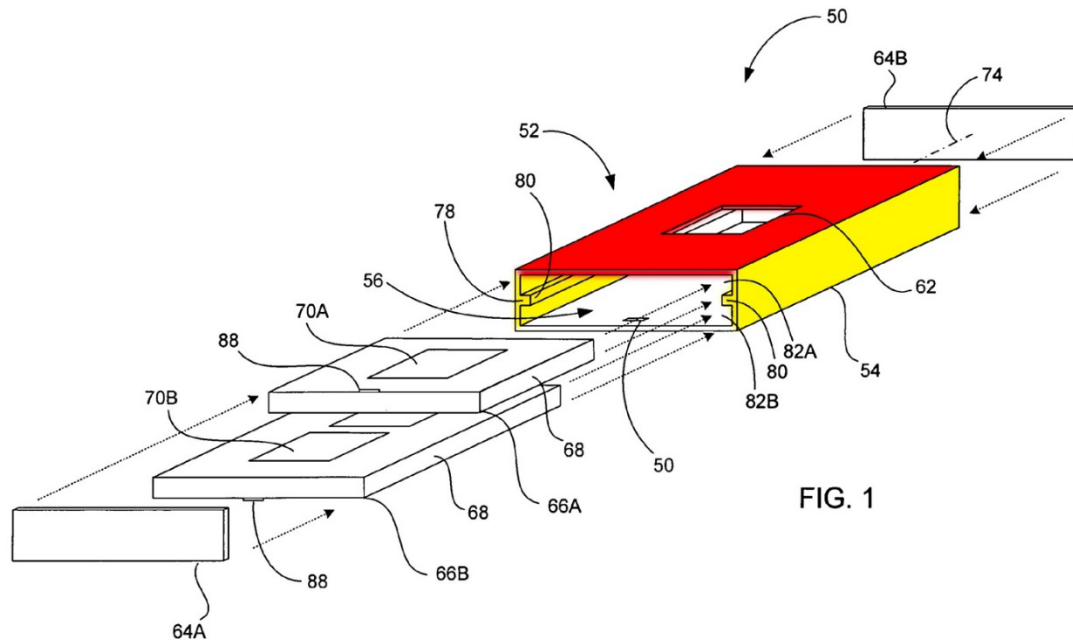
Ground 2 teaches limitations [1f] and [22f]. Nguyen teaches limitation [1f]. *See* §V.A.2[1f]. The combination of Nguyen and Zadesky further teaches [1f]. The combination teaches an extruded one piece housing and user input elements, for example a touch screen and buttons, located on the front side of the portable electronic device. Visser, ¶¶149-152.

Zadesky provides further teachings of **an opening between said exterior lateral sides of said one piece housing of the portable electronic device**. For a device with square sides, Zadesky teaches that “[t]he main body 54 also includes one or more windows 62, which provide access to the electrical components, particularly the user interface elements.” Ex-1005, 5:16-36. The lateral sides are colored in yellow, the user input in red, and the opening in pink in Fig. 1, below. As seen in Fig. 1, the user input is located in an opening between the lateral sides. Visser, ¶153.



For a device with rounded sides, Zadesky teaches that the seamless enclosure 154 includes “an access opening 192 having a shape that coincides with the shape of” a touch screen, as well as “an access opening 237 having a shape that coincides with the shape of the touch pad 232.” Ex-1005, 12:63-13:16, 9:66-10:10, 15:37-54. In Fig. 3B, below, the lateral sides are highlighted in yellow, the user input in red, and the opening in pink. As seen from the figure, the user input is also located in one or more openings between the lateral sides. Visser, ¶154.

In an embodiment with square sides, the planar front surface depicted in Fig. 1 is highlighted in red, below. The lateral sides are highlighted in yellow. As seen in the highlighted portions in Fig. 1, the planar front surface taught in Zadesky extends from and between the lateral sides. As Zadesky teaches that the body is formed using a single piece of metal (*see, e.g.*, Ex-1005, 11:66-12:13), there is no gap between the lateral edges and the front side. Visser, ¶159.



See also Ex-1005, 5:67-6:3, Fig. 1; Visser, ¶159.

In another embodiment with rounded sides, the planar front surface depicted in Fig. 9, below, is highlighted in red. Ex-1005, Fig. 9A. The lateral sides are highlighted in yellow. For this embodiment, Zadesky teaches that the seamless enclosure 154 of the device includes a planar front surface 280 and (rounded) lateral sides 284. Ex-1005, 19:2-23. As also seen below, the planar front surface

taught in Zadesky extends from and between the lateral sides. There is no gap between the lateral edges and the front side. Visser, ¶160.

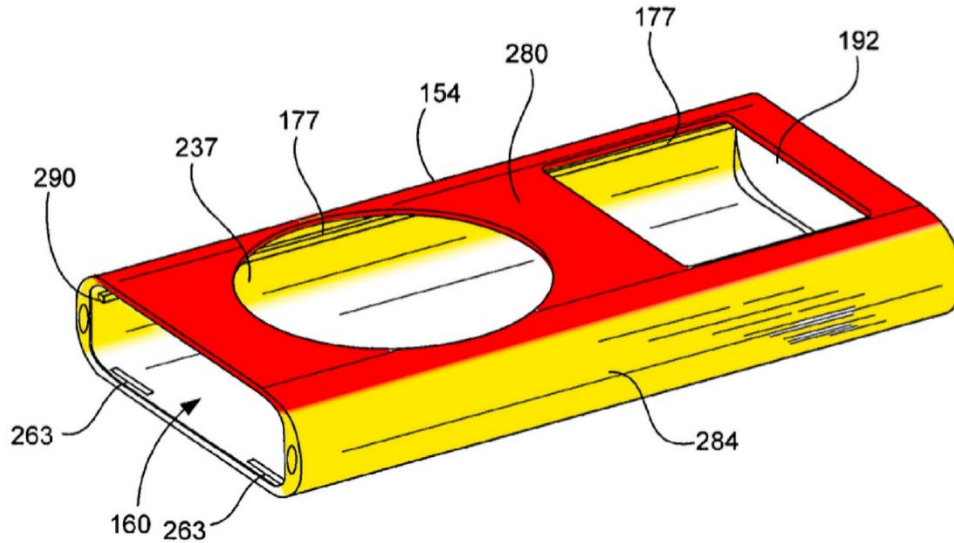


FIG. 9A

Ex-1005, Fig. 9A; *see also* Ex-1005, Figs. 3A-B, 9C.

In addition, Oda teaches a mobile phone, which a POSITA would have been motivated to apply to the combination of Nguyen and Zadesky. *See*

§V.B.3[22pre]. Therefore, Ground 2 further teaches claim 23. Visser, ¶¶161-162.

5. Dependent Claims 3, 24

- [3] **A portable electronic device according to claim 2**
- [24] **A mobile phone according to claim [23]²**
wherein the front side extends parallel to the lateral edges.

Ground 2 teaches claims 3 and 24. The phrase “lateral edges” does not have any antecedent basis. To the extent this claim can be understood, the term “lateral edges” is interpreted to mean the edges of the lateral sides recited in claims 1 and 22. Visser, ¶¶163-165.

Zadesky teaches that **the front side extends parallel to the lateral edges**. For example, the planar front surface of the housing taught in Zadesky is parallel to the longitudinal axis 74 and 160. *See, e.g.*, Ex-1005, 6:27-39, 11:44-65, 20:6-19. As seen below in Fig. 1, both the front side (highlighted in red) and the lateral sides (highlighted in yellow) extend parallel the longitudinal axis 74 of the extrusion (highlighted in blue). Therefore, Fig. 1 shows that the front side extends parallel to the lateral sides. Visser, ¶¶165-166.

² Claim 24 contains a typographical error which omits the claim number from which the claim is dependent.

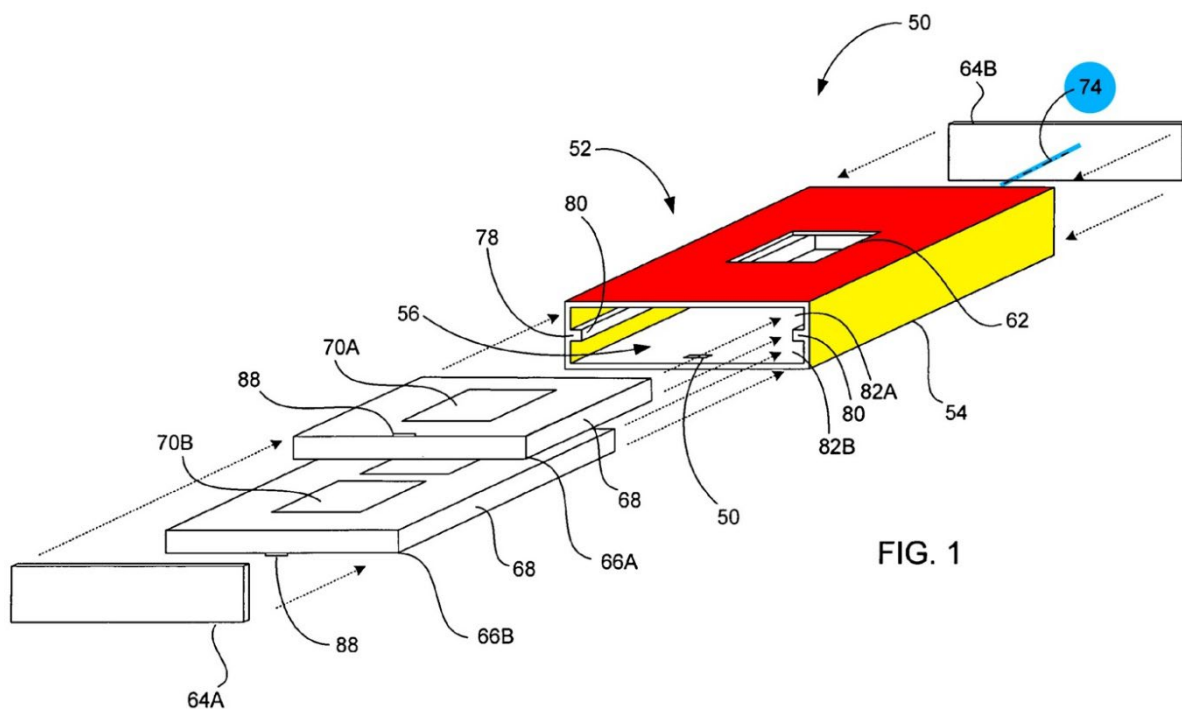


FIG. 1

Similarly, in another embodiment as shown below in Fig. 3b, both the front side (highlighted in red) and the lateral sides (highlighted in yellow) extend parallel the longitudinal axis 160 of the extrusion (highlighted in blue). Therefore, Fig. 3B also shows that the front side extends parallel to the lateral sides.

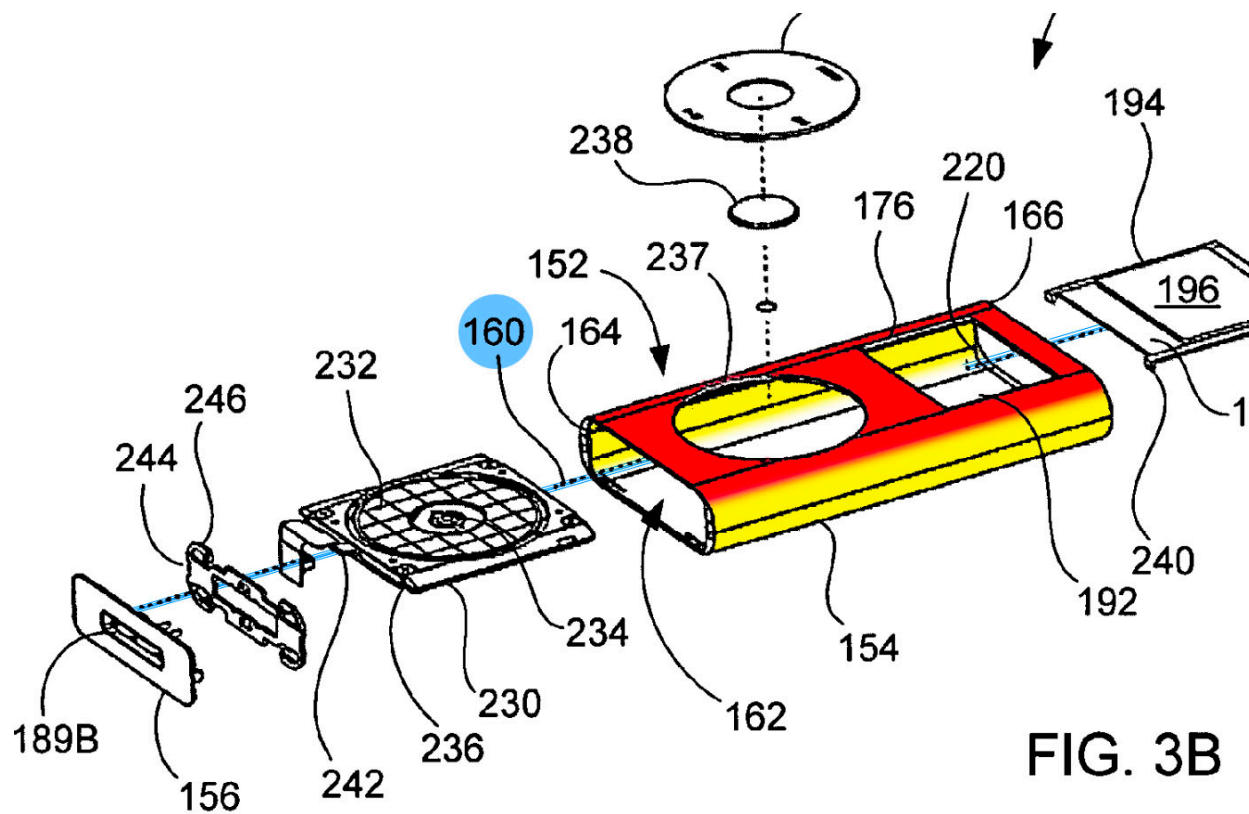


FIG. 3B

See also Figs. 1, 3A-B, 9A, 9C. Therefore, Ground 2 teaches claim 3. Visser, ¶167.

