

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC

Petitioner

v.

DDC TECHNOLOGY, LLC,

Patent Owner

U.S. Patent No. 11,093,000

Case No.: IPR2023-00710

PETITION FOR INTER PARTES REVIEW

OF CLAIMS 1-6 and 8-33

OF U.S. PATENT NO. 11,093,000 UNDER 35 U.S.C. §§ 311-319

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I. INTRODUCTION

This Inter Partes Review petition challenges claims 1-6 and 8-33 (“challenged claims”) of U.S. Patent No. 11,093,000 (the ’000 patent), which is one in a family of seven patents, all related as continuations. Petitioner Google has been charged with infringing five of those and is therefore concurrently filing five IPR petitions. The other petitions are: IPR2023-00707; IPR2023-00708; IPR2023-00709; and IPR2023-00711.

The ’000 patent describes and claims a virtual reality viewer (VR viewer) that holds a smartphone and has an input device. The patent admits that VR viewers were well-known at the time of the alleged invention and so were input devices for interacting with these viewers. The patent describes two embodiments for its input device: one is electrical and the other is mechanical. Virtually all the challenged claims encompass both embodiments, except for claim 17, which is limited to the electrical embodiment.

The prior art is patentably indistinct from the challenged claims. Kondo (JP3176588) discloses a VR viewer that holds a smartphone and has an electrical input device that contacts the smartphone’s touchscreen. Kondo’s device is the same as the challenged claims, and thus all challenged claims are both anticipated and rendered obvious by Kondo.

In addition, Chu (US 2013/0082963) discloses a mechanical input mechanism for a device that holds a smartphone. The Kondo/Chu combination thus also discloses all elements of the challenged claims, except for claim 17, thereby rendering those claims obvious. A POSA would have many reasons for forming the Kondo/Chu combination with a reasonable expectation of success because these are simple mechanical devices.

II. MANDATORY NOTICES

A. Real Party-in-Interest

Pursuant to 37 C.F.R. § 42.8(b)(1), Petitioner certifies that Google LLC is the real party-in-interest, and further certifies that no other party exercised control or could exercise control over Google's participation in this proceeding, the filing of this petition, or the conduct of any ensuing trial.¹

B. The Patent Owner

The '000 Patent is assigned to DDC Technology, LLC ("DDC").

¹ Google LLC is a subsidiary of XXVI Holdings Inc., which is a subsidiary of Alphabet Inc. XXVI Holdings Inc. and Alphabet Inc. are not real parties-in-interest to this proceeding.

C. Related Matters

The '000 Patent is one of seven patents that are all continuations and thus share the same specification. These patents in order of issue date follow:

- U.S. Pat. No. 9,420,075;
- U.S. Pat. No. 9,723,117;
- U.S. Pat. No. 9,811,184;
- U.S. Pat. No. 10,528,199;
- U.S. Pat. No. 11,093,000;
- U.S. Pat. No. 11,093,001;
- U.S. Pat. No. 11,449,099.

The following cases all involve at least one of these patents.

Case Caption	Court	Patent(s)	Status
MerchSource, LLC, et al. v. DODOcase VR, Inc., et al. IPR2018-00494 (filed 1/15/18)	PTAB	'075	Terminated after institution
MerchSource, LLC, et al. v. DODOcase VR, Inc., et al.	PTAB	'117	Terminated after institution

PGR2018-00019 (filed 1/15/18)			
MerchSource, LLC, et al. v. DODOcase VR, Inc., et al. PGR2018-00020 (filed 1/15/18)	PTAB	'184	Terminated after institution
DDC Technology LLC v. Landsberg Orora, et al. 3-23-cv-01160 (filed 3/15/23)	NDCA	'199 '000 '001 '075 '184	The Petitioner is a defendant.
DDC Technology, LLC v. Emerge Technologies, Inc. d/b/a Utopia 360, et al. 3-22-cv-01263 (filed 6/10/22)	NDTX	'199 '000 '001 '075 '184	The Petitioner was a defendant. The Petitioner was severed and that case was transferred to NDCA.

DDC Technology, LLC v. Mattel, Inc. 1-21-cv-01781 (filed 12/21/21)	DDE	'075 '184	DDC voluntarily dismissed case.
DDC Technology, LLC v. Unofficial Cardboard, Inc. 1-21-cv-05596 (filed 10/21/21)	NDIL	'199 '000 '001 '075 '184	DDC voluntarily dismissed case.
DDC Technology, LLC v. Merge Labs, Inc. 6-21-cv-00850 (filed 8/16/21)	WDTX	'199 '075 '117 '184	DDC voluntarily dismissed case.
DDC Technology, LLC v. DPI, Inc. 4-21-cv-00402 (filed 4/6/21)	EDMO	'199 '075 '117 '184	DDC voluntarily dismissed case.
DDC Technology, LLC v. Sanho Corporation 1-21-cv-00152 (filed 2/4/21)	DDE	'199 '075 '117 '184	DDC voluntarily dismissed case.

DODOCASE VR, Inc. f/k/a DODOcase, Inc. v. MerchSource, LLC 3-17-cv-07088 (filed 12/13/17)	NDCA	'075 '117 '184	Plaintiff withdrew patent claims and case was dismissed for lack of subject matter jurisdiction thereafter.
DODOcase, Inc. v. DGL Group, LLC, et al. 1-17-cv-01188 (filed 8/23/17)	DDE	'075 '117	Plaintiff voluntarily dismissed case

D. Identification of Lead and Back-up Counsel

Pursuant to 37 C.F.R. § 42.8(b)(3), Petitioner provides the following designation of counsel: Lead counsel is Michael L. Kiklis (Reg. No. 38,939) and back-up counsel is Kimani P. Clark (Reg. No. 45,969).

E. Service Information

Petitioner consents to service via email. Pursuant to 37 C.F.R. § 42.8(b)(4), papers concerning this matter should be served on the following:

Address: Michael L. Kiklis
Kiklis and Clark, PLLC
1800 Diagonal Rd., Suite 600

Alexandria, VA 22314

Email: michael@kiklisclark.com

Phone: 800-966-7832

Fax: 703-647-6009

III. PAYMENT OF FEES

Petitioner concurrently electronically submits the required fees for this Petition.

IV. REQUIREMENTS FOR INTER PARTES REVIEW

As set forth below and pursuant to 37 C.F.R. § 42.104, each requirement for *inter partes* review of the '000 Patent is satisfied.

A. Grounds for Standing

Petitioner certifies pursuant to 37 C.F.R. § 42.104(a) that the '000 Patent is available for *inter partes* review and that Petitioner is not barred or estopped from requesting *inter partes* review challenging the patent claims on the grounds identified herein.

B. Identification of Challenge Under 37 C.F.R. § 42.104(b)

Petitioner requests *inter partes* review and cancellation of claims 1-6 and 8-33 of the '000 Patent as being anticipated under 35 U.S.C. §102 and rendered obvious under 35 U.S.C. § 103. The '000 patent's earliest priority document is a provisional filed on July 16, 2014. Petitioner contests that this provisional

adequately supports all claims. Nevertheless, for the purposes of this proceeding only, Petitioner will assume this date is the earliest priority date.

C. The Specific Art on Which the Challenge is based

Petitioner relies upon the following patent and patent publication:

Exhibit 1003 — JP 3176588 (“Kondo”), issued on June 28, 2012, more than one year before the ’000 patent’s earliest priority date, and therefore, Kondo constitutes prior art under at least 35 U.S.C. §102(b).

Exhibit 1004 — US 2013/0082963 (“Chu”) published on April 4, 2013, more than one year before the ’000 patent’s earliest priority date, and therefore, Chu constitutes prior art under at least 35 U.S.C. §102(b).

D. The Specific Grounds on which the Challenge is Based

Petitioner respectfully requests cancelling of claims 1-6 and 8-33 of the ’000 patent based on the following grounds:

Ground 1: Claims 1-6 and 8-33 are anticipated under 35 U.S.C. §102 by Kondo.

Ground 2: Claims 1-6 and 8-33 are rendered obvious under 35 U.S.C. §103 by Kondo.

Ground 3: Claims 1-6, 8-16, and 18-33 are rendered obvious under 35 U.S.C. §103 by Kondo and Chu.

V. DECLARATION EVIDENCE

This Petition is supported by the declaration of Kurtis P. Keller. See EX1002, §§I-XI. Mr. Keller is a Research Engineer for the Computer Science Department at the University of North Carolina at Chapel Hill where he has worked for over 25 years, primarily in the mechanical/optical design of Head-Mounted Displays and other Virtual and Augmented Reality hardware/systems. EX1002, §III, Appendix A. Mr. Keller offers his opinion on the skill level of a person of ordinary skill in the art (“POSA”), EX1002, §V; the content and state of the prior art, EX1002, §§VI, VII; claim construction, EX1002, §IV(A); the state of the technology, EX1002, §VI(A); the ’000 Patent, EX1002, §§VI(B), VI(C); and the teachings and suggestions that one of ordinary skill would understand based on the prior art, EX1002, §§I, II, VII, VIII, IX, X.

This petition’s analysis is based on and supported by Mr. Keller’s declaration.

VI. THE '000 PATENT

A. State of the Technology at the Time of the Alleged Invention

Virtual reality headsets are based on a long-established, three-dimensional viewing technology called stereoscopy. See EX1002, ¶28. Stereoscopy uses a pair of separate, distinct images presenting a left-eye and right-eye view with the views being captured or geometrically generated at unique left and right locations; the scene is interpreted by the viewer as a single, three-dimensional image of the scene. Stereoscopy can be traced back to the 1820s. *Id.* One example of a well-known stereoscopic device is the View-Master, first produced in the 1930s. Shown on the right is a version from the 1960s. *Id.*



Advancements in computers and computing technology led in the late 1960s to development of head-mounted displays (“HMD”) for Augmented Reality (“AR”) and Virtual Reality (“VR”) applications. See EX1002, ¶29. AR describes superimposing or layering computer-generated images or data in a user’s “real world” field of vision—such as a heads-up display in a fighter pilot’s helmet. *Id.* VR is similar, but the user only sees computer-generated images. *Id.* Both AR and VR require software and multiple hardware devices or systems to be effective.

This includes, for example, a tracker to determine the view orientation and position of the user, a real-time graphics processor capable of stereo display generation, and an HMD worn on the user's head.

Virtual Reality headsets were originally called “Head-Mounted Displays,” HMDs, before Jarret Lanier coined the term “Virtual Reality.” See EX1002, ¶30. HMDs were first created in 1968 by Ivan Southerland and his students; it was an ungainly device but demonstrated the concept. In the mid 1980's and especially the early 1990's, significant advances were made in tracking, optics, and computer graphics to allow for the HMDs to become practical. *Id.* UNC Chapel Hill's Computer Science department was at the forefront of this advancement and much of the technology we developed there has made its way into the consumer market over time.

While most head-mounted displays through 2014 used integrated display screens such as in the Rift, the idea of using a mobile device display in a headset was known at least as early as 2008. See EX1002, ¶31. For example, U.S. Patent No. 8,957,835, assigned to Apple, Inc. and filed in September 2008, discloses a “[h]ead-mounted display systems and methods of operation that allow users to couple and decouple a portable electronic device such as a handheld portable

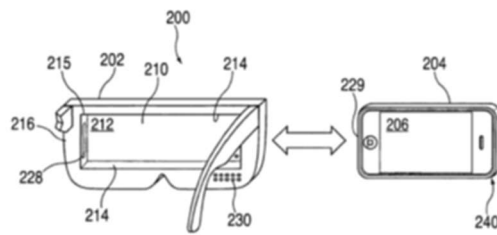


FIG. 2B

electronic device with a separate head-mounted device....” Although not shown in this image, the Apple patent discloses an embodiment using a left and right optical lens “so that the user is given the illusion of viewing image based content in three dimensions.” EX1005, 3:20-23, 23:34-39, Fig. 2B; see EX1002, ¶31.

Prior to 2014 and still through today, there were multiple types of touchscreens that were integrated into mobile electronic devices; these include infrared, pressure, resistive, and capacitive. See EX1002, ¶32. As of 2012, the filing date of Chu (EX1004), the most common types of touchscreens used by handheld devices, like smartphones, were resistive and capacitive touchscreens. EX1004, ¶0003.

Resistive screens: These screens are made up of two layers of conductive material, typically polymer coated glass and a polymer coated plastic, and have the ability to take direct input by touch including a gloved finger or stylus. They are also resistant to water and dust. Resistive screens are now more common on legacy and lower-priced smartphones. Physical pressure is needed to make resistive screens function. See EX1002, ¶32.

A resistive touch screen includes a glass sheet coated with a thin conductive layer and a metallic layer.... When a user makes contact with the touch screen, the two layers touch each other at the same location. The change in electric current will be identified and computed

to a set of coordinates on the touch screen display. A resistive touch screen can be operated by fingers or by many types of object as long as it can provide pin point compression on the touch screen. EX1004, ¶0004.

Capacitive screens: These screens use the electrical properties of the body to create a change of charge at a location on a polymer coated touchscreen. They require a finger or conductive path to a body but are able to detect lighter touches. Their biggest advantages are that one can use multi-touch instead of a single finger-tip only and have more robust screens since the two perpendicular conductive layers are behind the glass screen. See EX1002, ¶32.

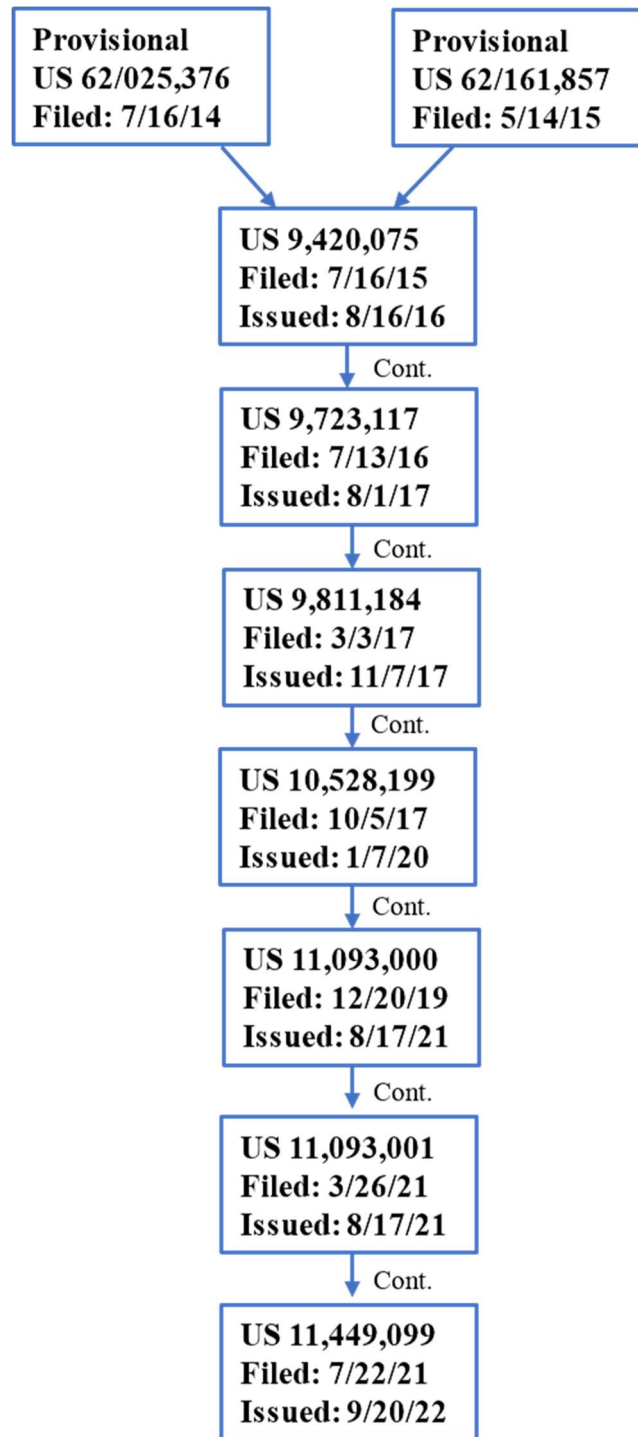
When a user makes contact with the touch screen, usually with a bare finger, small quantity of electric charge is transmitted to or from the user's finger.... This change in electric charge is detected and computed to a set of coordinates on the display. A finger usually works well with capacitive touch screen. A human body is a good transferor and transferee of electric charge because of the electromagnetic field around the human body at all times. A device composed of compatible materials with good conductivity of electric charge can perform the function. However, a pencil or stylus which is workable on a resistive touch screen is not workable on a capacitive touch screen. EX1004, ¶0005.

One well-known goal for devices that encompass a smartphone (e.g., VR viewers) at the time of the '000 patent's alleged invention was to accommodate as

many different types of touchscreens as possible (both current and legacy), thus appealing to a wide range of consumers. See EX1002, §VI(A), ¶33.

B. The '000 Patent

The '000 patent is one in a family of related patents, all continuations. This family stems from two provisionals:



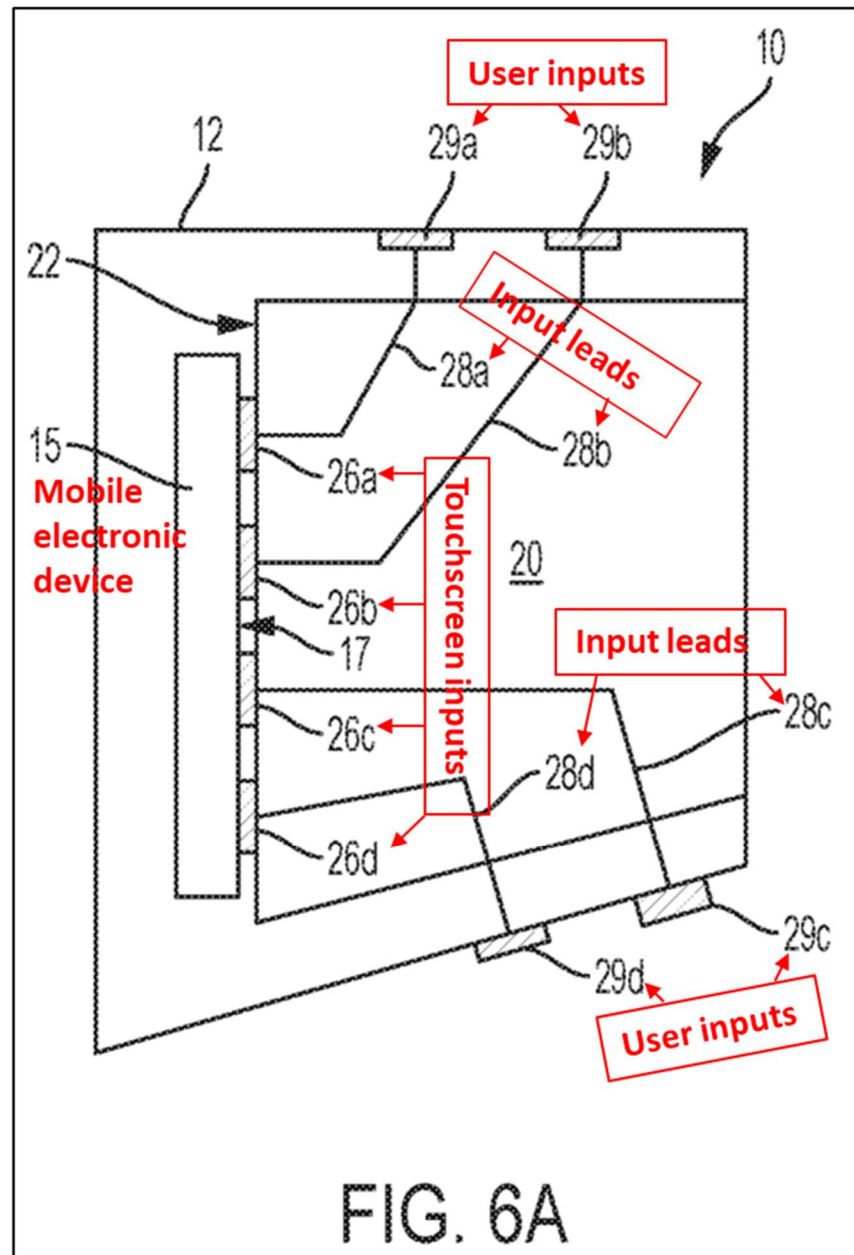
See EX1002, ¶34.

The '000 patent purports to invent a virtual reality viewer with “an input mechanism that can be used with [a] mobile electronic device having a touchscreen contained within the viewer.” EX1001, 2:36-39. However, the '000 patent admits that VR viewers with input devices were well-known at the time of the alleged invention. For example, in the Background of the Invention section, the patent admits that “[w]ith the widespread distribution of powerful and capable smartphone devices, many VR viewers are designed to use such smartphone devices as the visual display device, instead of having dedicated displays and electronics.” EX1001, 1:46-52; see EX1002, ¶35.

The Background continues by admitting that “[t]ypically the viewers have a housing that a user looks into in order to view the video display device contained within the housing” and that “[v]iewers can be hand-held devices that a user holds up to the users [sic] face/eyes....” EX1001, 1:53-59; see EX1002, ¶36.

The Background mentions that since a smartphone is enclosed within the viewer, “[o]ne challenge ... is that the touch sensitive display is concealed within the viewer housing, thereby making it difficult for a user to interact with the touch sensitive display....” EX1001, 2:5-8. Thus, the Background admits that some VR viewers use magnets as input devices and “[o]ther VR viewers utilize dedicated input devices, like video game controllers....” EX1001, 2:8-2:27; see EX1002, ¶37.

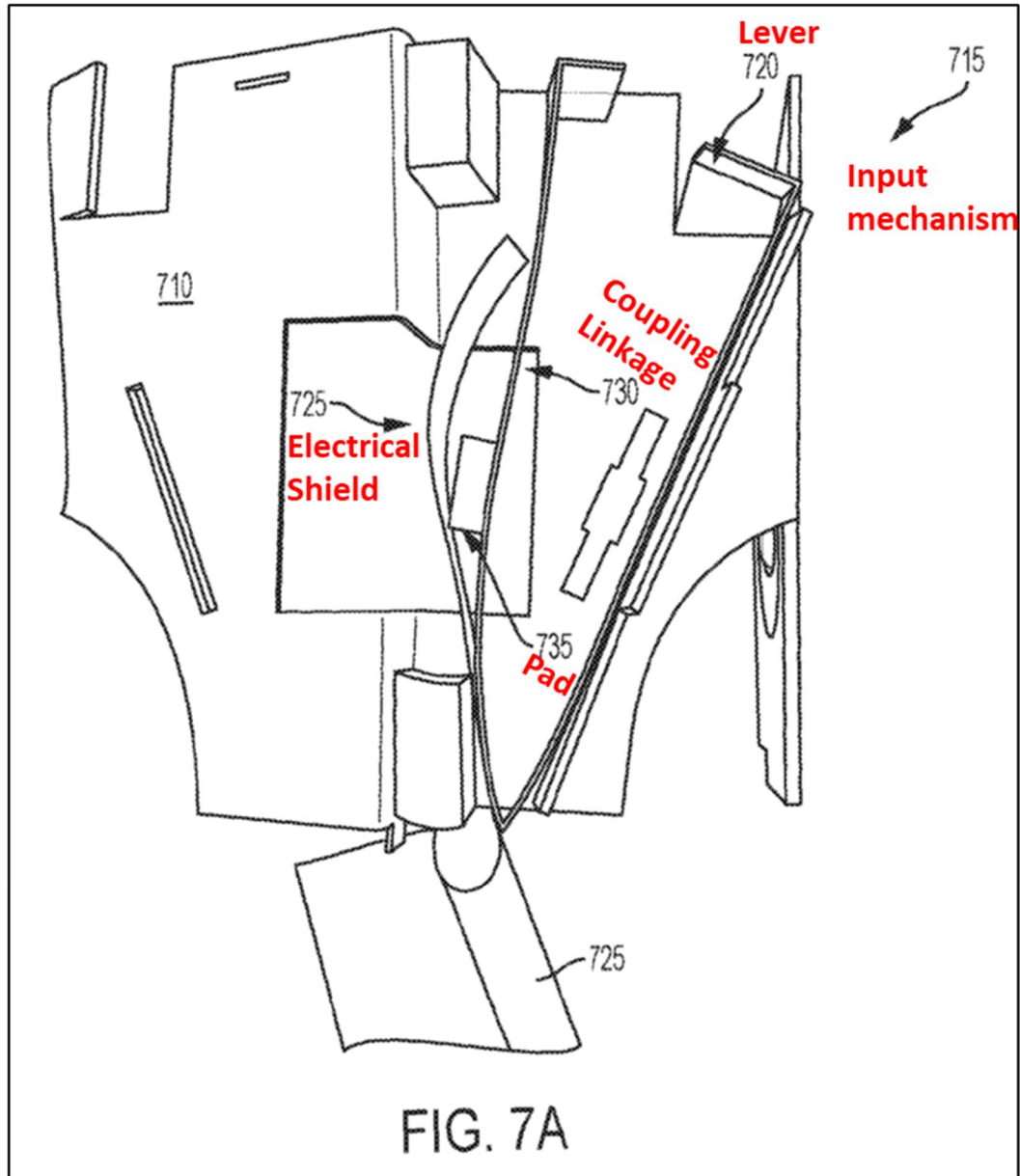
The '000 patent is directed to two embodiments of input mechanisms: one is an electrical connection, referred to in the patent as “passive.” This electrical connection is between the user inputs, input leads, and touchscreen inputs, as shown in Figure 6A:



EX1001, Fig. 6A (annotations added) ; see EX1002, ¶38.

