

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. 9,420,075

Case No.: IPR2023-00707

PETITION FOR INTER PARTES REVIEW

OF CLAIMS 1-12, 14, and 18-20

OF U.S. PATENT NO. 9,420,075 UNDER 35 U.S.C. §§ 311-319

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I. INTRODUCTION

This *Inter Partes* Review petition challenges claims 1-12, 14, and 18-20 of U.S. Patent No. 9,420,075 (the '075 patent), which is one in a family of seven patents, all continuations. Petitioner Google has been charged with infringing five of those patents and is therefore concurrently filing five IPR petitions. The other petitions are IPR2023-00708; IPR2023-00709; IPR2023-00710; and IPR2023-00711.

The '075 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. The '075 patent claims are directed to the mechanical embodiment, where the input device is accessible from the exterior, is moveable within the interior, and contacts the central region of the smartphone. See *e.g.*, EX1001, cl. 1.

The prior art discloses the exact same device as claimed by the '075 patent. Kondo (JP3176588) discloses a VR viewer that holds a smartphone and has an exterior-accessible input device that contacts the central region of the smartphone. Kondo's input device, however, is electrical. Chu (US 2013/0082963), on the other hand, discloses a mechanical input mechanism for a device that holds a smart

phone. Chu's input device is accessible from the exterior and moves internally. A POSA would have many reasons for forming this combination with a reasonable expectation of success because these are simple mechanical devices. Therefore, the Kondo/Chu combination renders the challenged claims unpatentable.

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

C. Related Matters

The '075 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;

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.

- 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. PGR2018-00019 (filed 1/15/18)	PTAB	'117	Terminated after institution
MerchSource, LLC, et al. v. DODOcase VR, Inc., et al.	PTAB	'184	Terminated after institution

PGR2018-00020 (filed 1/15/18)			
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	DDC voluntarily dismissed case.

		'184	
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
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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 '075 Patent is satisfied.

A. Grounds for Standing

Petitioner certifies pursuant to 37 C.F.R. § 42.104(a) that the '075 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 '075 patent claims 1-12, 14, and 18-20 as obvious under 35 U.S.C. § 103. The '075 patent's earliest priority document is a provisional dated 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 '075 patent's earliest priority date. 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 ’075 patent’s earliest priority date. 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 cancellation of claims 1-12, 14, and 18-20 of the ’075 Patent based on the following ground:

1. Claims 1-12, 14, and 18-20 are obvious under 35 U.S.C. §103 in view of Kondo and Chu.

V. DECLARATION EVIDENCE

This Petition is supported by the declaration of Kurtis P. Keller. See EX1002, §§I-IX. Mr. Keller is a Research Engineer for the Computer Science Department at UNC 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 ’075 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.

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

VI. THE ’075 PATENT

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

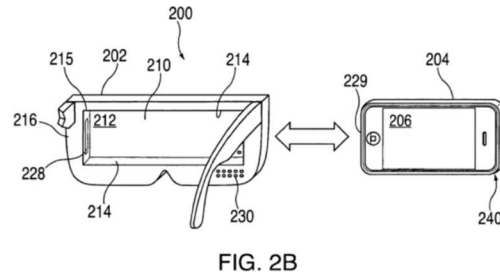
VR headsets are based on a long-established (1820s), three-dimensional viewing technology called stereoscopy, which uses a pair of separate, distinct images presenting a left-eye and right-eye view so the scene is interpreted by the



viewer as a single, three-dimensional image. The View-Master is an example of a well-known stereoscopic device, a 1960s version is shown. See EX1002, §VI(A), ¶27.

In the late 1960s, head-mounted displays (“HMD”) were developed for Augmented Reality (“AR”) and Virtual Reality (“VR”) applications. 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. VR is similar, but the user only sees computer-generated images. See EX1002, ¶28.

Most HMDs through 2014 used integrated display screens. But headsets using a mobile device display were known as early as 2008. See, *e.g.*, U.S. Patent No. 8,957,835, filed in September 2008. EX1005, 3:20-23, 23:34-39, Fig. 2B; see EX1002, ¶30.



Over the years, mobile electronic devices have used multiple touchscreen types, including infrared, pressure, resistive, and capacitive. For the largest possible consumer demand and usability, a VR headset designer wants to accommodate as many current and legacy devices as possible. As of 2012, the most common types of touchscreens used by handheld devices, like smartphones, were resistive and capacitive touchscreens. EX1004, ¶0003; see EX1002, ¶31.

Resistive screens: These screens can take direct input by touch including a gloved finger or stylus. Physical pressure is needed to make resistive screens function. Chu describes resistive screens:

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.

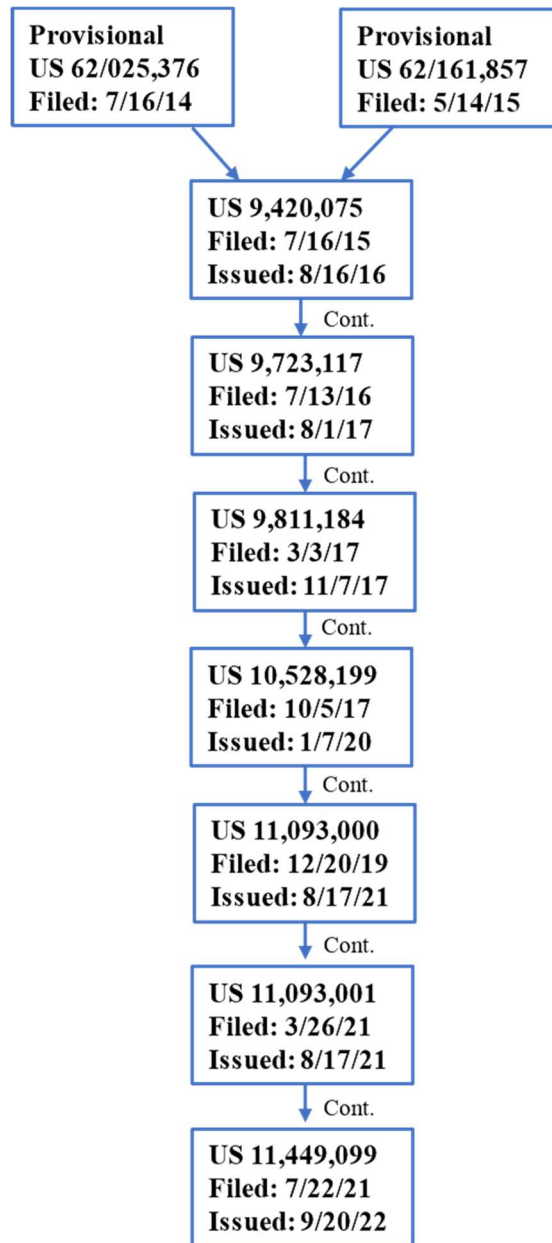
Capacitive screens: These screens use the body's electrical properties to create a change of charge at a location on a touchscreen. They require a finger or

conductive path to a body but are able to detect lighter touches. Chu describes capacitive screens:

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.... However, a pencil or stylus which is workable on a resistive touch screen is not workable on a capacitive touch screen. EX1004, ¶0005; *see also* EX1002, §VI(A), ¶32.

B. Summary of the '075 Patent

The '075 patent is one of seven continuations, shown below:

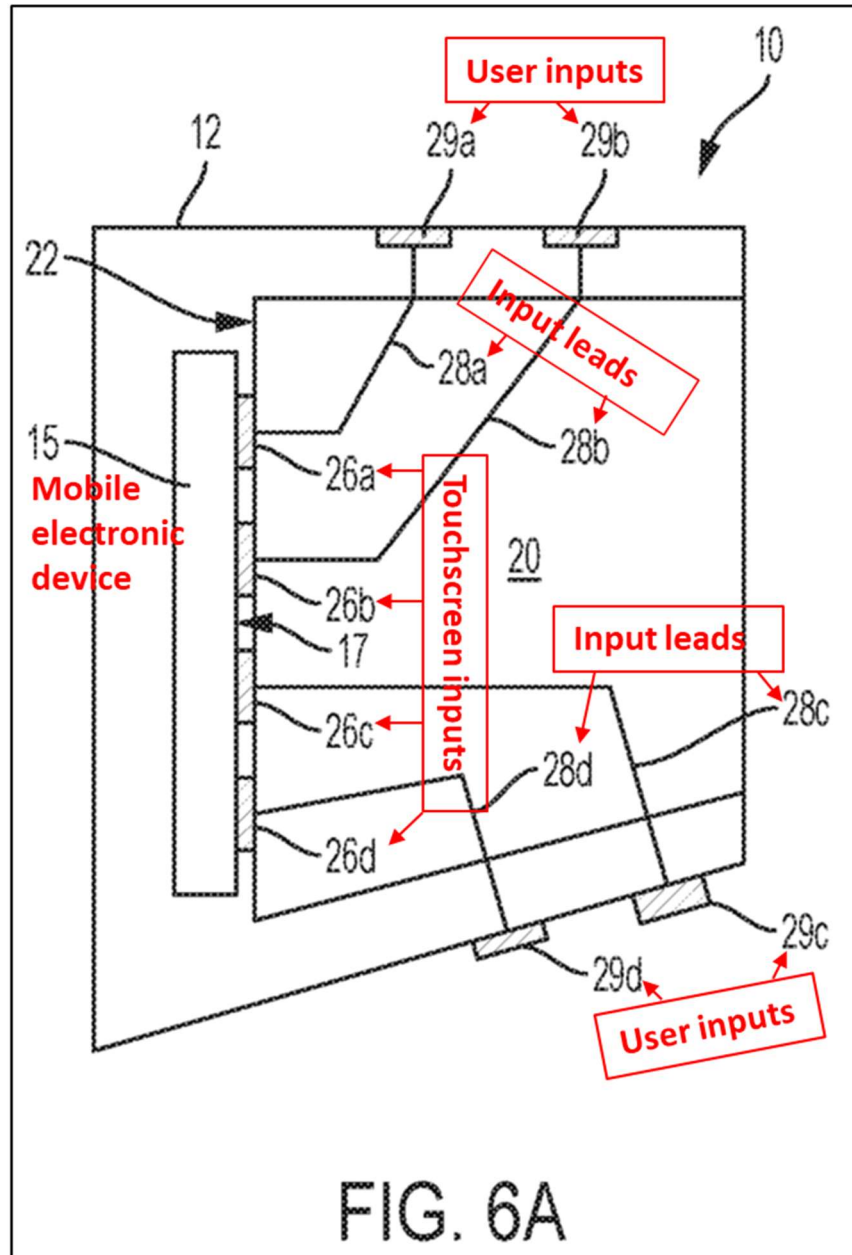


EX1002, §VI(B), ¶33.

The '075 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, 2:19-22. However, the '075 patent admits

that VR viewers that hold smartphones and have input devices were well-known at the time of the alleged invention. EX1001, 1:30-2:10; see EX1002, ¶¶34-36.

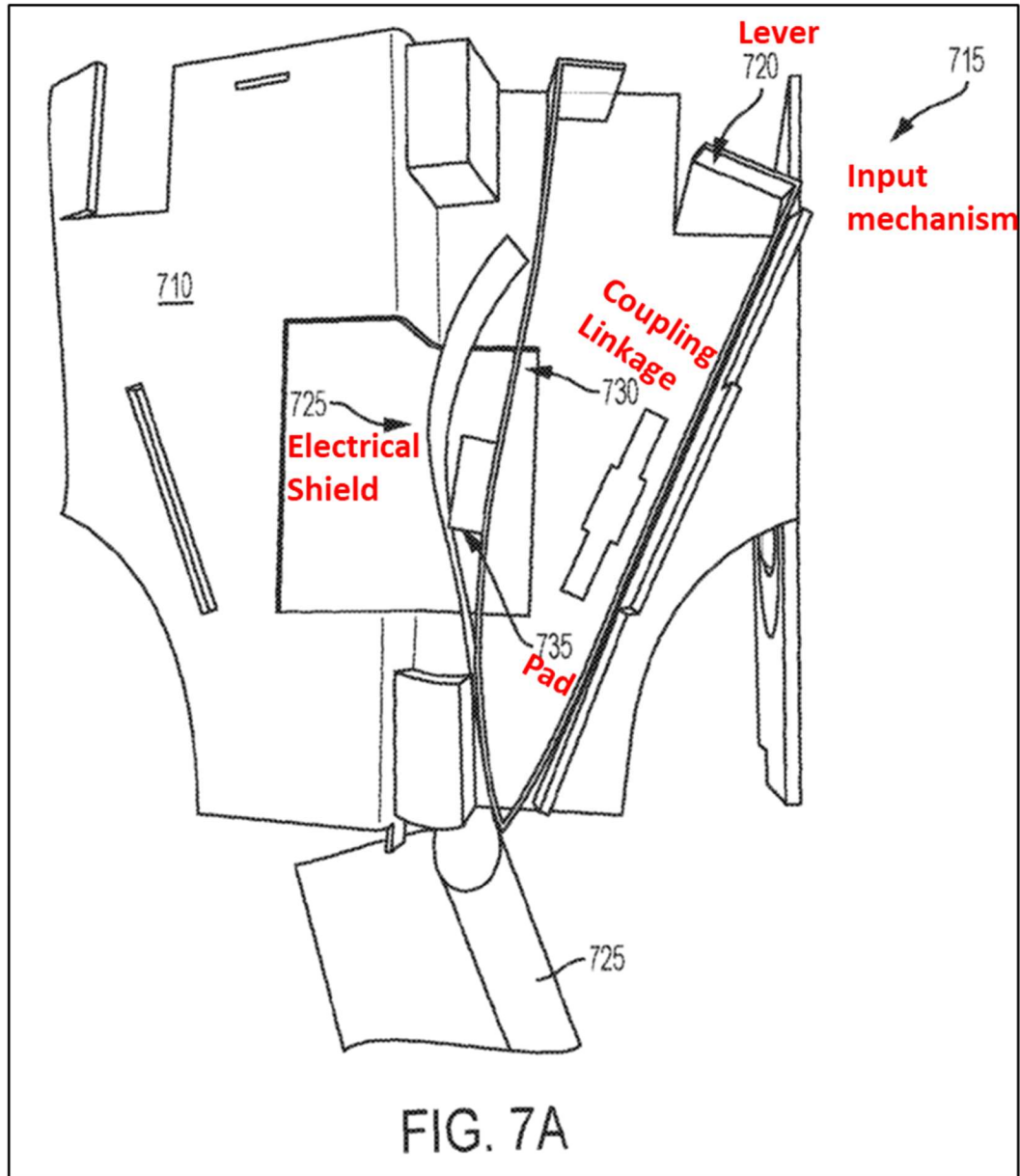
The '075 patent's input mechanisms have two embodiments: one is electrical, referred to as "passive," shown in Figure 6A:



EX1001, Fig. 6A (annotations added); see EX1002, ¶37.