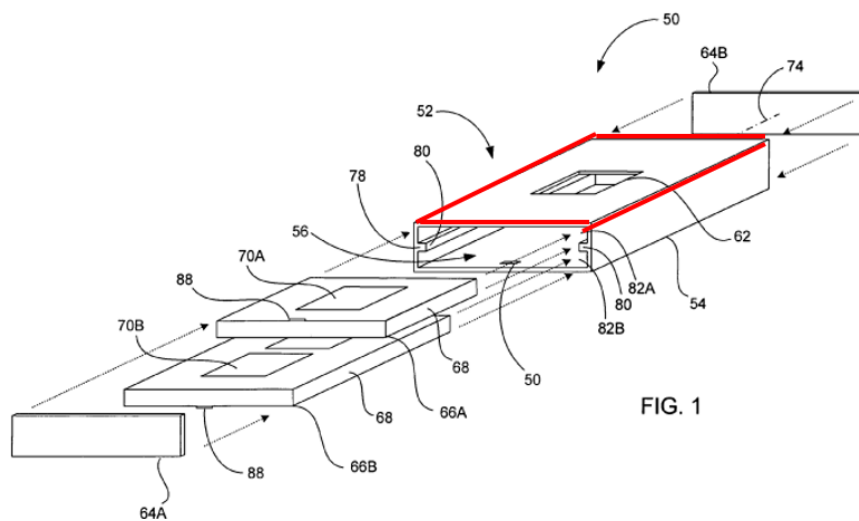
In addition, Oda teaches a mobile phone, which a POSITA would have been motivated to apply to the combination of Nguyen and Zadesky. *See* §V.B.3[22pre]. Therefore, Ground 2 further teaches claim 24. Visser, ¶¶168-169.

6. Dependent Claims 4, 25

- [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.

Ground 2 teaches claims 4 and 25. Zadesky teaches **the front side forms at least a side of the opening through which the input device is located.** The phrase “the input device” does not have any antecedent basis. To the extent that this claim can be understood, the phrase is interpreted to mean the “user input section” of claims 1 and 22. Visser, ¶¶170-172.

Zadesky teaches that the housing has a front side. *See* §§V.B.4-5. Zadesky further teaches that the front side forms one or more openings, as shown for the two embodiments below. Visser, ¶172.



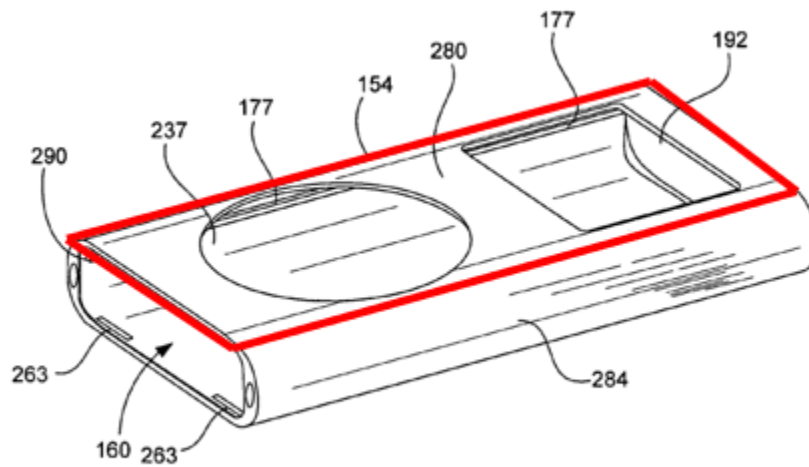
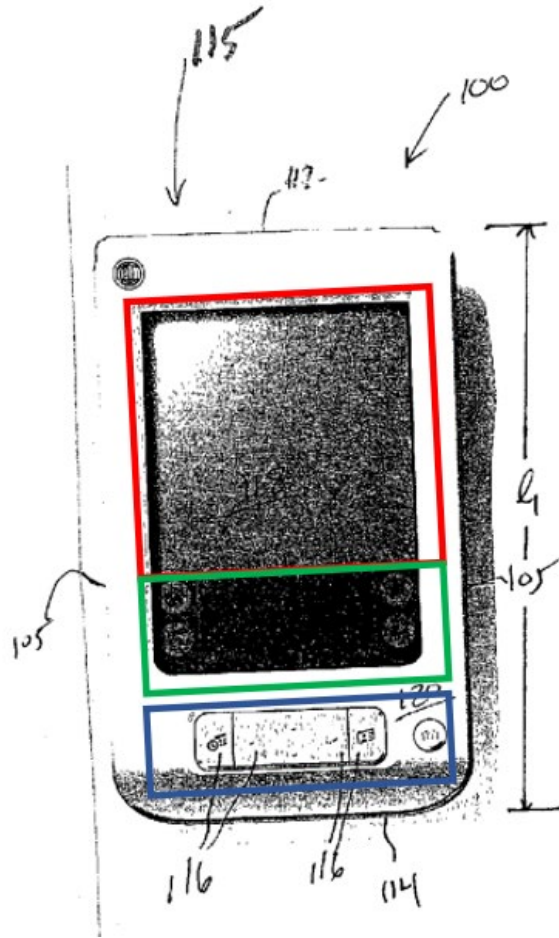


FIG. 9A

The combination of Nguyen and Zadesky further teaches that the input device is located in the opening. Nguyen teaches user input devices located on the front surface. Ex-1004, ¶¶21-22, Fig. 1. Nguyen's user input devices are highlighted on Fig. 1 below, with red for the contact-sensitive display, green for the alphanumeric input area, and blue for application buttons. Visser, ¶173.



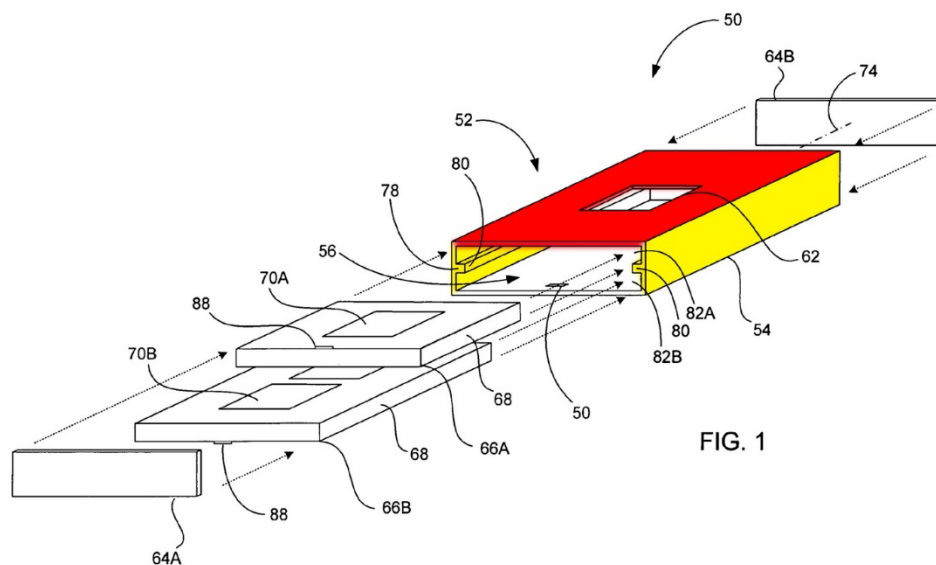
A POSITA would have been motivated to combine the Zadesky's teachings of a one piece body, including its front side, with the teachings of Nguyen. *See* §V.B.3. In such a combination, the user input device is located in one or more openings on the front face of the one-piece body. Nguyen and Zadesky teach similar user input devices. *See* §V.B.3. A POSITA would have been motivated to arrange any user input device(s) taught in either Nguyen or Zadesky on the opening on the front side. Visser, ¶174.

In addition, Oda teaches a mobile phone, which a POSITA would have been motivated to apply to the combination of Nguyen and Zadesky. *See* §V.B.3[22pre]. Therefore, Ground 2 teaches claims 4 and 25. Visser, ¶¶175-176.

7. Dependent Claims 5, 26

- [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.**

Ground 2 teaches claims 5 and 26. Zadesky teaches **a front side of the housing**. Ex-1005, 2:58-3:2 (“a seamless enclosure having a substantially planar *front surface*.”), 5:37-6:4. The front side of each embodiment is highlighted in red in Figs. 1 and 9A, below. Visser, ¶¶177-179.



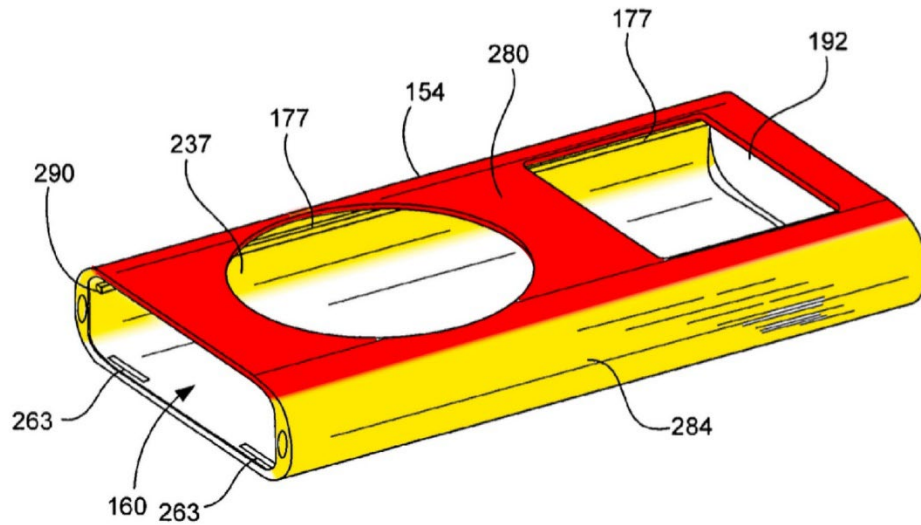
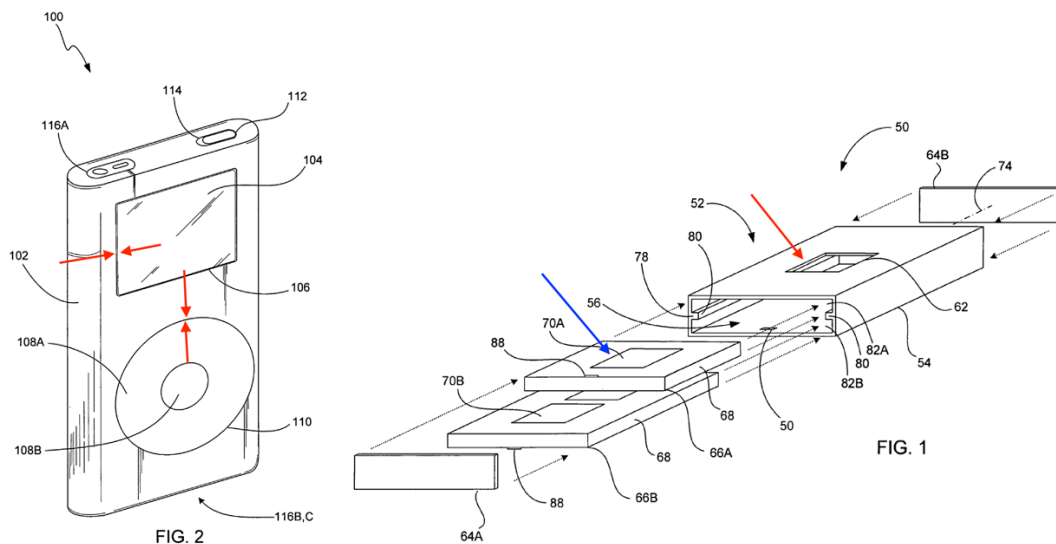


FIG. 9A

The combination of Nguyen and Zadesky teaches that **the user input and a front side of the housing lie in a side by side arrangement.** The combination has a front surface that is part of and integral to the one-piece housing. As seen in Zadesky, the user input and the front side lie in a side by side arrangement. Thus, Ground 2 teaches claim 5. Visser, ¶180.

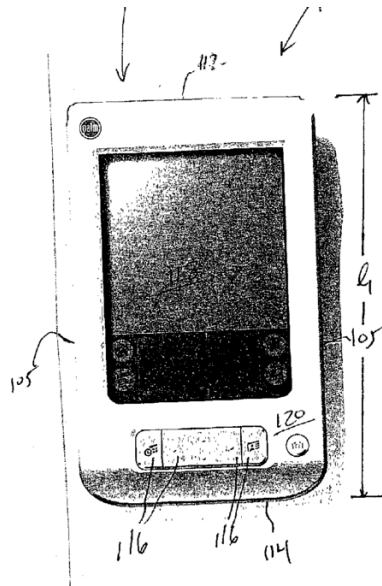


In addition, Oda teaches a mobile phone, which a POSITA would have been motivated to apply to the combination of Nguyen and Zadesky. *See* §V.B.3[22pre]. Therefore, Ground 2 further teaches claim 26. Visser, ¶¶181-182.

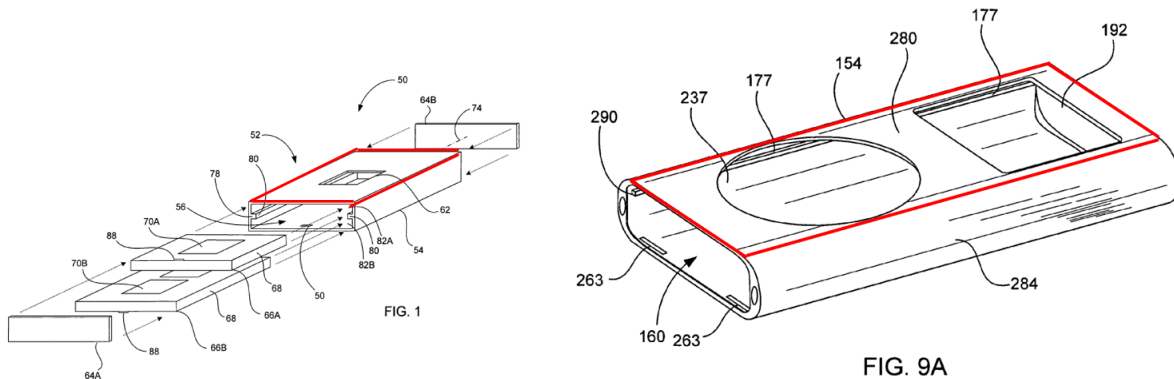
8. Dependent Claims 6, 27

- [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.**

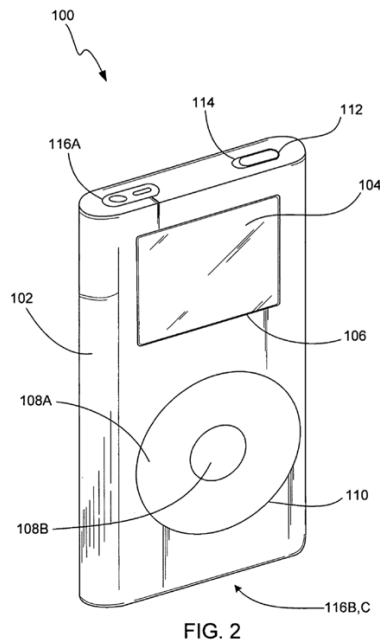
Ground 2 teaches claims 6 and 27. The phrase “the user input” does not have any antecedent basis. To the extent that this claim can be understood, the phrase is interpreted to mean the “user input section” of claims 1 and 22. Nguyen teaches that the front face of the device provides the user input. *See* §V.A.2; Ex-1004, ¶¶21-22, Figs. 1 and 3; Visser, ¶¶183-186.



Zadesky teaches an extruded one piece housing that includes a front surface, lateral sides, and rear surface, which are all part of the same housing. *See* §§V.B.1, V.B.3. Zadesky also teaches the front side of the housing provides user input devices, such as “touch screens” and buttons, similar to the teachings of Nguyen. *See* §§V.B.1, V.B.3; Visser, ¶187.