This embodiment includes touchscreen inputs 26a–26d electrically coupled to user inputs 29a–29d via input leads 28a–28d. User inputs 29a–29d are exposed on the outer surfaces of the housing so that the user can interact with them to provide input to the mobile electronic device 15. EX1001, 3:43–7:8, 5:46–63, Figs. 6A–B. In this way, the user inputs 29a–29d transfer a capacitive touch to touchscreen inputs 26a–26d. See EX1002, ¶39.

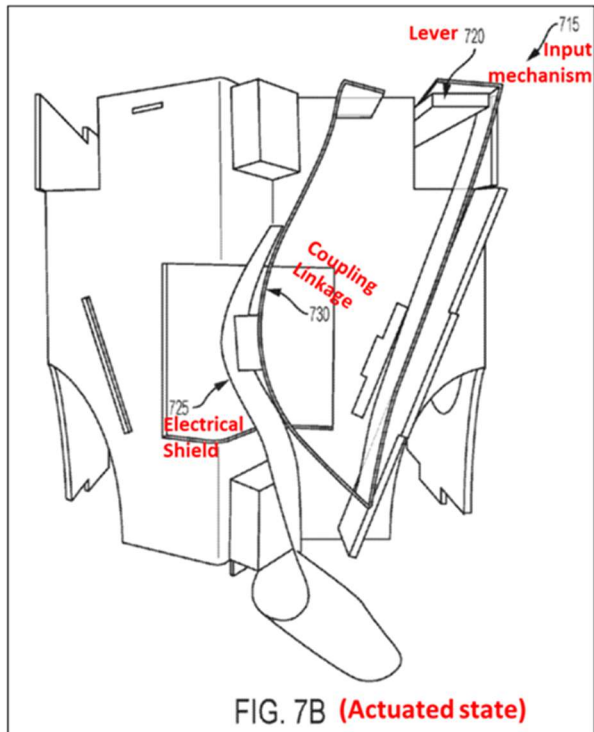
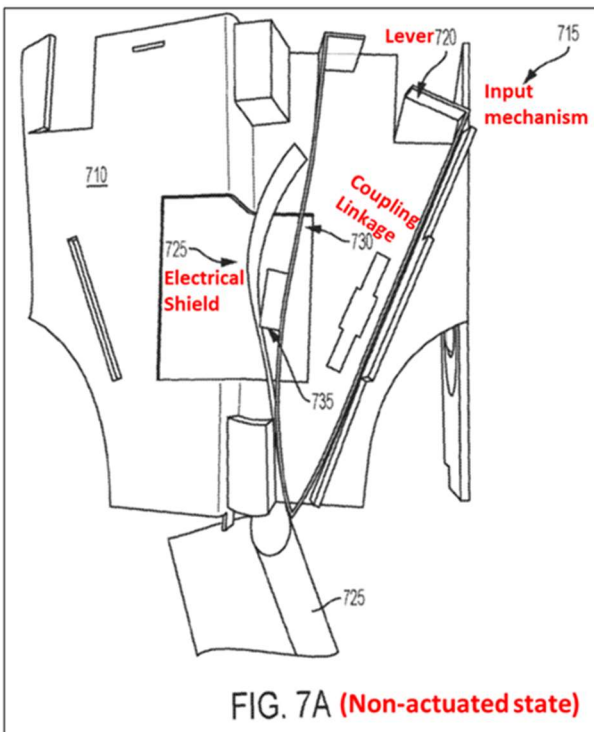
The other embodiment is a mechanical embodiment, which the patent refers to as “active,” as shown in Figures 7A–F. Figure 7A is reproduced below:

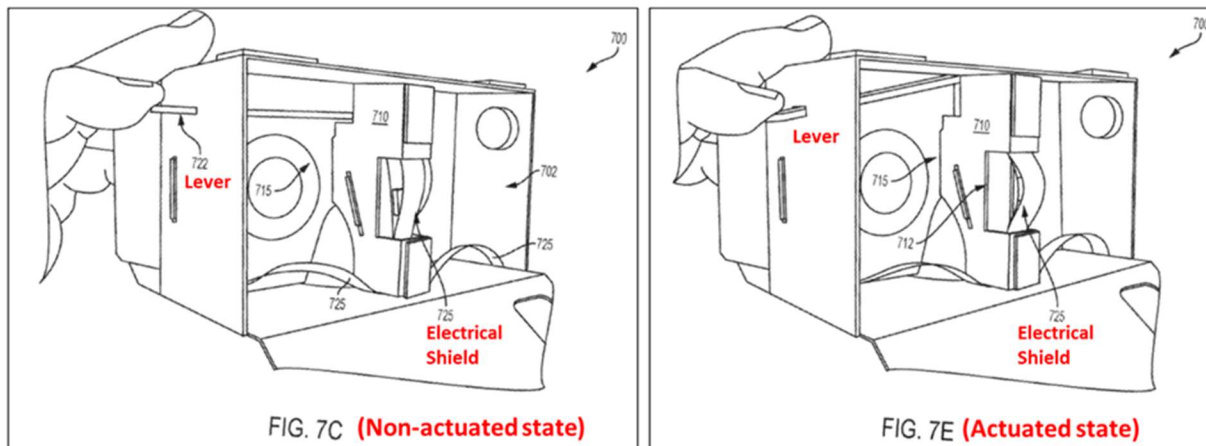


EX1001, Fig. 7A (annotations added); see EX1002, ¶40.

In this embodiment, the input mechanism 715 is moveable within the housing/enclosure. EX1001, 7:39–10:36, Figs. 7A–F. In particular, the viewer 700 (not shown) includes a lever 720 that is accessible from an exterior of a housing/enclosure to bring the electrical shield 725 into an actuated state where a

contact event is transferred to a touchscreen and a non-actuated state where a contact event is not transferred to the touchscreen inside the housing/enclosure. A coupling linkage 730 extends between the lever 720 and the electrical shield 725. EX1001, 7:39–10:36. A pad 735 sits between the coupling linkage 730 and electrical shield 725. “[A]ctuation of the lever causes the coupling to deform and extend in a direction towards the touchscreen, which in turn moves a portion of the electrical shield towards the touchscreen.” EX1001, 8:35-38. Figures 7A and 7C below show the non-actuated state, and Figures 7B and 7E below show the actuated state. See EX1002, ¶41.





EX1001, Figs. 7A, 7B, 7C, 7E (annotations added).

C. The '000 Patent's Prosecution History

In an office action dated July 22, 2020, the Examiner rejected the pending claims based on double patenting and anticipation in view of Bickerstaff. EX1008, pp. 38-44. In response, the Patent Owner canceled all pending claims and submitted new claims, stating that it believed the claims were patentable over Bickerstaff without explanation. EX1008, pp. 33-37. The Examiner issued a final rejection based on double patenting, and the Patent Owner filed a terminal disclaimer. EX1008, pp. 12-26. The Examiner then issued a notice of allowance, stating that the prior art did not disclose all the claim elements:

4. The following is an examiner's statement of reasons for allowance:

In regards to claim 22, it recites, among other features, "a housing having a portion configured to receive a mobile electronic device having a touchscreen display, the housing further including two lenses;

an input device accessible from an exterior of the housing; and

a contact element located within an interior of the housing, the contact element coupled to the input device and configured to generate a detectable touch event at the touchscreen display of the mobile electronic device".

The Prior Art discloses a housing with two lenses that receives a mobile device having a touchscreen display. The Prior Art discloses a housing that receives a housing that receives a mobile device having a touchscreen display with an input device accessible from an exterior of the housing and coupled to a contact element in the interior of the housing that generates a touch on the touchscreen display of the mobile device. The Prior Art does not disclose all of the elements together or suggests a way for them to be combined.

EX1008, pp. 9-10; see EX1002, §VI(C), ¶42.

The Patent Owner submitted comments on the reasons for allowance, stating that the Examiner's reasons for allowance should not be attributed to the Patent Owner. EX1008, pp. 1-2; see EX1002, ¶43.

The Examiner did not specify what features of the claims he considered to be patentable. Therefore, this file history does not affect the below validity analysis. See EX1002, ¶44.

VII. 35 U.S.C. § 314(a)

A. *Fintiv* Analysis

The Board should institute this proceeding because under a holistic analysis of the *Fintiv* factors, non-institution would be improper.

1. Whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted;

Petitioner intends to request a stay pending IPR at the appropriate time. At the very least, this factor is neutral because determining how a district court might proceed would be merely speculative. *Sand Revolution II, v. Cont'l Intermodal Group-Trucking*, IPR2019-01393, Paper 24 at 11-12 (informative) (finding this factor neutral because “the court may determine whether or not to stay any individual case, including the related one, based on a variety of circumstances and facts beyond our control and to which the Board is not privy”).

2. Proximity of the court's trial date to the Board's projected statutory deadline for a final written decision;

The co-pending litigation was just transferred from NDTX to NDCA. See EX1012 (Transfer Order, dated 3/14/23). As such, there is currently no schedule, including no trial date. This factor weighs toward institution.

3. Investment in the parallel proceeding by the court and the parties;

At the new forum, NDCA, the parties and the court have made no substantial investment, as the case was just transferred. Before transfer, in NDTX, the court did not make any substantive determinations.

These five IPRs are filed soon after receiving DDC's infringement contentions (ICs) on 1/9/23, and soon after receiving DDC's supplemental ICs with clarifications on 1/23/23, about two months ago.

This factor weighs toward institution.

4. Overlap between issues raised in the petition and in the parallel proceeding;

Petitioner is challenging many more claims than are asserted at the district court. Also, given the early stage of the co-pending litigation, it is unclear how much overlap, if any, there will be between the two proceedings. Significant case milestones lie ahead in the litigation that will determine the scope of any overlap,

and given the case was transferred not long ago, any overlap is uncertain at this stage. This factor is therefore neutral.

5. Whether the petitioner and the defendant in the parallel proceeding are the same party; and

The Petitioner and defendant in the parallel proceeding are the same. However, Petitioner is not the same party as any prior defendant sued by DDC or any prior PTAB Petitioner that challenged DDC's patents. See §II(C).

6. Other circumstances that impact the Board's exercise of discretion, including the merits.

The invalidity case presented below is a compelling unpatentability challenge and has never been presented to the Office. Also, institution is consistent with the significant public interest against "leaving bad patents enforceable." (*Thryv, Inc. v. Click-To-Call Techs., LP*, 140 S. Ct. 1367, 1374 (2020).)

On balance, the factors weigh toward institution.

B. General Plastic Analysis

Google had no involvement in the previous PGRs and IPR filed by MerchSource: IPR2018-00494, PGR2018-00019, and PGR2018-00020. See §II(C). Also, Google has no relationship to MerchSource.

C. Burden on the Board

The Board will not be overburdened by these five cases for several reasons. First, each patent shares the same specification. Second, the claims of the different patents are strikingly similar. And lastly, Petitioner relies on no prior art other than Kondo and Chu in all cases. As a result, after the Board is familiar with one of these petitions, the time investment to review the other petitions should drop dramatically.

VIII. 35 U.S.C. § 325(d)

This Petition relies on Kondo and Chu, which were not previously considered by the Office and are not substantially the same nor cumulative to any prior art considered by the Office.

IX. A PERSON OF ORDINARY SKILL IN THE ART

A POSA at the time of the alleged invention had a minimum of an undergraduate degree (or equivalent) in mechanical engineering or a related field, with knowledge of mechanical actuation systems, basic optical design with lenses, head-mounted displays, a basic understanding of touchscreen technology, and at least two years of professional experience in mechanical and basic optical design or engineering. See EX1002, §V.

X. CLAIM CONSTRUCTION (37 C.F.R. § 42.104(B)(3))

Petitioner provides a claim construction using the *Phillips* standard and the factual basis for that construction. The ordinary and customary meaning will be used for all other terms. The '000 patent and the entire patent family's prosecution histories were considered when construing the below term. See EX1002, §IV(A), ¶18.

Claim Term	Meaning
Virtual Reality Viewer Apparatus	“A viewer of an artificial environment,” where “viewer” includes both handheld devices and headsets.

Virtual Reality Viewer Apparatus – This term appears in all claims and is not defined in the '000 patent other than to state “[v]irtual reality viewers and headsets (collectively referred to as viewers) are becoming an increasingly popular way of viewing digital media, gaming and the like.” EX1001, 1:46-48. The patent also states that “[v]iewers can be hand-held devices that a user holds up to the users [sic] face/eyes, for example, like a user would hold a pair of binoculars.” EX1001, 1:39-41. And the patent states that “[v]iewers can also be worn on a user's head....” EX1001, 1:55-57. So, the patent is using the term “virtual reality

viewer” to include both handheld devices and headsets. Beyond describing some typical features of virtual reality viewers (see 1:46-2:32), the ’000 patent does not provide any definition or place any limitations on this term. The term “virtual reality” is defined in dictionaries::

an artificial environment which is experienced through sensory stimuli (such as sights and sounds) provided by a computer and in which one's actions partially determine what happens in the environment. Merriam-Webster Online Dictionary, <https://www.merriam-webster.com/dictionary/virtual%20reality>.

A realistic simulation of an environment, including three-dimensional graphics, by a computer system using interactive software and hardware. EX1006, p. 4 (Random House Webster’s College Dictionary, p. 1459 (2000)).

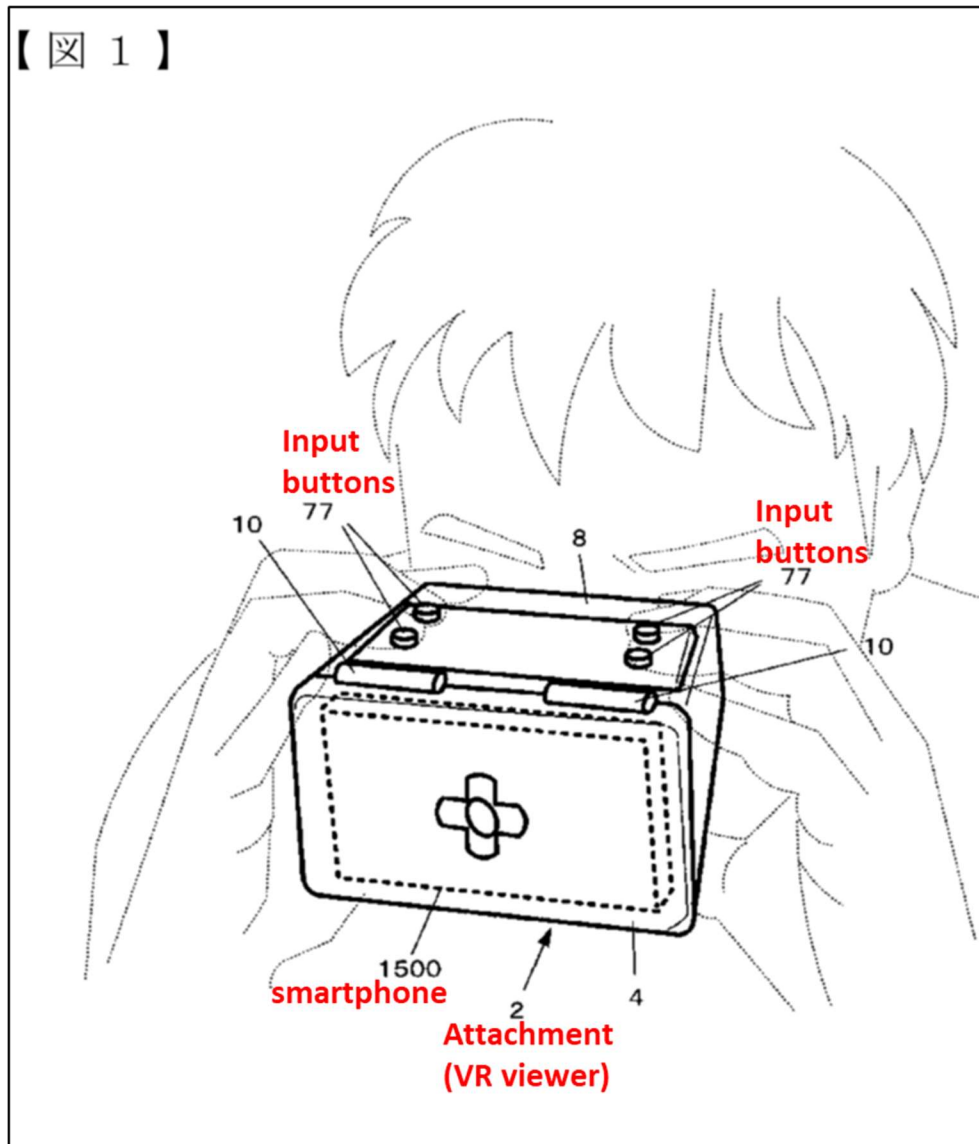
These definitions suggest that Virtual Reality is an artificial environment and are consistent with a POSA’s understanding. A POSA would note the difference between Augmented Reality, which is when computer-generated images are superimposed on a user’s real-world field of vision (see §VI(A)), and Virtual Reality, which is an artificial environment. Therefore, based on the well-known meaning and the patent’s usage, Petitioner uses its ordinary meaning to a POSA, which is “a viewer of an artificial environment” where “viewer” includes both handheld devices and headsets. See EX1002, §IV(A), ¶¶17, 18.

XI. PRIOR ART

A. Kondo – JP3176588

Kondo is a Japanese patent entitled “Remote Touch Circuit and Attachment,” issued on June 28, 2012, which provides a VR viewer so the user can enjoy “three-dimensional stereoscopic images.” EX1003, ¶0021; *see also* Fig. 3, ¶0027. Kondo refers to its VR viewer as an “attachment” using reference numeral “2.” Petitioner will therefore use “VR viewer” and “attachment” interchangeably when describing Kondo. See EX1002, §VII(A), ¶45.

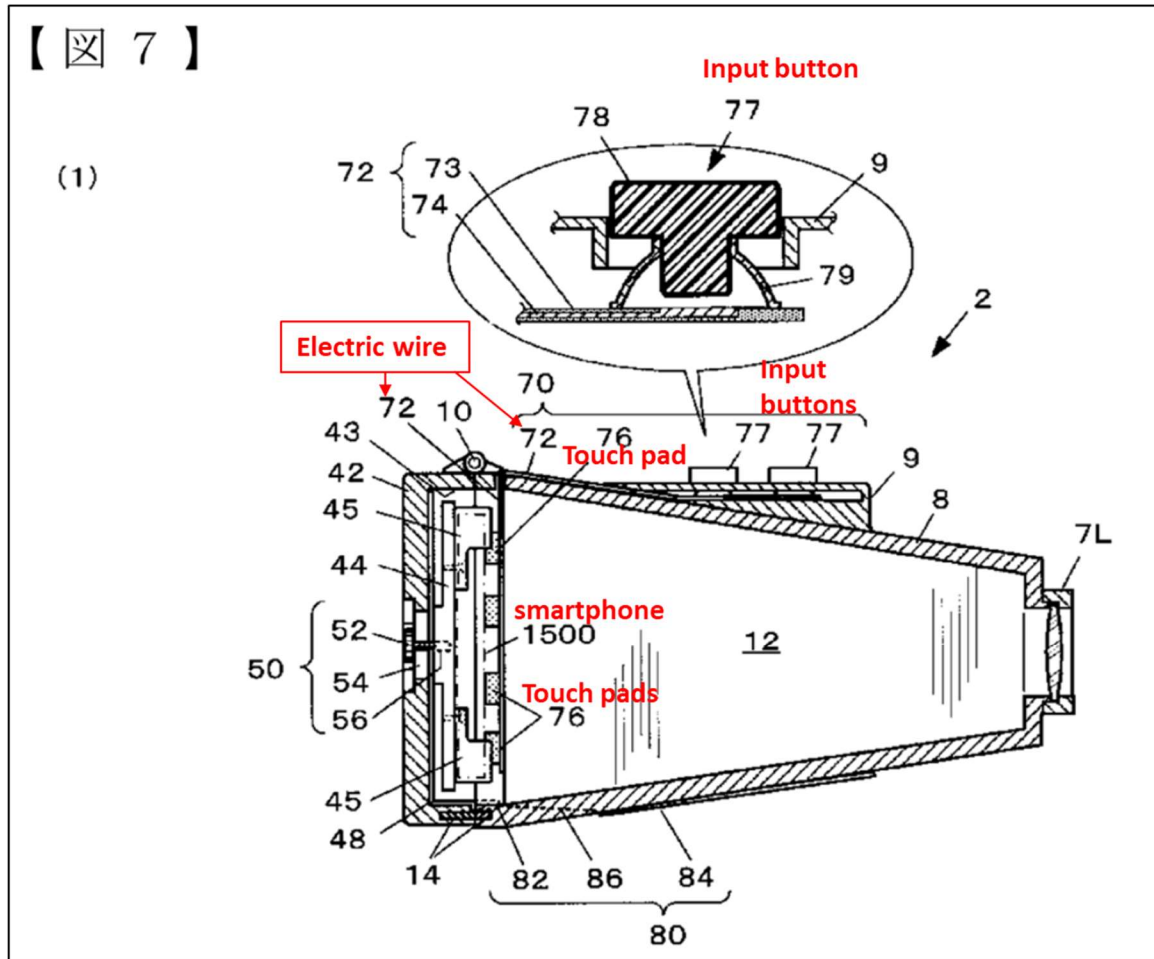
Kondo is directed to the same problem as the ’000 patent, namely, “[t]o provide an attachment that achieves remote control input to a touch panel mounted on an electronic device.” EX1003, p. 2; *see also*, ¶4. Kondo’s solution is to equip the VR viewer “with a remote touch circuit that enables remote operation input to the touch panel from the outside using the fingers gripping the attachment.” EX1003, p. 2. Kondo’s input mechanism is electrical or passive. EX1003, ¶0005. Kondo’s Figure 1 below shows this input mechanism (buttons 77) on VR viewer 2 with smartphone 1500 mounted therein. EX1003, Fig. 1; ¶0022; *see* EX1002, ¶46.



EX1003, Fig. 1 (annotations added).