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 housing’s outer surfaces for the user to provide input to mobile electronic device 15. EX1001, 3:25–6:50, 5:24–40, Figs. 6A–B. The user inputs 29a–29d transfer a capacitive touch to touchscreen inputs 26a–26d. See EX1002, ¶38.

The other embodiment is a mechanical embodiment, referred to as “active,” shown in Figures 7A–F. See Figure 7A below:

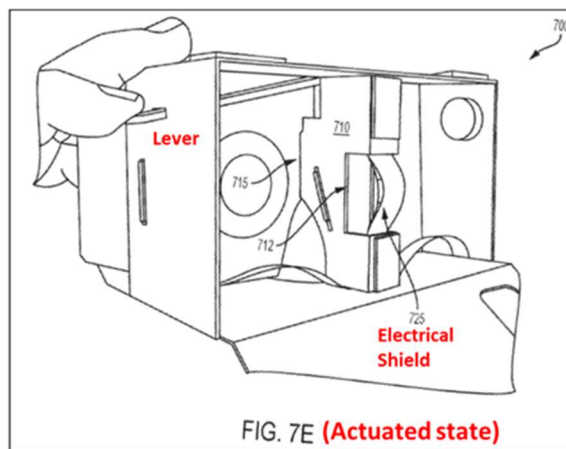
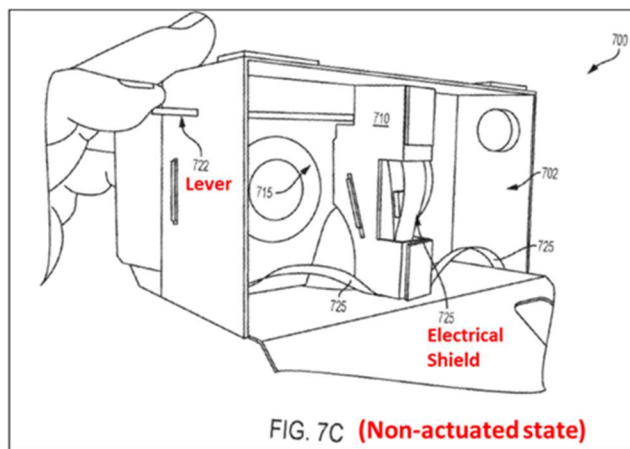
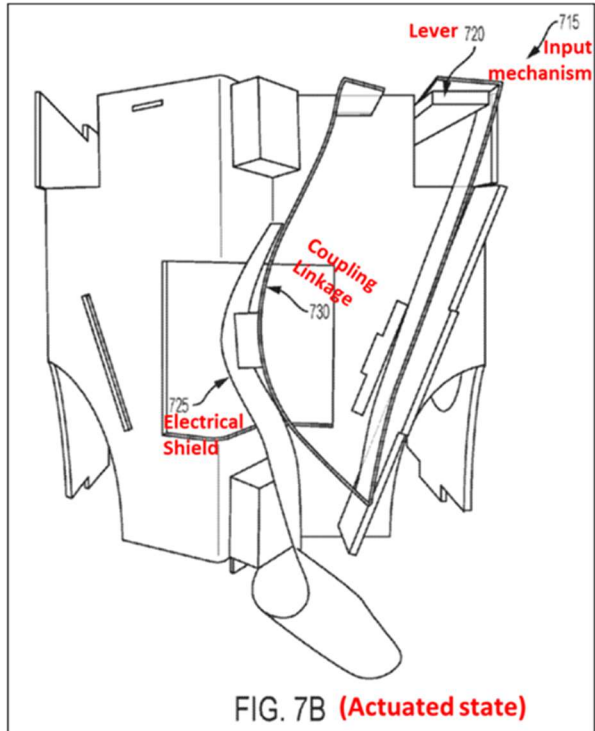
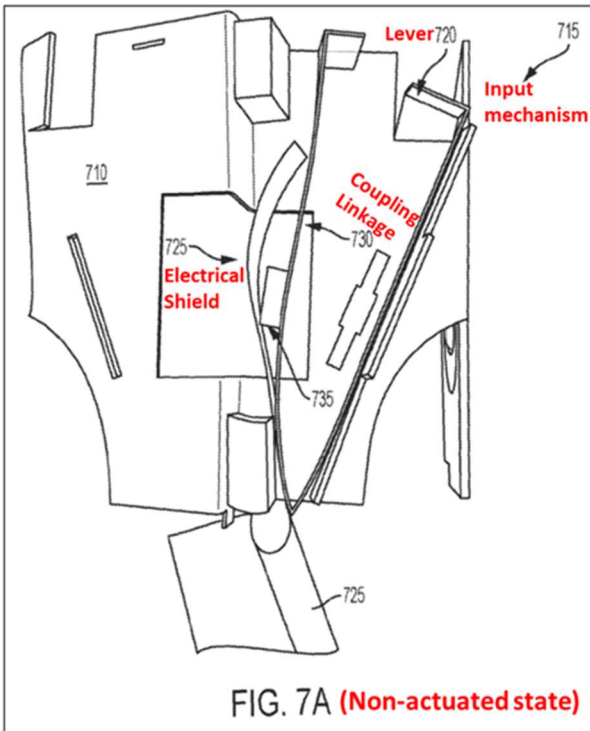


EX1001, Fig. 7A (annotations added); see EX1002, ¶39.

The input mechanism 715 is moveable within the housing/enclosure.

EX1001, 7:13–10:8, Figs. 7A–F. The viewer 700 (not shown) includes an exterior-accessible lever 720 to bring the electrical shield 725 into an actuated state, causing a touch event on a touchscreen, and a non-actuated state, where a

touch event does not occur. EX1001, 7:13–10:8. Figures 7A and 7C below show the non-actuated state, and Figures 7B and 7E below show the actuated state.



EX1001, Figs. 7A, 7B, 7C, 7E (annotations added); see EX1002, §VI(B), ¶40.

C. Prosecution History of the '075 Patent

The '075 patent received one substantive office action rejecting all claims under §102 over Compton (US 2013/0141360). See EX1008, pp. 38-50. The Patent Owner then amended its claims. See *e.g.*, claim 1:

1. (Currently Amended) A virtual reality viewer for use with a mobile electronic device having a touch-screen, the viewer comprising:

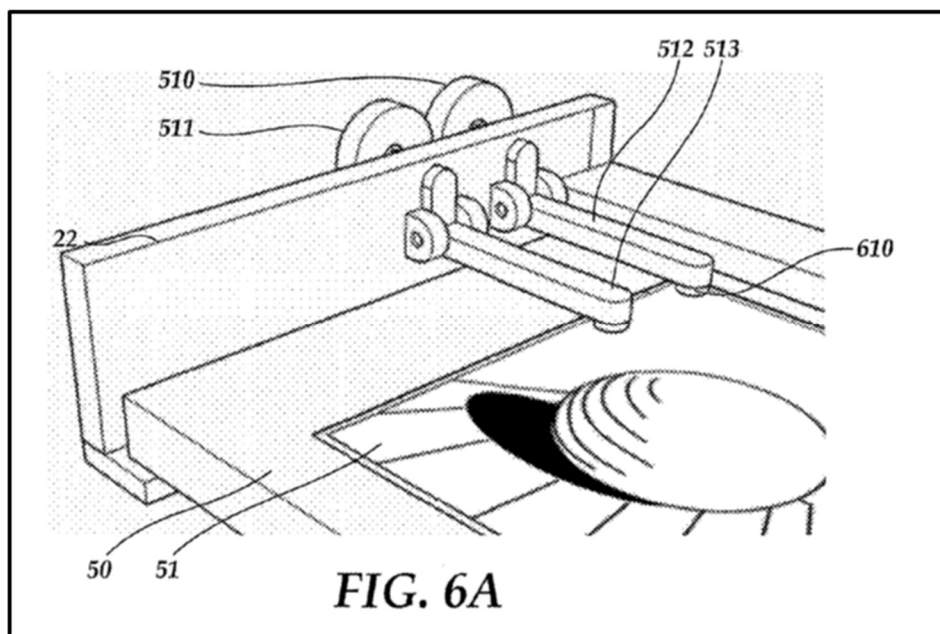
a housing configured to receive ~~a~~the mobile electronic device within ~~an~~a generally hollow interior of the housing, wherein the housing is configured to hold the touch-screen such that it is generally centered in a horizontal direction and directly in a user's field of view when looking into the interior of the housing through a side opposite the touch-screen;

an input mechanism that is accessible from an exterior of the housing and is moveable within the interior between at least a first position and an extended position, the input mechanism comprising:

an electrical shield having a surface, wherein only a portion of ~~a~~the surface of the ~~input mechanism~~ the electrical shield is configured to contact a central region of the touch-screen of the mobile electronic device when the input mechanism is in the extended position.

EX1008, p. 22.

The Patent Owner showed a Compton Figure, arguing that it did not disclose the electrical shield limitation:



EX1008, pp. 32-33 (emphasis in original); see EX1002, ¶¶41-43.

The Patent Owner emphasized that the claimed input mechanism provides input to “*the central region of the touch-screen....*” EX1008, p. 33 (emphasis in original). The Patent Owner contrasted Compton because “the surface of the *entire tip* is configured to touch the screen.” EX1008, p. 33 (emphasis in original).

The Examiner then issued a notice of allowance, stating about the prior art: “[t]here is no discussion of an electrical shield, where only a portion of the surface of the electrical shield contacts a central region of the mobile device.” EX1008, p. 17. This statement is unclear as to what the Examiner considered patentable. While Compton’s Figure 6A shows that the rocker arm’s tip contacts only the touchscreen’s edge, and not the center, it is unclear whether the Examiner agreed with Patent Owner’s additional argument that Compton’s entire tip’s surface

contacts the touchscreen. In effect, the Patent Owner was arguing that Compton's tip's sides did not constitute part of the surface. EX1002, §VI(C), ¶¶44-45.

Despite these remarks, the Patent Owner at the district court has accused devices of infringement alleging that the sides of the mechanism that contacts the touchscreen constitute part of the electrical shield's surface. See §XII(A)(4); EX1002, §VI(C), ¶46.

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).

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;

Given the co-pending litigation's early stage, it is unclear how much overlap, if any, there will be. Significant litigation milestones lie ahead that will determine the scope of any overlap, and given the recent transfer, any overlap is uncertain at this time. 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.

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 because each patent shares the same specification and Petitioner relies on no prior art other than Kondo and Chu.

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. 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 certain *Phillips* claim constructions and the factual basis for those constructions. The ordinary and customary meaning will be used for all other terms. The '075 patent and the entire patent family's prosecution histories were considered when construing the below terms. EX1002, §IV(A), ¶¶17-18.

Claim Term	Meaning
Virtual Reality Viewer	“A viewer of an artificial environment,” where “viewer” includes both handheld devices and headsets.
Electrical Shield/Electric Shield	“A material configured to induce a touch event that is electrically detectable by a touchscreen/device when at least a portion of the shield

	contacts or is in proximity to a touchscreen.”
Lever	“A projecting piece by which a mechanism is operated or adjusted.”

Virtual Reality Viewer – This term appears in all claims. The '075 patent does not define the term other than stating “[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, 1:30-32. The patent also states that viewers can be held up to a user’s eyes or worn on the user’s head. EX1001, 1:39-43. So, the patent uses the term “virtual reality viewer” to include both handheld devices and headsets. Beyond describing some typical features (see 1:30-2:15), the '075 patent does not provide any definition or limit this term.

“Virtual reality” is defined in dictionaries:

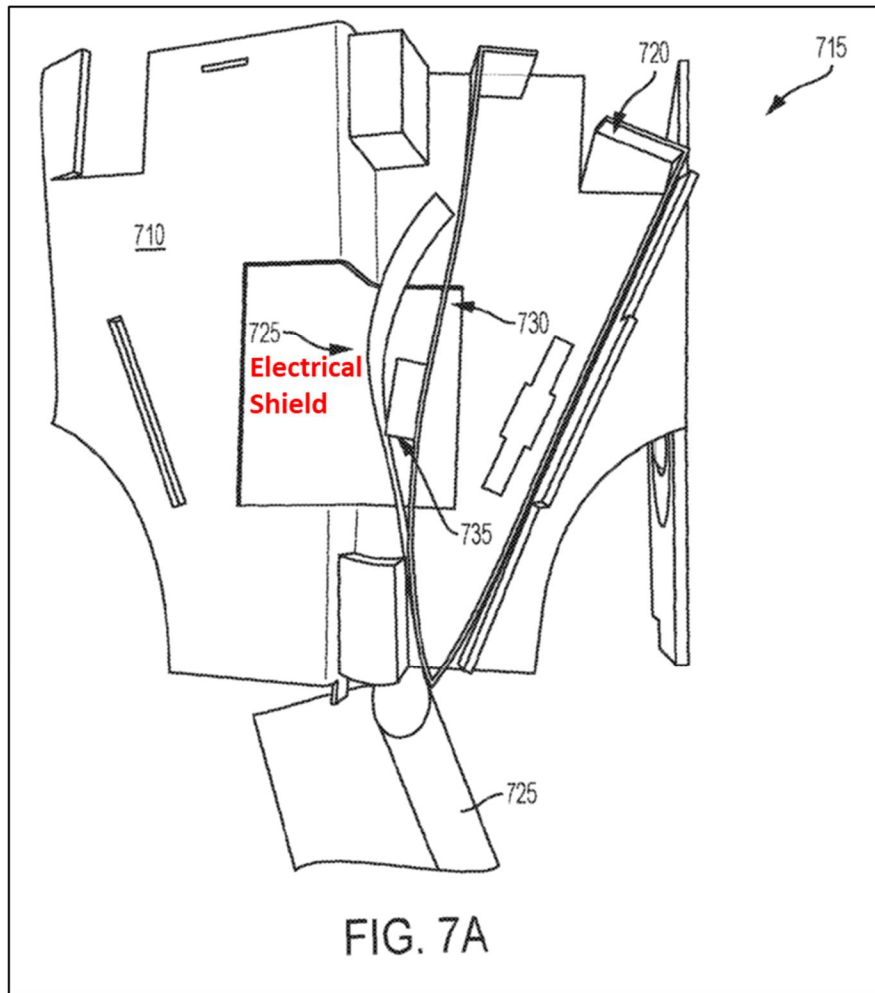
an artificial environment which is experienced through sensory stimuli (such as sights and sounds) provided by a computer and in which one's actions partially determine what happens in the environment. Merriam-Webster Online Dictionary, <https://www.merriam-webster.com/dictionary/virtual%20reality>.

A realistic simulation of an environment, including three-dimensional graphics, by a computer system using interactive software and

hardware. EX1006, pg. 4 (Random House Webster's College Dictionary, pg. 1459 (2000)).

Consistent with a POSA's understanding, these definitions suggest that Virtual Reality is an artificial environment. A POSA would note the difference between Augmented Reality, when computer-generated images are superimposed on a user's real-world view (see §VI(A) above), and Virtual Reality, 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. EX1002, §IV(A).