As taught in Zadesky, when the user input devices are installed, they form a continuous surface along with the front face of the extruded housing. Visser, ¶188.



Because the user inputs taught in Nguyen and Zadesky are placed on the front face of the device, include similar components, and serve the same functions, it would have been obvious that, in the combination of Nguyen and Zadesky, the user input elements on the one piece housing form a continuous surface with the other part of the housing. Therefore, Ground 2 teaches claim 6. Visser, ¶189.

In addition, Oda teaches a mobile phone, which a POSITA would have been motivated to apply to the combination of Nguyen and Zadesky. *See* §V.B.3[22pre]. Therefore, Ground 2 further teaches claim 27. Visser, ¶190-191.

9. Dependent Claims 7, 28

[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.

Ground 2 teaches claims 7 and 28. The combination of Nguyen and Zadesky teaches that **the user input section and the one piece housing define an interior volume**. The combination of Nguyen, Zadesky, and Oda teaches a front surface that provides a user input section. *See* §V.B.6; Visser, ¶¶192-194.

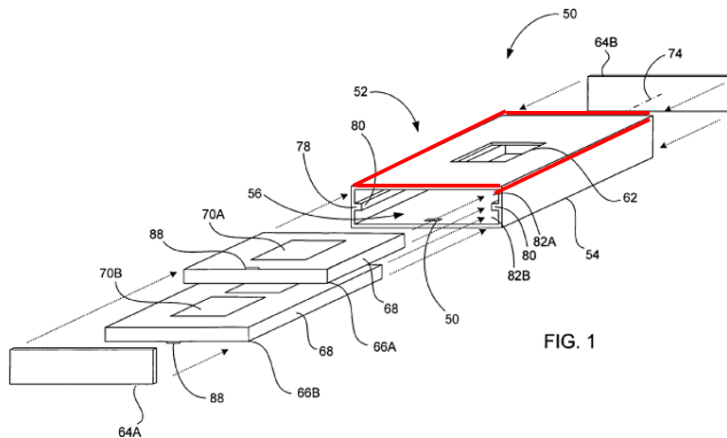


FIG. 1

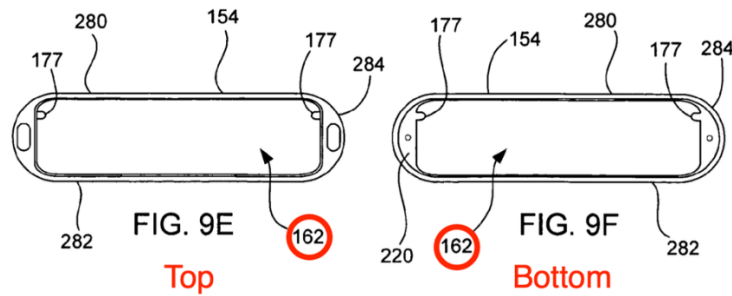


FIG. 9E

Top

FIG. 9F

Bottom

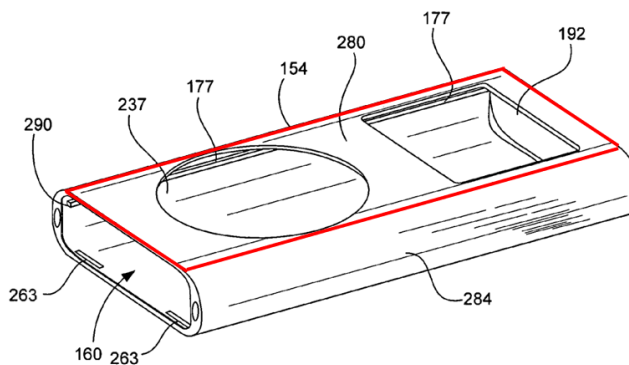
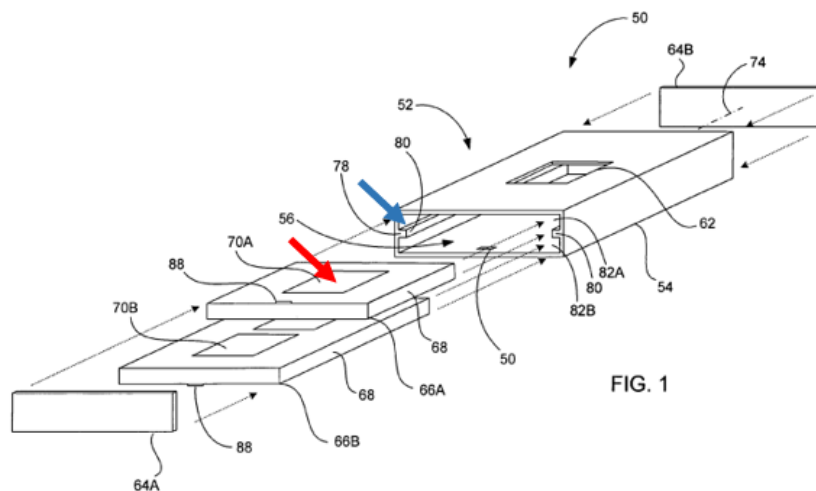


FIG. 9A

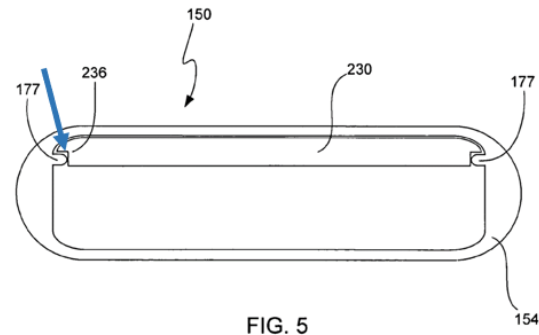
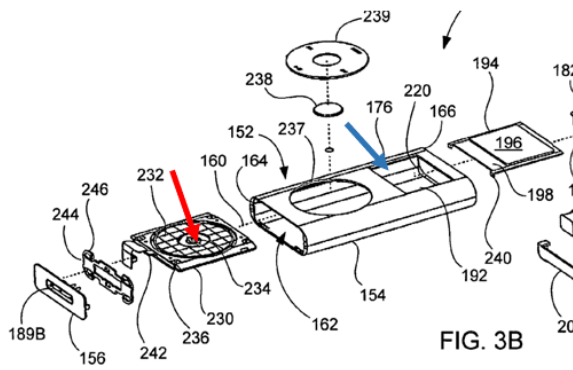
Therefore, the combination teaches that the one piece housing, plus the user input section on the front face, forms the exterior of the device and defines the interior volume of the device. *See* §§V.A.2[1a], V.A.2[1d]. The interior volume in the embodiment as seen in Fig. 1 is identified as cavity 56; in the embodiment as

device includes “locating and *supporting the user interface assembly* behind an access opening and adjacent the planar surface of the tube via *the internal rails.*”

Ex-1005, 4:60-67; *see also* Ex-1005, 6:41-58. The internal rail system 78 is highlighted in blue below, which provides structural support for the user input 70A; Visser, ¶198.



Zadesky also discloses a second embodiment that includes a similar internal rail system configured to support an input device. Ex-1005, 3:3-22, 15:14-16:35. Zadesky teaches that, “the side walls, top surface and *rails help constrain the input assembly 230* within the housing 152 during and after insertion.” Ex-1005, 15:55-16:12. The internal rail system is labeled as 176 and 177 (highlighted in blue), while the input assembly is labeled as 230 (highlighted in red). As seen in the Figs. 3B (partial) and 5 below, this rail system functions as a bracket to support the input device. *See also* Figs. 2-6 and 9; Visser, ¶199.



Based on its shape and functions, the internal rail system 78, 176, and 177 is an example of a bracket that supports the user input section. *See* Ex-1005, 15:55-16:12; Visser, ¶200.

In addition, Oda teaches a mobile phone, which a POSITA would have been motivated to apply to the combination of Nguyen and Zadesky. *See* §V.B.3[22pre]. Therefore, Ground 2 further teaches claim 28. Visser, ¶¶201-202.

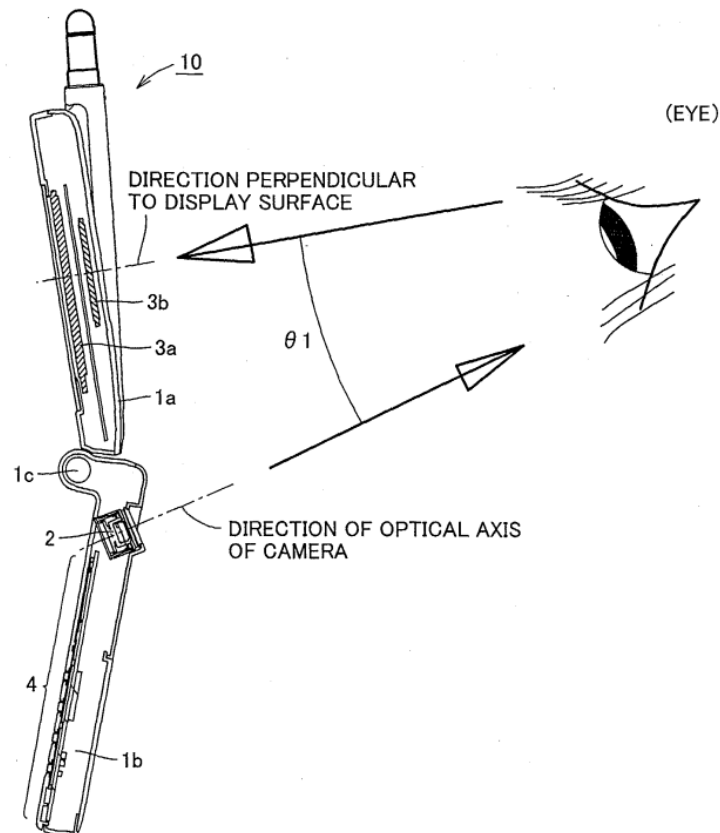
10. Dependent Claims 9, 30

- | | |
|------|--|
| [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. |

Ground 2 teaches claims 9 and 30. Oda teaches **a cut out portion wherein the cut out portion projects from the rear side of the housing**. For example, Oda teaches a camera arranged on the rear surface of the body, where the cut out

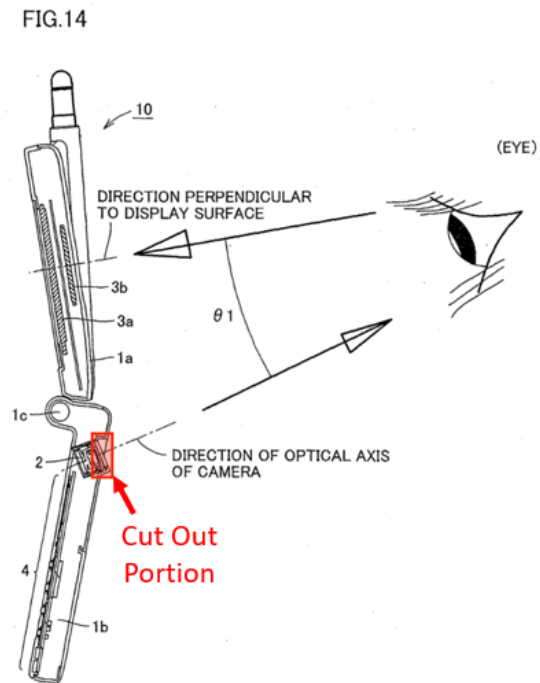
for the camera projects from the rear side of the housing, as shown in Fig. 14 below. Ex-1006, ¶¶77-79; Visser, ¶¶203-205.

FIG.14



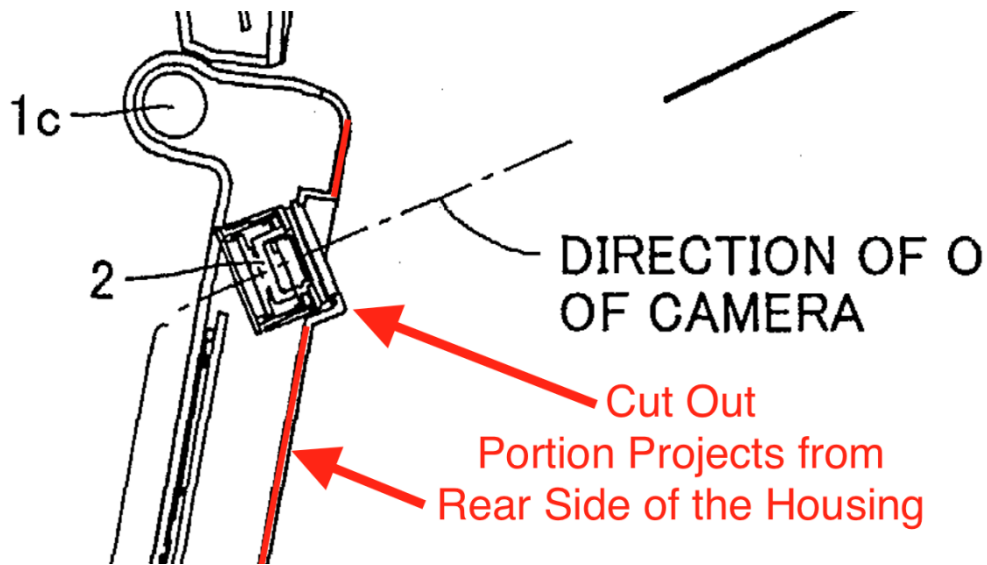
Oda teaches that “[t]he camera is fixed to the main body such that an optical axis of the camera extends in a direction different from a direction perpendicular to a display surface of the display device.” Ex-1006, ¶¶10-12. For example, in the embodiment depicted in Fig. 14, Oda teaches that the optical axis of the camera form an angle with respect to the normal to the display surface. Ex-1006, ¶¶78-79. A POSITA would have understood that the cut out portion projects out and

protrudes from the surface of the housing. The cut out portion is highlighted in red below:



Visser, ¶206.

The cut out portion that projects from the rear side of the housing highlighted in red is highlighted in a closeup of Fig. 14 of Oda, below:



Visser, ¶207.

A POSITA would have been motivated to combine Oda's teachings of a cut out portion that projects out with Nguyen and Zadesky. For example, a POSITA would have been motivated to combine Nguyen and Oda on the teaching of the rear camera and adopt the design of the tilted camera taught in Oda, for reasons explained above. *See* §V.B.3[1c/22c]; Visser, ¶208.

A POSITA would also have understood that making the cut out portion project out from the rear surface provides several other advantages. For example, this design potentially makes the device thinner and more portable by allowing only the camera portion to be thicker than the rest of the device body, which is a shared goal of Nguyen and Zadesky, while offering physical protection to the camera through the protruding cut out. *See, e.g.*, Ex-1004, ¶6; Ex-1005, 1:39-53, 2:14-22; §V.B; Visser, ¶209.

In addition, Oda teaches a mobile phone, which a POSITA would have been motivated to apply to the combination of Nguyen and Zadesky. *See* §V.B.3[22pre]. Therefore, Ground 2 further teaches claim 30. Visser, ¶¶210-211.