Kondo describes how the remote touch circuit is mounted and utilized, and the benefits of having externally available buttons 77. The basic concept is to have one or more electrically conductive pads 76 placed over the smartphone screen and electrically in contact by wire with the external buttons 77. These external buttons are placed on the outer shell of the virtual reality viewer and can be touched by the

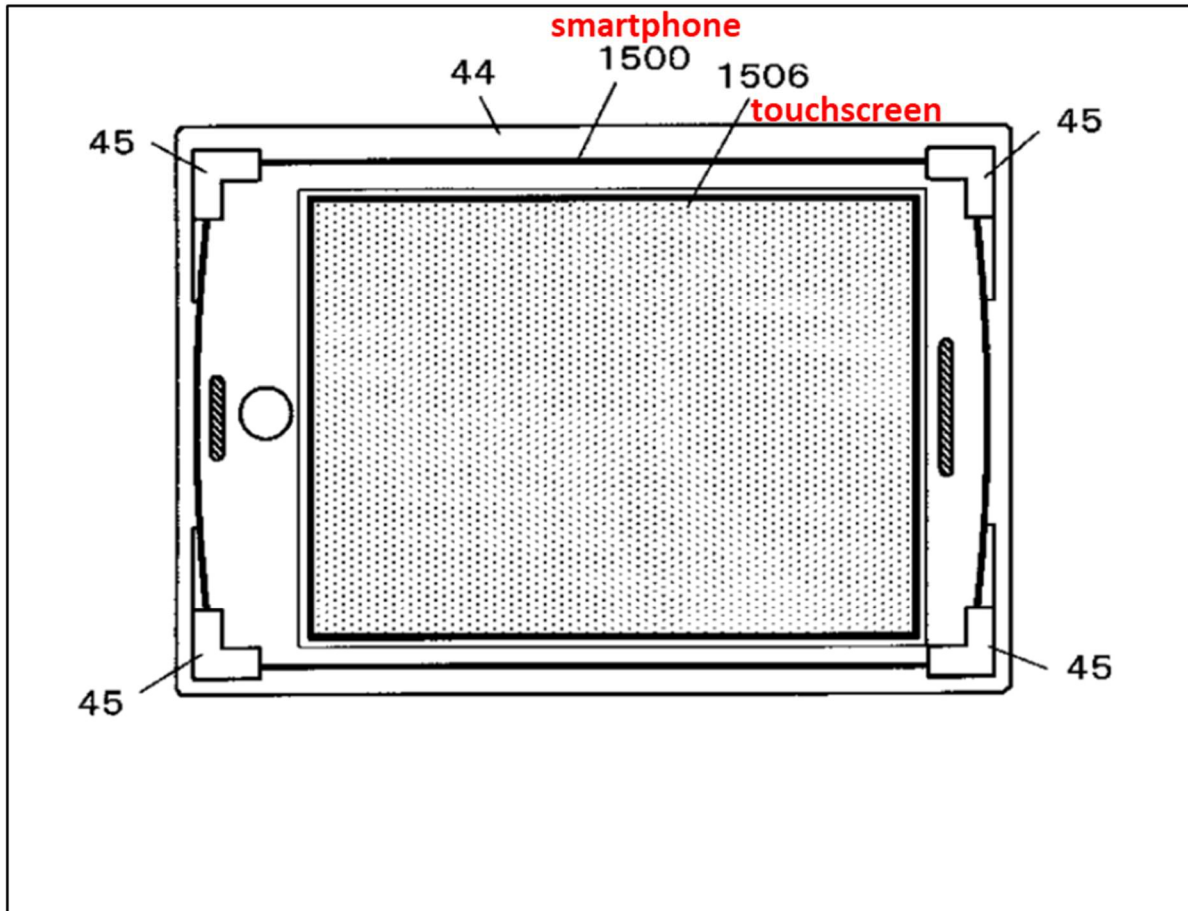
user, which is conducted through the wire, to the conductive pad and registered by the smartphone as a “touch.” The electrical path from the external button(s) of the virtual reality viewer can provide for both capacitive and conductive types of sensing. This is shown in Fig. 7 below:



EX1003, Fig. 7 (annotations added); see EX1002, ¶47.

When button 77 is depressed by a user’s finger, the impedance of the user’s finger is electrically connected to the smartphone 1500 (specifically, its

touchscreen shown as 1506 in Fig. 8, see below) via electrical wire 72 and touch pads 76. EX1003, Fig. 7; ¶¶0043-0048.

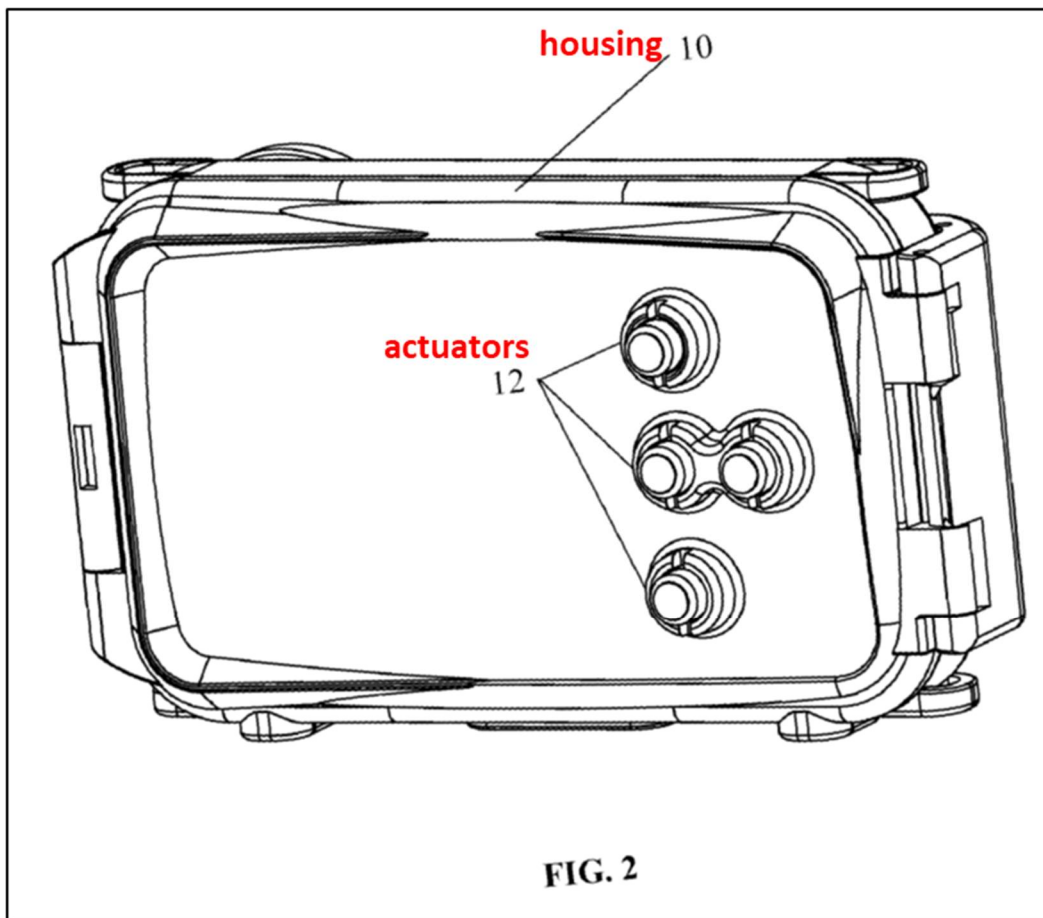


EX1003, Fig. 8(2) (annotations added); see EX1002, ¶48.

Kondo discloses alternative embodiments, such as button 77 connecting to a different capacitive element other than the human body (Fig. 12, ¶0054) and using a game controller to operate the smartphone (Fig. 13, ¶0055). Kondo also specifically contemplates alternatives to button 77, including “a cross-shaped directional input key, a joystick, and the like.” EX1003, ¶0057; see EX1002, ¶49.

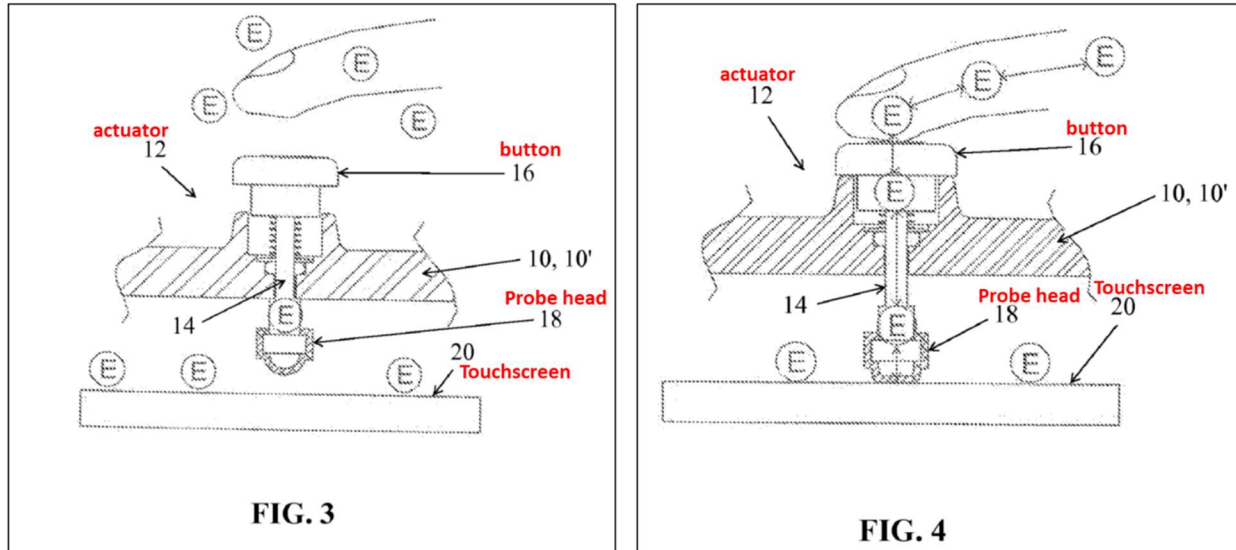
B. Chu – U.S. 2013/0082963

Chu is a U.S. patent publication dated April 4, 2013. It is directed to actuating a capacitive touchscreen of a smartphone held within a waterproof housing. EX1004, Abstract. Fig. 2 below shows the housing 10 enclosing a smartphone as well as the actuators 12, or input mechanisms, that are capable of actuating the touchscreen on the smartphone through physical contact:



EX1004, Fig. 2 (annotations added); see EX1002, ¶50.

Figure 3 shows actuator 12 at rest, and Figure 4 shows the actuator 12 in an actuation position where probe head 18 is touching the capacitive touchscreen 20 to create a touch event. EX1004 ¶¶0040-0041.



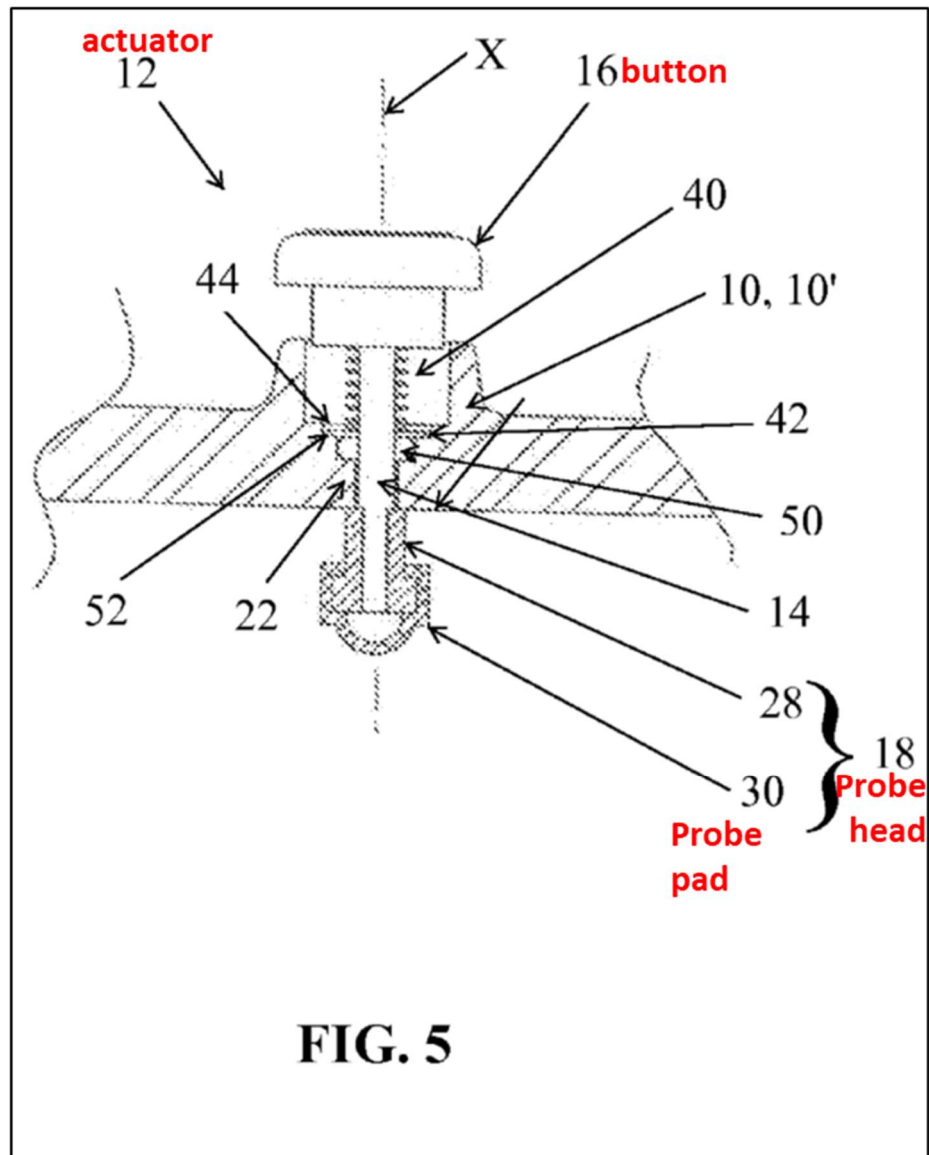
EX1004, Figs. 3, 4 (annotations added); see EX1002, ¶51.

Chu explains that when the user presses down on button 16, the contact area with button 16 increases, and since button 16 is metal, the user's finger is electric charge connected. If the user continues to press down, the probe head will contact the touchscreen (see Figure 4 above) and the electric charge conductivity between the user and button 16 improves. EX1004, ¶0054-0055; see EX1002, ¶52.

Figure 5 shows a more detailed view of probe head 18, which includes probe pad 30 for direct contact with the touchscreen 20. The probe pad 30 may be made

of rubber with an additive to “enhance its electric charge transfer performance.”

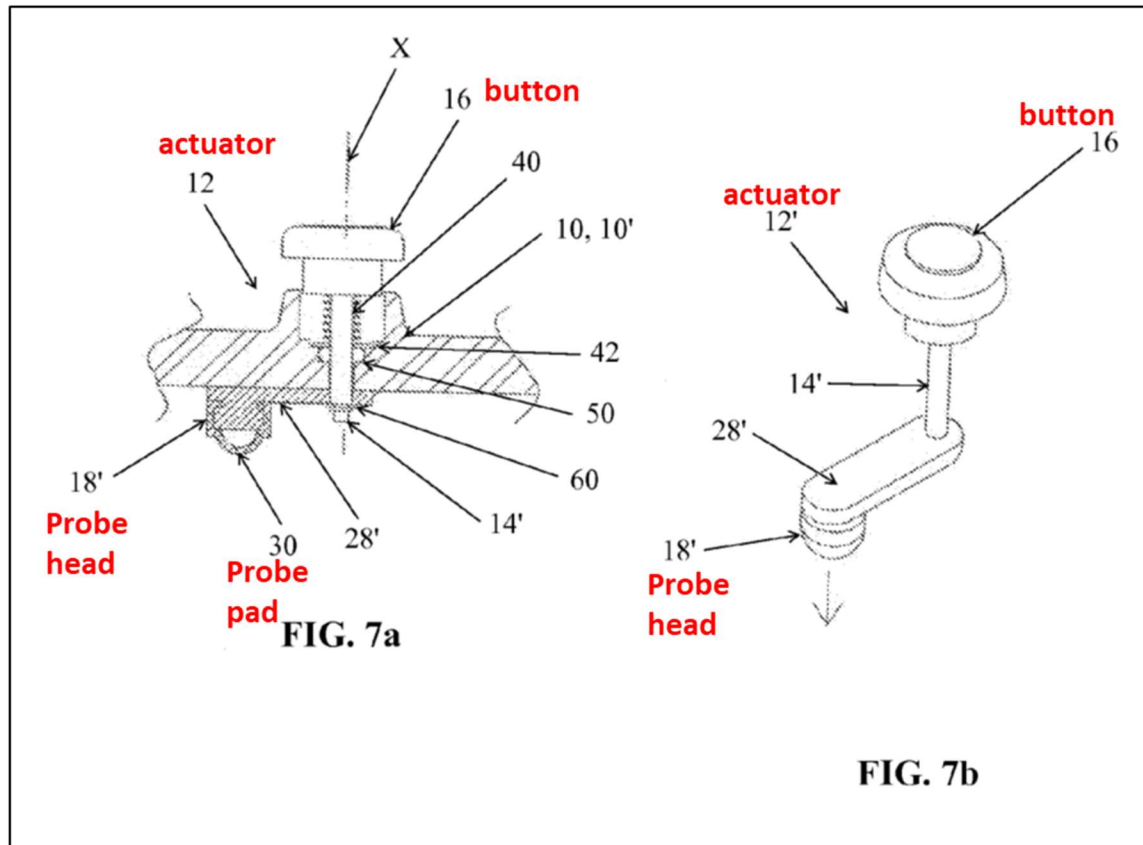
EX1004, ¶¶0048-0049.



EX1004, Fig. 5 (annotations added); see EX1002, ¶53.

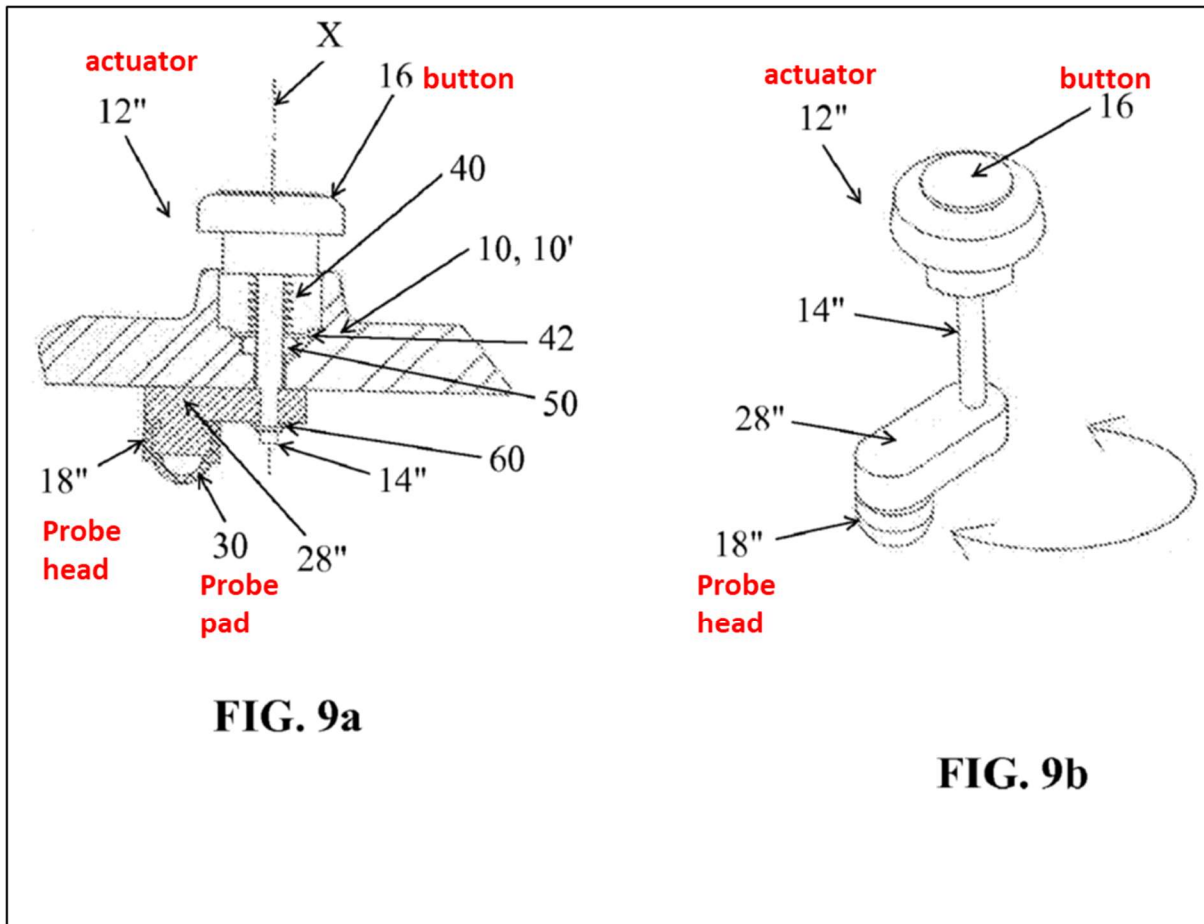
Figures 7a and 7b below show an alternative embodiment that operates similarly to the first embodiment in that when the user presses button 16, the probe

head 18 (and probe pad 30) comes into contact with touchscreen 20 (see ¶¶0058-0059):



EX1004, Figs. 7a, 7b (annotations added); see EX1002, ¶54.

Chu recognizes that in some situations, the touchscreen may require a “touch-swipe” or “touch-circle” motion where the probe head needs to move in a swiping or circular motion. Chu therefore describes another embodiment for just this situation where the user presses down on button 16 and can turn the button so that probe head 18” touches touchscreen 20 and can move along a circular path, causing a swipe. EX1004, ¶¶0060-0062.



EX1004, Figs. 9a, 9b (annotations added); see EX1002, ¶55.

A POSA would understand that Chu would work not only with capacitive touchscreens, but also with resistive touchscreens. As to resistive touchscreens, Chu's mechanical input device applies pressure to the touchscreen, thus providing a touch input for a resistive touchscreen. At ¶0004, Chu explains how such pressure will provide a touch input to a resistive screen. See EX1002, ¶56.

C. Motivation to Combine Kondo and Chu and Reasonable Expectation of Success

As mentioned above in §VI(A), the most common touchscreens on the market as of the time of the '000 patent's alleged invention were capacitive and resistive. A mechanical input mechanism, like Chu's, can work with both types of screens, whereas an electrical input mechanism, like Kondo's, can only work with capacitive screens. See EX1002, ¶57. One goal of device designers is always to increase the usability and consumer appeal for their product where possible, allowing many different types of smartphones and touchscreens to be used. *Id.* In this situation, a VR designer looking at Kondo would readily realize and be motivated to increase the usability and consumer appeal for their device by making it work with both capacitive and resistive screens and therefore would be led to Chu. Chu's input mechanism works with both types of screens. See EX1002, §VII(C), ¶57.

Moreover, both Kondo and Chu deal with a smartphone enclosed in a housing or device and both references face a similar problem, the external activation of the touchscreen of the smartphone enclosed in that device. *See e.g.*, EX1003, pg. 2 ("PROBLEM To provide an attachment that achieves remote control input to a touch panel mounted on an electronic device"), EX1004, ¶0009 ("Therefore, there is a need to provide a specially designed actuator mechanism for

actuating a capacitive touch screen of a digital device inside a waterproof housing.”). Therefore, a POSA that is designing a VR viewer by using Kondo would look to other available input mechanisms, thus leading the POSA to Chu. See EX1002, ¶58.