Electrical Shield/Electric Shield – The term "electrical shield" (claims 1-17 and 20) and the term "electric shield" (claims 18-19) are used synonymously and will therefore be treated as the same term. This term does not have an ordinary meaning to a POSA. See EX1002, §IV(A). A POSA would therefore review the '075 patent to discern its meaning. The '075 patent discusses electrical shield at 7:13-11:4, and is shown in Fig. 7A:



EX1001, Fig. 7A (annotation added).

The patent defines the term by stating that the “electrical shield *is*....”

EX1002, §IV(A).

The viewer further comprises an electrical shield, wherein the electrical shield *is a material configured to induce a touch event that is electrically detectable by a touchscreen/device when at least a portion of the shield contacts or is in proximity to a touchscreen.* EX1001, 10:31-40 (emphasis added); *see also* 7:18-35.

Some other relevant quotes follow: EX1001, 7:52-61, 7:62-8:5, 8:27-39, 8:40-45. Based on the patent’s express definition, a POSA would interpret “electrical shield/electric shield” to mean “a material configured to induce a touch event that is electrically detectable by a touchscreen/device when at least a portion of the shield contacts or is in proximity to a touchscreen.” EX1002, §IV(A).

Lever — The term “lever” appears in claims 12, 15, and 20. Although it does not define the term, the patent refers to the input device’s externally accessible portion as a “lever” and describes its interactions with the coupling. See EX1001, 7:13-15, 7:62-64, 8:5-10, 9:10-21, 9:32-46, 10:13-31. A POSA would therefore consider dictionary definitions to determine its ordinary meaning:

1 a: a bar used for prying or dislodging something

b: an inducing or compelling force : TOOL

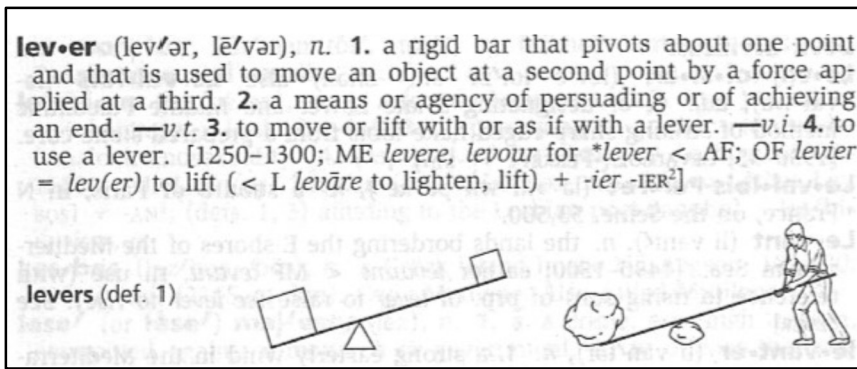
use food as a political lever

—Time

2 a: a rigid piece that transmits and modifies force or motion when forces are applied at two points and it turns about a third

specifically : a rigid bar used to exert a pressure or sustain a weight at one point of its length by the application of a force at a second and turning at a third on a fulcrum

b: *a projecting piece by which a mechanism (see MECHANISM sense 1) is operated or adjusted.* Merriam-Webster Online Dictionary, [Lever Definition & Meaning - Merriam-Webster](#) (emphasis added).



EX1006, pg. 3 (Random House Webster’s College Dictionary, pg. 764 (2000)).

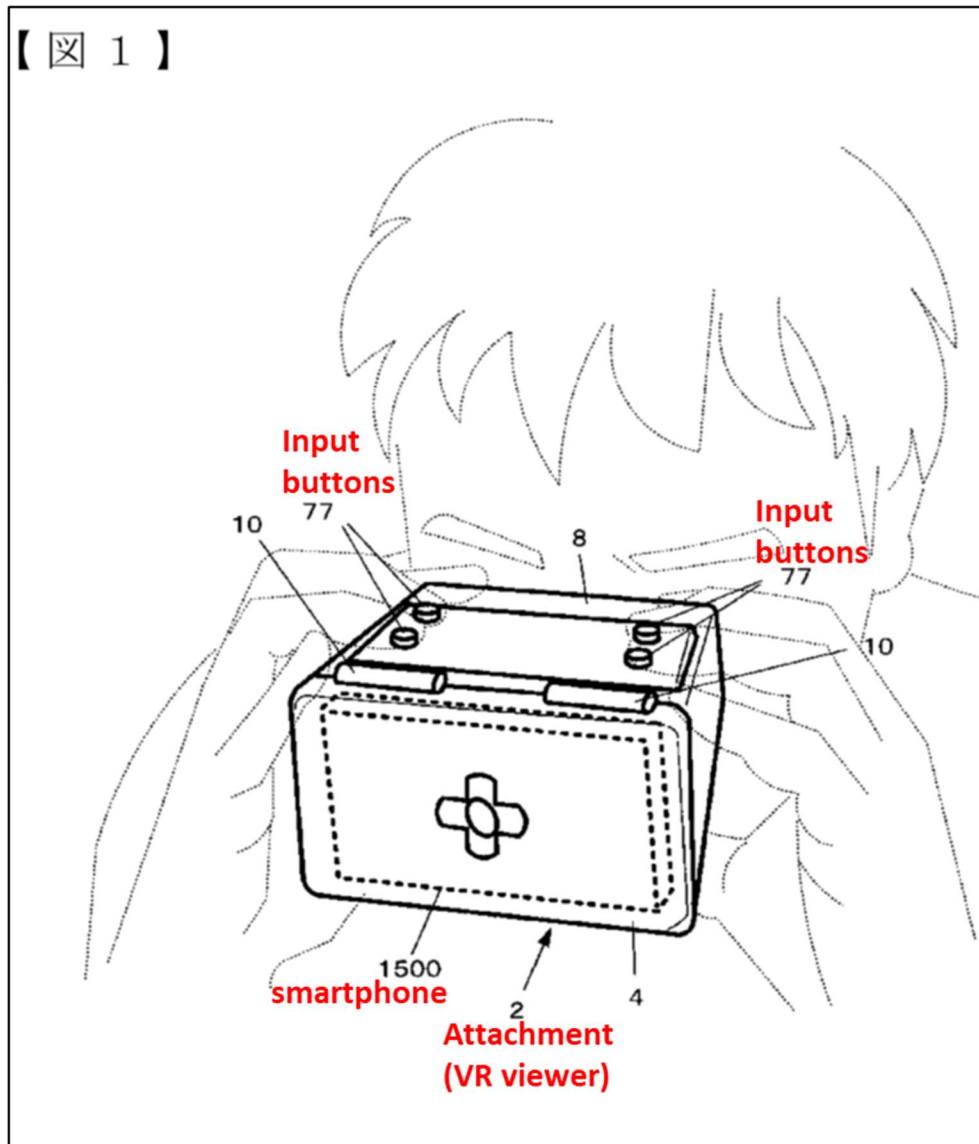
These definitions encompass a long plank or bar that lifts heavy objects, which a POSA would understand is irrelevant to the patent’s usage. One definition above is relevant because it relates to how a device uses a lever: “a projecting piece by which a mechanism is operated or adjusted.” A POSA would consider this definition to be the ordinary and customary meaning for the term “lever” in the ’075 patent. See EX1002, §IV(A).

XI. Overview of Prior Art

A. Kondo – JP3176588

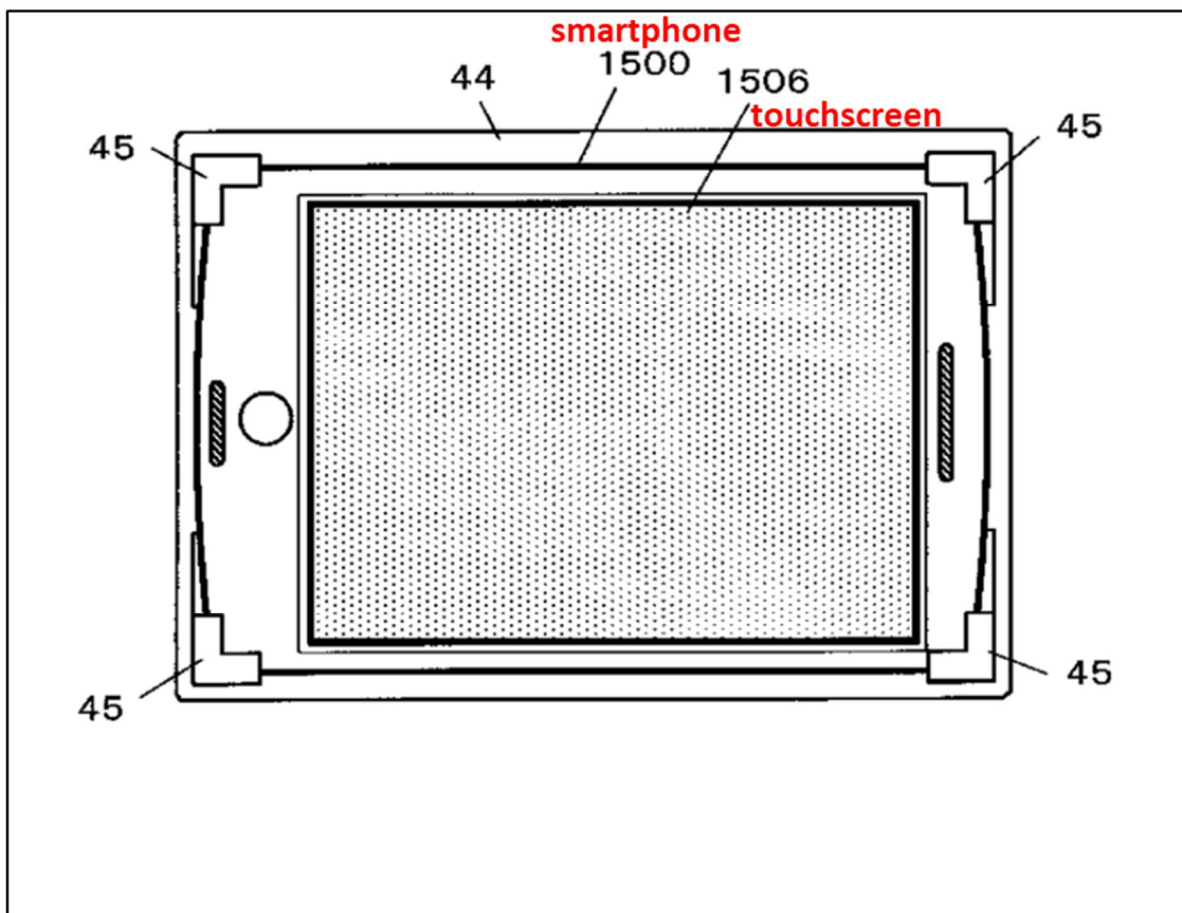
Kondo, issued on June 28, 2012, describes a VR viewer so the user can enjoy “three-dimensional stereoscopic images.” EX1003, ¶0021; *see also* Fig. 3, ¶0027. Kondo refers to its VR viewer as an “attachment” using reference numeral “2.” Petitioner will therefore use “VR viewer” and “attachment” interchangeably when describing Kondo. EX1002, §VII(A), ¶47.

Kondo is directed to the same problem as the '075 patent: “[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 below shows this input mechanism (buttons 77) on a VR viewer 2 with a smartphone 1500 mounted therein. EX1003, Fig. 1; ¶0022; *see* EX1002, ¶48.



EX1003, Fig. 1 (annotations added).

Kondo has electrically conductive pads 76 placed over the smartphone screen and electrically in contact by wire 72 with the external buttons 77, shown in Fig. 7 below:

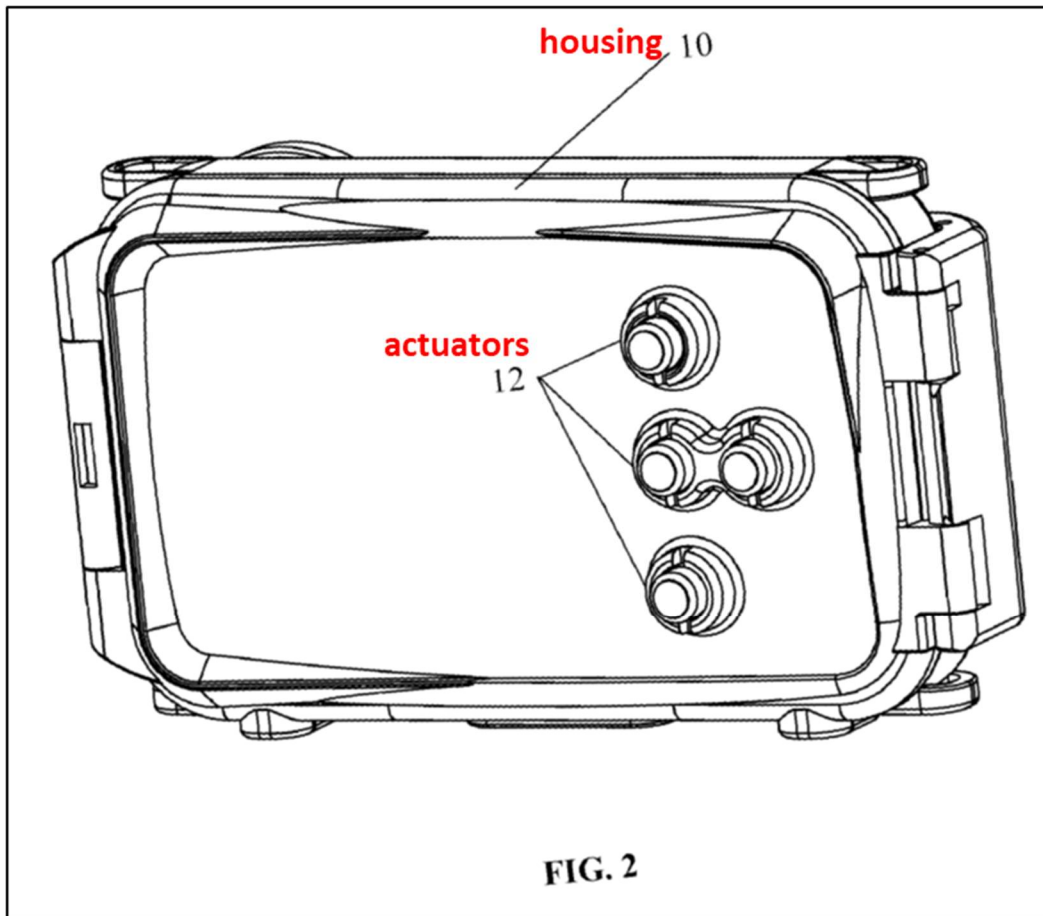


EX1003, Fig. 8(2) (annotations added).

Kondo discloses alternative embodiments. See EX1003, Fig. 12, ¶0054; Fig. 13, ¶0055; ¶0057; see EX1002, §VII(A), ¶51.