11. Dependent Claims 10, 31

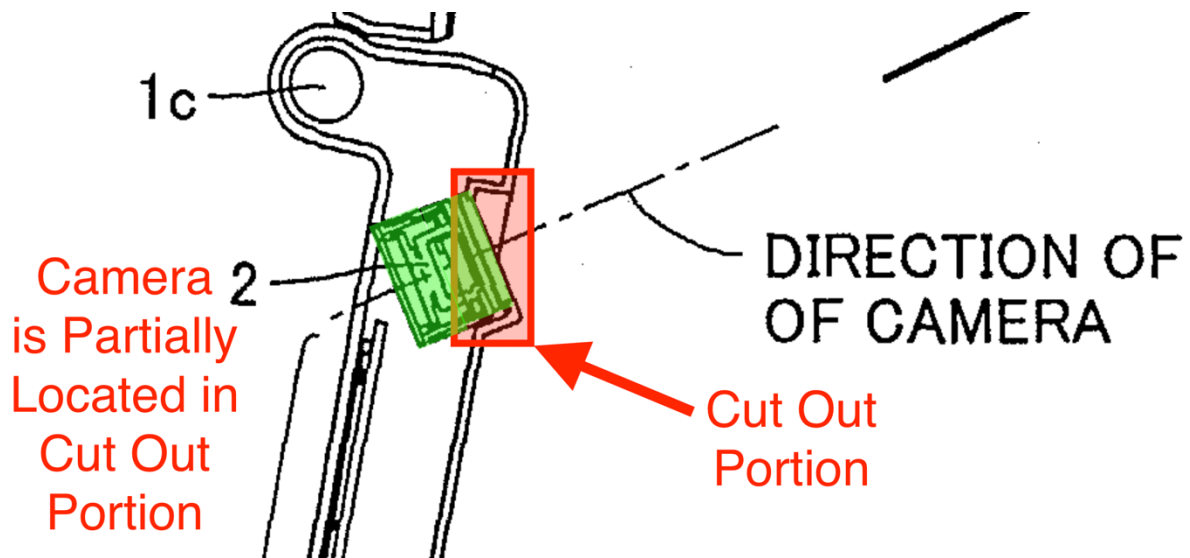
[10] A portable electronic device according to claim 9

[31] A mobile phone according to claim [30]³

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

Ground 2 teaches claims 10 and 31. Oda teaches that **the camera is partially located in the cut out portion**. For example, Oda teaches that a camera arranged on the rear side (rear surface) of the body is at least partially located in the cut out portion, as shown in the annotated Fig. 14 below. Ex-1006, ¶¶77-79; Visser, ¶¶212-214.

³ Claim 31 contains a printing error which omits the claim number from which the claim is dependent. The claim should depend from claim 30.



In addition, Oda teaches a mobile phone, which a POSITA would have been motivated to apply to the combination of Nguyen and Zadesky. *See* §V.B.3[22pre]. Therefore, Ground 2 further teaches claim 30. Visser, ¶215.

12. Dependent Claims 11, 33

- | | |
|------|--|
| [11] | A portable electronic device according to claim 1 |
| [33] | A mobile phone according to claim [22] ⁴
further comprising a door configured to support an electronic module. |

Ground 2 teaches claims 11 and 33. Nguyen teaches a door configured to support an electronic module because it teaches a CompactFlash card slot. *See* §V.A.3; Visser, ¶¶216-218.

⁴ Claim 33 contains a typographical error which omits the claim number from which the claim is dependent. Claim 33 should depend from claim 22.

In addition and in the alternative, Oda teaches claim 11. Oda teaches a cellular (mobile) phone, which is also a type of portable electronic device. *See* §V.B.3[22pre]. It would have been obvious for a cellular phone to include a SIM card because it was a standard cellphone feature to connect to cellular networks and perform other cellular functionalities. It would have been further obvious for the SIM card to be located in and fixed to a SIM card tray and therefore supported by a door to keep the card secure and protect it from dust and moisture. Visser, ¶219.

To the extent that a “door” is construed to require a cover, Oda teaches a plastic cover on the rear side of the device in, e.g., Fig. 23. It would have been obvious to use a plastic cover as a cover for the door of the SIM card, i.e., a cover for the SIM tray. Visser, ¶220.

A POSITA would have been motivated to apply Oda’s teaching of a mobile phone to the combination of Nguyen and Zadesky. *See* §V.B.3[1pre]/[22pre]. A mobile phone is also a portable electronic device. Therefore, Ground 2 teaches claims 11 and 33. Visser, ¶¶221-222.

13. Dependent Claims 12, 34

- [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.**

Ground 2 teaches claims 12 and 34. Nguyen teaches claim 12, at least because Nguyen teaches a slot for a CompactFlash card that interfaces with the engine section. *See* §V.A.4. Visser, ¶¶223-224.

In addition and in the alternative, Oda also teaches that that **the electronic module is configured to interface to the engine section**. Oda teaches a door supporting a SIM card. *See* §V.B.12. It would have been obvious that the SIM card is configured to interface to the engine section (such as the processor) to provide cellular functionalities, such as to transfer data with a cellular station. Therefore, Ground 2 teaches claims 12 and 34. Visser, ¶¶225-226.

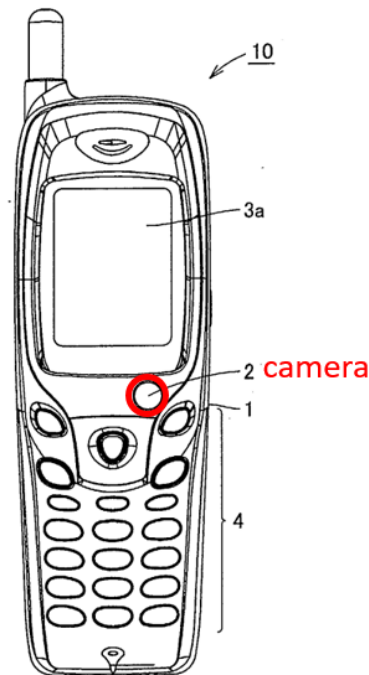
14. Dependent Claims 13, 32

- [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.**

Ground 2 teaches claims 13 and 32. Visser, ¶¶227-233.

Oda teaches a **second camera located on a front side of the portable electronic device**. Fig. 17A of Oda provides an example where a camera (camera 2) is located on the front side of the portable electronic device. Visser, ¶¶229-230.

FIG.17A



Oda teaches two cameras on the cellular phone. Ex-1004, ¶¶110-116. Oda teaches an arrangement where a first camera is located on a rear side and a second camera is located on a front side. Ex-1004, ¶115; Visser, ¶¶231.

A POSITA would have been motivated to combine Oda's teaching of a front-facing camera with Nguyen and Zadesky because it allows the user to take "selfies." Ex-1006, ¶¶9-11, 112-115. Selfies were known, and the prior art provides a motivation for front-facing cameras. Ex-1006, ¶3. Since Nguyen

already includes photo-taking capabilities, a front-facing camera for “selfies” would have been obvious. Adding a front camera would not have changed the principle of operation of the underlying device. Visser, ¶¶232.

Further, Oda teaches a mobile phone, which a POSITA would have been motivated to apply to the combination of Nguyen and Zadesky. *See* §V.B.3[22pre]. Therefore, Ground 2 further teaches claim 32. Visser, ¶233.

15. Independent Claim 15

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

Limitation [15pre] is analogous to limitation [1pre]. *See* §V.A.5. The analysis from limitations [1pre] and [1a] applies here. *See* §§V.B.3[1pre], V.B.3[1a]; Visser, ¶¶235-236.

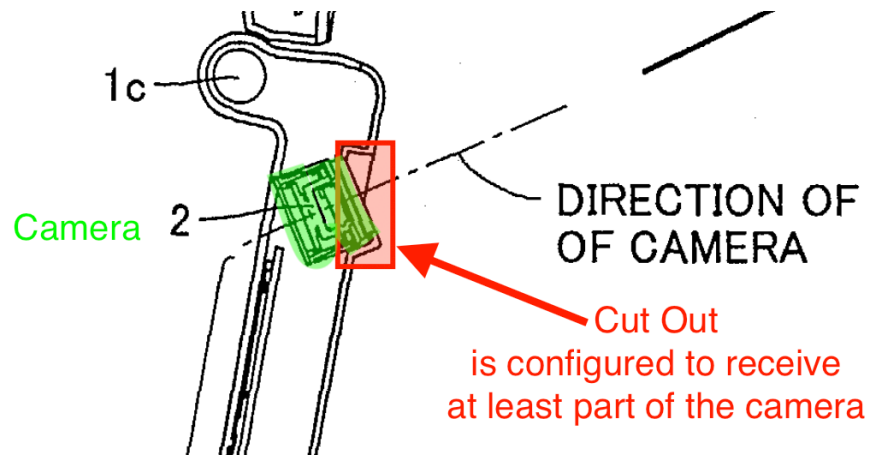
[15a] a one piece housing forming enclosed exterior lateral sides and a rear side;

Limitation [15a] is analogous to limitations [1a]. *See* §V.A.5. The analysis from limitation [1a] applies here. *See* §V.B.3[1a]; Visser, ¶237.

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

Limitation [15b] is analogous to limitations [1b] and [1c]. *See* §V.A.5. The camera, which is visible on the exterior the device as seen, for example, in Fig. 14, would need to be located in a cut out to allow the light to pass through the housing for an image to be captured. *See* Ex-1006, ¶10. This cut out in the rear housing

receives at least the lens portion of the camera. The analysis from limitations [1b] and [1c] applies here. *See* §§V.B.3[1b], V.B.3[1c]; Visser, ¶¶238-239.



[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.

Limitation [15c] is analogous to the combination of limitations [1e] and [1f]. *See* §V.A.5. The analysis from limitation [1e] and [1f] also applies here. *See* §§V.B.3[1e], V.B.3[1f]. When the battery and engine section are housed in the housing, the housing is configured to receive the battery and the engine section. Visser, ¶¶240-241.

16. Dependent Claim 16

[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.**

Claim 16 is analogous to the combination of claims 2, 4, and 6. Grounds 2's analysis for claims 2, 4, and 6 applies here. *See* §§V.B.4, V.B.6, V.B.8; Visser, ¶¶242-244.

17. Dependent Claim 17

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

Ground 2 teaches claim 17. Zadesky teaches **the one piece housing has been extruded**. Zadesky teaches that the one-piece housing has been extruded, which is, for example, “formed from an extruded tube having open ends and internal rails.” Ex-1005, 2:26-3:2; *see also* Ex-1005, 8:64-9:12, 9:36-54, 12:14-26, 19:32-20:64; Visser, ¶¶246-247.

The extruded housing taught by Zadesky is shown in the two embodiments below. The figures also show that the housing in Zadesky is produced through an extrusion process. Visser, ¶¶248-249.

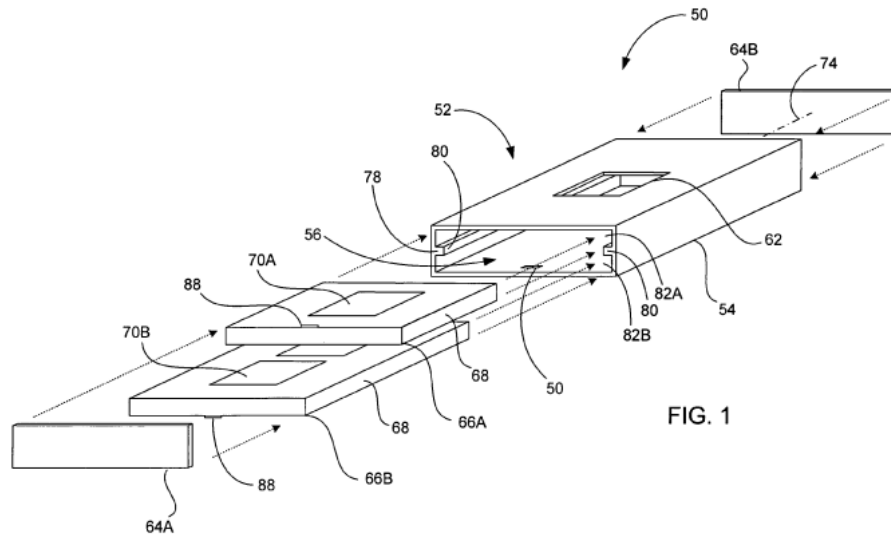


FIG. 1

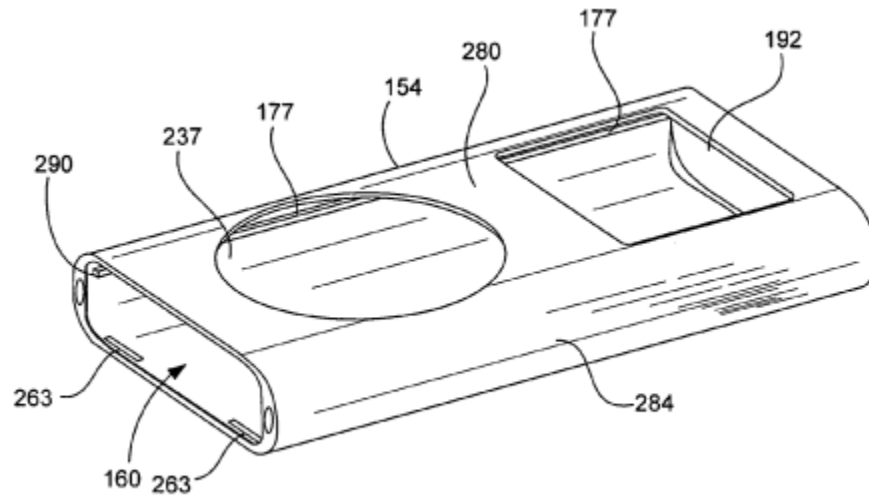


FIG. 9A

18. Dependent Claim 18

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

Ground 2 teaches claim 18. Zadesky teaches **the one piece housing comprises a metal**. For example, Zadesky teaches that the housing is formed from materials “including but not limited to metals...” Ex-1005, 8:52-63; *see also* Ex-

1005, 12:27-33, 18:18-22. Zadesky further teaches that the metals may be aluminum, titanium, steel, copper, etc. Ex-1005, 8:52-63. Zadesky names aluminum as an advantageous material. Ex-1005, 8:64-9:12, 9:36-54, 12:27-33; Visser, ¶¶250-252.