There are additional reasons why a POSA would combine Kondo/Chu. First, because Chu’s input mechanism is mechanical, the user can press the button using different levels of pressure, increasing not only the area in which contact is made but also the conductivity. See EX1002, ¶59. Touchscreens can interpret this as differing inputs, based on the size of touch-screen contact, the level of pressure, and the level of conductivity. *Id.* In other words, Chu provides a wider range of input at a single location on the touchscreen rather than just binary input (i.e., on or off). *Id.*

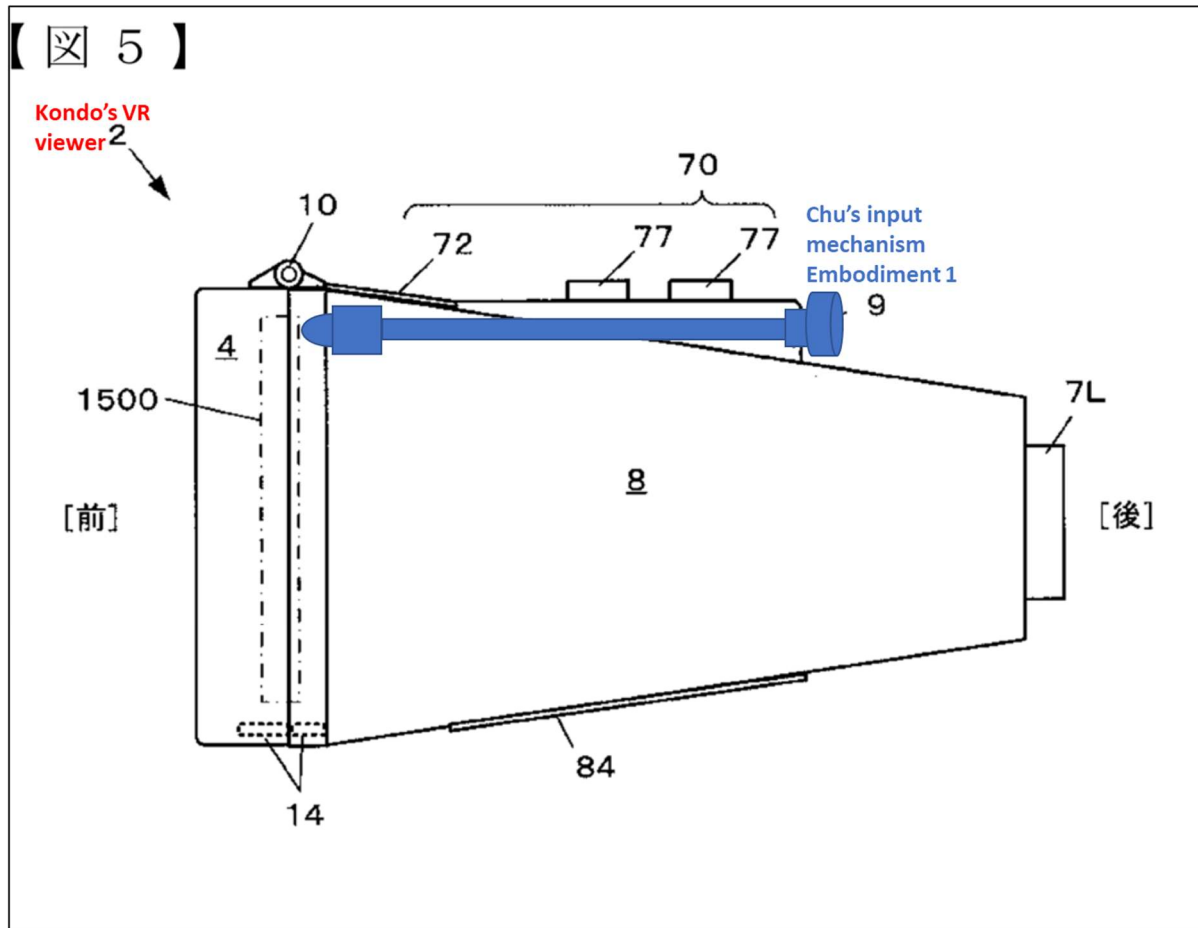
Second, Chu’s “swipe” embodiment provides additional input to Kondo’s device. See EX1002, ¶60. Not only can Chu provide a “touch” with different amounts of pressure and conductivity, but it also enables a whole new form of input, the swipe. *Id.* A POSA would understand that having additional inputs beyond a mere binary touch, such as differing pressures, conductivity, and swipes, would allow the VR viewer to provide more functionality. *Id.* The Kondo/Chu combination would therefore allow the resulting VR viewer to be used for more applications. *Id.*

Third, Chu's input mechanism is not only a mechanical mechanism, but it is designed to be waterproof, and thus, adding Chu's input mechanism to Kondo has advantages. See EX1002, ¶¶61-62. In particular, this combination of Kondo and Chu would be less susceptible to damage from water and other environmental factors, like dirt and dust. *Id.* Handheld devices are often subjected to such conditions if they are used outdoors or even indoors if dropped in some liquid or splashed by accident for example. *Id.* This combination would also allow the resulting device to be used underwater. *Id.*

Fourth, this combination would allow the device to be cleaned without fear of cleaning fluid reaching the inner parts of the device. See EX1002, ¶63. This can be important if the VR viewer is being used in a sanitary environment, such as during a medical procedure or in a manufacturing facility, like a semiconductor fabrication facility. *Id.* For these reasons, a POSA would be motivated to combine Kondo/Chu. *Id.*

Both Kondo and Chu are simple mechanical devices. Thus, a POSA would have a reasonable expectation of success in combining Chu's input mechanism with Kondo. See EX1002, ¶64. In fact, a POSA would consider the formation of this combination to be merely routine, requiring little skill. *Id.*

The following illustrative figure shows how a POSA could easily combine Chu's first embodiment (depicted in **blue**), found in Figs. 3-6, with Kondo's Fig. 5. Inputs 77 and electrical wire 72 would be removed. See EX1002, ¶65. To do so would require little effort and skill, and a POSA would have a reasonable expectation of success. *Id.* A POSA would recognize that minor adjustments might need to be made, like elongating the stem of Chu's input device, and possibly providing supportive structure inside of Kondo's device to accommodate Chu's input device. *Id.* In fact, Chu contemplates such structure as "one or more posts or guides" and shows supportive structure in its figures. EX1004, ¶0059, Figs. 3-10. All such modifications are well within the skill of a POSA, requiring little ingenuity. See EX1002, ¶65.



EX1003, Fig. 5 (annotated to include Chu's input device); see EX1002, ¶65.

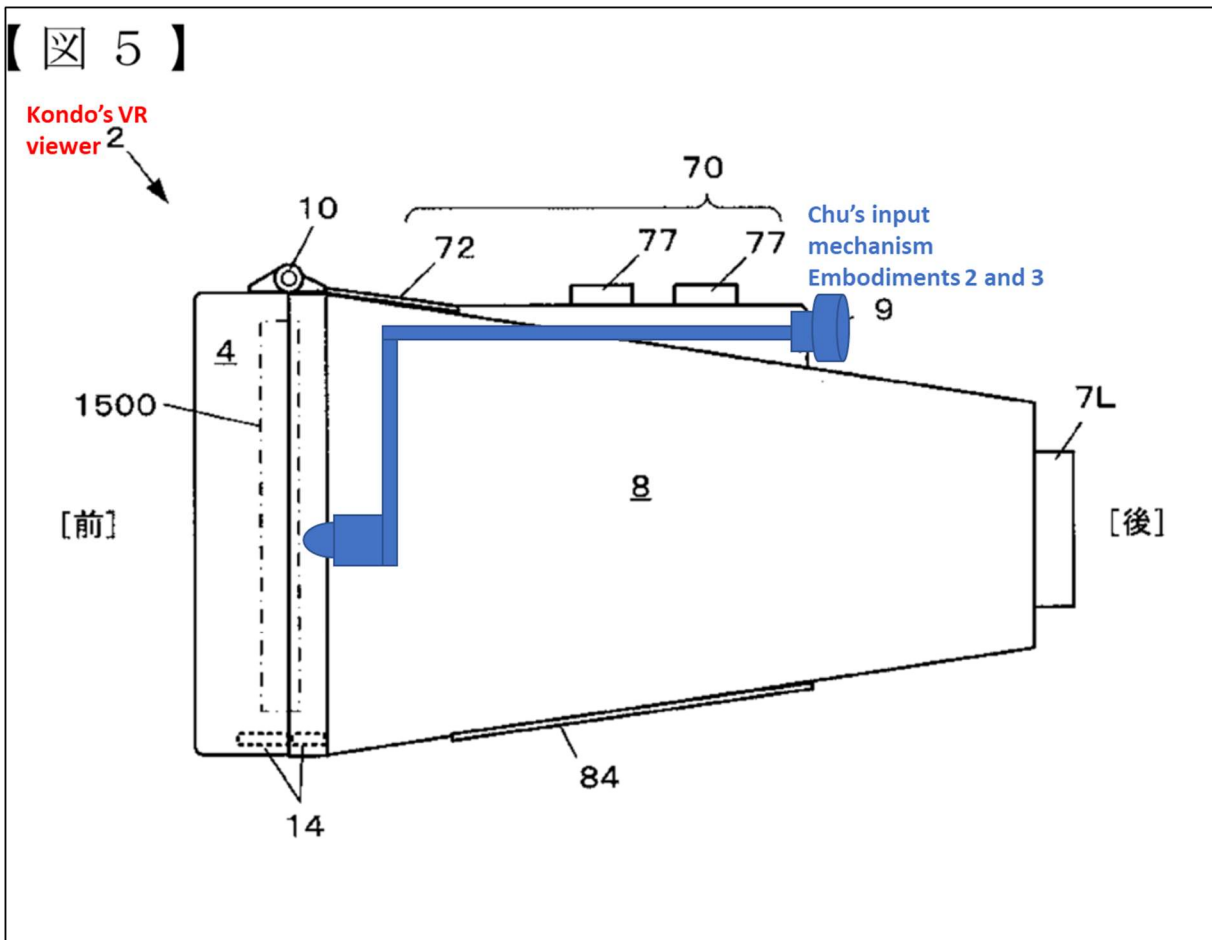
In the above diagram, Chu's input mechanism could be smaller and take a variety of sizes. Additionally, the outer shell of Kondo's device through which Chu operates could easily be extended to accommodate more input devices if desired. See EX1002, ¶66.

The following illustrative figure shows how a POSA could easily combine Chu's second embodiment, found in Figs. 7a, 7b, and 8, and third embodiment, found in Figs. 9a, 9b, and 10, in Kondo's Fig. 5. See EX1002, ¶67. Chu's input

mechanism reflecting both the second and third embodiments is depicted in **blue**.

Again, inputs 77 and electrical wire 72 would be removed. *Id.* This would require little effort and skill, and a POSA would have a reasonable expectation of success.

Id.



EX1003, Fig. 5 (annotated to include Chu's input device); see EX1002, ¶67.

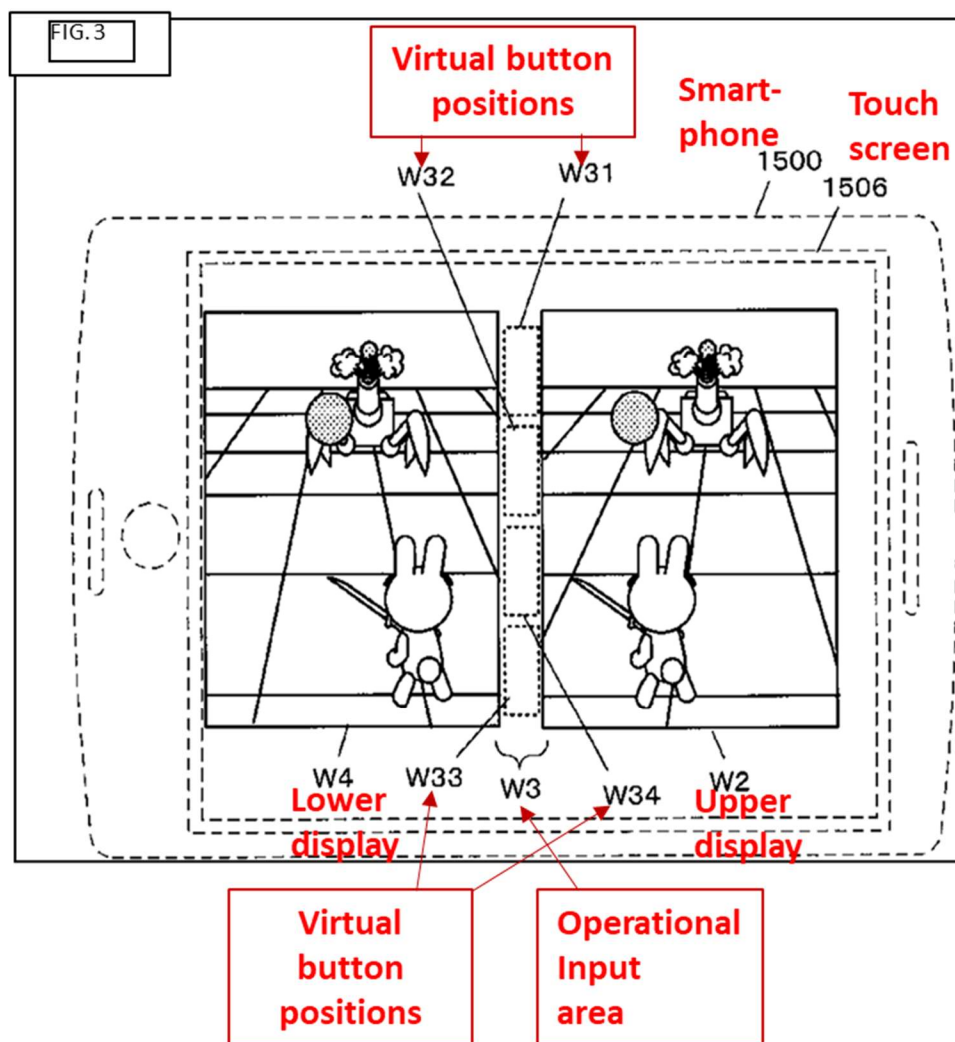
Again, minor adjustments might need to be made, including adding supportive structure. But those modifications would be well within the skill of a POSA, and as stated with respect to the discussion of Chu's first-embodiment

combination, Chu contemplates such supportive structure. See EX1002, ¶68.

Additionally, Chu's input mechanism could be smaller and take a variety of sizes.

Id. And, the outer shell of Kondo's device through which Chu operates could easily be extended to accommodate more input devices if desired. *Id.*

Both combinations shown above would contact the central region of the smartphone's touchscreen because Kondo shows that its operational input area is at the center of the touchscreen and this operational input area contains virtual button positions for operating the smartphone. See EX1002, ¶69.

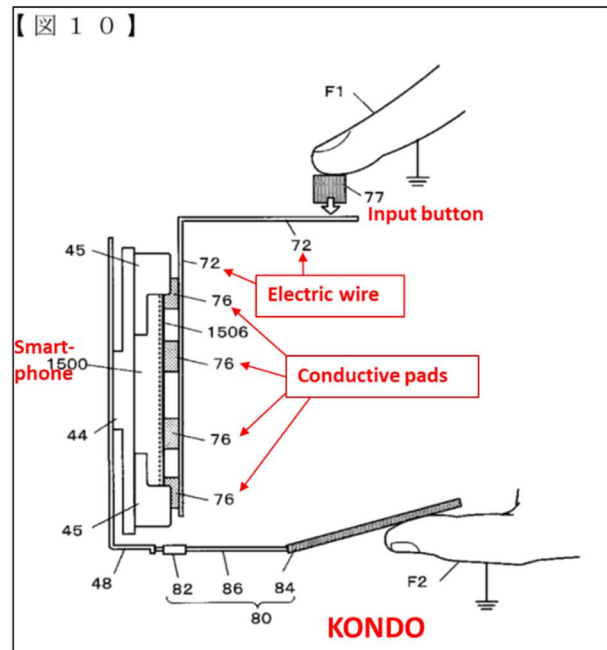
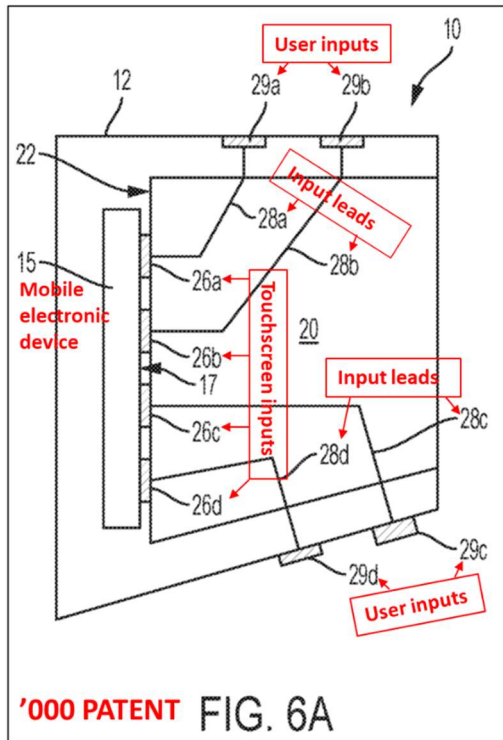


EX1003, Fig. 3 (annotations added), ¶¶0027-0028; see EX1002, ¶69.

XII. GROUND 1: ANTICIPATION OF CLAIMS 1-6 AND 8-33 BY KONDO

In the following paragraphs, Petitioner identifies specific claim elements and provides an explanation of anticipation. This also demonstrates that the '000 patent is obvious, but Petitioner provides additional analysis on that topic in §XIII. See EX1002, §VIII, ¶70.

As an initial matter, a comparison between Kondo Figure 6A and '000 patent Figure 10 demonstrates that the two are virtually identical and operate in a virtually identical way, with only minor terminology differences.



EX1001, Fig. 6A (annotations added); EX1003, Fig. 10 (annotations added); see EX1002, ¶71.

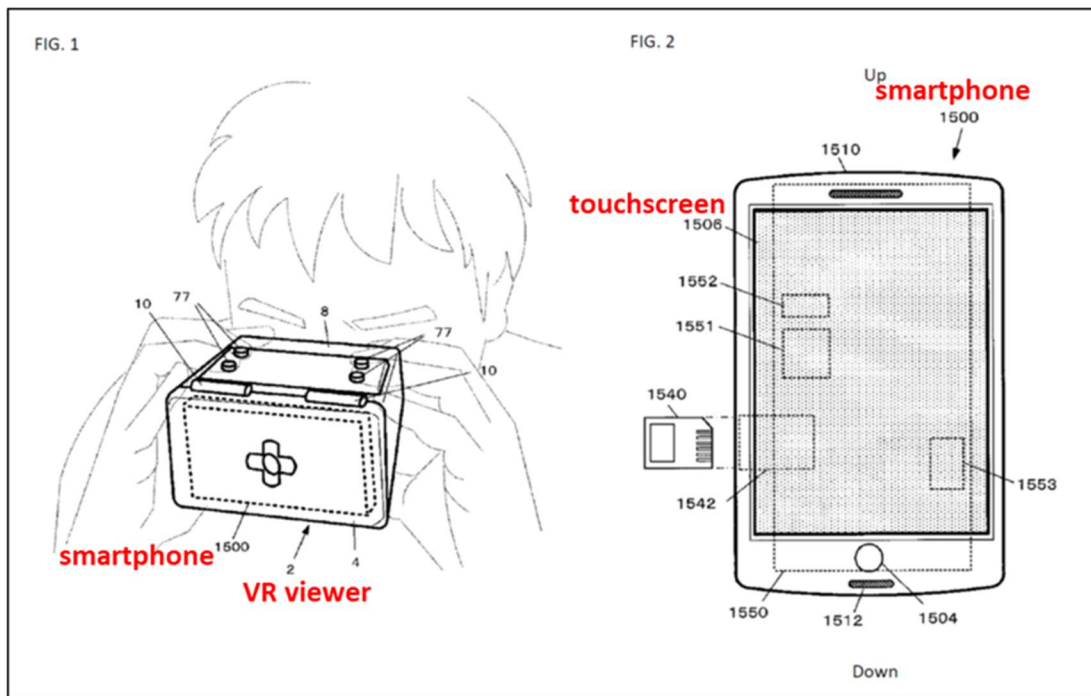
A. Claim 1:

Please see the description of Kondo in §XI(A).

1. 1(a): A virtual reality viewer apparatus comprising:

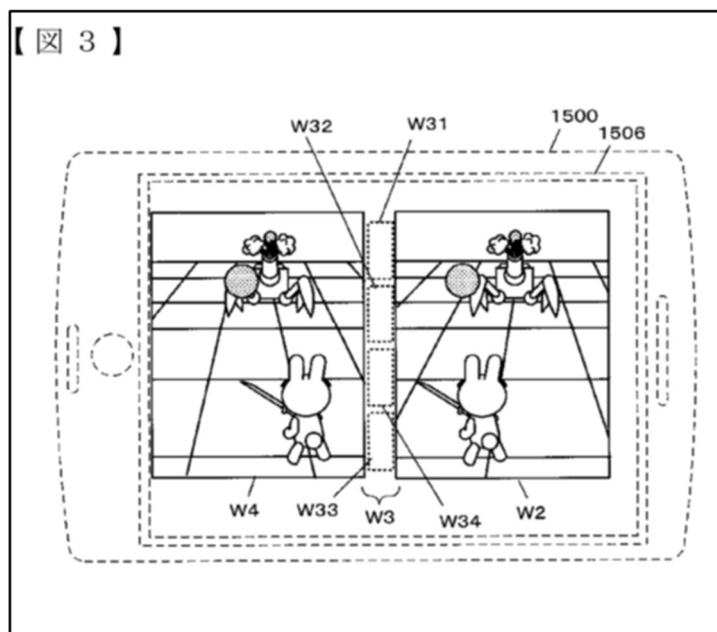
Kondo discloses a virtual reality viewer apparatus. Petitioner has defined a virtual reality viewer apparatus above to mean “a viewer of an artificial

environment,” where “viewer” includes both handheld devices and headsets. See §X above. Figures 1 and 2 of Kondo below show a VR viewer 2 that encloses a smartphone 1500 with a touch-screen display 1506. As mentioned above in §XI, Kondo refers to its VR viewer as an “attachment.” Petitioner will use the terms VR viewer and attachment interchangeably in describing Kondo.



EX1003, Figs. 1, 2 (annotations added).

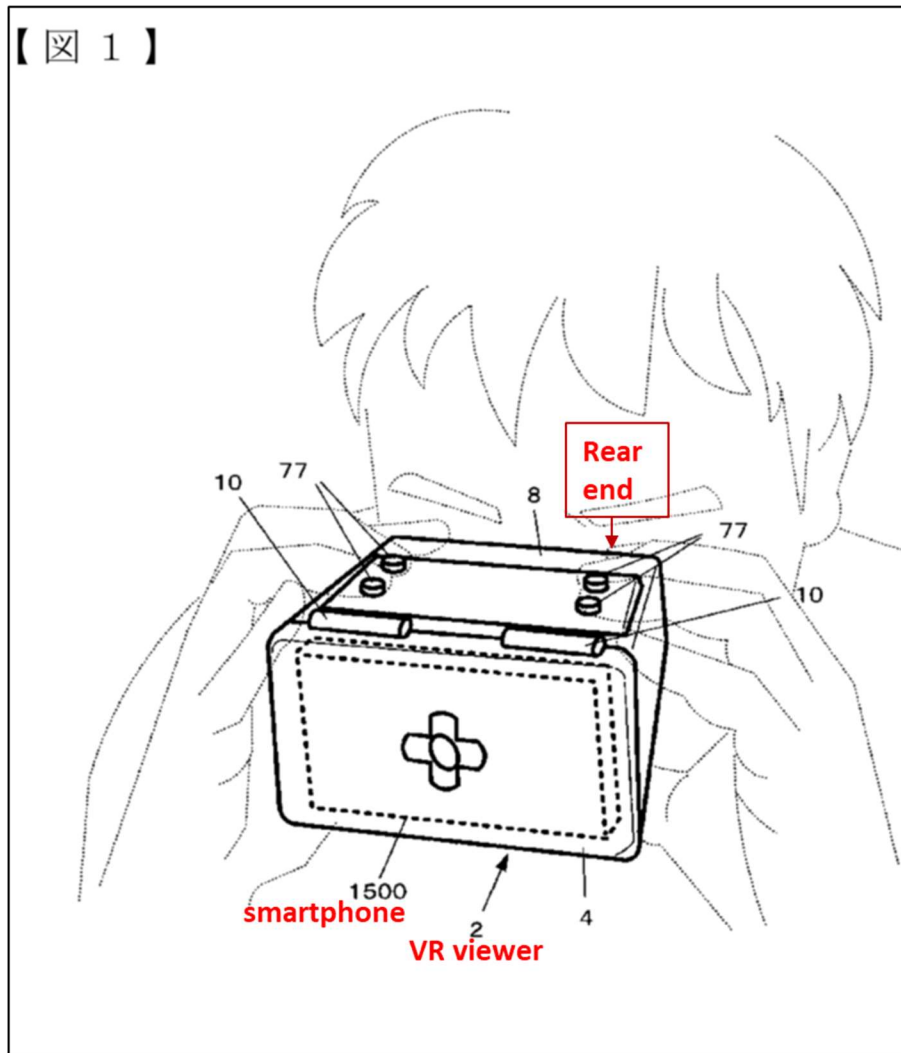
Kondo’s Figure 3 below shows the touchscreen 1506 depicting an artificial environment, a stereoscopic video. EX1003, ¶¶0022, 0027. The touchscreen is a capacitive touchscreen. EX1003, cls. 1, 4; ¶¶0005, 0009, 0023, 0024.



EX1003, Fig. 3; *see also* ¶¶0021-0024; *see* EX1002, §VIII(A)(1).

2. 1(b): a housing having a portion configured to receive a mobile electronic device having a touchscreen display, the housing further including two lenses;

See the analysis of claim 1(a) for a description of Kondo's viewer. Kondo's Figure 1 below shows a housing (the VR viewer's housing) configured to receive a smartphone 1500, and a user viewing the smartphone through two lenses on a side known as the "rear end." Figure 4(2) below shows a left and right lens on the rear end for viewing the left and right region of the touchscreen, which is on the opposite side.