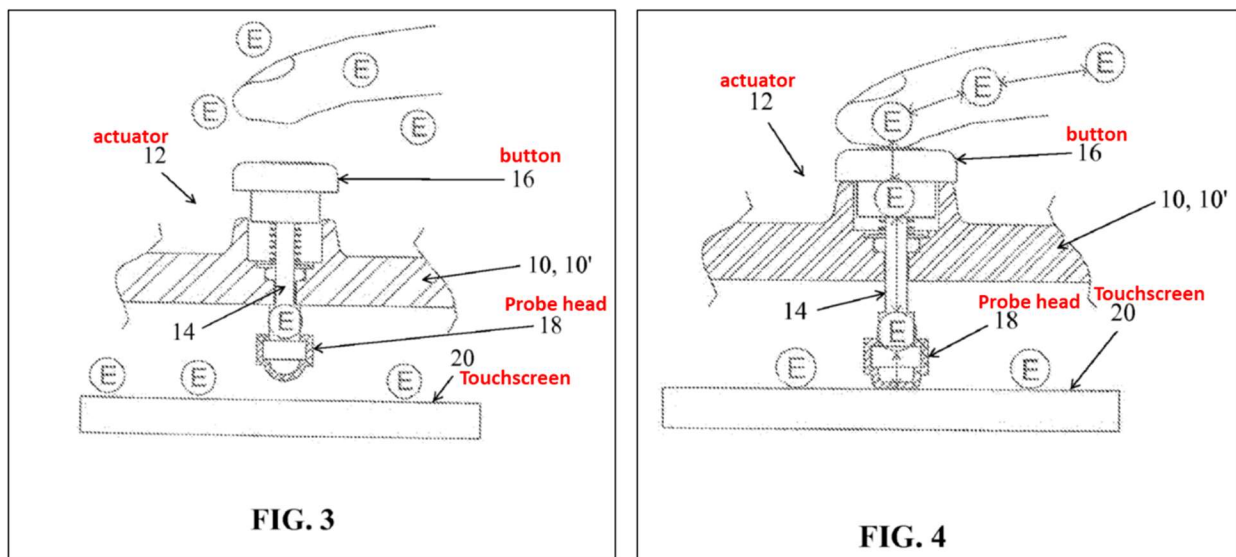
B. Chu – U.S. 2013/0082963

Chu, dated April 4, 2013, actuates a smartphone's capacitive touchscreen within a waterproof housing. EX1004, Abstract. Fig. 2 below shows the smartphone in housing 10 as well as the actuators 12, or input mechanisms, that actuate the smartphone's touchscreen through physical contact:



EX1004, Fig. 2 (annotations added); see EX1002, §VII(B), ¶52.

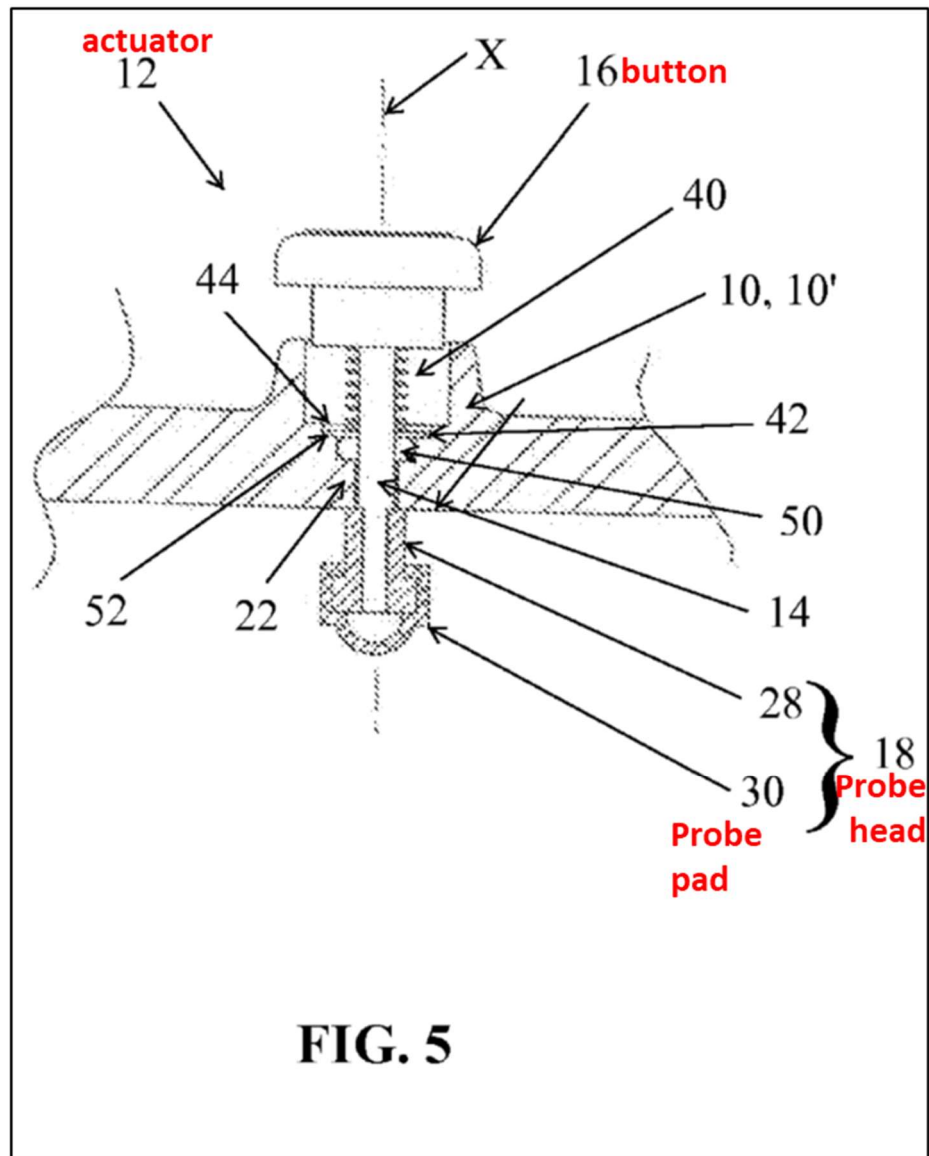
Figure 3 shows actuator 12 at rest, and Figure 4 shows it in an actuation position causing a touch event when probe head 18 touches the capacitive touchscreen 20. EX1004 ¶¶0040-0041.



EX1004, Figs. 3, 4 (annotations added); see EX1002, ¶53.

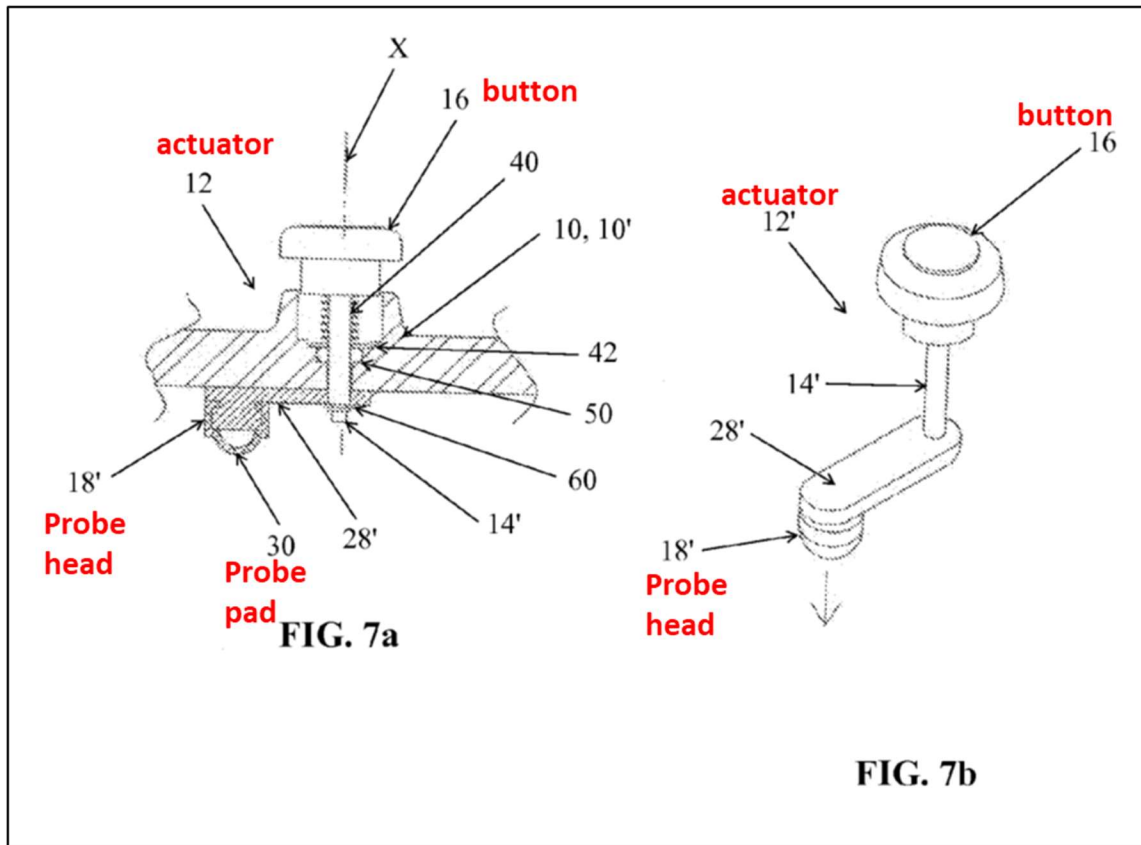
When button 16 is pressed, the contact area with button 16 increases, and since button 16 is metal, the user's finger is electric charge connected. If the user continues to press down, the probe head contacts the touchscreen (see Figure 4 above) and the electric charge conductivity between the user and button 16 improves. EX1004, ¶0054-0055; see EX1002, ¶54.

Figure 5 shows that probe head 18 includes probe pad 30, made of conductive material, for direct contact with the touchscreen 20. EX1004, ¶¶0048-0049.



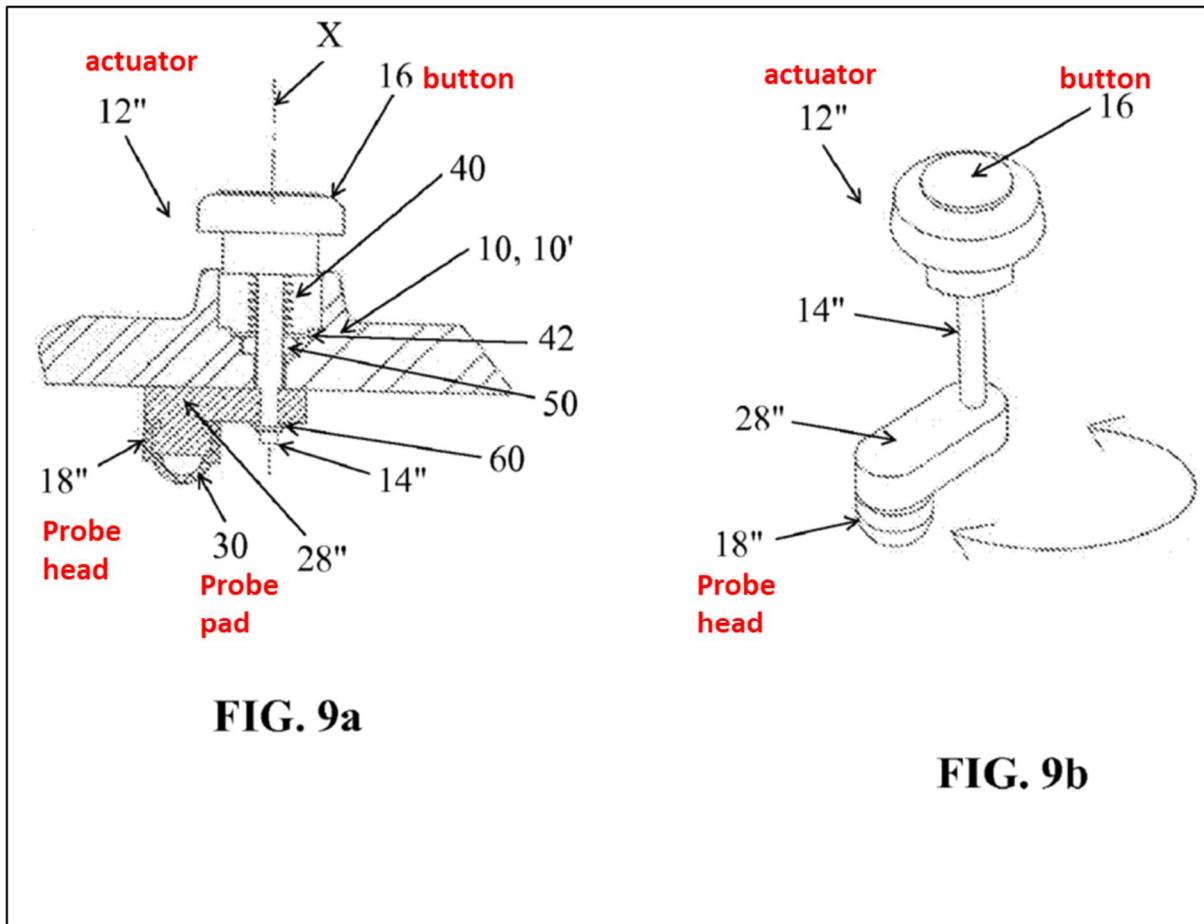
EX1004, Fig. 5 (annotations added); see EX1002, ¶55.

Figures 7a and 7b below show an alternative embodiment. Similar to the first embodiment, when the user presses button 16, the probe head 18 (and probe pad 30) contacts touchscreen 20 (see ¶¶0058-0059):



EX1004, Figs. 7a, 7b (annotations added); see EX1002, ¶56.

Chu recognizes that sometimes the touchscreen may require a “touch-swipe” or “touch-circle” motion. Chu therefore describes another embodiment where the user presses down on button 16 and turns it so that probe head 18 touches touchscreen 20 and can move along a circular path, causing a swipe. EX1004, ¶¶0060-0062; see EX1002, ¶57.



EX1004, Figs. 9a, 9b (annotations added).

A POSA would understand that Chu's button is accessible by the user and can be pressed to create a capacitive or electrically conductive touch event. A POSA would understand that Chu would work not only with capacitive touchscreens, but also with resistive touchscreens, because 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 provides a touch input to a resistive screen. See EX1002, §VII(B), ¶58.

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

The most common touchscreens on the market as of the '075 patent's alleged invention date were capacitive and resistive. See §VI(A). 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. 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. 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), ¶59.

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 smartphone's touchscreen 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 designing a VR viewer by using Kondo would

look to other available input mechanisms, thus leading the POSA to Chu. See EX1002, ¶60.

A POSA would combine Kondo/Chu for additional reasons. 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. Touchscreens can interpret this as differing inputs, based on the size of touch-screen contact, the level of pressure, and the level of conductivity. 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). See EX1002, ¶61.

Second, Chu’s “swipe” embodiment provides additional input to Kondo’s device by enabling a whole new form of input, the swipe. 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 and be used for more applications, increasing the device’s desirability. See EX1002, ¶62.