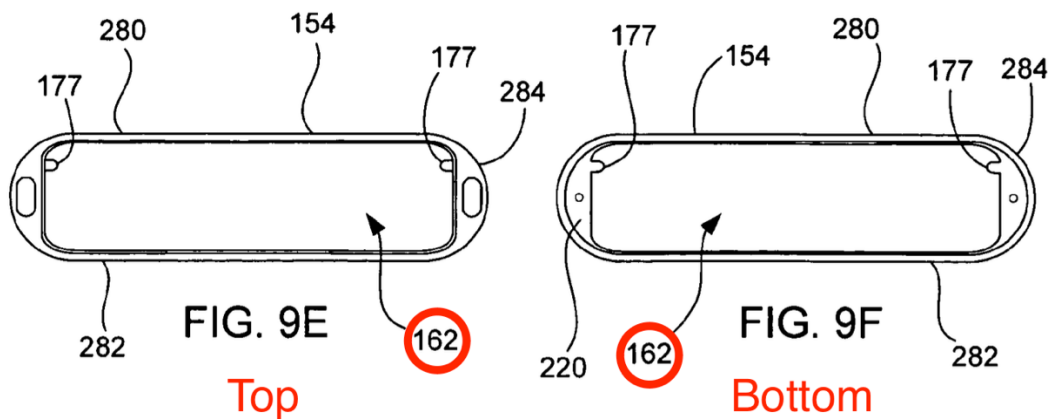
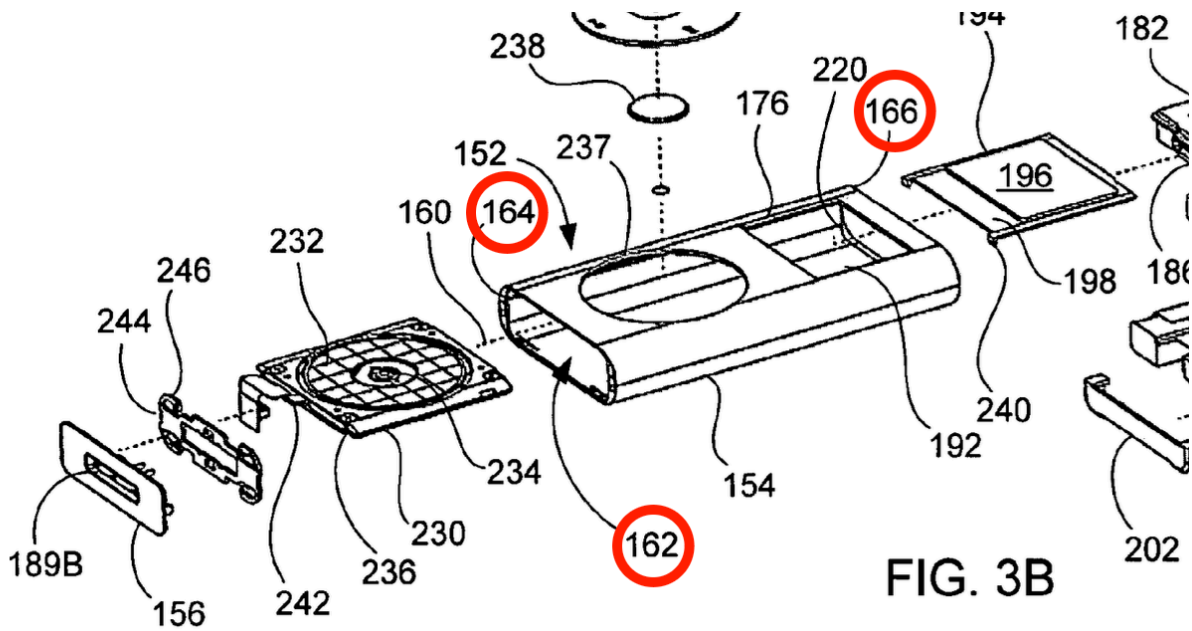
A POSITA would have been motivated to combine the teachings of Zadesky with the teachings of Nguyen and Oda. *See* §V.B.2. Both Zadesky and Nguyen seek to improve the form factor of portable devices, e.g., by making the housing lighter, thinner, more rigid, and more aesthetically pleasing. Ex-1005, 1:39-53; Ex-1004, ¶2. Applying Zadesky’s teaching of a one-piece metal housing to Nguyen would further these common goals. *See* §V.B.3[1a]. Ex-1005, 8:52-63 (explaining that strength (tensile) and density (lightweight) are considerations for selecting materials). Zadesky teaches using aluminum in part because “it is light weight and structurally stronger.” Ex-1005, 8:64-9:12; Visser, ¶¶253-254.

19. Dependent Claim 19

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

Ground 2 teaches claim 19. Visser, ¶¶255-258. Zadesky teaches **the housing has substantially at least one of an open top or bottom aperture**. For example, Zadesky teaches that the extrusion has a hollow core (lumen) that accommodates internal components. Ex-1005, 2:48-52, 4:39-67. Thus, Zadesky teaches that the hollow extrusion (i.e., the housing) includes open top and bottom

ends. For example, for the embodiment with rounded edges, the hollow core (lumen) is highlighted in Figs. 3B, 9E, and 9F below. Ex-1005, 11:49-53, 14:12-51, 15:55-66, 18:23-44, 19:3-24; *see also* Figs. 3B, 9E, 9F, 4:25-29. Zadesky explains that a pair of end caps would cover the two open ends. *See* Ex-1005, 6:6-35, 11:53-56; Visser, ¶256.



For an embodiment with square sides, Zadesky teaches a tube-like configuration, with a main body having a cavity 56 (highlighted in red), a first open end, and a second open end. In other words, Zadesky teaches that the housing has substantially top and bottom apertures. Visser, ¶¶257-258.

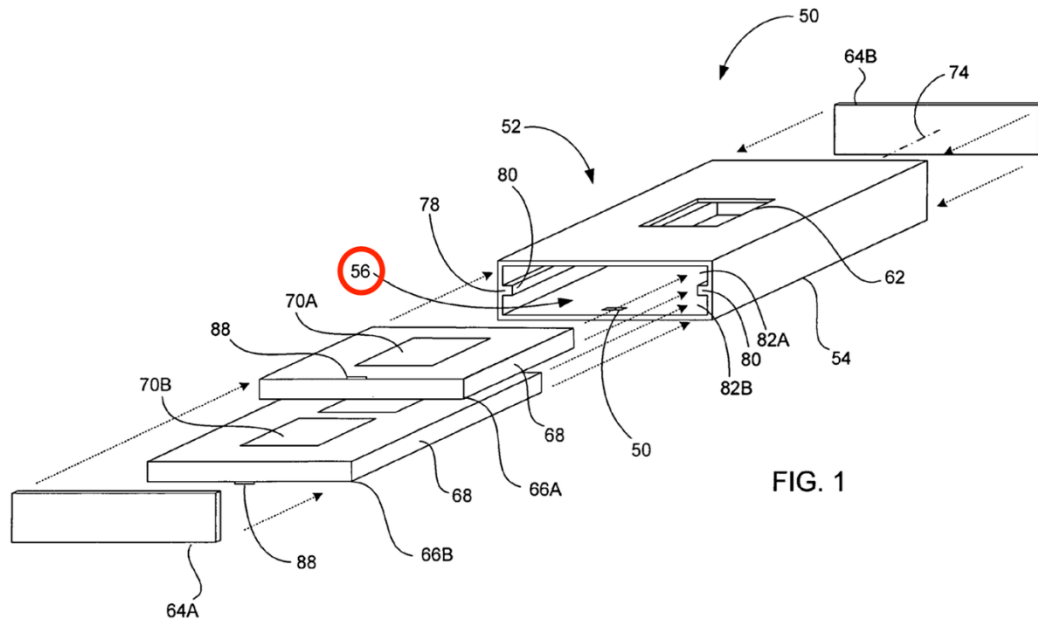


FIG. 1

20. Dependent Claim 20

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

Ground 2 teaches claim 20. Visser, ¶¶259-266. Oda teaches **a[n] antenna module is located at a[n] aperture in the housing**. A cellular phone requires an antenna module. Oda teaches that its cellular phone comprises an antenna module, as highlighted in red below. Oda teaches a similar antenna module in other figures as well. Visser, ¶¶260-261.

FIG.14

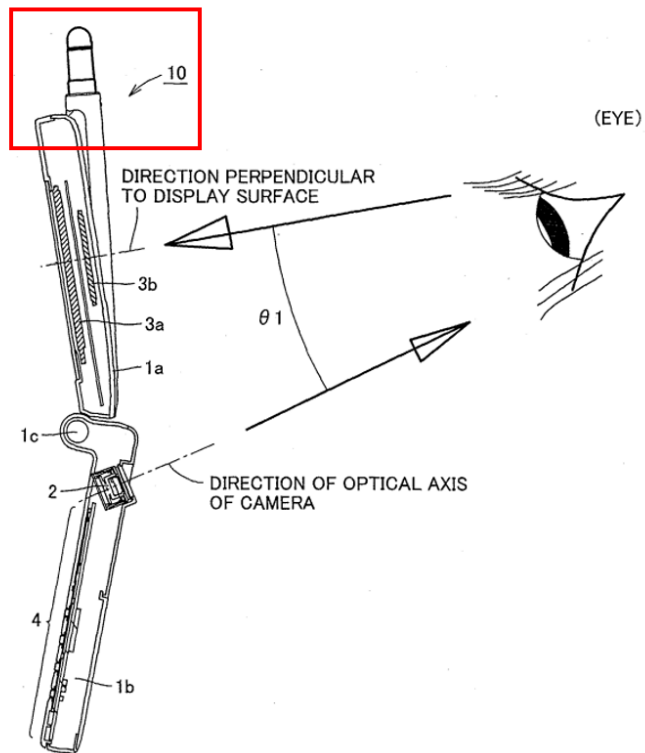


FIG.17A

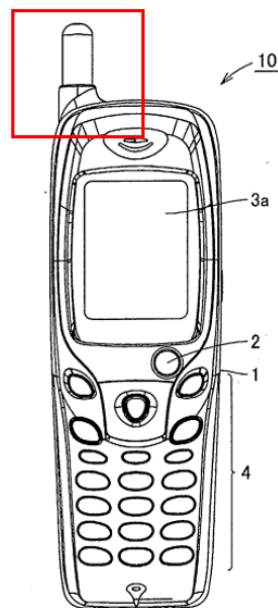
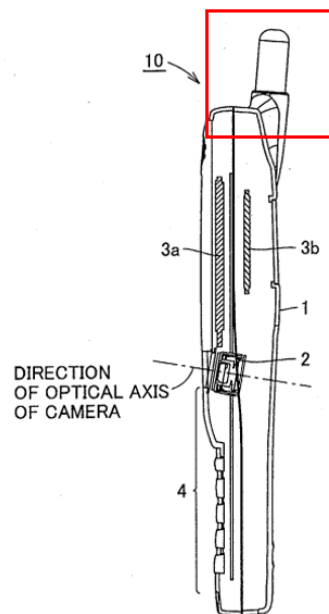


FIG.17B



Ex-1006, Figs. 14, 17A, 17B.

The antenna module **is located at an aperture in the housing**. For example, Zadesky teaches that the housing is extruded with top and bottom apertures. *See* §V.B.19. In the combination of Nguyen, Zadesky, and Oda, one option for the antenna module is to be located at the top opening (aperture), shown in the figure below. Visser, ¶262.

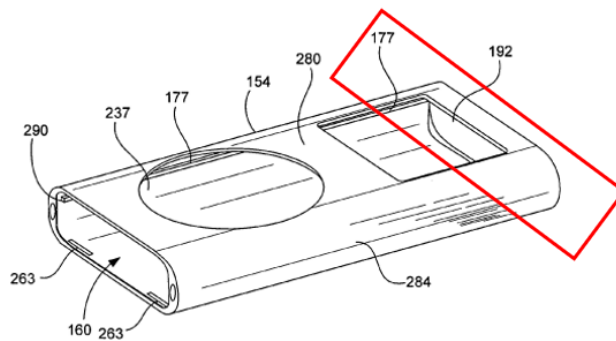


FIG. 9A

As shown in the figures above, the one-piece housing of the device has an opening at the top (which would be covered by an end cap), which would accommodate the antenna module. A POSITA would further have understood that the antenna may as well be located in a different opening or aperture in the housing. Visser, ¶¶263-264.

A POSITA would have been motivated to combine the cellular teachings of Oda with teachings of Nguyen and Zadesky. *See* §V.B. An antenna enables the cellular functionalities, which allows the mobile phone or other types of mobile device to communicate with a cellular base station. *See* Ex-1005, ¶117; Visser, ¶¶265-266.

21. Dependent Claim 21

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

Ground 2 teaches claim 21. Oda teaches that **the antenna module is enclosed by an antenna cover**. The antenna cover, which protects the antenna and prevents poking or injuring the user, is the top part (tip) of the antenna highlighted below. The antenna cover is taught in other figures of Oda as well. Visser, ¶¶267-269.

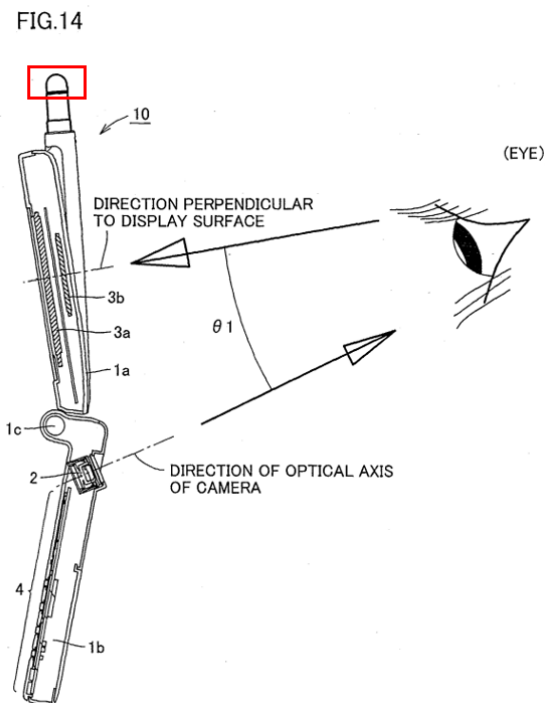
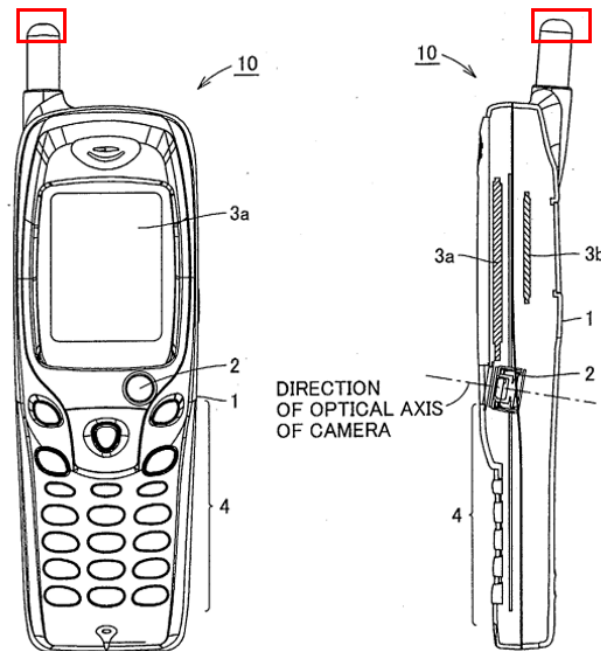


FIG.17A

FIG.17B



Ex-1006, Figs. 14, 17A, 17B.