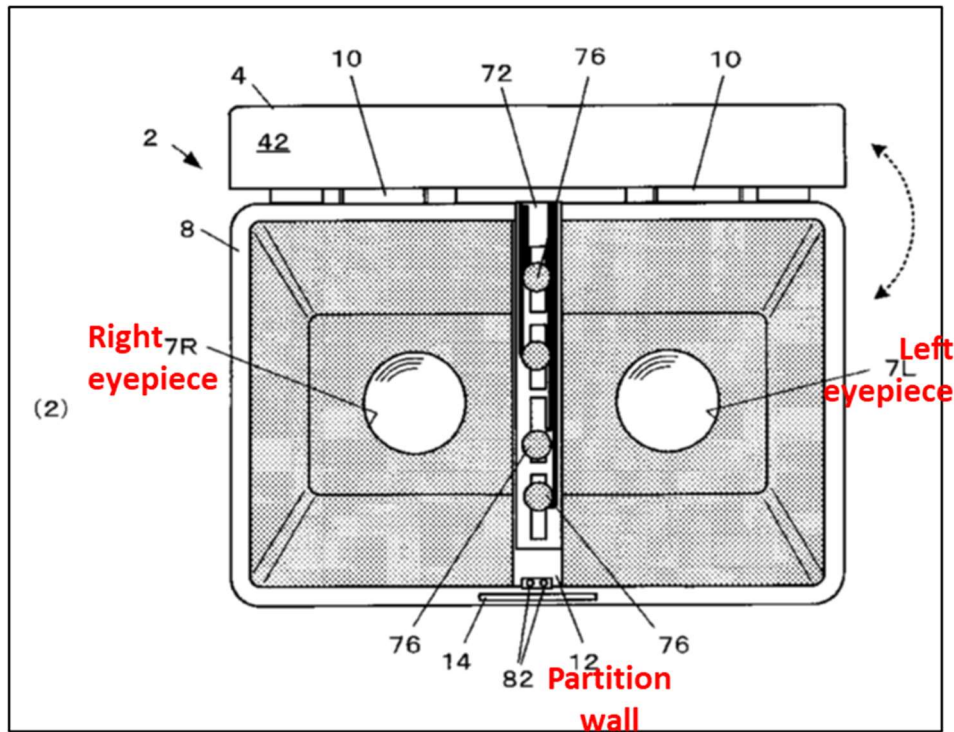
EX1003, Fig. 1 (annotations added).

Kondo explains that the left and right eyepieces are on one side of the VR viewer and the smartphone is on the other side.

FIG. 1 is a perspective view of an attachment according to Embodiment 1, viewed obliquely from the front and above. The attachment 2 is a structural body having two substantially cylindrical bodies integrated on the left and right sides, provided with a holding part 4 that can open and close on the front end thereof, and *left and right eyepieces 7* (see

FIG. 6) on the rear end thereof. The user mounts the touch panel of the smartphone 1500 to the inside of the holding part 4 facing the eyepieces 7, then closes the holding part. *Since left and right eye images are displayed on the touch panel of the smartphone 1500 for three-dimensional stereoscopic vision, the user can enjoy a three-dimensional stereoscopic image by abutting the eyepieces 7 to the eyes and holding the attachment 2 as if using binoculars.* EX1003, ¶0022 (emphasis added).

Figure 4(2) below shows the eyepieces spaced out horizontally and facing the same direction.



EX1003, Fig. 4(2) (annotations added).

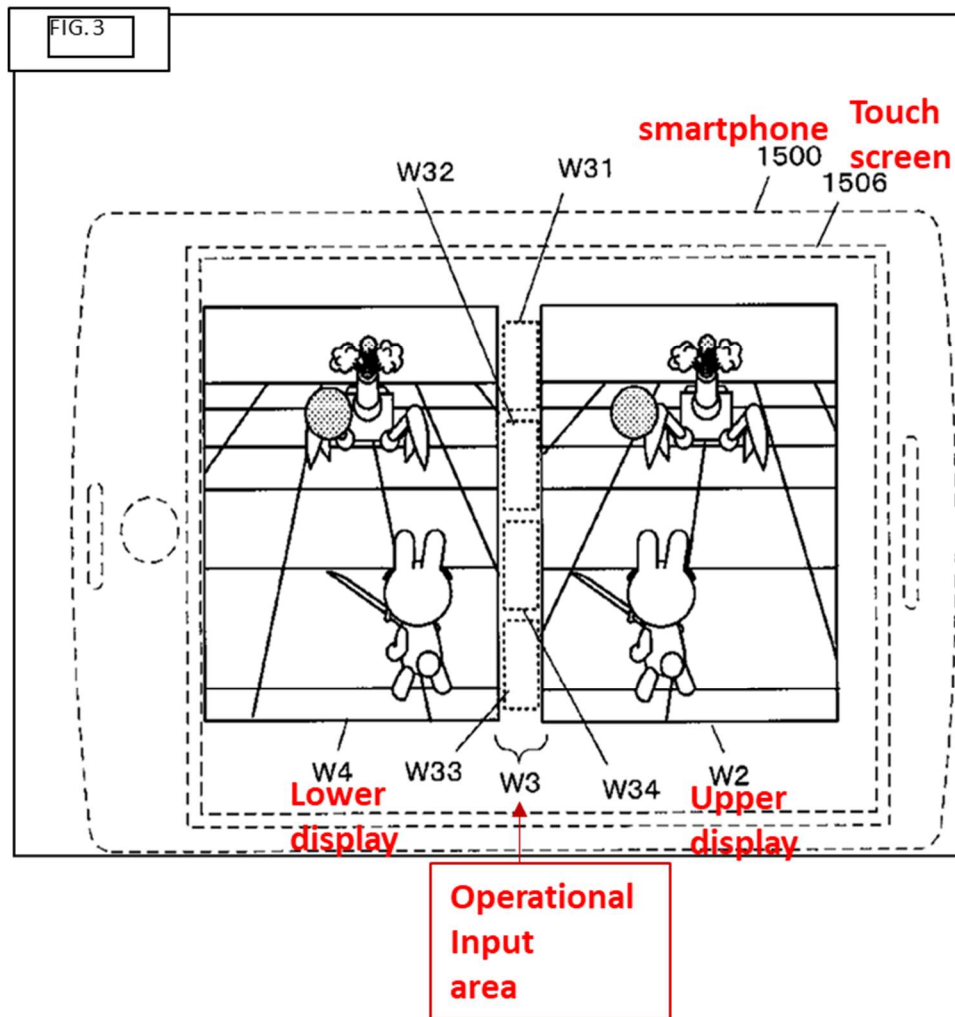
Kondo explains that 7R is the right eyepiece and 7L is the left eyepiece. *Id.* A POSA would recognize these eyepieces are the claimed lenses. See EX1002, §VIII(A)(2). This is also bolstered by the shadings on the upper left portion of the eyepieces 7R and 7L on Figure 4(2) indicating a curved glass-like lens. Kondo's eyepieces are the same as the '000 patent's lenses because they perform the same function. The '000 patent explains that "[t]hese viewers also typically include one or more optical lenses within the housing so as to facilitate a three-dimensional viewing experience despite the two-dimensional display of the smartphone." EX1001, 1:64-66. Kondo's eyepieces serve the same purpose: "By looking into the inside of the attachment 2 with the eyepieces placed on both eyes as if using binoculars, the user can enjoy a three-dimensional stereoscopic image." EX1003, pg. 2.

Figure 4(2) also shows a partition wall 12, separating the interior to a left and right region. Thus, eyepiece 7R views a right region of the interior and eyepiece 7L views a left region of the interior.

A partition wall 12 is provided in the center side-to-side of the attachment main body 8, separating into a tubular part communicating with the right eyepiece 7R and a tubular part communicating with the left eyepiece 7L. The smartphone 1500 is supported and secured to the holding part 4 such that when the holding part 4 is closed, the operation input area W3 is positioned facing the

front end part of the partition wall 12. EX1003, ¶0037 (emphasis added).

Figure 3 shows that, when mounted, the user will see on the touchscreen 1506 region W2 as the right side, region W4 as the left side, and region W3 is used for input.

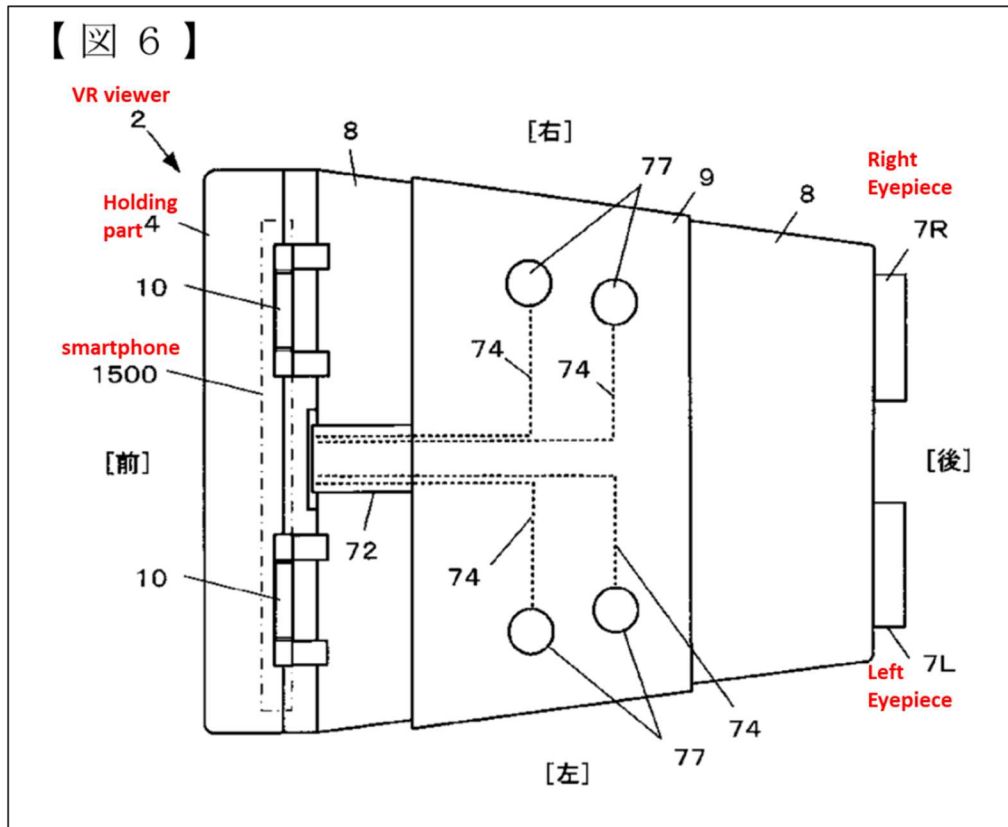


EX1003, Fig. 3 (annotations added).

Kondo explains that the smartphone is mounted in the VR viewer sideways using holding part 4.

FIG. 3 is a diagram illustrating an example of a display screen of a three-dimensional stereoscopic video. *The smartphone 1500 is mounted to the holding part 4 with the smartphone 1500 turned sideways.* An upper display area W2 and lower display area W4 are set on the screen of the touch panel 1506, and an operation input area W3 is further set between these display areas. *The upper display area W2 and lower display area W4 are on the right and left sides of the attachment 2 when the smartphone 1500 is mounted to the attachment 2. Therefore, the control board 1550 of the smartphone 1500 provides control so as to display a right eye image on the former, and a left eye image on the latter.* EX1003, ¶0027 (emphasis added).

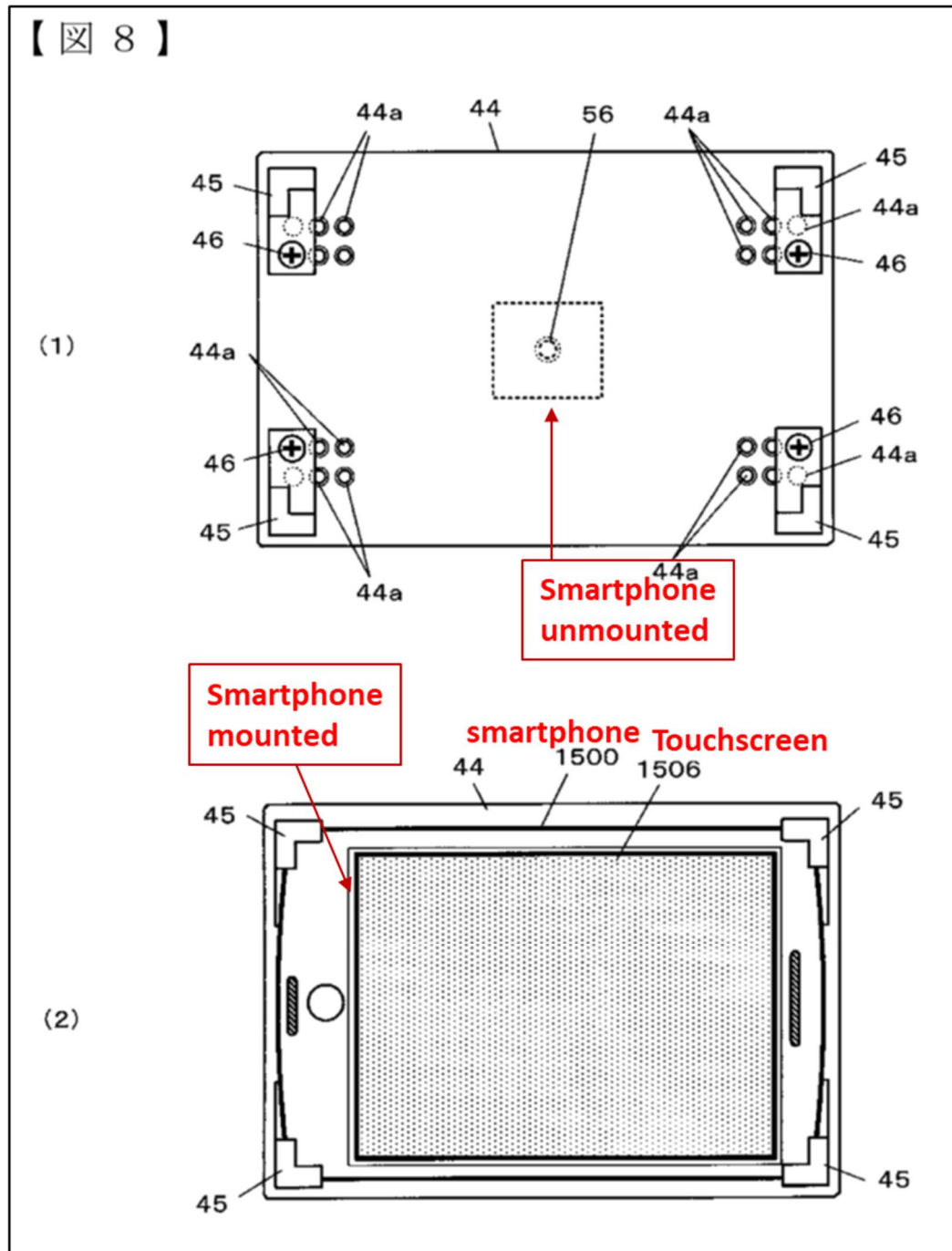
Figure 6 below is a top view of VR viewer 2 and also shows the right eyepiece and the left eyepiece.



EX1003, Fig. 6 (annotations added).

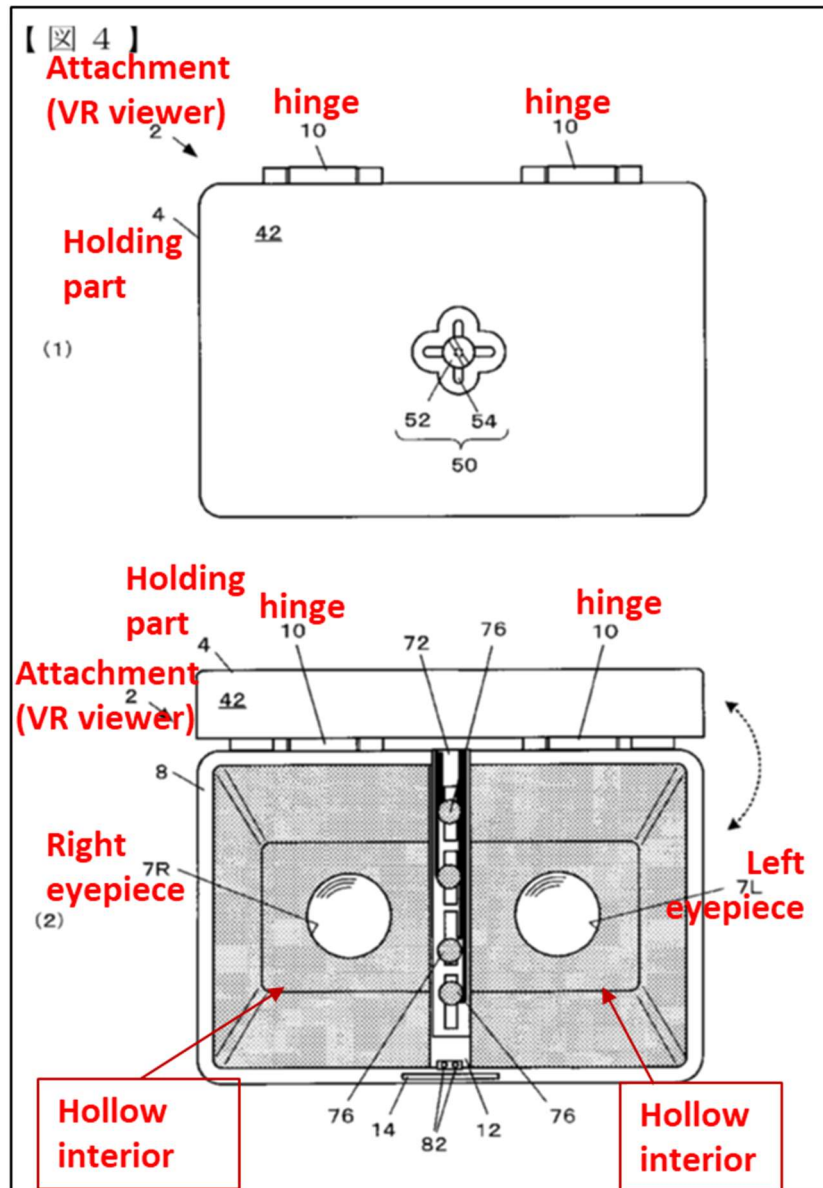
Kondo Figure 7 below shows how the holding part 4 receives the smartphone. It uses a pair of magnets 14 embedded in the mating surfaces of the lower end of the holding part 4 and the lower end of the VR viewer's main body 8, and when the holding part 4 is closed, the magnets attract each other to keep the holding part 4 closed. Kondo Figure 7 below also shows the left eyepiece. Only the left eyepiece is shown because this figure is a side view. Additionally, this figure shows that the smartphone is directly in the user's field of view when looking through the rear end. EX1003, ¶0030, Fig. 7; *see also* ¶¶0022.

In Figure 8 below, Kondo shows both when the mobile phone is mounted and when it is not. When it is mounted, the mobile phone is centered in a horizontal direction.



EX1003, Fig. 8; see also ¶¶0033, 0034.

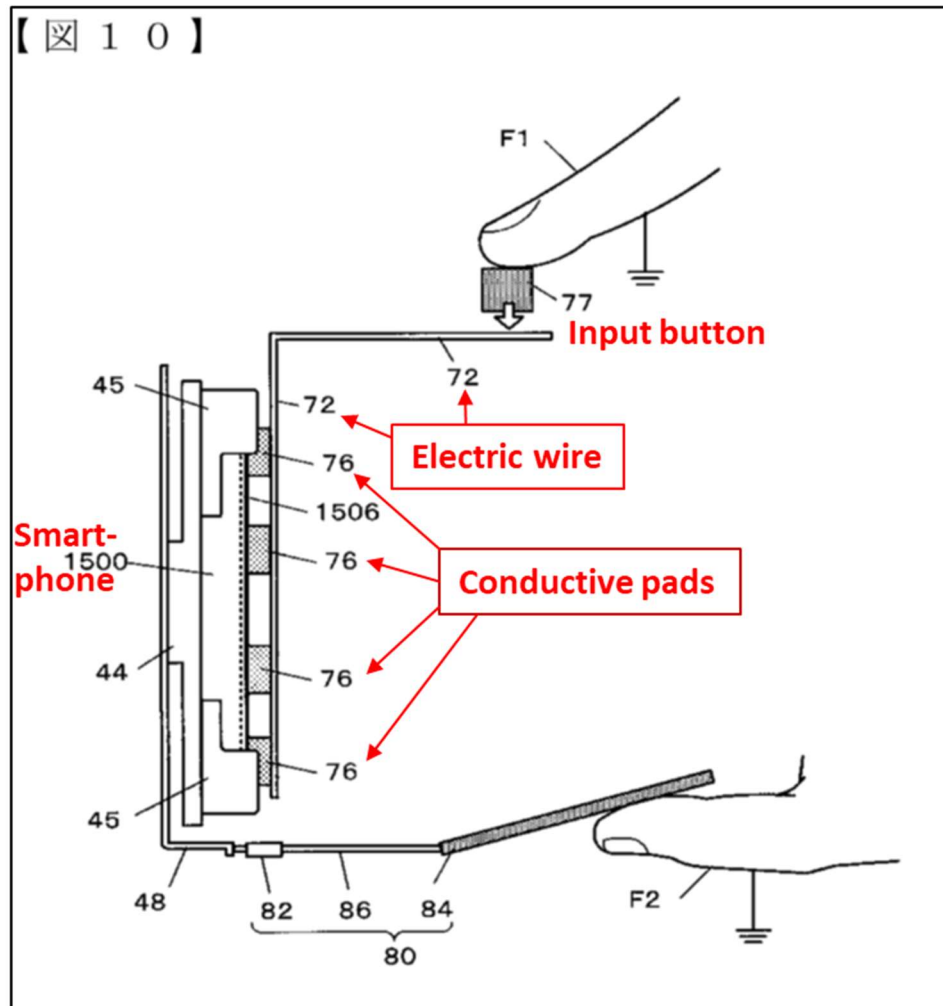
As illustrated in Kondo Figure 4 below (as well as Figures 5-7), the VR viewer 2 has a hinge 10 on the upper front end of a hollow attachment main body 8, and the hinge supports the holding part 4 so as to swing freely. The holding part 4 is opened to mount and dismount the smartphone 1500 to the VR viewer 2, and the holding part 4 is closed for use as a stereoscope. Figure 4 also shows that the smartphone is held in a centered, horizontal position, and is directly in the user's field of view. EX1003, ¶¶0030; *see also* ¶¶0022.



EX1003, Fig. 4 (annotations added); see EX1002, §VIII(A)(2).

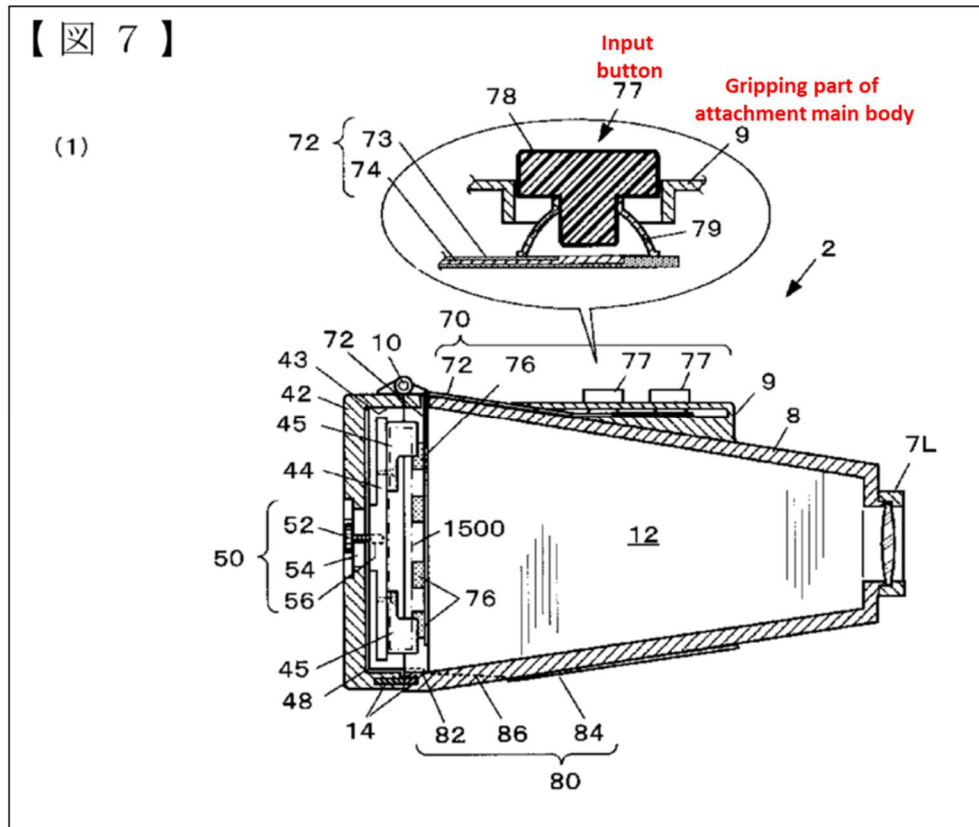
3. 1(c): an input device accessible from an exterior of the housing; and

Kondo discloses an input device on the exterior of the housing (button 77):



EX1003, Fig. 10 (annotations added).