Third, Chu’s input mechanism is designed to be waterproof, and thus, adding Chu’s input mechanism to Kondo has advantages. In particular, the Kondo/Chu combination would be less susceptible to damage from water and other environmental factors, like dirt and dust. 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. Of course, the resulting device can be used underwater. See EX1002, ¶¶63-64.

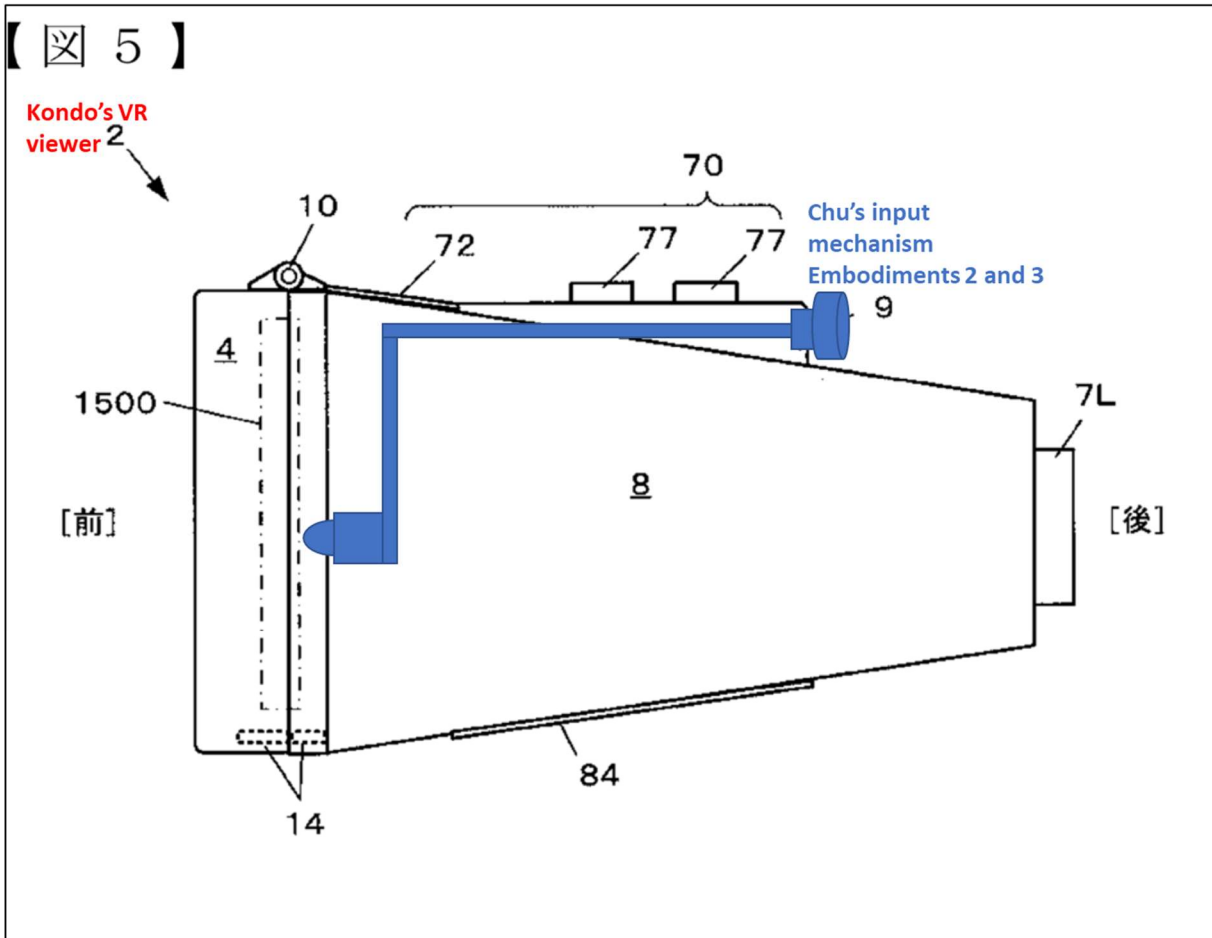
Fourth, this combination would allow the device to be cleaned without fear of cleaning fluid reaching the device's inner parts. This can be important if the VR viewer is being used in a sanitary environment (*e.g.*, during a medical procedure or in a manufacturing facility, like a semiconductor fabrication facility). For these reasons, a POSA would be motivated to combine Kondo/Chu. See EX1002, ¶65.

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. In fact, a POSA would consider the combination's formation to be merely routine, requiring little skill. See EX1002, ¶66.

The following diagram shows how a POSA could easily combine Chu's first embodiment (depicted in **blue**), found in Figs. 3-6, with Kondo's Fig. 5. Of course, inputs 77 and electrical wire 72 would be removed. To do so would require little effort and skill, and a POSA would have a reasonable expectation of success. This figure is not to scale and is only illustrative. 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 Kondo's device to accommodate Chu's input device. In fact, Chu contemplates such structure as "one or more posts or guides" and shows supportive structure in its



Figs. 9a, 9b, and 10, in Kondo's Fig. 5. 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. This would require little effort and skill, and a POSA would have a reasonable expectation of success. See EX1002, ¶69.

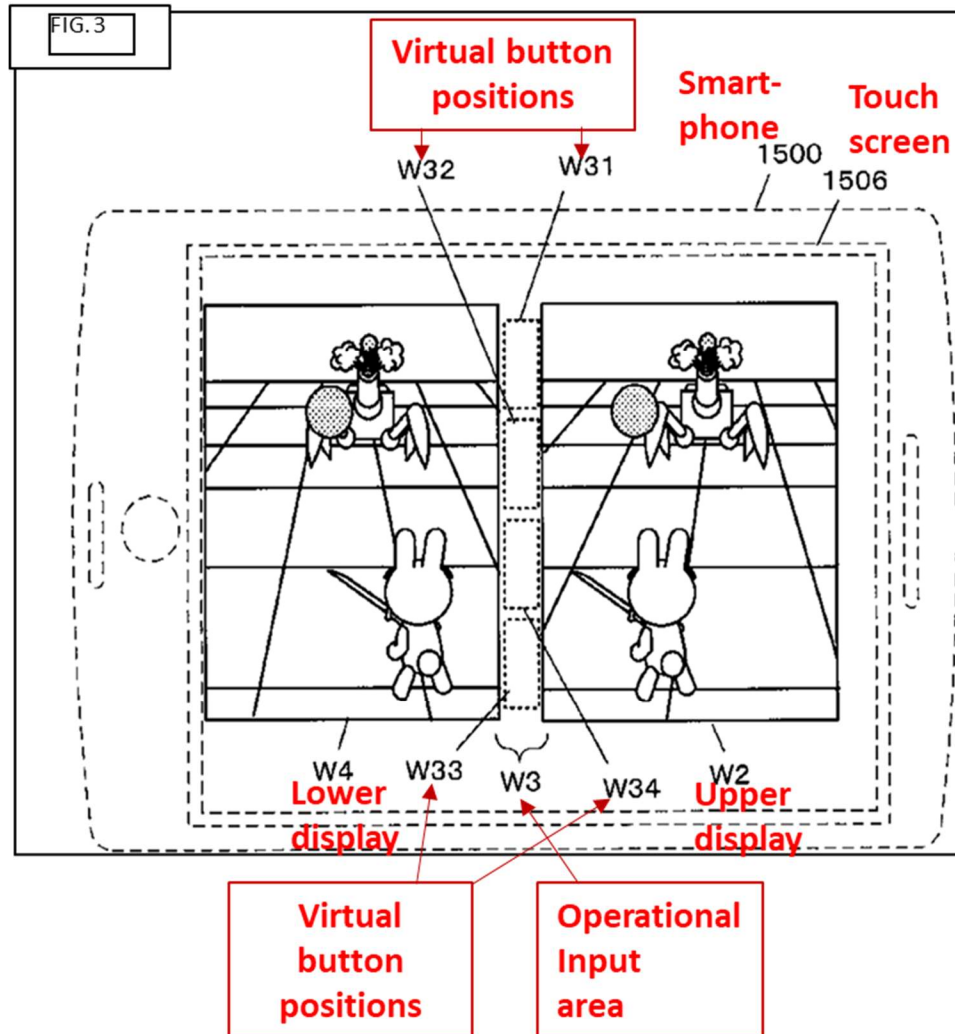


EX1003, Fig. 5 (annotated to include Chu's input device).

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 mentioned in the discussion of Chu's first-embodiment combination, Chu contemplates such supportive structure. Additionally, Chu's input mechanism

could be smaller and take a variety of sizes. And, the outer shell of Kondo's device through which Chu operates could easily be extended to accommodate more input devices if desired. See EX1002, ¶70.

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 touchscreen's center and this operational input area contains virtual button positions for operating the smartphone. See EX1002, ¶71.



EX1003, Fig. 3 (annotations added), ¶¶0027-0028.

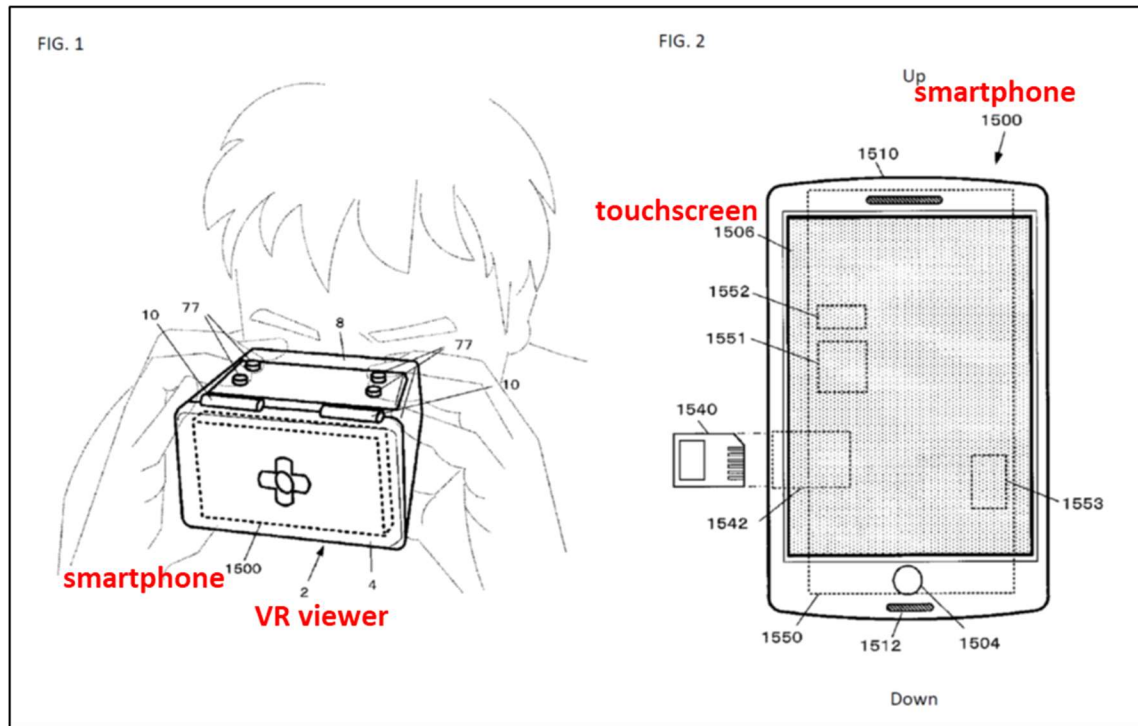
XII. GROUNDS OF UNPATENTABILITY – KONDO/CHU

This section demonstrates how the Kondo/Chu combination renders the challenged claims unpatentable. See EX1002, §§VII, VIII. Please see §§XI(A, B, C) for context and explanation of Kondo and Chu, and how they would be combined.

A. Claim 1:

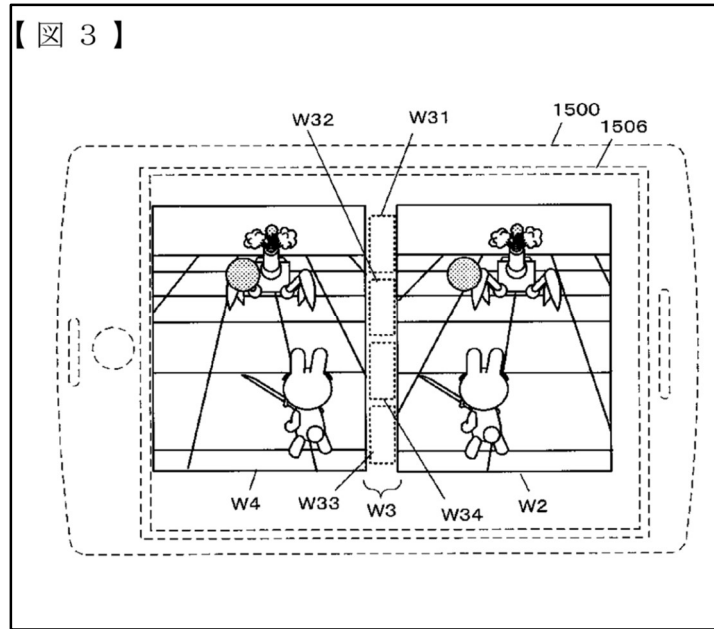
1. Claim 1(a): A virtual reality viewer for use with a mobile electronic device having a touch-screen, the viewer comprising:

Figures 1 and 2 of Kondo below show a VR viewer 2 that encloses a smartphone 1500 with a touch-screen display 1506. The term virtual reality viewer means “a viewer of an artificial environment,” where “viewer” includes both handheld devices and headsets. See §X. Kondo refers to its VR viewer as an “attachment.” See §XI(A). Therefore, “VR viewer” and attachment will be used interchangeably when discussing Kondo.