22. Dependent Claim 36

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

Ground 3 teaches claim 36. Oda teaches a mobile phone device. *See* §V.B.2[22pre]. Nguyen teaches that the device includes a transceiver. *See* §V.A.2[1d]. Therefore, the combination teaches a mobile phone transceiver. *See* §V.B.3[1d]. This would have been further obvious to allow the device to perform cellular communications, such as making and receiving phone calls and transferring data, as Oda teaches. Ex-1006, ¶2; Visser, ¶270.

C. Ground 3: Nguyen in View of Zadesky, Oda, and Gettemy

Nguyen teaches a Palm Pilot device with a touchscreen and various internal components housed within a compact form factor. Nguyen's teachings satisfy the Challenged Claims as explained above. To the extent PO argues that Nguyen's teachings somehow do not sufficiently detail the internal layout, Gettemy provides additional details on the arrangement of internal components, such as the location of the a processor, memory, circuit board, battery, and transceiver, inside the device housing. Ex-1007, Fig. 4, 8C, 5:36-6:17; *see also* §§V.C.1-2. A POSITA would have been motivated to apply Gettemy's teachings because it is a simple combination of prior art elements according to known methods to yield predictable results (e.g., a portable electronic device). Visser, ¶¶271-273.

Indeed, both Nguyen and Gettemy originate from Palm, Inc. and relate to the form factor of Palm devices. Ex-1004, ¶¶1-2. A POSITA would have been motivated to combine the references due to their common goals. Nguyen teaches that small device sizes were desired for enhanced mobility and aims to balance mobility with functionality. Ex-1004, ¶¶2-3, ¶6. Zadesky also aims to make devices smaller, lighter, and stronger. Ex-1005, 2:14-23. Likewise, Gettemy recognizes that a small form factor, such as one that is palm-sized, makes computer systems lightweight and "exceptionally portable and convenient." Ex-1007, 1:15-26. Gettemy provides teachings on the internal arrangements of hardware

components that would make the devices thinner and improve their mobility, furthering the common goal. Visser, ¶¶272, 274-275.

Moreover, like Nguyen and Zadesky, Gettemy seeks to reduce the costs of manufacturing. For example, Zadesky teaches that enclosures that are more cost effective are more desirable. Ex-1005, 2:14-23, 8:34-51; §V.B. Based on the same objectives, Gettemy teaches that a simplified layout design process would reduce manufacturing costs. Ex-1007, 2:11-15, 2:62-3:4; Visser, ¶276.

The combination would not have changed the principle of operation because Gettemy's teachings simply fill in additional details on the positions of internal components that Nguyen already teaches for a Palm device. §§V.C.2-9; *compare* Ex-1004, Fig. 1 *with* Ex-1007 Fig. 2; *see also* Ex-1004, ¶34; Ex-1007, 5:37-6:17. A POSITA with the given level of education and experience (§III) would have been knowledgeable regarding layouts for these components in mobile devices and would have had a reasonable expectation of success in combining the references. Visser, ¶¶277-278.

1. Gettemy (Ex-1007)

U.S. Patent No. 6,618,044 was filed May 25, 2000 and was issued on September 9, 2003, and therefore is prior art under pre-AIA §§102(a) and 102(e). Visser, ¶280.

Gettemy is a Palm patent directed to a portable computer system form factor.

Ex-1007, Abstract, 1:9-10, Fig. 2, 5:37-54; Visser, ¶281.

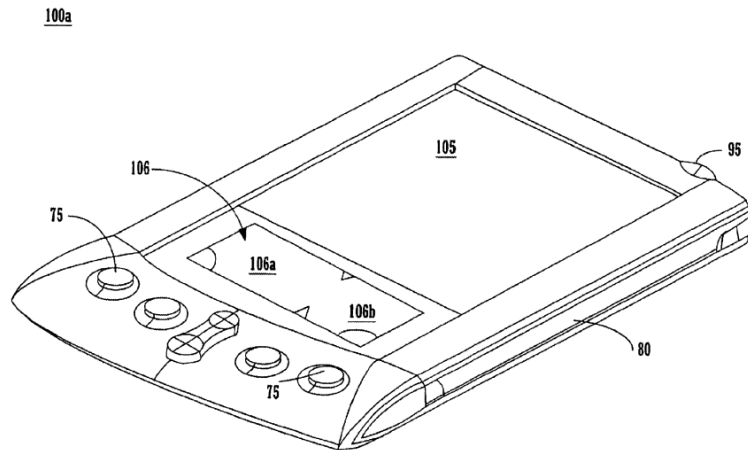


FIGURE 2

Gettemy provides detailed teachings regarding the locations, layout, and arrangements of the external and internal components of the portable electronic device. Ex-1007, 2:17-25. Gettemy teaches external components including a touch screen 105 and other input devices (including an alphanumeric input device 106 and programmable buttons 75) on the front surface of the device, as well as internal components including a PC board 225, a processor, a volatile memory, a non-volatile memory, a battery 215, and a receiver/transmitter device 108. Ex-1007, 5:1-11, 5:36-6:12; Visser, ¶282.

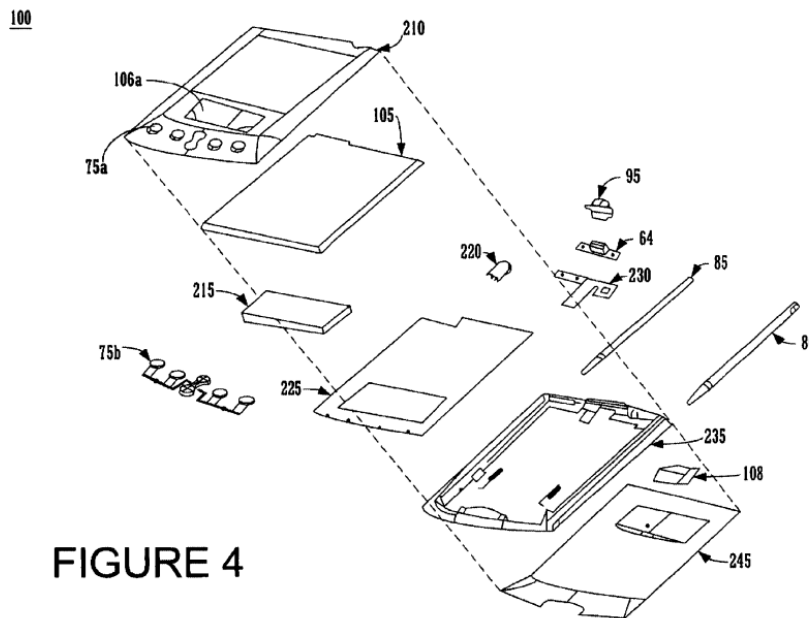


FIGURE 4

Gettemy is analogous art to the '602 patent and in the same field of invention because it is directed to a portable electronic device. Ex-1007, Abstract; *see* §III. For example, Gettemy's teachings concern the design and components of an electronic device. Ex-1007, 2:17-24; Visser, ¶283.

2. Independent Claims 1, 22

[1pre]-[1c]; [22pre]-[22c]

The combination of Nguyen, Zadesky, and Oda teaches these limitations. *See* §V.B. Therefore, Ground 3 teaches these limitations. Visser, ¶284.

[1d/22d]

The combination of Nguyen, Zadesky, and Oda teaches limitations [1d] and [22d]. *See* §V.B.3[1d]. Gettemy reinforces the teachings. For example, Gettemy

teaches a printed circuit board along with a memory and processor. Ex-1007, 5:48-50. Gettemy teaches that a processor 101 is “coupled with the bus for processing information and instructions.” Ex-1007, 5:66-6:17. Gettemy also teaches that the device includes at least two types of memory: a volatile memory 102 and a non-volatile memory 103. *Id.*; Visser, ¶¶285-286.

Gettemy further teaches that the engine section comprises a transceiver and a PCB. *See* Ex-1007, 4:5-8. Specifically, Gettemy teaches the portable computer system including “both a wireless infrared communication mechanism and a signal (e.g., radio) receiver/transmitter device.” Ex-1007, 4:65-67. Gettemy further teaches that “[t]he receiver/transmitter device 108 is ... coupled to communicate with the PC board 225.” Ex-1007, 5:55-65; Visser, ¶287.

Fig. 4 below shows the printed circuit board 225, which includes a processor 101, a volatile memory 102, and a non-volatile memory 103 (not drawn), as well as a transceiver 108. Ex-1007, Fig. 4. The printed circuit board, transceiver, processor, and memory are part of an engine section. Visser, ¶288.

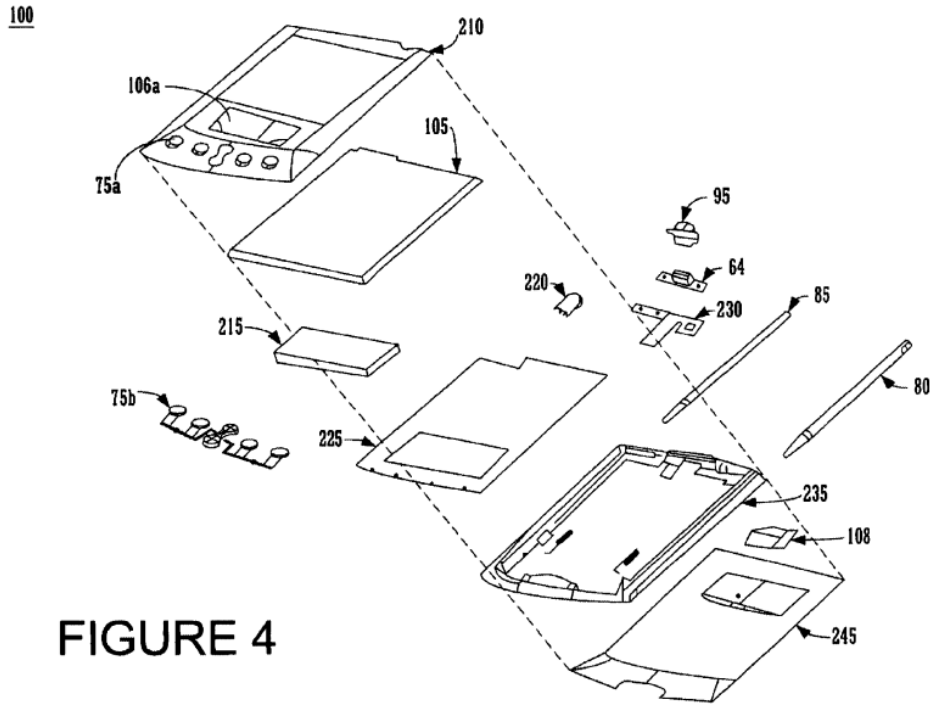


FIGURE 4

Motivation to Combine and Expectation of Success. A POSITA would have been motivated to combine Gettemy's teachings with Nguyen, Zadesky, and Oda. Nguyen and Gettemy teach many identical internal components. Ex-1004, ¶¶34-35, ¶39; Ex-1005, 5:37-65, Fig. 4; *see also* §§V.A.2[1d]-[1e], V.C.2[1d]-[1e]. A POSITA would have been motivated to apply Gettemy's teaching of the internal arrangement of these components to the combination of Nguyen, Zadesky, and Oda because doing so would have amounted to the use of known technique to improve a similar system in the same way. Ex-1007, 2:17-25. A POSITA would have had a reasonable expectation of success because Gettemy merely provides additional details regarding the precise location of internal components that

Nguyen (and Zadesky and Oda) already teaches. Ex-1004, ¶34; Ex-1007, 5:37-6:17; Visser, ¶289.

Gettemy addresses the need of “having to fit the various internal components as efficiently as possible into a small housing.” Ex-1007, 1:27-35, 2:1-10. In view of the goal of a thin, handheld form factor, recognized by Nguyen and Gettemy, a POSITA would have looked to Gettemy, both of which are designs of the Palm company, to design the layout of internal components of an electronic device. Visser, ¶¶290-292.

[1e/22e]

The combination of Nguyen, Zadesky, and Oda teaches these limitations. *See* §V.B.3[1e/22e]; Visser, ¶293.

Gettemy further teaches **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.** Gettemy teaches a user input section that is substantially similar to Nguyen’s user input section, including a touch screen, an alphanumeric input area (e.g., a handwriting recognition pad), and programmable buttons. Ex-1007, 5:1-25; Visser, ¶294.

For example, as shown in Fig. 4, the user input section (including the touch screen display device 105) (highlighted in red) is located adjacent to the battery 215 (highlighted in green). In addition, Gettemy teaches that the user input section

is located adjacent to the engine section, which includes the PCB 225 (highlighted in blue). Visser, ¶295.

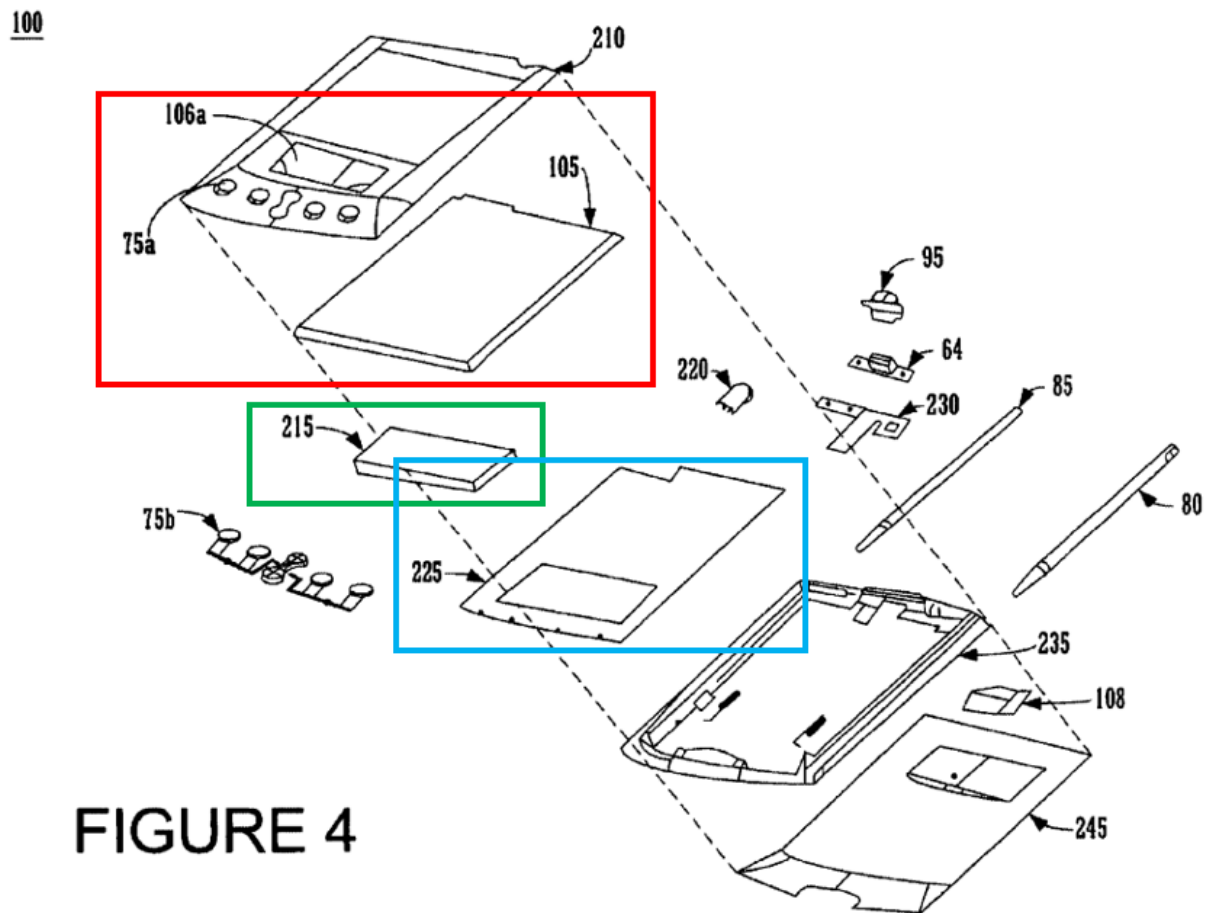


FIGURE 4

Gettemy also teaches this limitation in Figs. 8A-E. As shown below in Fig. 8A (showing certain internal components from the back or bottom side of the device), a user input section, e.g., a touch screen 105 (highlighted in red), is located adjacent to a battery 820 (highlighted in green), as well as two flexible circuits 630 and 640 and interface module 620 (highlighted in blue). Ex-1007, 9:18-47; Visser, ¶296.