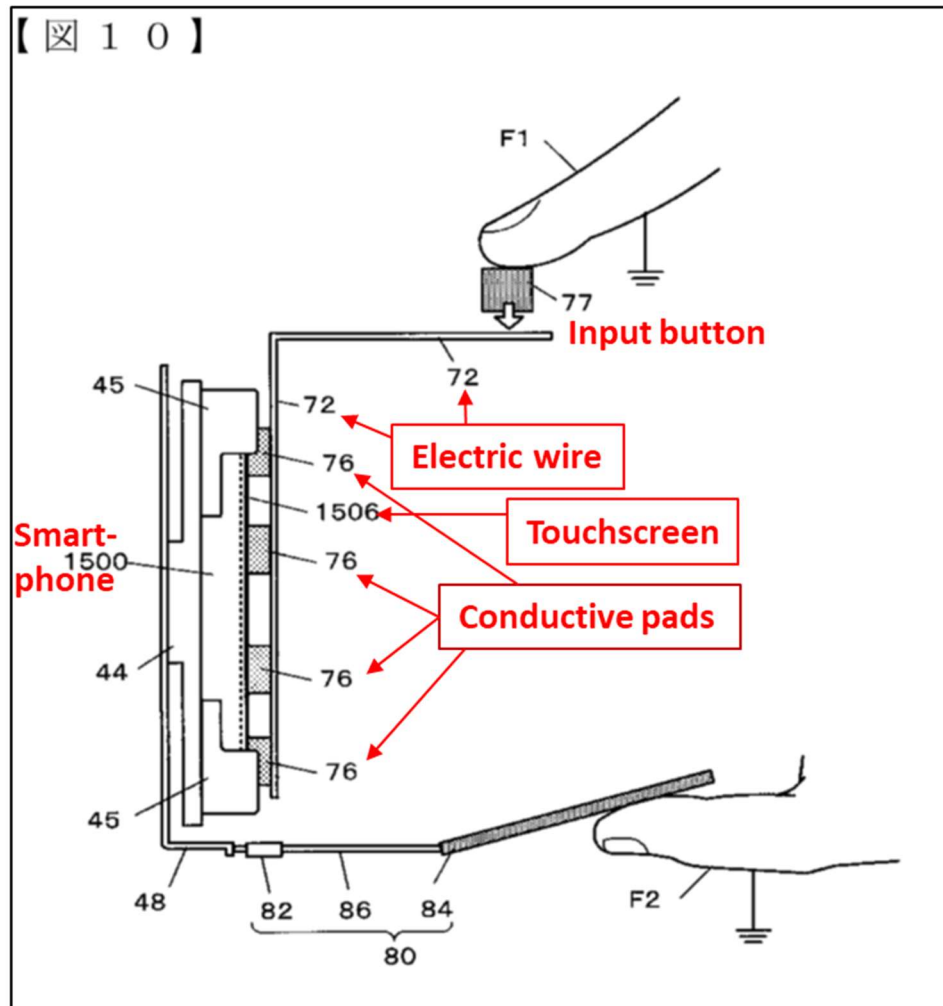
In Figure 10 above, Kondo shows the user depressing input button 77, which then provides input to mobile phone 1500 via electric wire 72 and conductive pads 76. Figure 7 below shows that button 77 is accessible from the exterior of the housing through a cut out in the main body of the attachment, called the gripping part 9:



EX1003, Fig. 7 (annotations added); *see also*, ¶¶0042, 0043, 0047, 0048, 0049, 0052; *see* EX1002, §VIII(A)(3).

- 4. 1(d): a contact element located within an interior of the housing, the contact element coupled to the input device and configured to generate a detectable touch event at the touchscreen display of the mobile electronic device.**

See the analysis for claim 1(c) for a description of Kondo's viewer and input device. Kondo discloses an input mechanism 77 on the exterior of the housing (button 77):



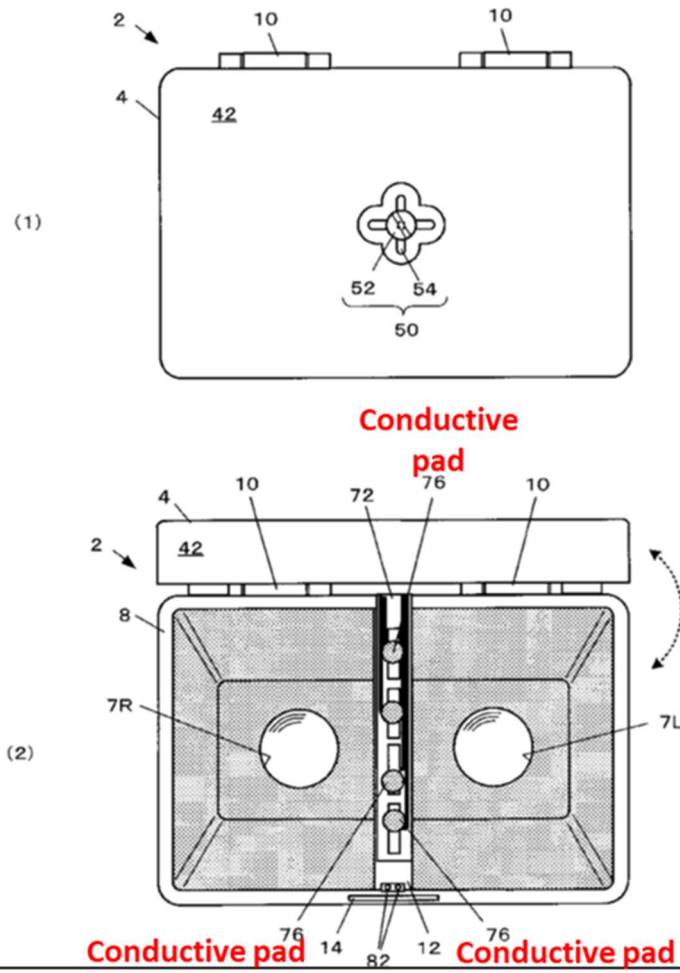
EX1003, Fig. 10 (annotations added); *see also* ¶¶0042, 0043, 0047, 0048, 0049, 0052.

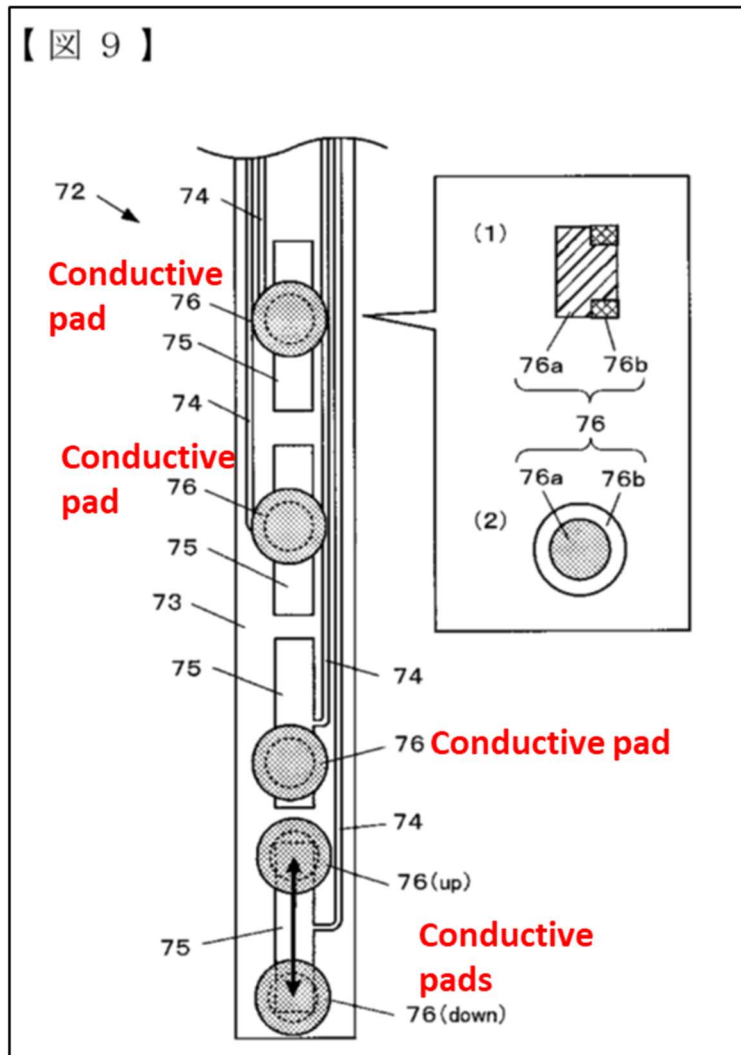
In Figure 10 above, Kondo discloses the user depressing input button 77, which then provides input to the touchscreen 1506 of the smartphone 1500 via electric wire 72 and conductive pads 76. The conductive pads 76 constitute the claimed “contact element.” As shown, the conductive pads 76 are in the interior of the housing, coupled to the input device (button 77) via electric wire 72, and in

physical contact with the touchscreen of the smartphone 1500 when the smartphone is mounted or received.

Kondo discloses that the conductive pads 76 are activated by pushing button 77 on the exterior of the housing and discloses that they physically contact the central region of the smartphone's touchscreen. Figure 4 below shows that the conductive pads 76 contact the central region of the smartphone 1500, and Figure 9 below shows the conductive pads in more detail.

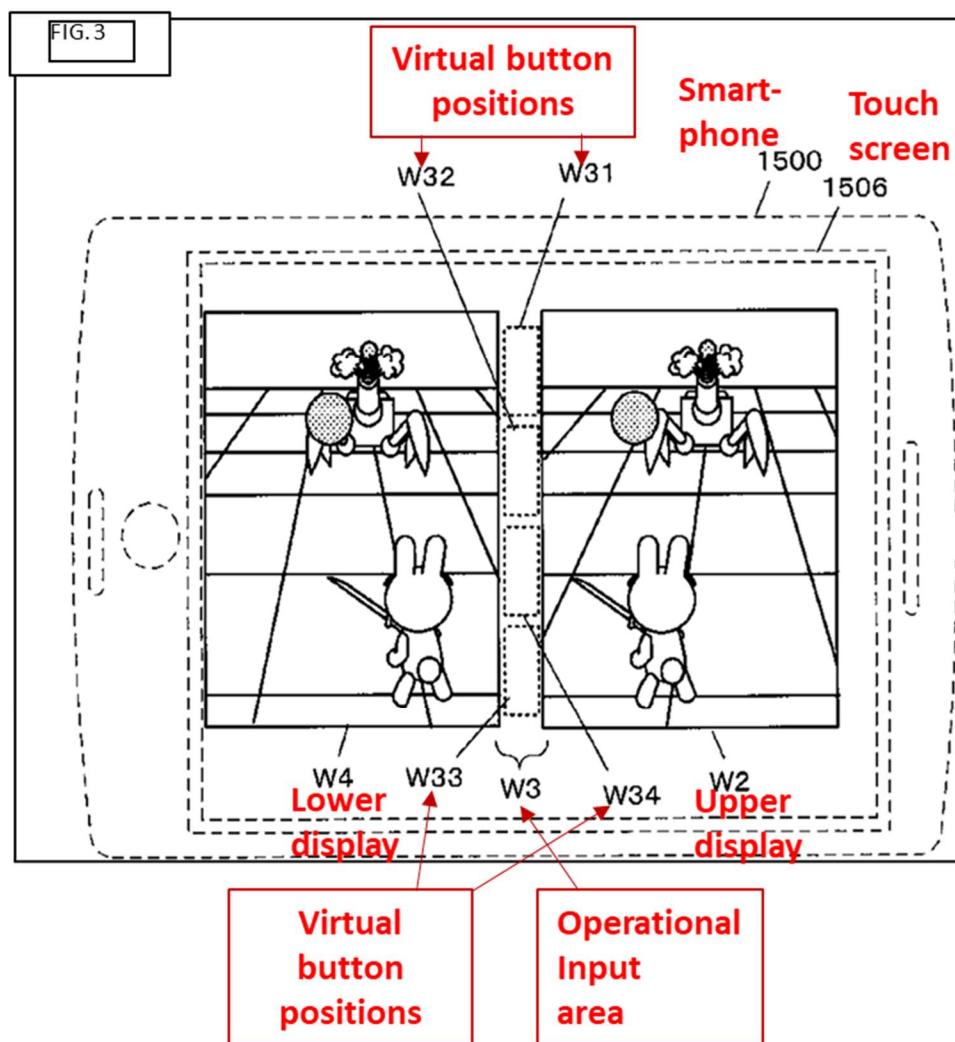
【 図 4 】





EX1003, Figs. 4, 9 (annotations added).

Kondo's Figure 3 below shows operational input area W3 centered on the touchscreen that the conductive pads physically contact:



EX1003, Fig. 3 (annotations added); *see also* ¶¶0027-0028.

Kondo explains that when holding part 4 is closed (shown in Figures 5-7, see claim 1(c)), the conductive pads 76 (shown in Figures 4 and 9 above) make physical contact (as shown in Figure 3 above; see also Figure 10 above) with the operational input area W3 and, specifically, virtual button positions W31-W34, which are at the center of the touchscreen 1506. The following quote also shows that the conductive pad is made of conductive material because it has a conductive

core. A POSA would understand that labeling the “conductive” pad so means that it is made of conductive material. See EX1002, §VIII(A)(4). Moreover, the input device would not work if the conductive pads did not conduct electricity.

The blown-up portion of FIG. 9 is a diagram illustrating a (1) vertical cross-sectional view and (2) bottom view (attachment surface side) of the conductive pad 76. *When the holding part 4 is closed, the conductive pad 76 comes into contact with the virtual button positions W31 to W34 set on the touch panel 1506 of the smartphone 1500 held by the holding part 4.* The conductive pad 76 of the present Embodiment is a disk-shaped pad, and *includes a conductive core section 76a* exposed on both end surfaces and adhesive section 76b provided on the outer periphery of the end portion of the side in contact with the widened section 75. EX1003, ¶0041 (emphasis added); *see also* ¶0047.

The conductive pad conducts electricity to generate a detectable touch event on the touchscreen.

When the user presses the button part 77 with a finger F1, *the touch panel 1506 is electrical conductively connected to the finger of the user through the conductive pad 75 [sic 76], electrical wire part 72, and button part 77. That is to say, that substantially, the impedance (capacitor or the like capacitance) of the finger (human body) of the user is electrically connected to the touch panel 1506.* Therefore, the touch panel 1506 can detect a current value corresponding to this impedance and *recognize that a touch operation has been performed*

at the virtual button positions W31 to W34. EX1003, ¶0048 (emphasis added); *see also* cl. 1, ¶¶0005, 0009; *see* EX1002, §VIII(A)(4).

B. Claim 2: The apparatus of claim 1, wherein the contact element is configured to generate the detectable touch event at the touchscreen display while the mobile electronic device is located within the interior of the housing.

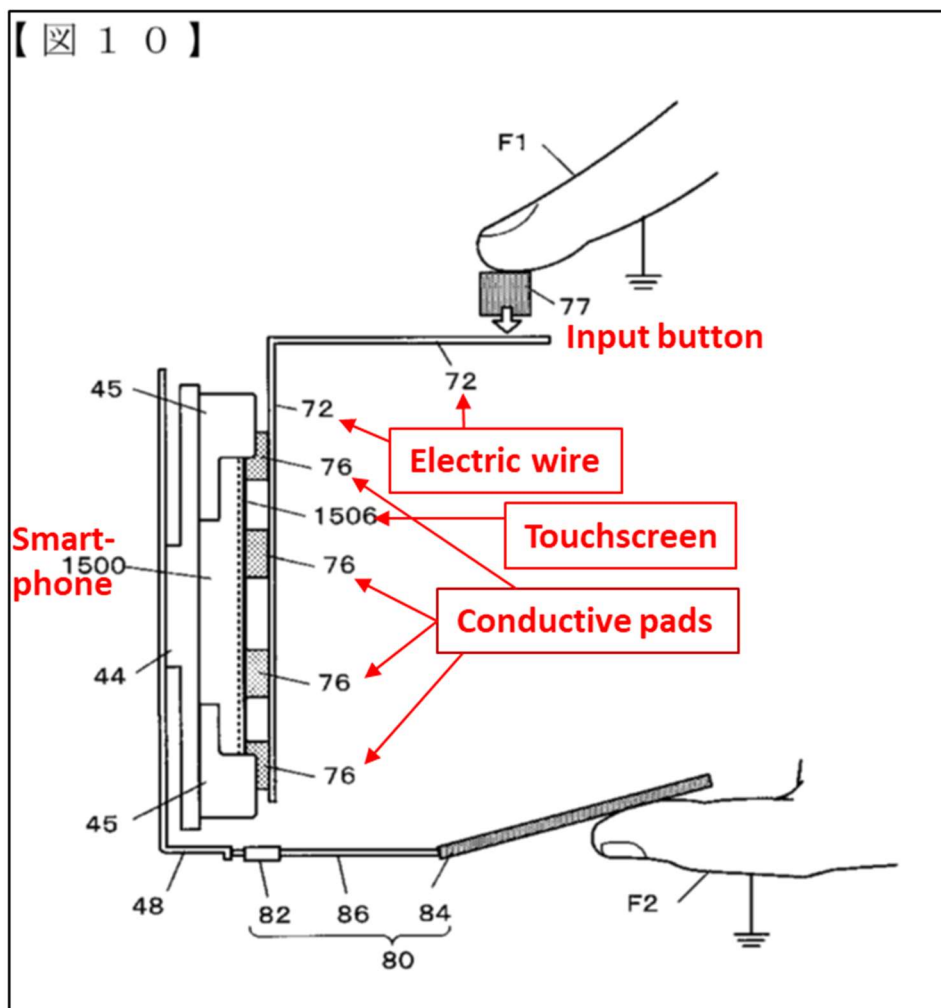
See the analysis of claim 1(d) for an explanation of how Kondo generates a touch event. Kondo discloses that the smartphone 1500 is within the interior of the housing (attachment 2) when a touch event is generated. See EX1003, Figs. 1, 3, 4-10; *see* EX1002, §VIII(B).

C. Claim 3: The apparatus of claim 1, wherein the input device comprises a tactile user input device.

Please see the analysis of claim 1 for a description of Kondo’s input device.

The ’000 patent mentions tactile user inputs as follows: “the disclosed systems and methods facilitate receiving tactile user inputs (e.g., user touches, button depressions, etc.) on the exterior of the housing....” EX1001, 3:33-38. The term “tactile user inputs” therefore includes buttons, and Kondo discloses buttons on the exterior for the user.

Kondo’s Figure 10 shows the user depressing button 77 to cause a touch event.

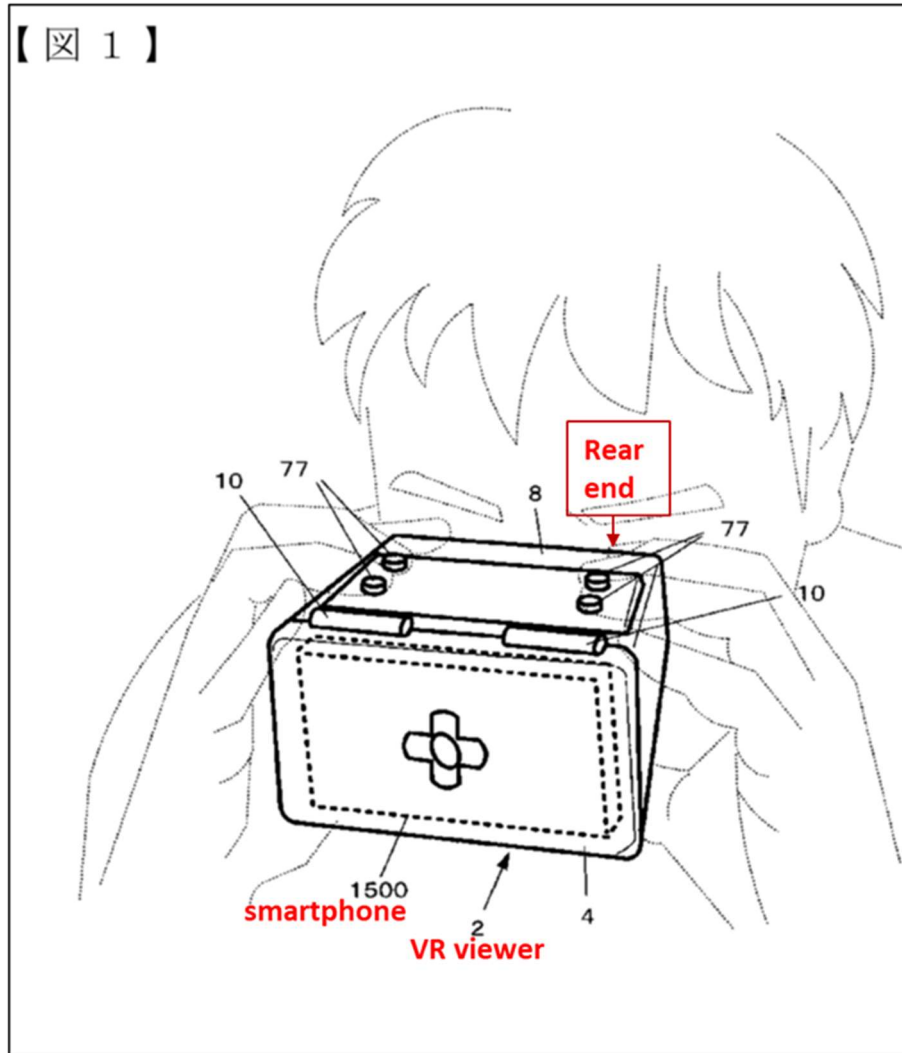


EX1003, Fig. 10 (annotations added); *see also* Figs. 1, 5-7, ¶¶0042, 0043, 0047, 0048, 0049, 0052; *see* EX1002, §VIII(C).

D. Claim 4: The apparatus of claim 1, wherein the housing has a top surface, a bottom surface, a front surface, a back surface, and two side surfaces.

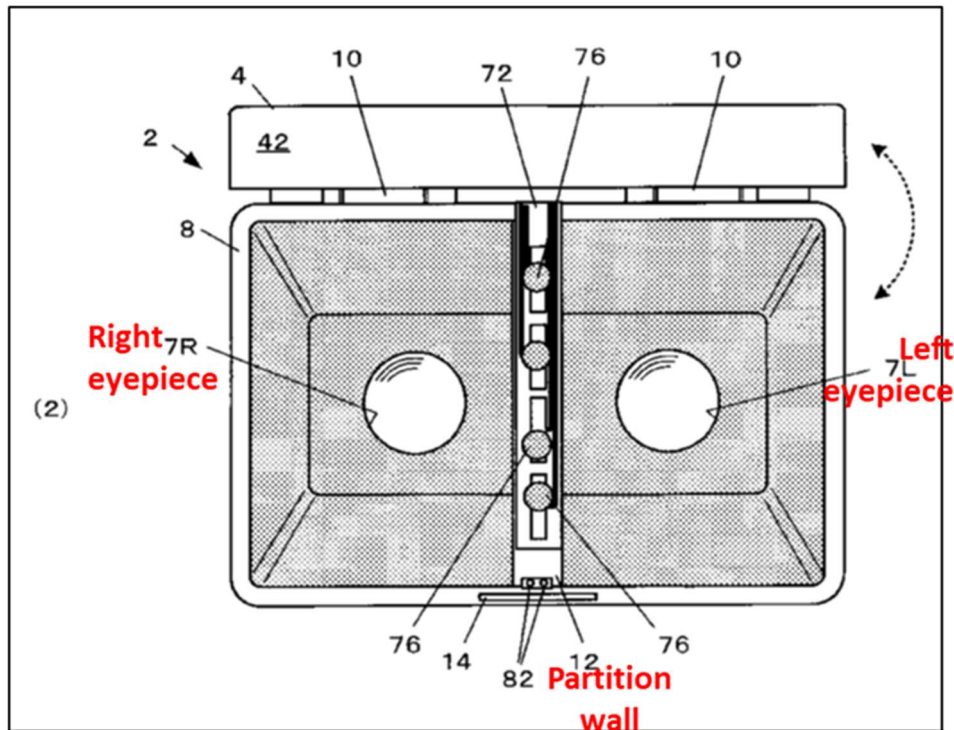
See the analysis of claim 1 for a description of Kondo's viewer.