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

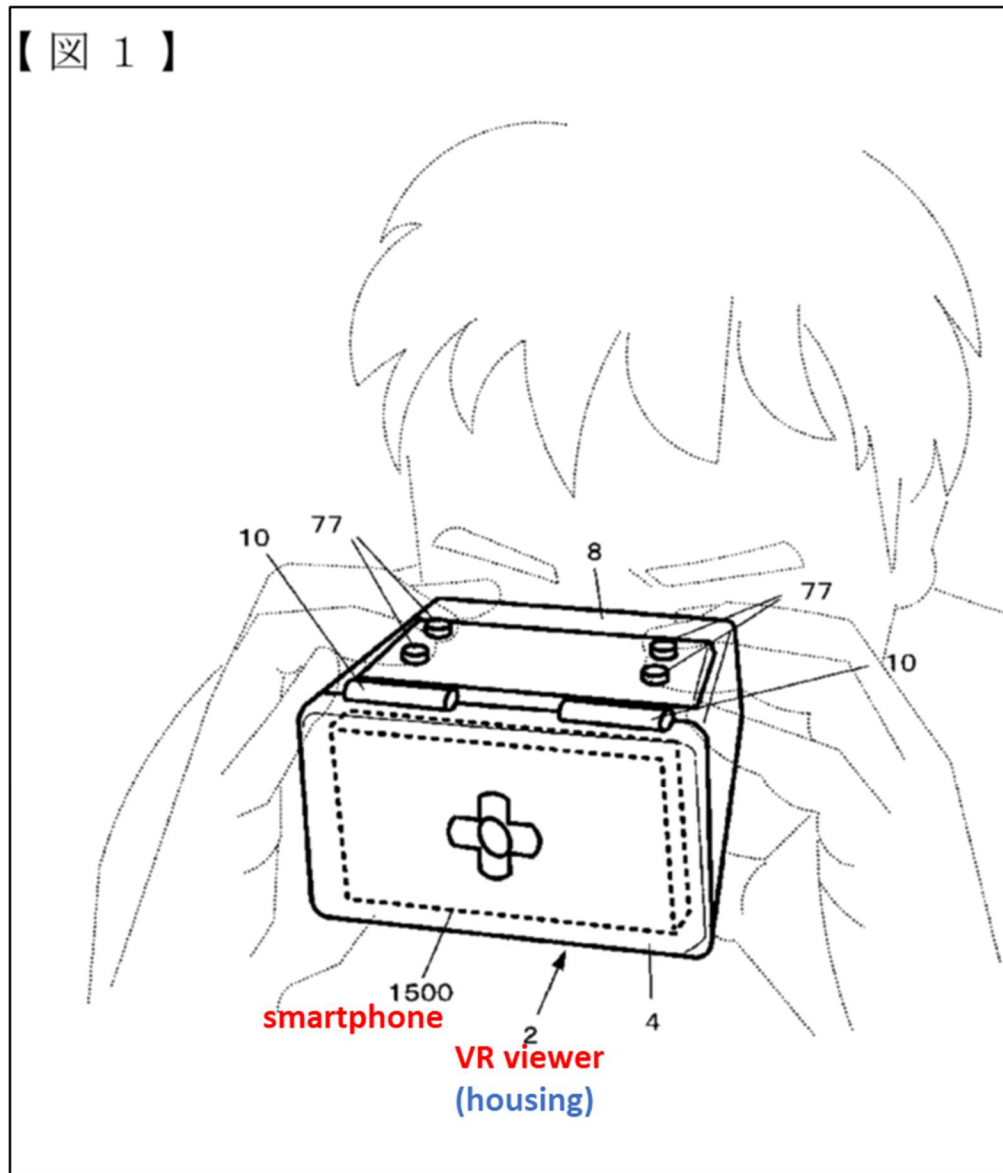
Kondo's Figure 3 below shows the touchscreen 1506 depicting an artificial environment, a stereoscopic video. EX1003, ¶0027. The touchscreen is a capacitive touchscreen. EX1003, cls. 1, 4, ¶¶0005, 0009, 0023, 0024.



EX1003, Fig. 3; see EX1002, §VIII(A)(1).

2. **Claim 1(b): a housing configured to receive the mobile electronic device, wherein the housing is configured to hold the mobile electronic device such that the touch-screen is generally centered in a horizontal direction and directly in a user's field of view when looking into a generally hollow interior of the housing through a side opposite the touch-screen;**

In Figure 1 below, Kondo shows the VR viewer, the housing of which is the claimed “housing” (labeled in **blue**), holding the smartphone 1500 horizontally centered and directly within the user’s view. Also, the user looks through a side opposite the smartphone’s touchscreen.

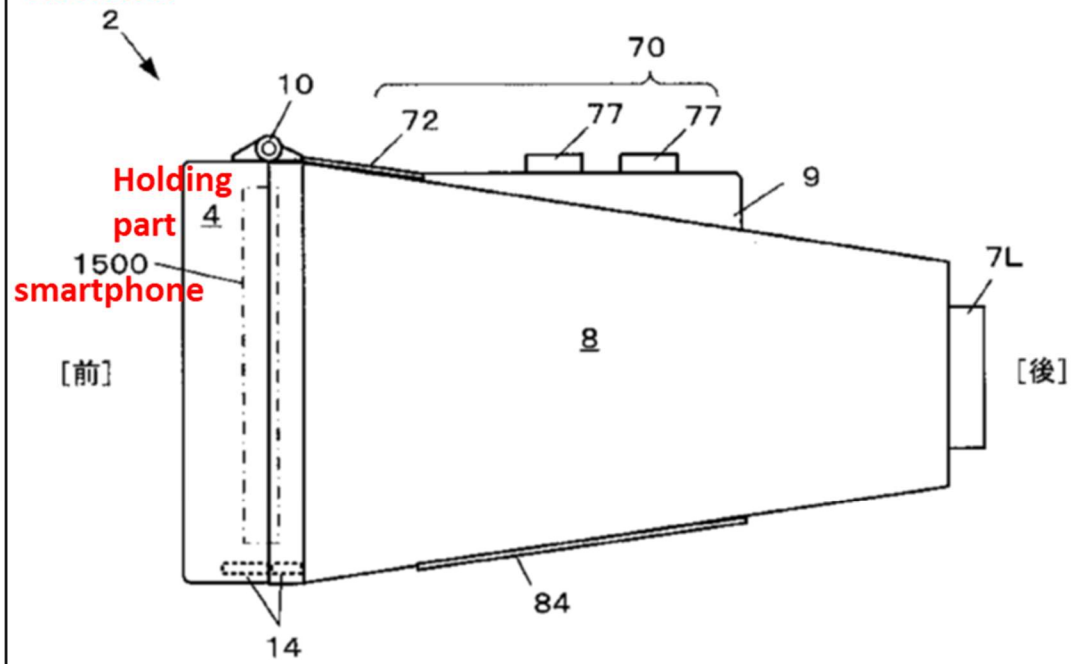


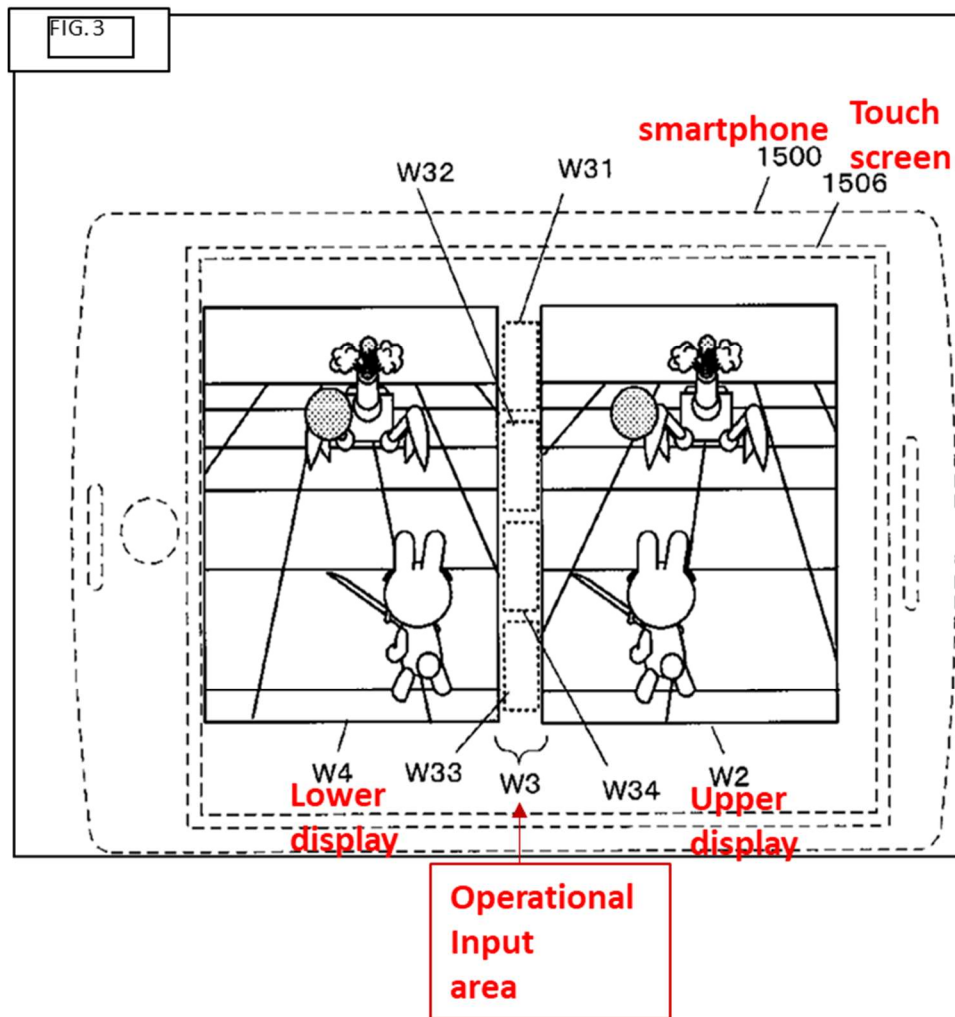
EX1003, Fig. 1 (annotations added).

Kondo Figure 5 below shows the smartphone 1500 inside the VR viewer, and Kondo Figure 3 below (and Figure 1 above) show the phone horizontally centered.

【図 5】

VR viewer

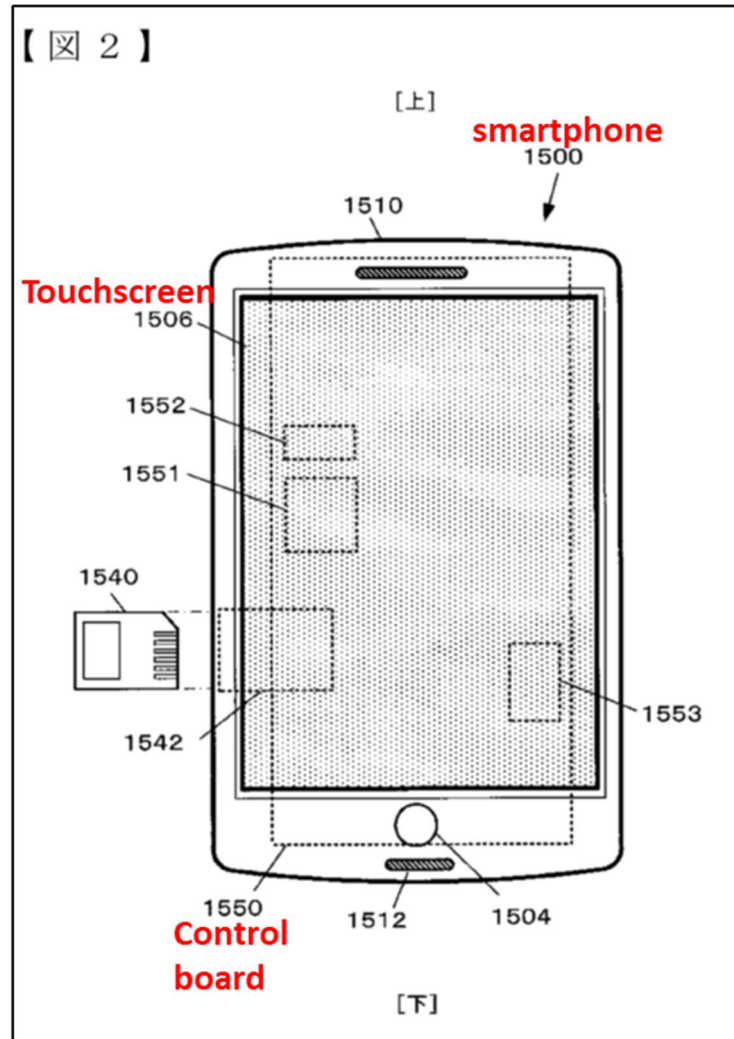




EX1003, Figs. 3, 5 (annotations added).

Kondo Figure 3 (above) shows an example of a three-dimensional stereoscopic video on a display screen. The smartphone 1500 is mounted to the holding part 4 (shown in Figure 5) with the smartphone 1500 turned sideways. Figure 3 shows an upper display area W2 and lower display area W4 on the touchscreen 1506, and an operational input area W3 between. The upper display area W2 and lower display area W4 are on the right and left sides of the VR viewer

2, respectively, when the smartphone 1500 is mounted. Therefore, the smartphone's control board 1550 (see Figure 2 below) displays a right-eye image on the upper display area W2, and a left eye image on the lower display area W4. EX1003, ¶0027.

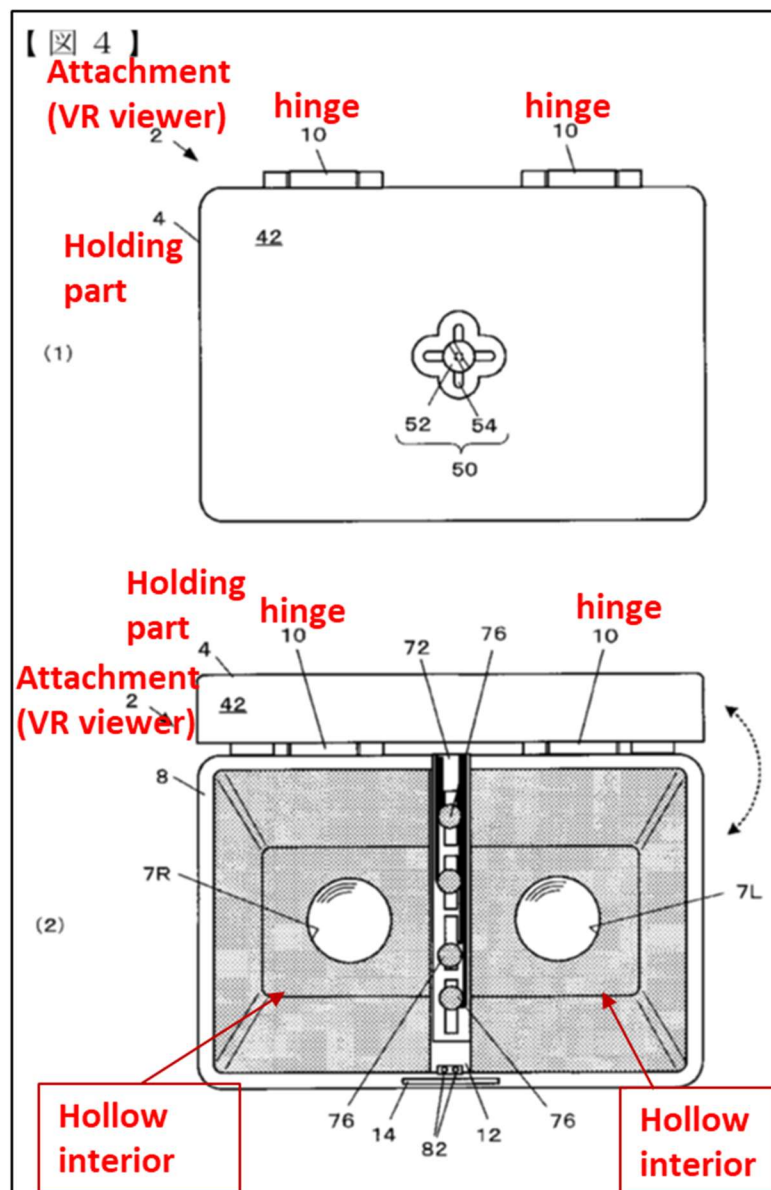


EX1003, Fig. 2 (annotations added).