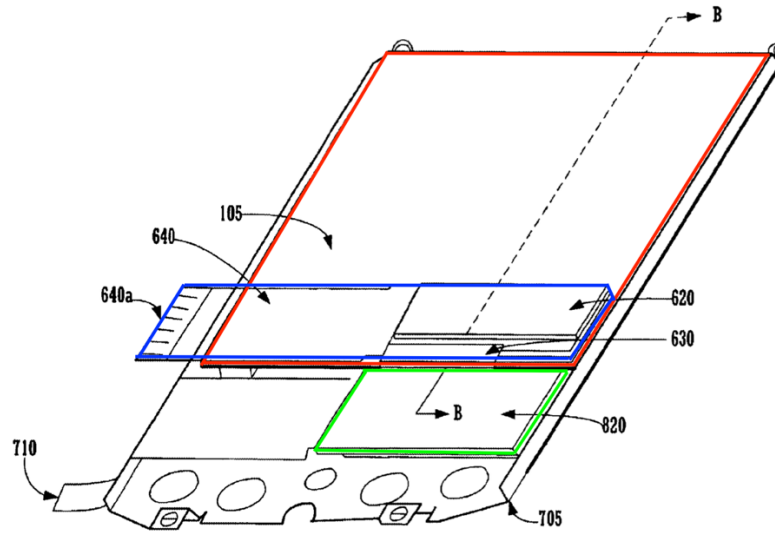


FIGURE 8A

Gettemy teaches that an interface module contains circuitry needs to connect with and operate devices and is coupled to the printed circuit board. Ex-1007, Abstract. A POSITA would have understood that a flexible circuit 630 and an interface module 620 are part of the engine section because they contribute to the signal processing of the mobile device. Therefore, Gettemy also teaches that the user input section is located directly adjacent the battery and the engine section. Visser, ¶297.

Motivation to Combine and Expectation of Success. A POSITA would have been motivated to apply the teachings of Gettemy to a device taught by the combination of Nguyen, Oda, and Zadesky. For example, Nguyen and Gettemy teach substantially similar user input sections. Nguyen teaches a contact sensitive

¶298.



-99-

Compare Ex-1004, Fig. 1 *with* Ex-1007 Fig. 2; *see also* Ex-1004, ¶34; Ex-1007, 5:37-6:17; Visser, ¶¶299-300.

[1f]

[22f]

The combination of Nguyen, Zadesky, and Oda teaches these limitations. *See* §V.B.3[1f]/[22f]. Moreover, Gettemy shows the battery and engine sections are housed in the housing. Ex-1007, Fig. 4. Therefore, Ground 3 teaches the limitations [1f] and [22f]. Visser, ¶¶301-303.

3. Dependent Claims 7, 28

Ground 3 teaches claims 7 and 28. As explained above, the combination of Nguyen, Zadesky, and Oda teaches these claims. *See* §V.B.9. Visser, ¶¶304-312.

Gettemy reinforces the teachings that **the user input section and the housing define an interior volume**. For example, Gettemy teaches that the touch screen display device 105, dedicated and/or programmable buttons 75, and a hand recognition pad 106 are located on the top surface of the device. *See* §V.C.2[1e]. Gettemy further teaches that electronic components that are similar to those taught in Nguyen, such as memory and processor, are located inside the housing of the portable computer system. Ex-1007, 5:37-6:16, Figs. 4, 5. Therefore, Gettemy reinforces Nguyen's teaching that the user input section and the housing define an interior volume. Visser, ¶306.

The combination of Nguyen, Zadesky, and Oda also teaches **a bracket ... configured to support said user input section**, for example through Zadesky’s teaching of internal rails. *See* §V.B.9. To the extent that the “bracket” must refer to a separate mounting bracket, Gettemy expressly teaches a mounting bracket that supports the user input section. Visser, ¶¶307-308.

For example, Gettemy teaches a bracket (705) installed inside a portable computer system. Gettemy teaches that certain components are mounted on the bracket, as shown in Fig. 8B below. Ex-1007, 9:10-10:8, Fig. 8B; *see also* Ex-1007, Figs. 7A-8E. The bracket is highlighted in red. Visser, ¶308.

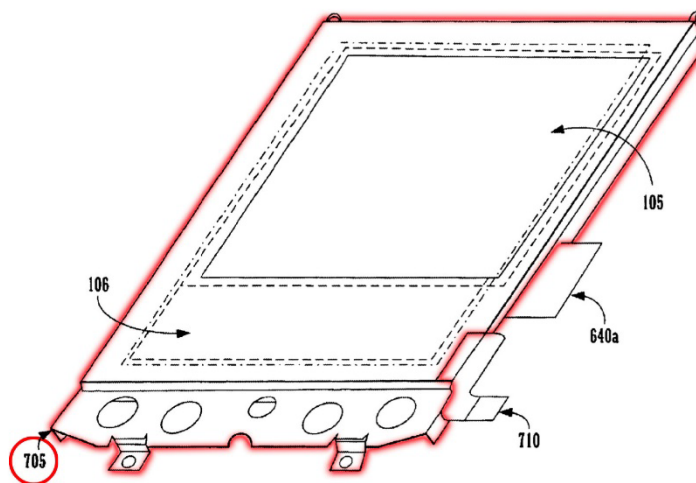


FIGURE 8B

For example, as seen in Fig. 8B, Gettemy teaches that a “relocatable interface module 620 for a display device 105” is mounted on the bracket. Ex-1007, 9:10-17; *see also* Ex-1007, 8:33-40. Gettemy teaches that the interface

module provides “universal interface with any of the various types of display technologies.” Ex-1007, 6:66-7:8. For example, Gettemy teaches that the display device 105 (highlighted in blue) is a touch screen, which is part of the user input section. Ex-1007, 5:1-12. Therefore, Gettemy teaches that the bracket supports the user input section. Visser, ¶309.

As another example of the user input, Fig. 8B shows that the alphanumeric input device 106 (highlighted in green), which is also part of the user input section, is also mounted on the bracket 705. Ex-1007, 9:35-39, 48-52; Visser, ¶310.

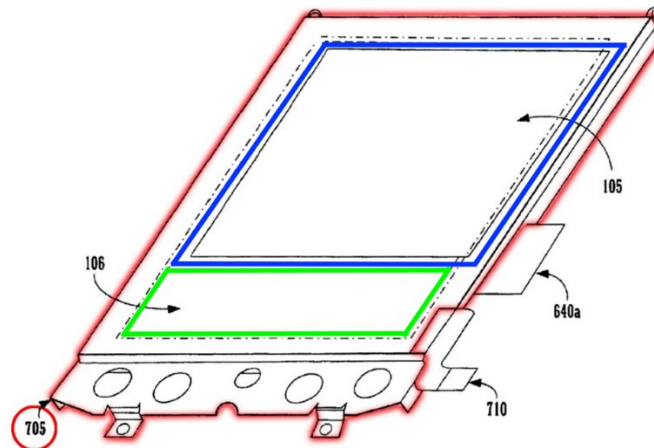
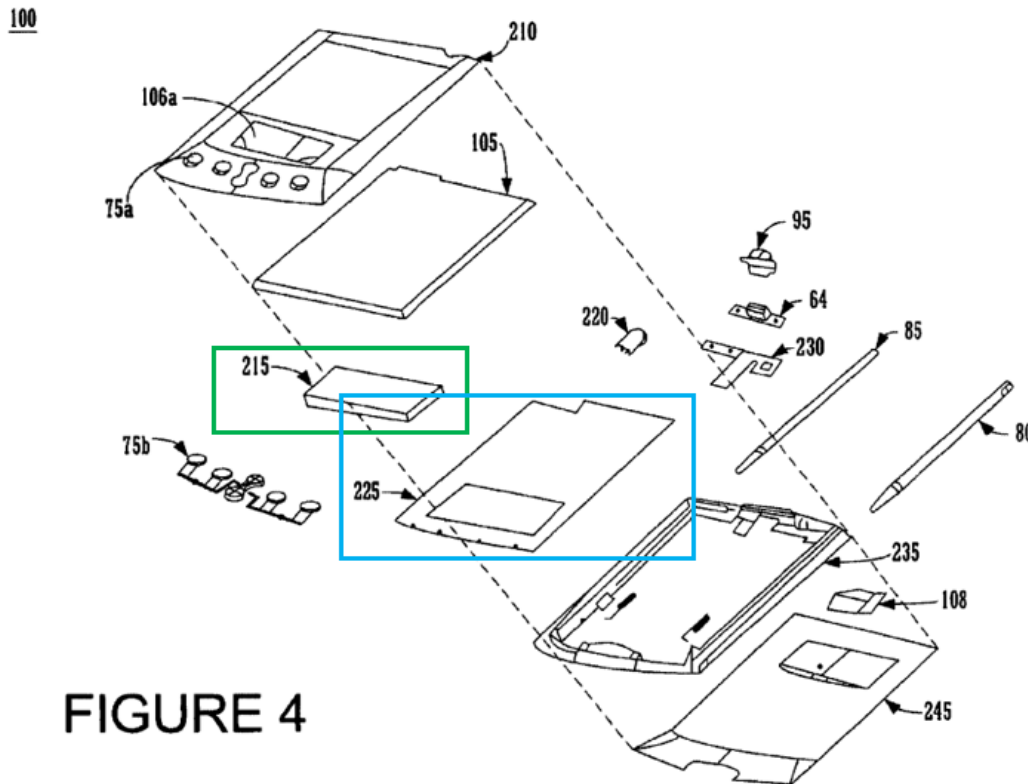


FIGURE 8B

4. Dependent Claims 8, 29

Ground 3 teaches claims 8 and 29. Gettemy teaches **the battery is located adjacent the engine section in a side by side arrangement.** For example, as shown in Fig. 4, below, Gettemy teaches that the battery 215 (highlighted in green) is located adjacent the PC board 225 (highlighted in blue), which is a primary part

of the engine section and contains electronics and logic components such as a processor and memory, in a side by side arrangement. Visser, ¶¶313-315.



Gettemy also teaches this limitation through its illustration of Fig. 8C. As shown in Fig. 8C, below, the battery 820 is located adjacent flexible circuits 630 and 640 and an interface module 620 in a side by side arrangement. Ex-1007, 9:18-47. A flexible circuit 630 and an interface module 620 are part of the engine section. Therefore, Gettemy's Fig. 8C also teaches that the user input section is located directly adjacent the battery and the engine section. Visser, ¶316.

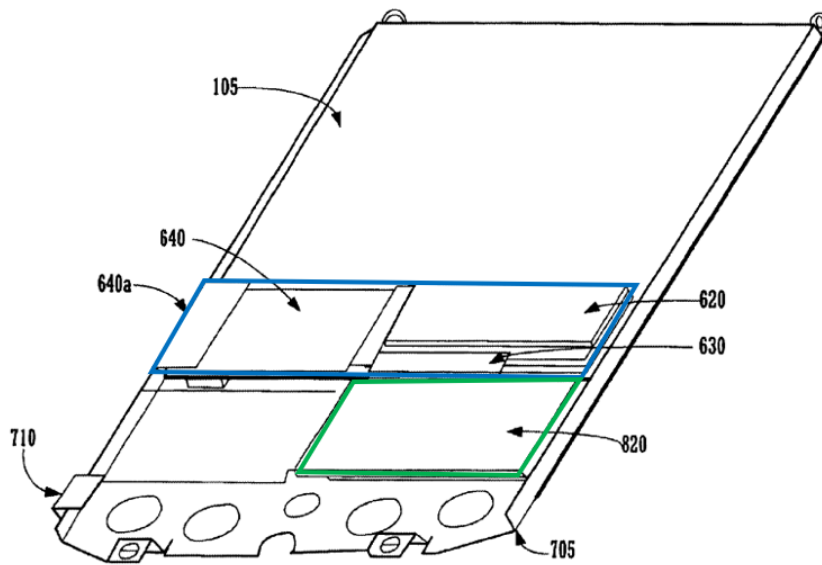
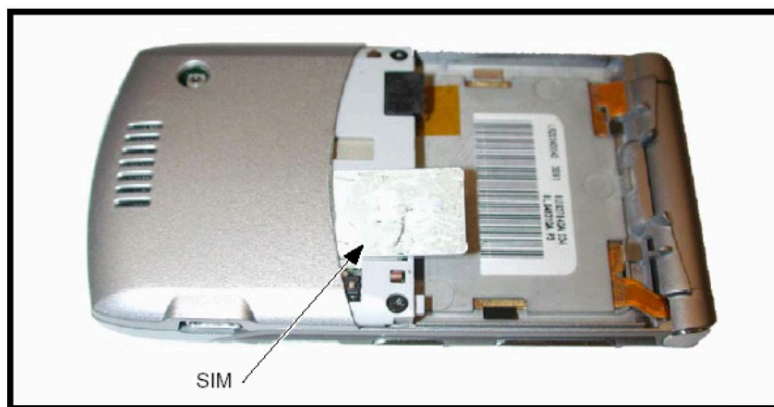
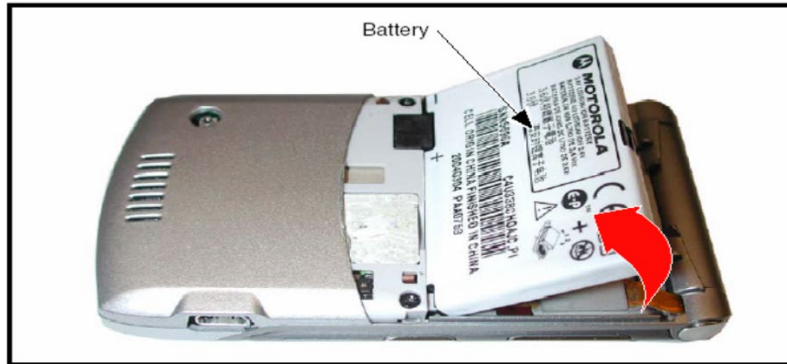


FIGURE 8C

Indeed, it would have been obvious in the 2006 timeframe that the battery is located adjacent the engine section in a side by side arrangement. *See* Ex-1015, 000015-16 (showing such a design of Motorola RAZR, which the applicant admitted was prior art (*see* Ex-1001, 1:23-39)); Visser, ¶¶317-319.