Kondo's Figure 1 shows the VR viewer with all the claimed surfaces. The “rear end” is the claimed back surface and has two lenses for viewing the smartphone 1500.



EX1003, Fig. 1 (annotations added); *see also* ¶0022.

Figure 4(2) below shows the VR viewer with all claimed sides as well as the claimed lenses on the rear end.



EX1003, Fig. 4(2) (annotations added); *see also* Figs. 5-11, ¶0037; *see* EX1002, §VIII(D).

E. Claim 5: The apparatus of claim 4, wherein the back surface supports the two lenses.

See the analysis of claims 1 and 4 for a description of Kondo's viewer and lenses. *See* EX1002, §VIII(E).

F. Claim 6: The apparatus of claim 4, wherein the apparatus is configured to receive one or more user interactions during use of the apparatus.

Please *see* the analysis of claims 1 and 4 for a description of the user depressing Kondo's button 77 to cause a touch event. *See* EX1002, §VIII(F).

G. Claim 8: The apparatus of claim 4, wherein the input device is located at an exterior of the housing.

See the analysis of claims 1 and 4 for a description of Kondo's button 77 being located on the exterior of the VR viewer. See EX1002, §VIII(G).

H. Claim 9: The apparatus of claim 4, wherein the input device is user accessible for interaction therewith.

See the analysis of claims 1, 4, and 6 for a description of how Kondo's input device is user accessible for interaction. See EX1002, §VIII(H).

I. Claim 10: The apparatus of claim 4, wherein the input device is configured to detect a user action.

See the analysis of claims 1, 4, and 6 for a description of Kondo's input device and its configuration to detect a user action. See EX1003, ¶¶0043, 0047, 0048; see EX1002, §VIII(I).

J. Claim 11: The apparatus of claim 4, wherein the input device is configured to relay a signal based on a user action to the mobile electronic device.

See the analysis of claims 1, 4, 6, and 10 for a description of Kondo's input device and how it operates to cause a touch event. See EX1003, ¶¶0043, 0047, 0048; see EX1002, §VIII(J).

K. Claim 12: The apparatus of claim 4, wherein the input device is configured to sense a user interaction and transmit a signal based on the sensed user interaction to the touchscreen display via the touch screen input device and via a conductive lead that couples the input device and the touchscreen display.

See the analysis of claims 1, 4, 6, 10, and 11 for how Kondo's input device operates and generates a touch event. The claimed conductive lead is the electrical wire 72. See EX1003, Figs. 4-7, 10; ¶¶0043, 0047, 0048; see EX1002, §VIII(K).

L. Claim 13: The apparatus of claim 4, wherein the input device includes a conductive material.

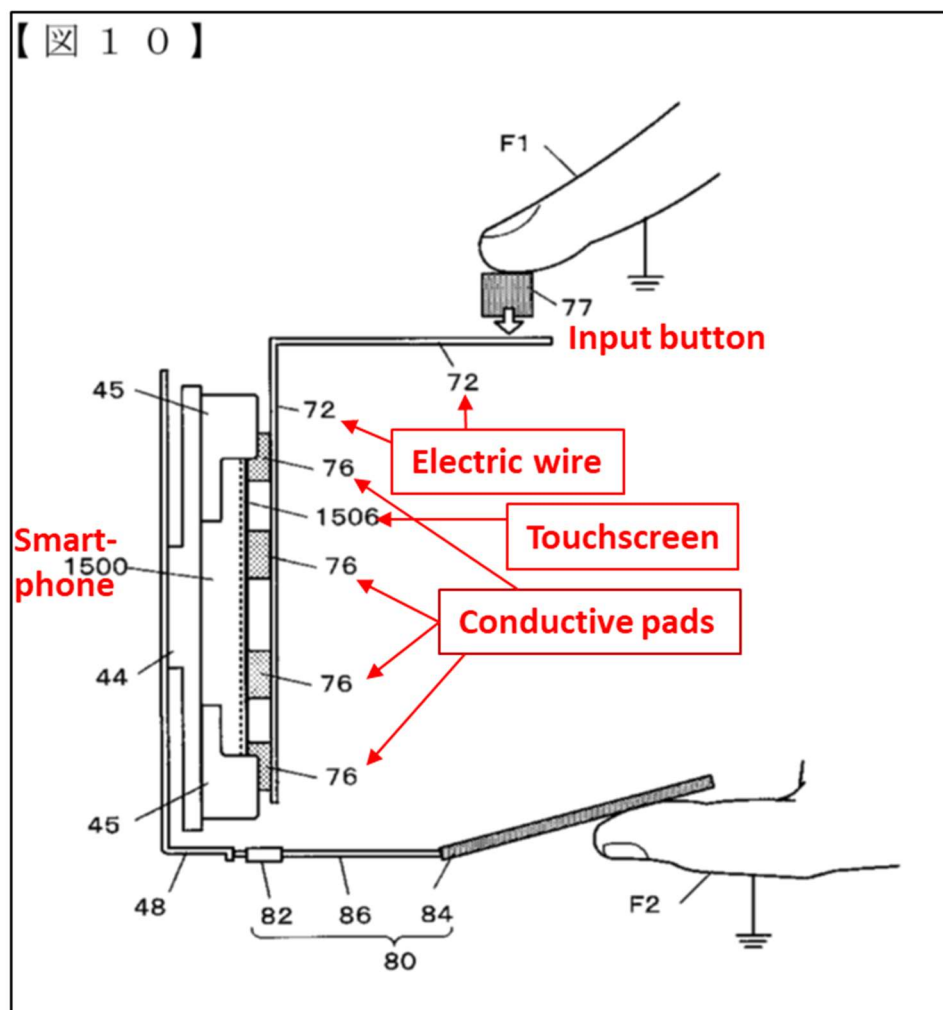
See the analysis of claims 1 and 4 for a description of Kondo's input device. See EX1003, ¶0043 ("The button part 77 includes a button body 78 made of a conductive material..."); see EX1002, §VIII(L).

M. Claim 14: The apparatus of claim 4, wherein a contact element configured to contact the touchscreen display includes a conductive material.

Please see the analysis of claim 1 for a discussion of the claimed "contact element" which is Kondo's conductive pads 76 and how these conductive pads contain a conductive core. See EX1003, Figs. 3, 4, 9, 10; ¶¶0041-0052; see EX1002, §VIII(M).

N. Claim 15: The apparatus of claim 4, wherein a conductive lead extends through at least a portion of the housing.

See the analysis of claims 1, 4, 6, 10, and 11 for a description of Kondo's viewer and how its input device operates. The claimed conductive lead is the electrical wire 72, which extends through the VR viewer, as can be seen in Kondo's Figure 10.



EX1003, Fig. 10 (annotations added); *see also* Figs. 4-7; ¶¶0042, 0043, 0047, 0048, 0049, 0052; *see* EX1002, §VIII(N).

O. Claim 16: The apparatus of claim 1, wherein the contact element is coupled via a conductive lead to the input device.

See the analysis of claims 1, 4, 6, 10, 11, and 15 for a description of Kondo's viewer and input device. The claimed contact element are the conductive pads 76, the conductive lead is electric wire 72, and the input device is input button 77. See EX1002, §VIII(O).

P. Claim 17: The apparatus of claim 1, wherein the input device comprises a passive input device.

See the analysis of claims 1 and 15 for a description of how a user depressing button 77 causes a touch event to occur on the touchscreen through an electrical connection with the user's finger. The '000 patent refers to its electrical embodiment as "passive." See EX1001, 5:16-6:41. So, a POSA would understand the term "passive input device" to refer to an input device that electrically connects the externally available input mechanism to the touchscreen and can generate a touch event without internal movement of the input mechanism. That is how Kondo's input device works. See EX1003, Figs. 4-7, 10; ¶¶0042, 0043, 0047, 0048, 0049, 0052; see EX1002, §VIII(P).

- Q. Claim 18: The apparatus of claim 1, wherein the input device is configured to receive a user input at the exterior of the housing and provide the received user input, via the contact element, to the touchscreen display.**

Please see the analysis of claims 1, 3, 8-12, 15, and 16 for a description of the location of Kondo's input device and how it operates to cause a touch event.

See EX1002, §VIII(Q).

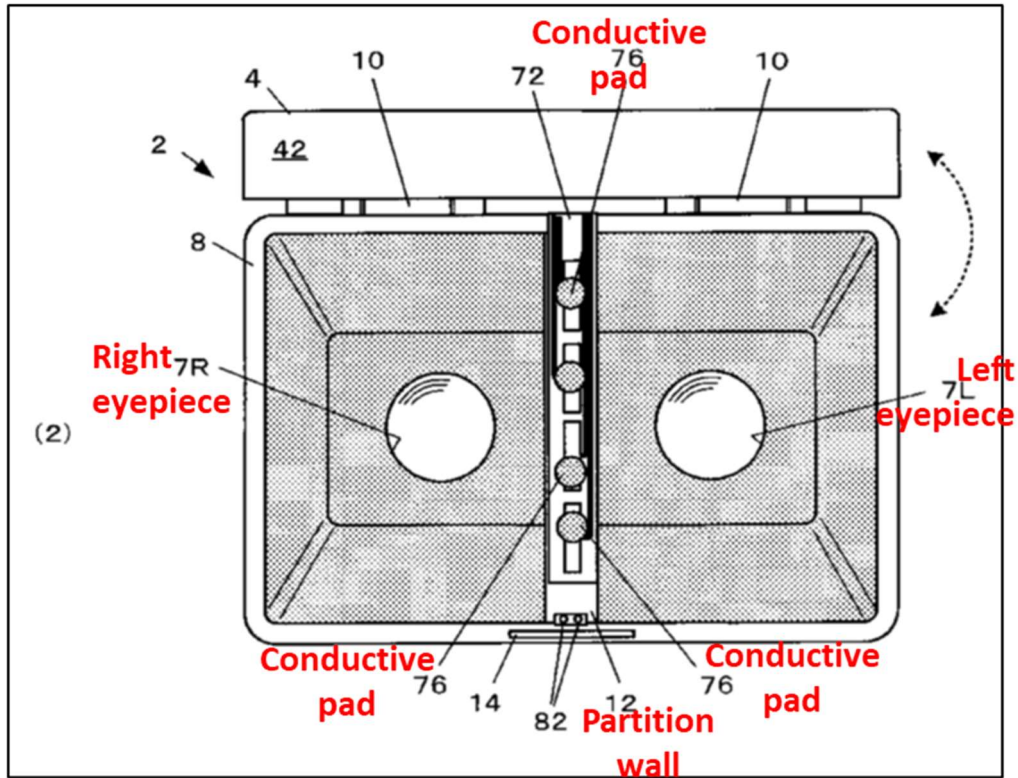
- R. Claim 19: The apparatus of claim 18, wherein the touch event, based on the user input, is provided to the touchscreen display at a position located within a central portion of the touchscreen display.**

Please see the analysis of claim 1 for an explanation of how Kondo's conductive pads 76 contact virtual button positions W31-W34, which are in the center of the touchscreen. EX1003, Figs. 3, 4, 9; ¶¶0041, 0047, 0048; see EX1002, §VIII(R).

- S. Claim 20: The apparatus of claim 19, wherein the central portion of the touchscreen display is not viewable, via the two lenses, by either eye of a user.**

See the analysis for claims 1 and 19 for a description of Kondo's viewer and input device. Kondo shows a partition wall 12 in Figure 4(2) with conductive pads

76:

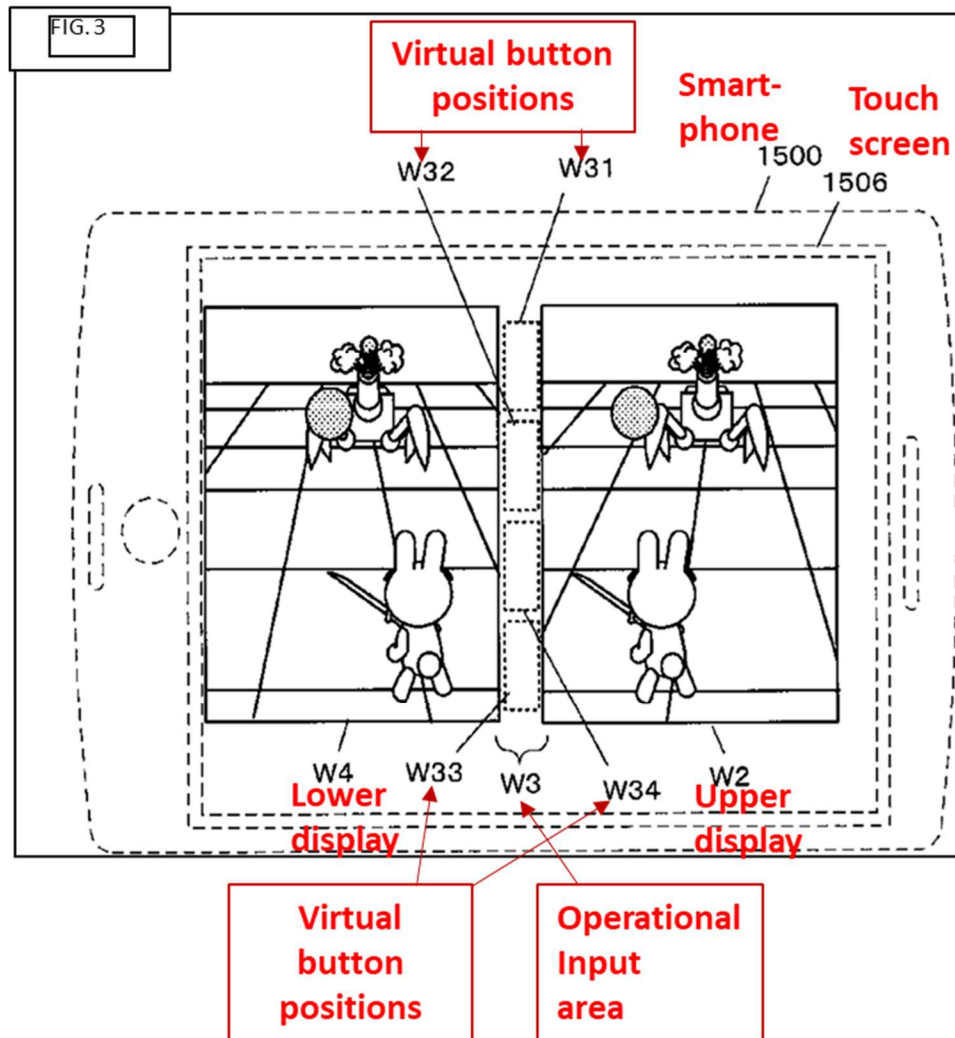


EX1003, Fig. 4(2) (annotations added).

Kondo explains that the partition wall 12 creates two tubular parts, one communicating with the right eyepiece and one communicating with the left:

A partition wall 12 is provided in the center side-to-side of the attachment main body 8, separating into a tubular part communicating with the right eyepiece 7R and a tubular part communicating with the left eyepiece 7L. The smartphone 1500 is supported and secured to the holding part 4 such that when the holding part 4 is closed, the operation input area W3 is positioned facing the front end part of the partition wall 12. EX1003, ¶0037 (emphasis added).

A POSA would recognize that the partition wall 12 blocks the view of the center of the touchscreen, known as the operational input area, shown below in Figure 3. Kondo's Figure 3 shows that the conductive pads 76 align against the virtual button positions W31-W34 to operate the smartphone.



EX1003, Fig. 3 (annotations added); *see also* ¶¶0047-0048; *see* EX1002, §VIII(S).

- T. Claim 21: The apparatus of claim 19, wherein the contact element is configured to provide inputs to the mobile electronic device in a manner that does not disturb the field of view of the left eye or the right eye of a user.**

Please see the analysis for claims 1 and 20 where the claimed contact element (Kondo's conductive pad 76) is on partition wall 12 facing the touchscreen, which then hides the contact element from the user's view. See EX1002, §VIII(T).

- U. Claim 22: The apparatus of claim 1, wherein the contact element comprises a touchscreen input device.**

Please see the analysis of claim 1 and 21 for a description of how the claimed contact element (Kondo's conductive pad 76) contacts the touchscreen and causes a touch event. See EX1002, §VIII(U).

- V. Claim 23: The apparatus of claim 22, wherein the touchscreen input device is electrically coupled to the input device.**

Please see the analysis of claims 1, 17, 19, and 22 for a description of how Kondo's conductive pad 76 (the claimed touchscreen input device) is electrically coupled via electric wire 72 to the input device 77. See EX1002, §VIII(V).

- W. Claim 24: The apparatus of claim 1, wherein the input device is configured to receive user interactions during use of the apparatus.**

See the analysis of claims 1 and 18 for a description of how Kondo's input device operates and receives user interactions. See EX1002, §VIII(W).

- X. Claim 25: The apparatus of claim 24, wherein the input device is configured to sense the user interaction and transmit a signal based on the sensed user interaction to the touchscreen display via the touch screen input device and via a conductive lead that couples the input device and the touchscreen display.**

See the analysis of claims 1, 15, and 16 for a description of how Kondo's input device operates to cause a touch event. The claimed conductive lead is Kondo's electric wire 72. See EX1002, §VIII(X).

- Y. Claim 26: The apparatus of claim 25, wherein the conductive lead runs through at least a portion of the housing.**

See the analysis of claims 1, 4, 6, 10, 11, 15, and 25 for a description of how electric wire 72 (the claimed conductive lead) runs through the housing (Kondo's viewer). See EX1003, Figs. 4-7, 10. See EX1002, §VIII(Y).

- Z. Claim 27: The apparatus of claim 1, wherein at least a portion of the input device is exposed on an exterior surface of the housing.**

See the analysis of claim 1 which shows that Kondo's button 77 is on the exterior of the VR viewer. See EX1002, §VIII(Z).

- AA. Claim 28: The apparatus of claim 1, wherein the input device is positioned at the exterior of the housing.**

See the analysis of claim 1 which shows that Kondo's button 77 is positioned at the exterior of the VR viewer. See EX1002, §VIII(AA).

BB. Claim 29: The apparatus of claim 1, wherein the input device is user accessible such that a user can interact with the input device.

See the analysis of claim 1 which shows that Kondo's button 77 is user accessible. See EX1002, §VIII(BB).

CC. Claim 30: The apparatus of claim 1, wherein the input device is configured to detect a user action.

See the analysis of claim 1 for a description of how Kondo's input device operates and is used by a user. See EX1002, §VIII(CC).

DD. Claim 31: The apparatus of claim 30, wherein the input device is configured to relay a signal based on the user action to the touchscreen display.

See the analysis of claims 1 and 11 for a description of how Kondo's input device operates and causes a touch event. See EX1002, §VIII(DD).

EE. Claim 32: The apparatus of claim 1, wherein the input device comprises a conductive material.

See the analysis of claims 1 and 13 for a description of how Kondo's input device comprises conductive material. See EX1002, §VIII(EF).

FF. Claim 33: The apparatus of claim 1, wherein the contact element comprises a conductive material.

See the analysis of claims 1 and 14 for a description of how Kondo's conductive pads 76 (the claimed contact element) comprises conductive material. See EX1002, §VIII(FF).

XIII. GROUND 2: OBVIOUSNESS OF CLAIMS 1-6 AND 8-33 BY KONDO

As stated above, Kondo discloses every element of the challenged claims. This renders the challenged claims anticipated, but it also renders them obvious because there is no difference between the subject matter of the challenged claims and the prior art.

As shown above, Kondo's eyepieces are the same as the '000 patent's lenses. Not only is the limitation "the housing further including two lenses" anticipated (*see e.g.*, §XII(A)(2)), but it is also rendered obvious based on the '000 patent's own admissions. The '000 patent admits that VR viewers typically have lenses.

These viewers also typically include one or more optical lenses within the housing so as to facilitate a three-dimensional viewing experience despite the two-dimensional display of the smartphone. EX1001, 1:64-67 (emphasis added).

The '000 patent also admits that the configuration, construction, and placement of lenses in VR viewers is well-known:

The configuration, construction and placement of a lens or lenses 70 for use in virtual reality viewers are generally known and understood by those skilled in the art. EX1001, 4:24-27.

These admissions demonstrate that the claimed lenses were well-known and that a POSA would be motivated to use the claimed lenses to facilitate a three-dimensional viewing experience. Kondo states the same motivation. EX1003, pg. 2 (“By looking into the inside of the attachment 2 with the eyepieces placed on both eyes as if using binoculars, the user can enjoy a three-dimensional stereoscopic image.”). These admissions also demonstrate that a POSA would know how to configure, construct, and place those lenses in a VR viewer and thus have a reasonable expectation of success. See EX1002, §IX.

XIV. GROUND 3: OBVIOUSNESS OF CLAIMS 1-6, 8-16, AND 18-33 BY KONDO/CHU

As demonstrated above, Kondo alone anticipates and renders obvious all limitations of the challenged claims. In fact, as shown above, Kondo is virtually identical to the '000 patent. See EX1002, §X, ¶134.

Nevertheless, in this section, as an alternative ground, Petitioner demonstrates how the combination of Kondo/Chu also renders the challenged claims obvious. Chu's input device is incorporated into the Kondo VR viewer, not because of any weaknesses in Kondo, but to show that a POSA looking at Kondo would have multiple ways of considering the challenged claims invalid. Please see the analysis in §XI(C) where the proposed combinations are explained. Please

note that the reference to claim elements (*e.g.*, claim 1(b)) refers to the claim elements in §XII. See EX1002, ¶135.

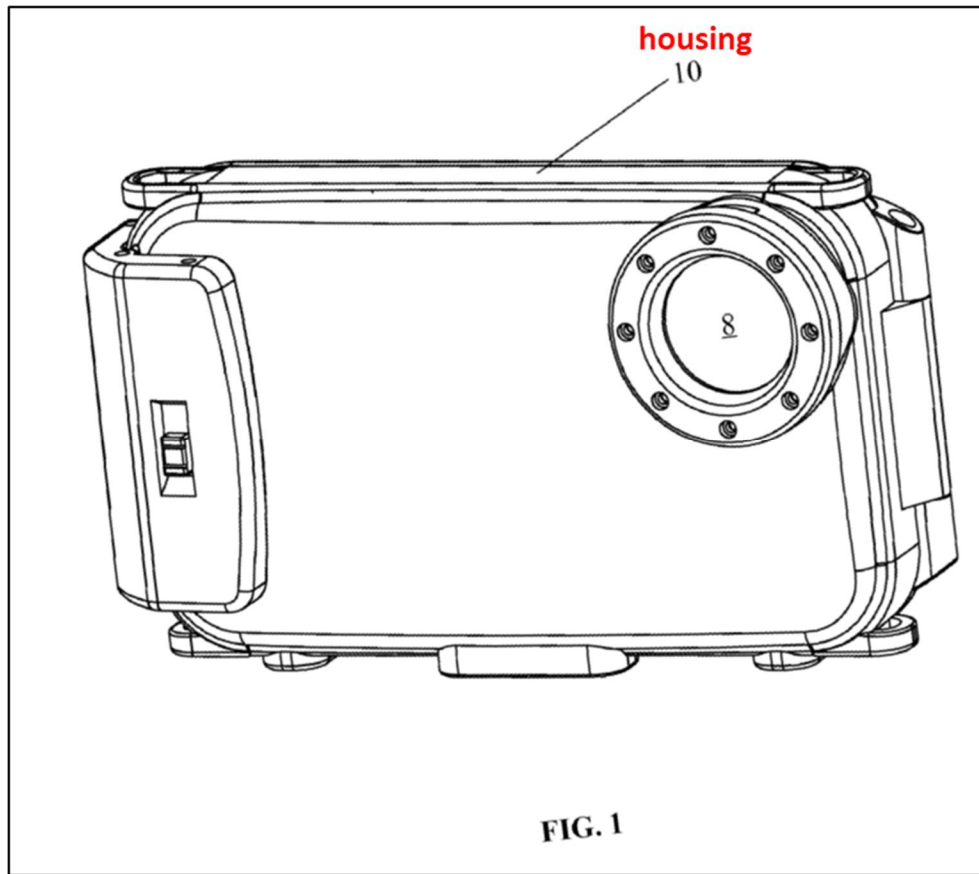
In the below analysis, Petitioner relies on the anticipation analysis of Kondo in §XII. That is, Petitioner relies on Kondo's disclosures in many instances. But, for certain claims and claim elements, Petitioner explains how Chu additionally discloses those limitations, thereby rendering the '000 patent obvious when Kondo is combined with Chu. See EX1002, ¶136.