Kondo Figure 4 below (and Figures 5-7) discloses that 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 VR viewer's interior is hollow, that the smartphone is held in a centered, horizontal position, and that the user looks through the side opposite of the smartphone.

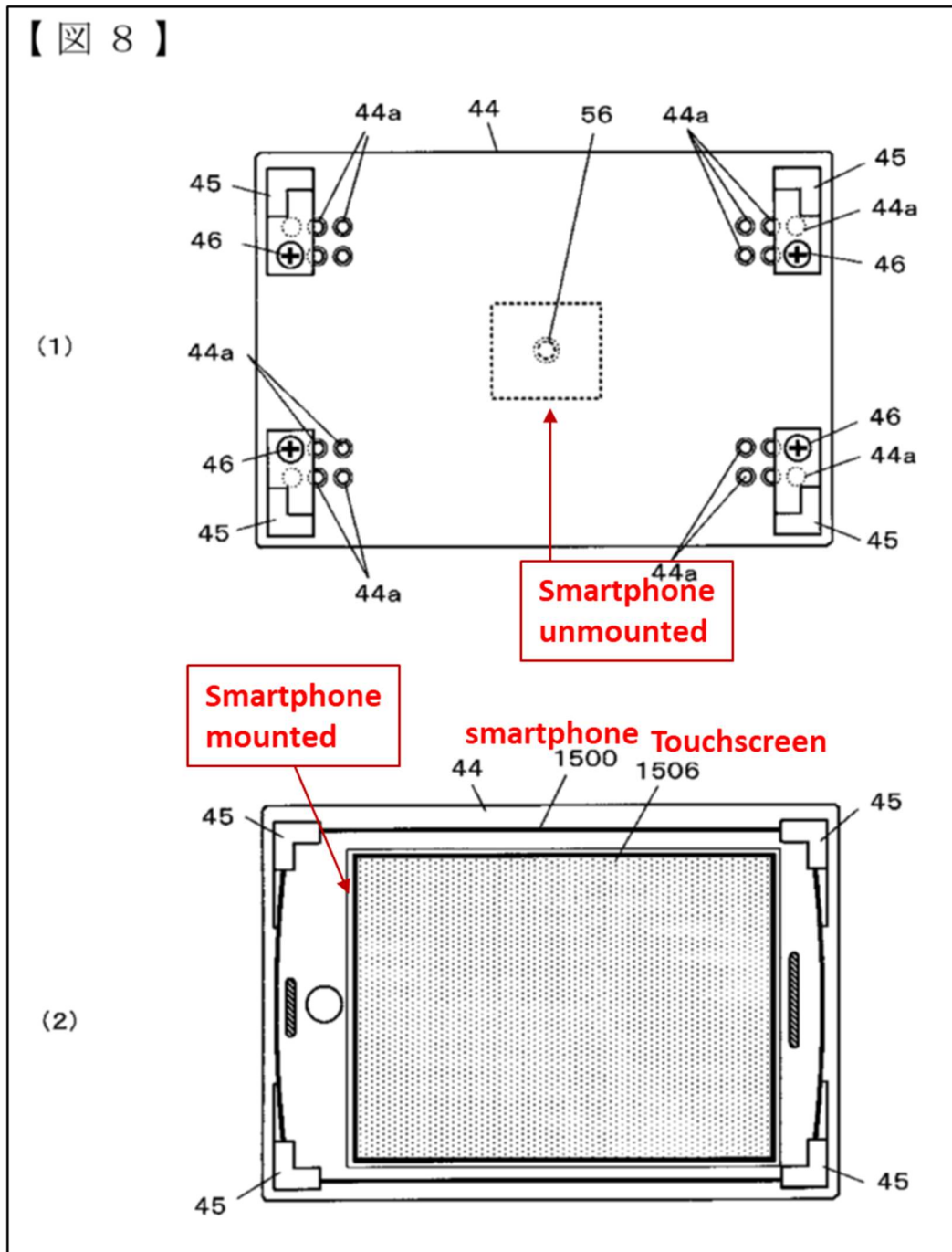
EX1003, ¶0030; *see also*, ¶0022.



EX1003, Fig. 4 (annotations added).

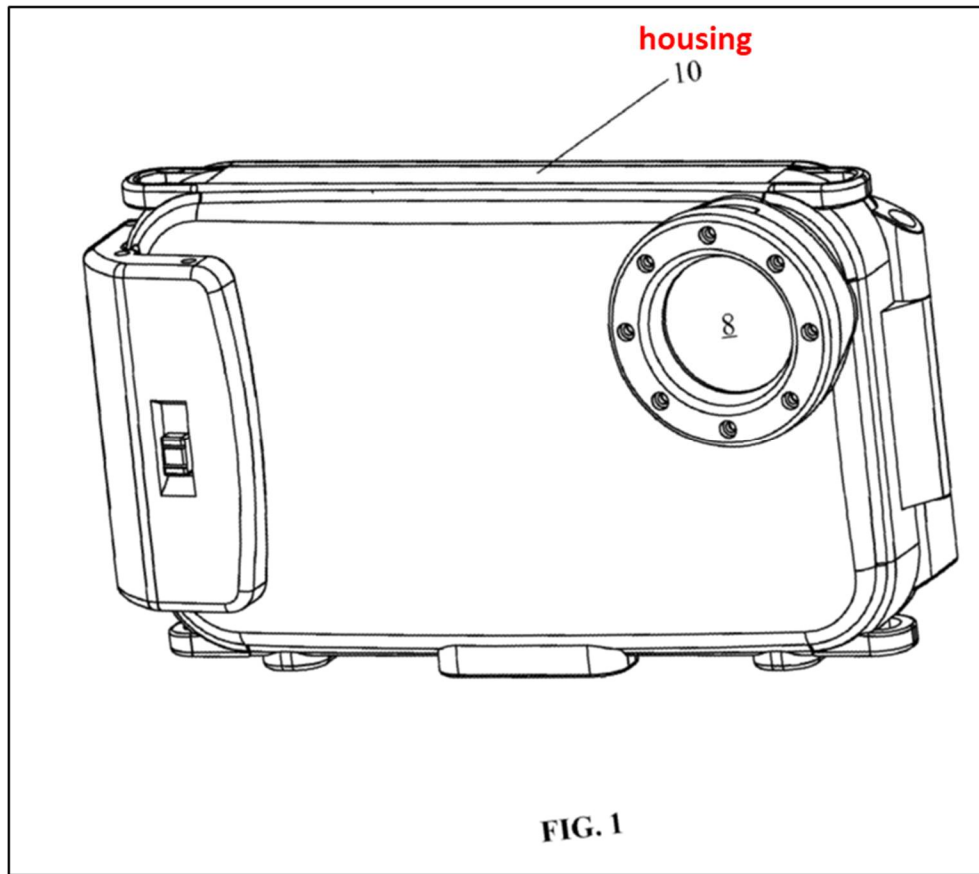
Kondo Figure 7 below shows magnets 14 embedded in the mating surfaces of the holding part's 4 lower end and VR viewer's main body's 8 lower end, and when the holding part 4 is closed, the magnets attract each other to keep the holding part 4 closed. Kondo Figure 7 below also shows the hollow interior.

EX1003, ¶0030, Fig. 7; *see also*, ¶0022.



EX1003, Fig. 8 (annotations added).

Chu's Figure 1 shows a housing holding a smartphone:

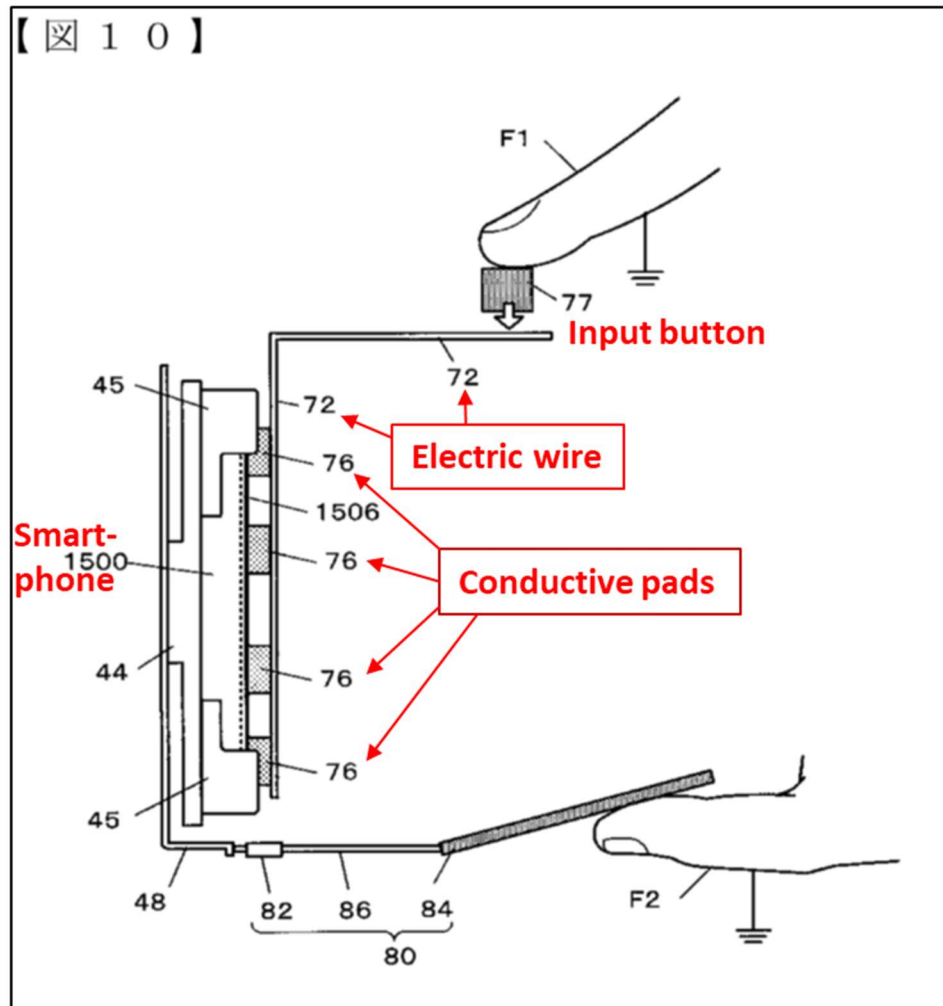


EX1004, Fig. 1 (annotation added); *see also* ¶0038; *see* EX1002, §VIII(A)(2).

3. **Claim 1(c): an input mechanism that is accessible from an exterior of the housing and is moveable within the interior between at least a first position and an extended position,**

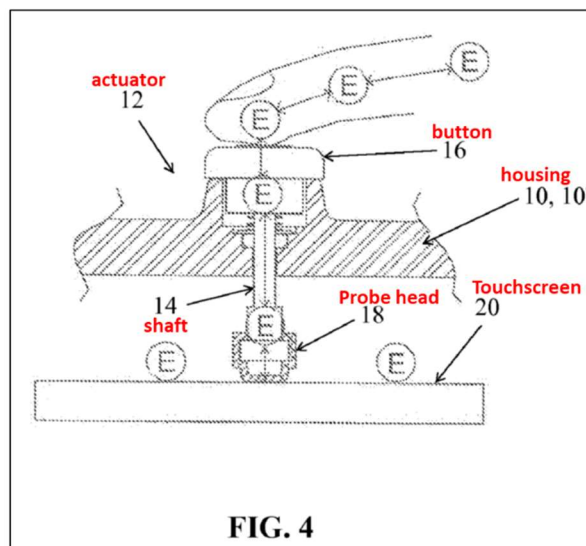
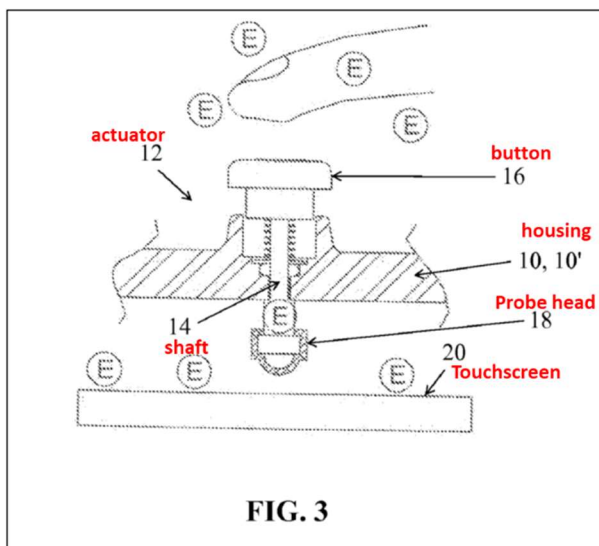
Kondo discloses an exterior-accessible input mechanism (button 77)

movable between a first position and an extended position:



EX1003, Fig. 10 (annotations added); *see also* p. 2, Abstract.

Kondo's Figure 10 above 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 and that this button moves in the interior from a first position to an extended position through a cut out in the main body of the attachment, called the gripping part 9:



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

Chu explains how when a user depresses button 16, input device 12 moves from a first position to a second position to cause a touch event.

[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.*** 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....* 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.

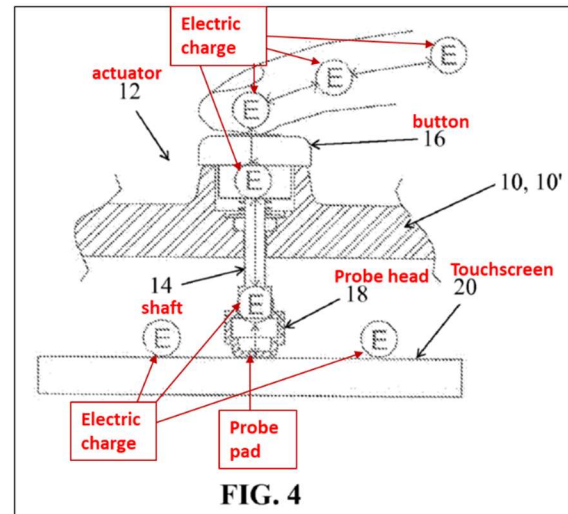
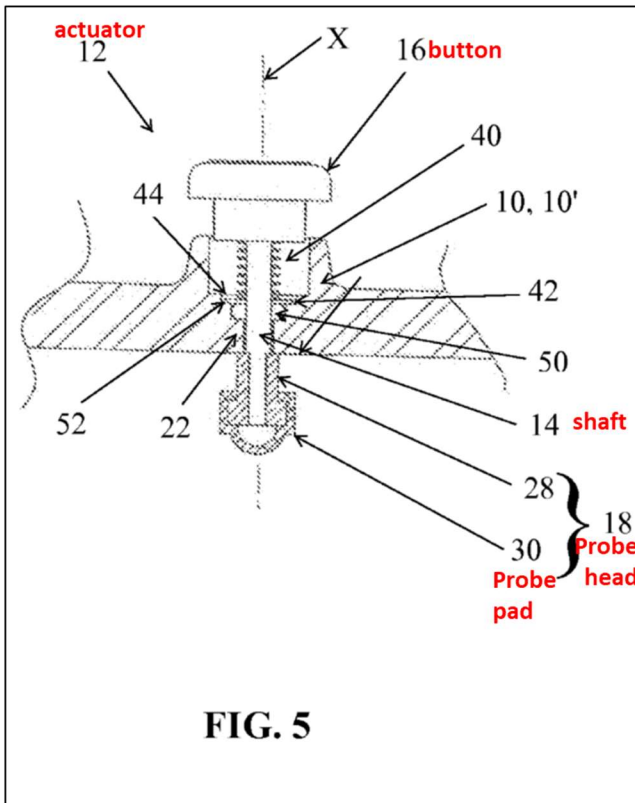
Chu's second and third embodiments operate the same way because pressing button 16 causes the probe head (18' in embodiment two and 18'' in embodiment

3) to contact the touchscreen 20 and cause a touch event. EX1004, ¶¶0053-0062; see EX1002, §VIII(A)(3).