5. Dependent Claims 11, 33

Ground 3 teaches claims 11 and 33. The combination of Nguyen, Zadesky, and Oda (Ground 2) teaches claims 11 and 33 because: 1) Nguyen teaches an expansion slot that supports a CompactFlash card; or 2) Oda teaches a door that supports a SIM card. *See* §V.B.12; Visser, ¶¶320-321.

Gettemy reinforces Nguyen’s teaching of an expansion slot that accommodates an external storage device. For example, Gettemy teaches that its design includes “an expansion slot.” Ex-1007, 7:13-27 (emphasis added); *see also* Ex-1007, 2:1-10. The expansion slot expands the device’s storage. Further,

Gettemy teaches that the “[p]ortable computer system 100 also includes an optional data storage device 104 (e.g., memory stick) coupled with the bus 110 for storing information and instructions.” Ex-1007, 5:66-6:17. Gettemy also teaches that “[d]ata storage device 104 can be removable.” *Id.* As is well-known to a POSITA, a memory stick has similar functions and purposes to a CompactFlash card. Therefore, Gettemy reinforces Nguyen’s teaching of a door that supports the electronic module such as an external storage device. Visser, ¶¶322.

To the extent that a “door” is construed to require a cover, Oda teaches a plastic cover on the rear side of the device for a battery storage compartment as depicted in Fig. 3. It would have been obvious to use a plastic cover as a cover for the door of the storage device slot because covers were commonplace by 2006 and provided protection for the door from outside water or dust. Therefore, Gettemy provides a further reason that Ground 3 teaches claims 11 and 33. Visser, ¶¶323-326.

6. Dependent Claims 12, 34

Ground 3 teaches claims 12 and 34. Gettemy reinforces Nguyen’s teaching of an expansion slot. *See* §V.C.5. Accordingly, Gettemy reinforces Nguyen’s teaching that the **electronic module** (such as a storage card) **is configured to interface to the engine section**. *See* §§V.A.4; V.B.13; Visser, ¶¶327-329.

For example, Gettemy further teaches that the system includes “an optional data storage device 104 (e.g., memory stick) coupled with the bus 110 for storing information and instruction.” Ex-1007, 6:8-12; *see also* Ex-1007, 6:1-4, Fig. 5. Therefore, Gettemy teaches that an optional data storage device, such as a CompactFlash card or a memory stick, interfaces with the engine section. Visser, ¶330.

7. Dependent Claims 14, 35

- [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.**

Ground 3 teaches claims 14 and 35. Gettemy teaches that **the user input section is located directly adjacent the battery and the engine section.** As shown in Fig. 4, the user input (highlighted in red), including the touch screen device 105, dedicated and/or programmable buttons 75, and a handwriting recognition pad (e.g., an alpha-numeric input device 106), are located directly above (adjacent) the battery 215 (highlighted in green) and the engine section (shown with PC board 225, highlighted in blue). Visser, ¶¶333-335.

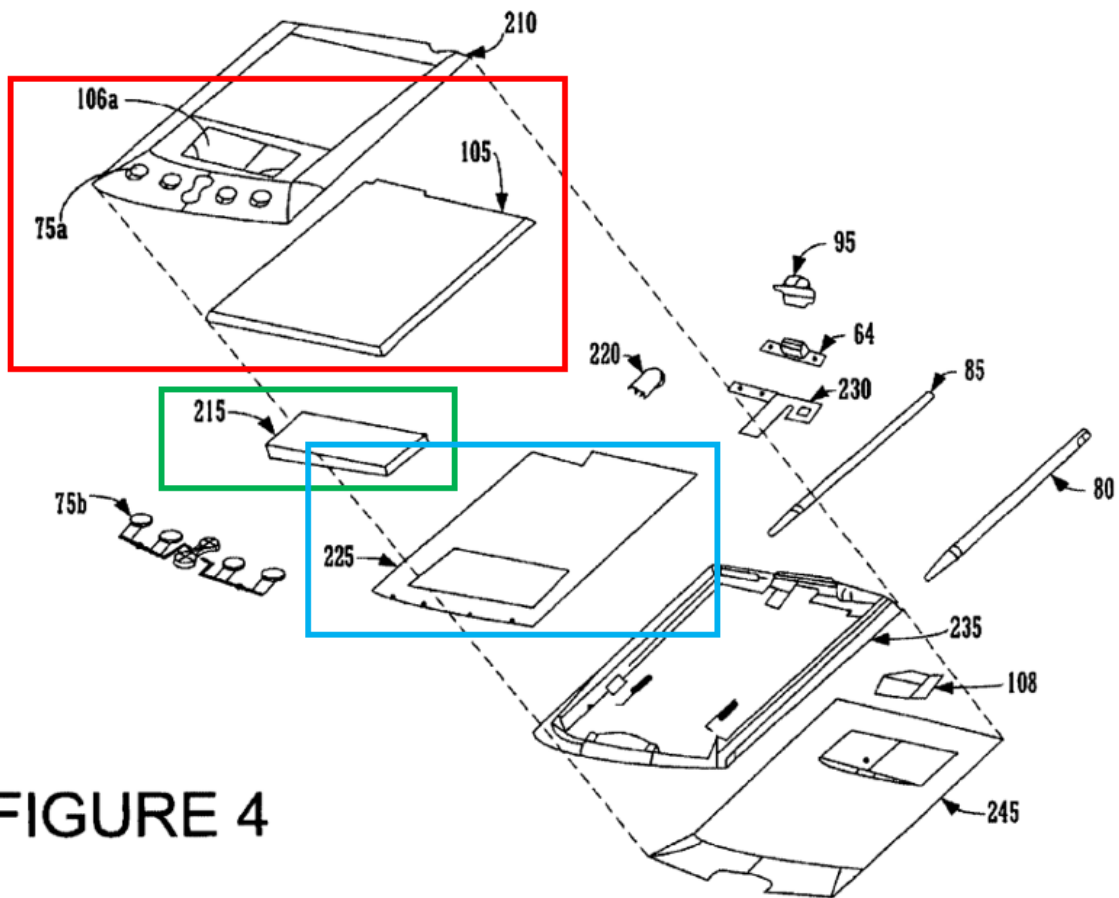


FIGURE 4

Gettemy also teaches this claim in Fig. 8A. As shown in Fig. 8A, below, a touch screen 105 (highlighted in red) of the user input section is located directly adjacent to a battery 820 (highlighted in green) and the engine section (including two flexible circuits 630 and 640 and interface module 620) (highlighted in blue). Ex-1007, 9:18-47; *see also* Fig. 8B. A flexible circuit 630 and an interface module 620 are also part of the engine section. *See* §V.C.2[1e]. Therefore, Gettemy's Figs. 8A and 8B, seen from below, teach that the user input section is located directly adjacent the battery and the engine section. Visser, ¶¶336-338.

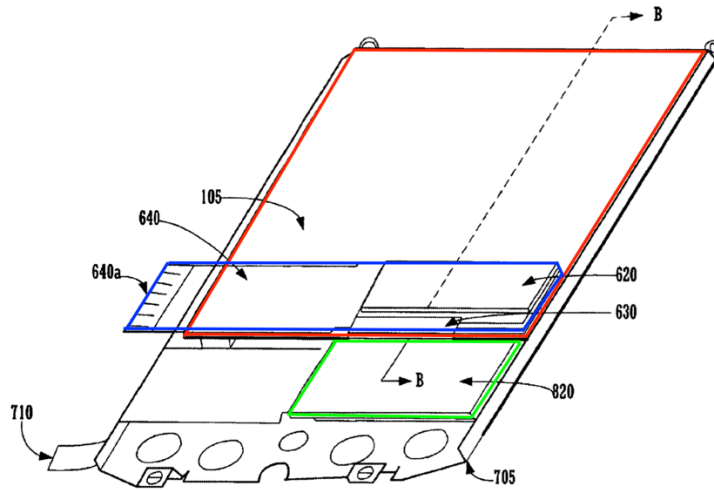


FIGURE 8A

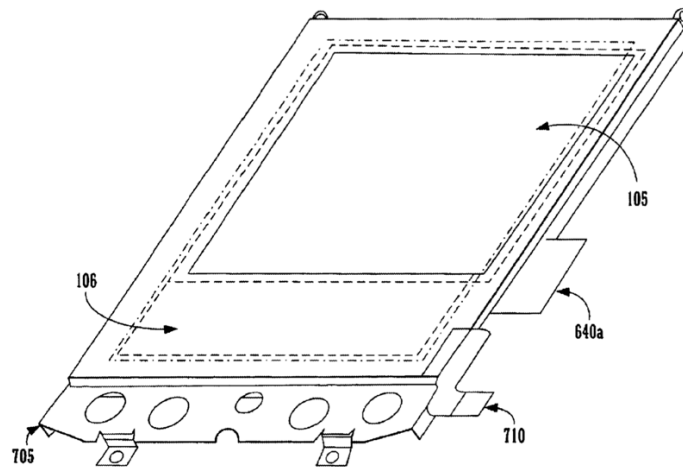


FIGURE 8B

8. Dependent Claim 20

Ground 3 teaches claim 20. The combination of Nguyen, Zadesky, and Oda teaches claim 21, for example through Oda's teaching of an antenna. *See* §V.B.20. Gettemy reinforces these teachings because Gettemy teaches an "antenna" that is

coupled to a receiver/transmitter device. Ex-1007, 5:29-30, 5:53-54, 5:59-61.

Visser, ¶339.

9. Dependent Claim 21

Ground 3 teaches claim 21. The combination of Nguyen, Zadesky, and Oda teaches claim 21, for example through Oda’s teaching of an antenna tip. *See* §V.B.21. Gettemy reinforces these teachings because Gettemy teaches an “antenna” that is coupled to a receiver/transmitter device. Ex-1007, 5:29-30, 5:53-54, 5:59-61; Visser, ¶340.

10. Claims 2-6, 9, 10, 13, 15-19, 23-27, 30-32, 36

The combination of Nguyen, Zadesky, and Oda teaches these claims, as explained for Ground 2. *See* §V.B. Therefore, Ground 3 teaches these claims. Visser, ¶341.

VI. DISCRETIONARY ANALYSIS FOR REVIEW

This Petition’s merits are compelling, which “alone demonstrates that the PTAB should not discretionarily deny institution under *Fintiv*.” June 21, 2022 Director’s Memorandum, 3-5.

Fintiv. No denial is warranted under *Fintiv*. The relevant *Fintiv* factors weigh heavily against denial because the lone concurrent district court proceeding was initiated late 2023. No schedule has been entered. Any trial would therefore be expected well after the FWD deadline (likely November 2025). It is unclear whether any overlap exists between this Petition and future issues in district court.

Advanced Bionics. Denial under §325(d) is likewise unwarranted. Nguyen, Gettemy, and Oda were not cited or considered during prosecution. Therefore, the combinations presented here were not considered previously. No previous IPRs were filed against the Challenged Claims. *General Plastic* factors do not weigh against institution.

VII. STANDING

Petitioner certifies that Petitioner is not barred or estopped from requesting this *inter partes* review and the '602 patent is IPR-eligible.

VIII. MANDATORY NOTICES AND FEES

1. **Real Party In Interest**: The real parties-in-interest here are Amazon.com, Inc. and Amazon.com Services LLC. No other parties directed, controlled, or funded this Inter Partes Review proceeding (IPR).
2. **Related Matters**: Nokia Corporation and Nokia Technologies Oy v. Amazon.com, Inc. and Amazon.com Services, LLC., 1-23-cv-01232 (D. Del.).
3. **Lead and Backup Counsel**: Pursuant to 37 C.F.R. §42.8(b)(3) and 42.10(a), Petitioner designates Harper Batts (Reg. No. 56,160) as lead counsel and Chris Ponder (Reg. No. 77,167) and Jeffrey Liang (Reg. No. 69,043) as back-up counsel, each of Sheppard, Mullin, Richter & Hampton LLP.
4. **Service Information**: Petitioner consents to service by electronic mail addressed to:

HBatts@sheppardmullin.com;
CPonder@sheppardmullin.com;
JLiang@sheppardmullin.com; and
LegalTM-Amazon-Nokia-IPRs@sheppardmullin.com

5. Petitioner's counsel may also be served by mail or hand delivery at Sheppard, Mullin, Richter & Hampton LLP, 1540 El Camino Real Suite 120, Menlo Park, CA 94025. Petitioner's counsel may be reached by telephone at (650) 815-2673 and by facsimile at (650) 815-4668.

6. Fees: The Office is authorized to charge fees for this Petition to Deposit Account 50-4561, Ref. 19AG-382973.

Respectfully submitted,

SHEPPARD, MULLIN,
RICHTER & HAMPTON LLP

/Harper Batts/

Harper Batts (Reg. No. 56,160)
Attorneys for Petitioner

CLAIM APPENDIX

[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.

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

[16a] a front side extending between the lateral edges, said lateral sides and front side forming a 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 a antenna module is located at a aperture in the housing.

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

CERTIFICATE OF SERVICE

The undersigned hereby certifies that on July 1, 2024, true and correct copies of the foregoing Petition for *Inter Partes* Review of U.S. Patent No. 9,473,602 and Exhibits 1001-1020 were served in entirety on the Patent Owner at the following addresses of record as listed on PAIR, via Priority Mail Express®:

Nokia Corporation and Alston & Bird LLP
Vantage South End
1120 South Tryon Street, Suite 300
Charlotte, NC 28203-6818

The undersigned certifies that true and correct copies of the Petition for *Inter Partes* Review of U.S. Patent No. 9,473,602 and Exhibits 1001-1020 were also sent via electronic mail to the attorneys of record for Plaintiff in the concurrent litigation matter(s):

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Date: July 1, 2024

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**CERTIFICATE OF COMPLIANCE WITH
TYPE-VOLUME LIMITATION, TYPEFACE REQUIREMENTS,
AND TYPE STYLE REQUIREMENTS**

1. This Petition complies with the type-volume limitation of 14,000 words, comprising 13,638 words, as counted using the Microsoft Word software that was used to prepare this paper, excluding the parts exempted by 37 C.F.R. § 42.24(a).

2. This Petition complies with the general format requirements of 37 C.F.R. § 42.6(a) and has been prepared using Microsoft® Word in 14-point Times New Roman.

Respectfully submitted,

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