A. Claim 1:

Please see §§XI(B) and (C) for a description of Chu and how a POSA would combine Kondo and Chu.

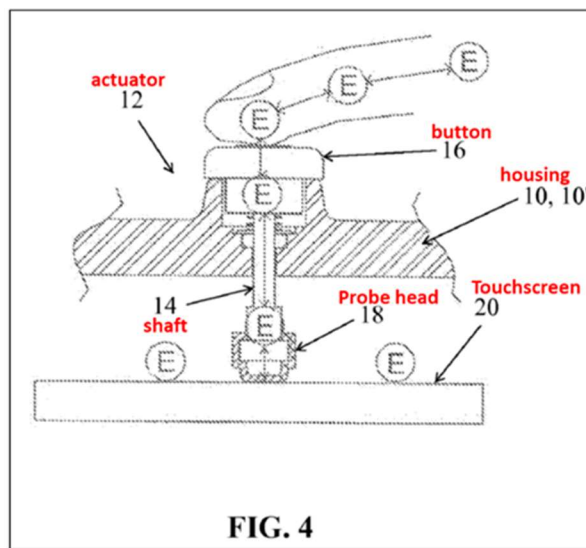
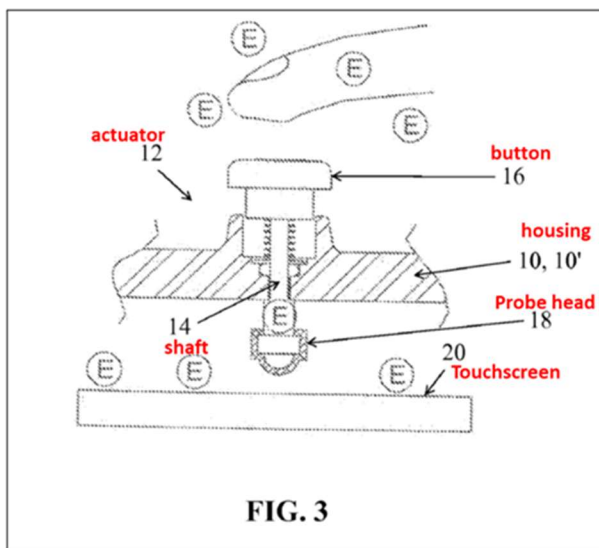
For claim elements 1(a) and 1(b), please see Kondo's disclosures in §§XII(A)(1) and (2). For claim elements 1(c) and (d), Chu also discloses "an input device on the exterior of the housing" and "a contact element located within an interior of the housing, the contact element coupled to the input device and configured to generate a detectable touch event at the touchscreen display of the mobile electronic device."

First, Chu discloses a housing that holds a mobile phone in Figure 1 below:



EX1004, Fig. 1 (annotation added); *see also* ¶0038.

Chu discloses (in Figures 3 and 4 below) an input device accessible from the exterior of the housing 10 (button 16). Chu also discloses the claimed contact element (probe head 18, specifically probe pad 30, not shown below) which is in the interior of the housing, coupled to the input device (button 16), and generates a touch event on the touchscreen:



EX1004, Figs. 3, 4 (annotations added).

Chu explains how its input device operates as follows:

[0053] At an initial state, as illustrated in FIG. 3, the press button 16 is at its highest position when the press button 16 is released and the biasing member 40 is urging the press button 16 upwards.... Since the press button 16 is at its highest position, the probe head 18 being connected to the shaft 14 is also at its highest position. ***Therefore, the probe head 18 is not touching the capacitive touch screen 20 of the digital device inside the waterproof housing 10.*** The electric charge E on the capacitive touch screen 20 does not change. EX1004, ¶0053 (emphasis added).

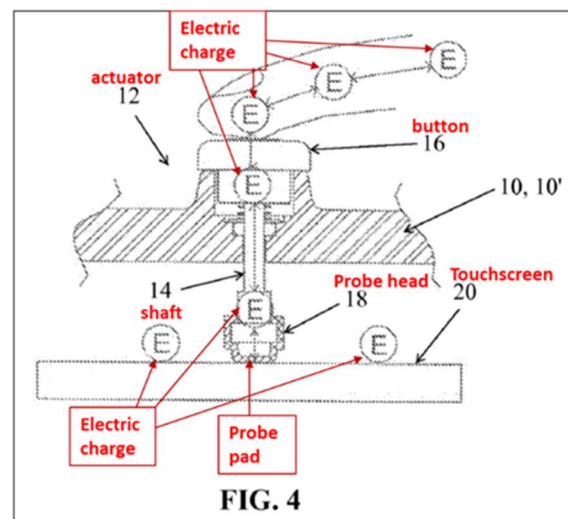
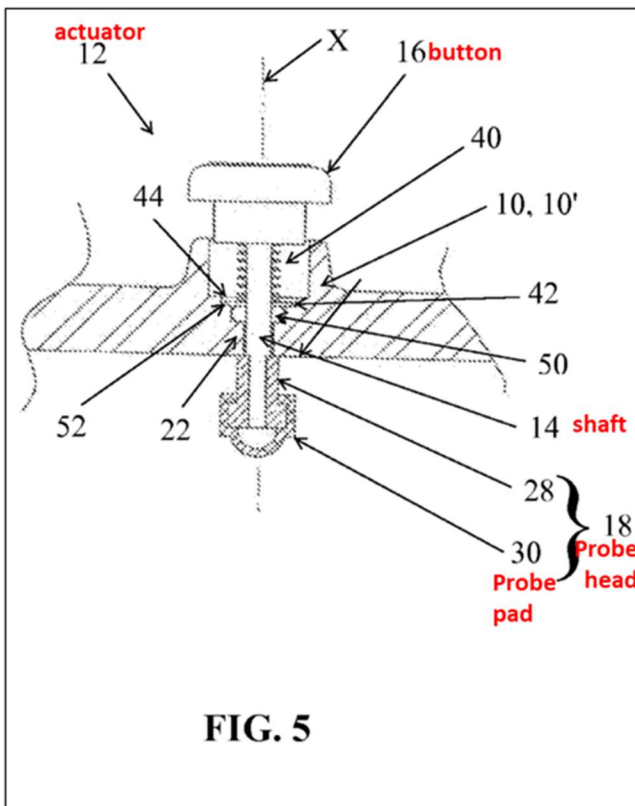
[0054] When a user's finger or body part starts to touch the press button 16 and begins to press downwards, the user's finger or body part gets intimate with the press button 16 and the contact area with the press button 16 increases. ***Since the press button 16 is metal or metalized,***

the user's finger or body part is electric charge connected. EX1004, ¶0054 (emphasis added).

[0055] *When the user's finger or body part continues to press downwards, the electric charge conductivity between the press button 16 and the user's finger or body part further improves. The press button 16 together with the actuator shaft 14 starts to move downwards.... The probe head 18 carried by the actuator shaft 14 starts touching the touch screen 20. When the probe pad 30 is further pressed onto the touch screen 20, the probe pad 30 starts to deform and form a larger contact area with the touch screen 20, as depicted in FIG. 4, thereby enhancing the electric charge conductivity.* Through the large flat or mushroom-shaped surface of the press button 16, the actuator shaft 14 and the probe head 18, it starts to transfer or receive electric charge to or from human body. This results in change of electric charge on the touch screen 20. The digital device can then compute a set of coordinates on the touch screen display. EX1004, ¶0055 (emphasis added).

[0056] *When the press button 16 is released, the biasing member 40 then pushes the press button 16 upwards. The actuator shaft 14 and the probe head 18 also move upwards thereby separating the probe head 18 from the touch screen 20 and stopping the interaction with the touch screen 20.* The operation of the actuator mechanism 12 is then completed. EX1004, ¶0056 (emphasis added); *see also* ¶¶0011, 0038.

In Figure 5 below, Chu discloses the contact element (probe pad 30), which has a surface that is made of material capable of conducting electric charge to a touchscreen. EX1004, ¶0011. And Figure 4 below shows the probe pad's surface contacting the touchscreen 20 of the smartphone when the input device is extended to create a detectable touch event.



EX1004, Figs. 4, 5 (annotations added).

FIG. 4 shows the actuator mechanism 12 at an actuation position when the press button 16 is pushed downwards/inwards by a finger of a user, and the probe head 18 is touching the capacitive touch screen 20. At this actuation position, electric charge E can be transferred between the finger of the user and the capacitive touch screen 20

through the press button 16, the actuator shaft 14 and the probe head 18, as shown by the arrows. EX1004, ¶0041 (emphasis added).

The probe pad 30 is made of conductive material, such as metal or rubber with a conductive additive.

The press button, the shaft and *the probe head may be made of a material capable of conducting electric charge.* EX1004, ¶0011(emphasis added).

The press button, the shaft, the adaptor, and the probe head may be made of metal. EX1004, ¶0014; *see also* ¶¶0019, 0049.

The probe pad 30 may be made of soft material such as rubber. Additive may be added to the rubber in order to enhance its electric charge transfer performance. Soft material is used because it can minimize possible scratch or damage on the touchscreen 20. EX1004, ¶0049 (emphasis added).

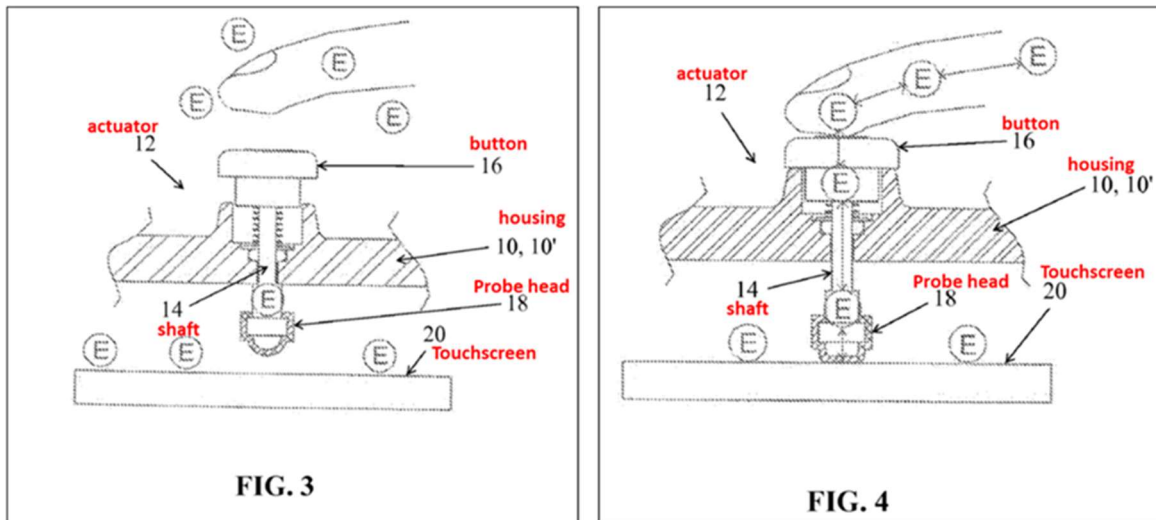
All three embodiments of Chu operate in this same way. See EX1004, ¶¶0053-0062; *see* EX1002, §X(A); *see also* §XI(C).

B. Claim 2: The apparatus of claim 1, wherein the contact element is configured to generate the detectable touch event at the touchscreen display while the mobile electronic device is located within the interior of the housing.

See the analysis of claim 1 in this section for a description of how Chu generates a detectable touch event when the smartphone is mounted. EX1004, Fig. 4; *see* EX1002, §X(B).

C. Claim 3: The apparatus of claim 1, wherein the input device comprises a tactile user input device.

See the analysis of claim 3 in §XII for a discussion of how the '000 patent uses the term “tactile user input device” to include buttons. Chu also includes a button 16 on the exterior for the user to cause a touch event:



EX1004, Figs. 3, 4 (annotations added); *see also* ¶¶0053-0062; *see* EX1002, §X(C).

D. Claim 4: The apparatus of claim 1, wherein the housing has a top surface, a bottom surface, a front surface, a back surface, and two side surfaces.

See the analysis for claim 4 in §XII. See EX1002, §X(D).

E. Claim 5: The apparatus of claim 4, wherein the back surface supports the two lenses.

See the analysis of claims 1 and 4 in §XII. See EX1002, §X(E).

F. Claim 6: The apparatus of claim 4, wherein the apparatus is configured to receive one or more user interactions during use of the apparatus.

Please see the analysis of claims 1 and 4 in this section for a description of the user depressing Chu's button 16 to cause a touch event. See EX1002, §X(F).

G. Claim 8: The apparatus of claim 4, wherein the input device is located at an exterior of the housing.

See the analysis of claims 1 and 4 in this section which shows that Chu's button 16 is located on the exterior of the VR viewer. See EX1002, §X(G).

H. Claim 9: The apparatus of claim 4, wherein the input device is user accessible for interaction therewith.

See the analysis of claims 1, 4, and 6 in this section which show that Chu's button 16 is user accessible. See EX1002, §X(H).

I. Claim 10: The apparatus of claim 4, wherein the input device is configured to detect a user action.

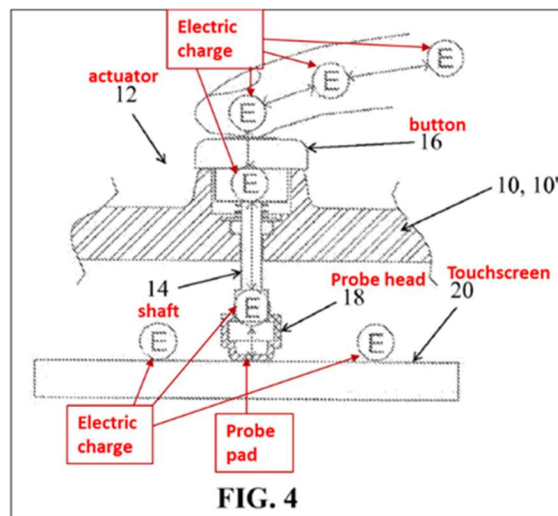
See the analysis of claims 1, 4, and 6 in this section for a description of how Chu's input device operates and a user uses it. See EX1002, §X(I).

J. Claim 11: The apparatus of claim 4, wherein the input device is configured to relay a signal based on a user action to the mobile electronic device.

See the analysis of claims 1, 4, 6, and 10 in this section for a description of how Chu's input device operates to cause a touch event. See EX1004, ¶¶0041-0062; see EX1002, §X(J).

K. Claim 12: The apparatus of claim 4, wherein the input device is configured to sense a user interaction and transmit a signal based on the sensed user interaction to the touchscreen display via the touch screen input device and via a conductive lead that couples the input device and the touchscreen display.

See the analysis of claims 1, 4, 6, 10, and 11 in this section for a description of Chu's input device. The claimed conductive lead can be seen in Chu's Figure 4 as electric charge flowing through button 16, shaft 14, probe head 18, and the probe pad. Chu's shaft alone could constitute the claimed conductive lead. Alternatively, Chu's shaft combined with any combination of button 16, probe head 18, and the probe pad could also constitute the claimed conductive lead.



EX1004, Fig 4 (annotations added); *see also* ¶¶0041-0062; *see* EX1002, §X(K).

L. Claim 13: The apparatus of claim 4, wherein the input device includes a conductive material.

See the analysis above for claims 1 and 4 in this section which shows that Chu's button 16 is made of conductive material. EX1004, ¶0043 ("press button 16 may be made of metal, a metalized material or a material capable of conducting electric charge."); see EX1002, §X(L).

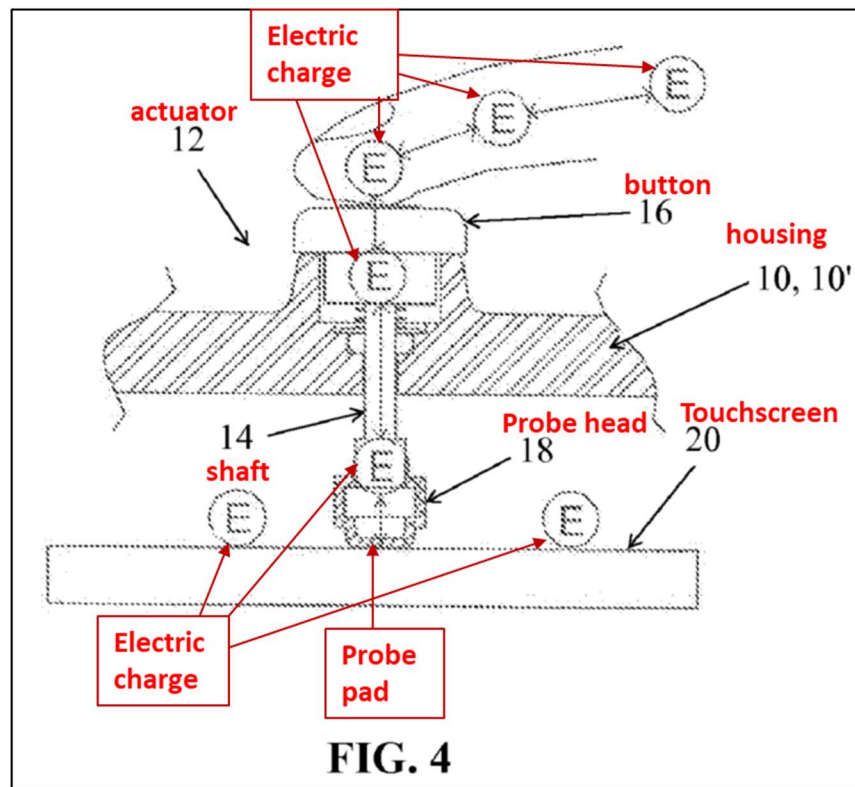
M. Claim 14: The apparatus of claim 4, wherein a contact element configured to contact the touchscreen display includes a conductive material.

Please see the analysis of claim 1 in this section for a discussion of the claimed "contact element" which is Chu's probe pad 30. Chu's probe pad is made of conductive material, such as metal or rubber with a conductive additive. See EX1004, ¶¶0011, 0014, 0019, 0049; *see also* Figs. 3-5; ¶¶0041-0062; see EX1002, §X(M).

N. Claim 15: The apparatus of claim 4, wherein a conductive lead extends through at least a portion of the housing.

See the analysis of claims 1, 4, and 12 in this section for a discussion of Chu's input device. The claimed conductive lead can be seen in Chu's Figure 4 as electric charge flowing through button 16, shaft 14, probe head 18, and probe pad 30, which extend through housing 10. Chu's shaft alone could constitute the claimed conductive lead. Alternatively, Chu's shaft combined with any

combination of button 16, probe head 18, and the probe pad could also constitute the claimed conductive lead.



EX1004, Fig 4 (annotations added); *see also* ¶¶0041-0062; *see* EX1002, §X(N).

O. Claim 16: The apparatus of claim 1, wherein the contact element is coupled via a conductive lead to the input device.

See the analysis of claims 1, 12, and 15 in this section for an explanation of how Chu's probe pad (the claimed contact element) is electrically and mechanically coupled to button 16. See EX1002, §X(O).

- P. Claim 18: The apparatus of claim 1, wherein the input device is configured to receive a user input at the exterior of the housing and provide the received user input, via the contact element, to the touchscreen display.**

See the analysis of claim 1 in this section for a description of how Chu's input device operates and causes a touch event. EX1004, ¶¶0041-0062; see EX1002, §X(P).

- Q. Claim 19: The apparatus of claim 18, wherein the touch event, based on the user input, is provided to the touchscreen display at a position located within a central portion of the touchscreen display.**

See §XI(C) and the analysis of claim 1 in §XII for a discussion of how the Kondo/Chu combination provides a touch event at the center of the touchscreen. See EX1002, §X(Q).

- R. Claim 20: The apparatus of claim 19, wherein the central portion of the touchscreen display is not viewable, via the two lenses, by either eye of a user.**

See the claim 20 analysis in §XII. See EX1002, §X(R).

- S. Claim 21: The apparatus of claim 19, wherein the contact element is configured to provide inputs to the mobile electronic device in a manner that does not disturb the field of view of the left eye or the right eye of a user.**

See the claim 21 analysis in §XII. See EX1002, §X(S).

T. Claim 22: The apparatus of claim 1, wherein the contact element comprises a touchscreen input device.

Please see the analysis of claim 1 in this section for a description of how Chu's input device operates to cause a touch event using probe head 18, specifically probe pad 30, which constitutes the claimed contact element. See EX1002, §X(T).

U. Claim 23: The apparatus of claim 22, wherein the touchscreen input device is electrically coupled to the input device.

Please see the analysis of claims 1, 11, 12, 15, 17, and 22 in this section for a description of Chu's input device and how it is electrically coupled to probe pad 30. See EX1002, §X(U).

V. Claim 24: The apparatus of claim 1, wherein the input device is configured to receive user interactions during use of the apparatus.

See the analysis of claims 1 and 18 in this section for a description of how Chu's input device operates and receives user interactions. See EX1002, §X(V).

W. Claim 25: The apparatus of claim 24, wherein the input device is configured to sense the user interaction and transmit a signal based on the sensed user interaction to the touchscreen display via the touch screen input device and via a conductive lead that couples the input device and the touchscreen display.

See the analysis of claims 1, 12, 15, 16, and 18 in this section for a description of how Chu's input device operates to cause a touch event and uses a conductive lead. See EX1002, §X(W).

X. Claim 26: The apparatus of claim 25, wherein the conductive lead runs through at least a portion of the housing.

See the analysis of claims 1, 12, 15, 16, 18, and 25 in this section for a description of how Chu's input device operates and how its conductive lead runs through the Chu's housing. See EX1002, §X(X).

Y. Claim 27: The apparatus of claim 1, wherein at least a portion of the input device is exposed on an exterior surface of the housing.

See the analysis of claim 1 which shows that Chu's button 16 is on the exterior of the VR viewer. See EX1002, §X(Y).

Z. Claim 28: The apparatus of claim 1, wherein the input device is positioned at the exterior of the housing.

See the analysis of claim 1 which shows that Chu's button 16 is on the exterior of the VR viewer. See EX1002, §X(Z).

AA. Claim 29: The apparatus of claim 1, wherein the input device is user accessible such that a user can interact with the input device.

See the analysis of claim 1 which shows that Chu's button 16 is on the exterior of the VR viewer and a user can interact with it. See EX1002, §X(AA).

BB. Claim 30: The apparatus of claim 1, wherein the input device is configured to detect a user action.

See the analysis above in claim 1 for how Chu's button 16 is used by a user. See EX1002, §X(BB).

CC. Claim 31: The apparatus of claim 30, wherein the input device is configured to relay a signal based on the user action to the touchscreen display.

See the analysis of claim 1 for how Chu's input device relays a signal to the touchscreen display and causes a touch event. See EX1003, Figs. 3, 4, 5; ¶¶0040-0062; see EX1002, §X(CC).

DD. Claim 32: The apparatus of claim 1, wherein the input device comprises a conductive material.

See the analysis for claim 13 which explains how Chu's input device is made of conductive material. See EX1002, §X(DD).

EE. Claim 33: The apparatus of claim 1, wherein the contact element comprises a conductive material.

See the analysis for claims 1 and 14 which explain that the claimed contact element is Chu's probe pad and comprises conductive material. See EX1002, §X(EE).

XV. CONCLUSION

Petitioner has established a reasonable likelihood of prevailing with respect to at least one claim and respectfully requests that the PTAB institute an *Inter Partes* Review and cancel the challenged claims.

Respectfully Submitted,

Dated: March 29, 2023

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PETITIONER'S EXHIBIT LIST

March 29, 2023

EX1001	U.S. Patent No. 11,093,000
EX1002	Declaration of Kurtis Keller
EX1003	Kondo (JP3176588)
EX1004	Chu (US 2013/0082963)
EX1005	U.S. Pat. No. 8,957,835
EX1006	Random House Webster's College Dictionary (2000)
EX1007	Not used
EX1008	Selected portions of '000 Patent's prosecution history
EX1009	Not used
EX1010	Not used
EX1011	Not used
EX1012	<i>DDC v. Google</i> Transfer Order

CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. § 42.24(d), the undersigned certifies that the foregoing document, excluding the portions exempted under 37 C.F.R. § 42.24(a)(1), contains 12,718 words, which is under the limit of 14,000 words set by 37 C.F.R. § 42.24(a)(1)(i).

Respectfully Submitted,

Dated: March 29, 2023

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CERTIFICATE OF SERVICE

The undersigned certifies service pursuant to 37 C.F.R. §§ 42.6(e) and 42.105(b) on the Patent Owner by Express Mail of a copy of this Petition for Inter Partes Review and supporting materials, including all exhibits and Petitioner's Exhibit List, at the correspondence address of record for the '000 Patent:

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