4. **Claim 1(d): the input mechanism comprising: an electrical shield having a surface, wherein only a portion of the surface of the electrical shield is configured to contact a central region of the touch-screen of the mobile electronic device when the input mechanism is in the extended position.**

See claim 1(c) for a description of Kondo's and Chu's "input mechanism."

The term "electrical shield" means "a material configured to induce a touch event that is electrically detectable by a touchscreen/device when at least a portion of the shield contacts or is in proximity to a touchscreen." See §X. Chu's Figure 5 below shows the electrical shield (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 that only a portion of the probe pad's surface contacts the smartphone's touchscreen 20 when the input mechanism is extended.



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

Chu explains how the actuator mechanism moves to an extended position to cause a touch event:

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).

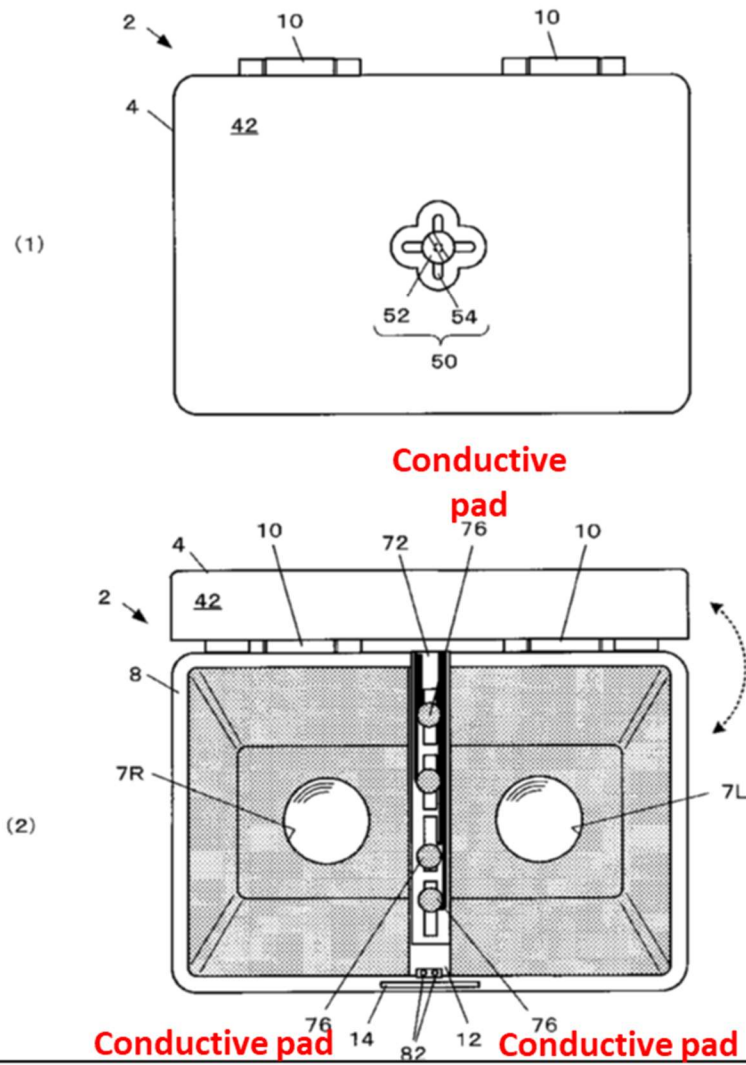
The press button, the shaft, the adaptor, and the probe head may be made of metal. EX1004, ¶0014; *see also* ¶¶0019, 0049.

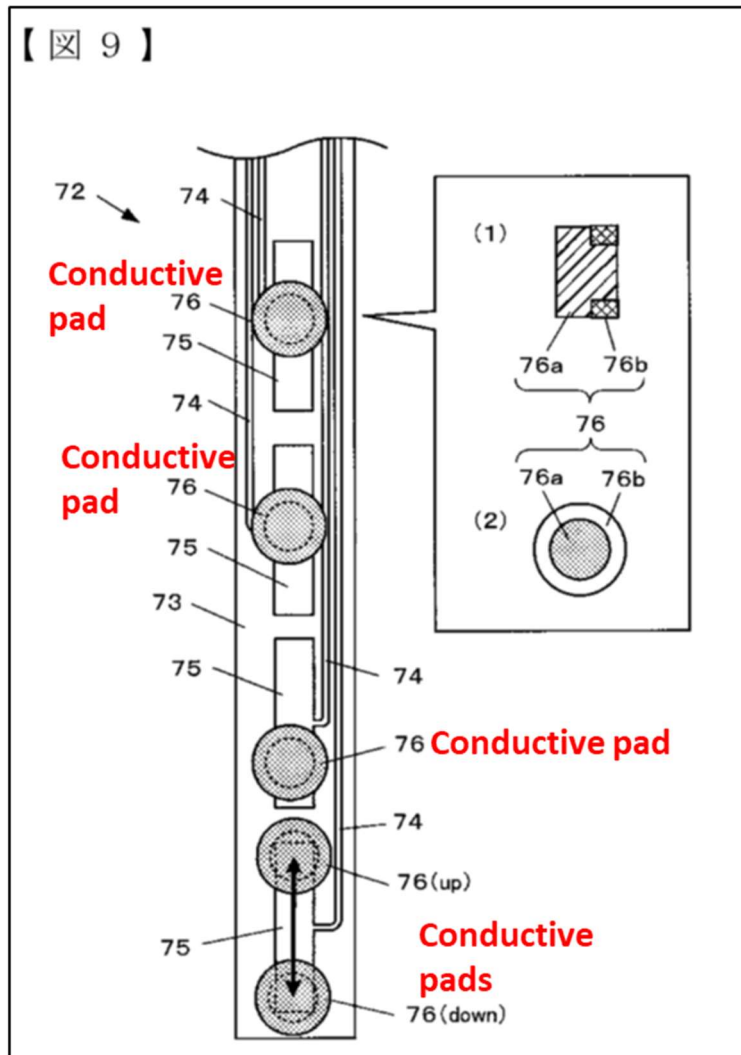
The probe pad 30 may be made of soft material *such as rubber. Additive may be added to the rubber in order to enhance its electric charge transfer performance.* EX1004, ¶0049 (emphasis added).

All three embodiments of Chu operate in this same way. See EX1004, ¶¶0053-0062.

Kondo's Figure 4 shows that the conductive pads 76, activated by pushing button 77 on the exterior of the housing, contact the central region of the smartphone. And Figure 9 below shows the conductive pads in more detail. Since Kondo's touchscreen operational input area is centered, the combinations of Kondo/Chu proposed above in §XI(C) would use Chu's input mechanism to contact the central region of Kondo's touchscreen.

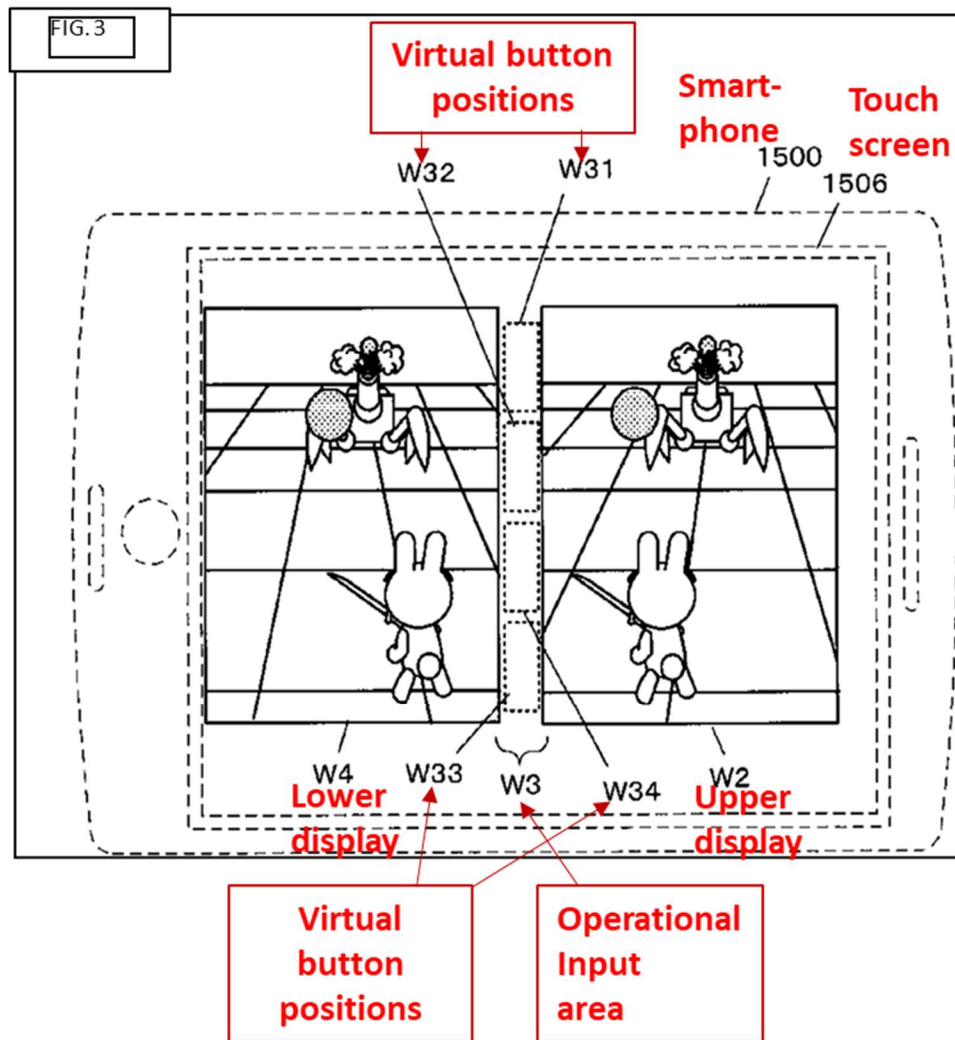
【 図 4 】





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

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



EX1003, Fig. 3 (annotations added).

Kondo explains that when holding part 4 is closed, the conductive pads 76 (shown in Figures 4 and 9 above) come into contact (shown in Figure 3 above) with the operational input area W3 and, specifically, virtual button positions W31-W34:

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*

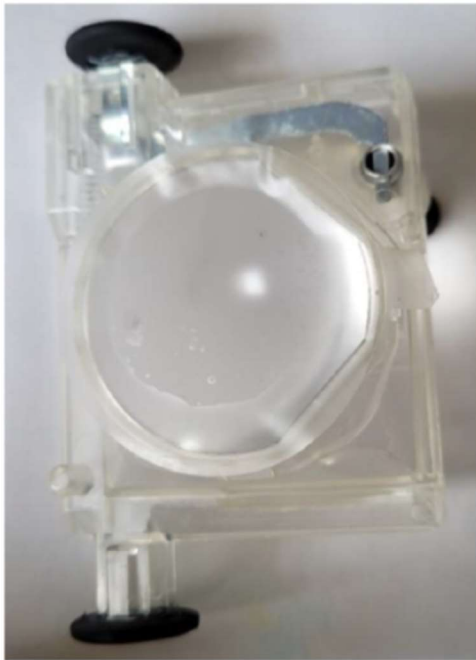
conductive pad 76 comes into contact with the virtual button positions W31 to W34 set on the touch panel 1506 of the smartphone 1500 held by the holding part 4. The conductive pad 76 of the present Embodiment is a disk-shaped pad, and includes a conductive core section 76a.... EX1003, ¶0041 (emphasis added).

As a result, the electrical shield (Chu's probe pad 30) in the Kondo/Chu combination would contact the central region of the smartphone's touchscreen when the input mechanism is in an extended position. See EX1002, §VIII(A)(4), ¶94.

The prosecution history does not influence a POSA's analysis of this claim element for the reasons stated in §VI(C). See EX1002, ¶95.

Further, in district court litigations, Patent Owner has alleged infringement based on viewers with input devices that are almost exactly the same as Chu's. In one litigation, the Patent Owner alleged that a rubberized nub is the "electric shield" and that only a portion of its surface touches the touchscreen. Notably, that surface extends up the sides of the input mechanism which must therefore constitute part of the electric shield's surface.

38. These unsupported assertions are incorrect. The Accused Products do include an electrical shield, which (although not required by Claim 1) comprises a conductive material. As evidenced below, the Accused Products include an electric shield comprised of a rubberized conductive nub affixed to a metal arm that extends through the interior housing:



Rubberized
nub

39. The Accused Products are also configured to have a portion of the surface of the electric shield contact the screen of a mobile electronic device and the electric shield does not, as

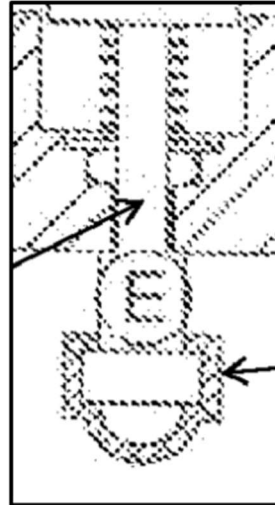
Merge counsel contends, have “maximum surface contact.” Instead, as shown immediately above, only a portion of the electric shield (*i.e.*, only a portion of the rubberized conductive nub) is configured to make contact with the touchscreen.

DDC Technology v. Merge Labs, Inc., Complaint, Case No.: 6:21-cv-000850, WDTX (EX1009, pp. 12-13 (highlighting and annotation added)).

A side-by-side comparison between the accused “rubberized nub” and Chu’s probe pad demonstrates the similarity. Indeed, compared to the accused rubberized nub on the left, a smaller portion of Chu’s probe pad surface contacts the touchscreen.



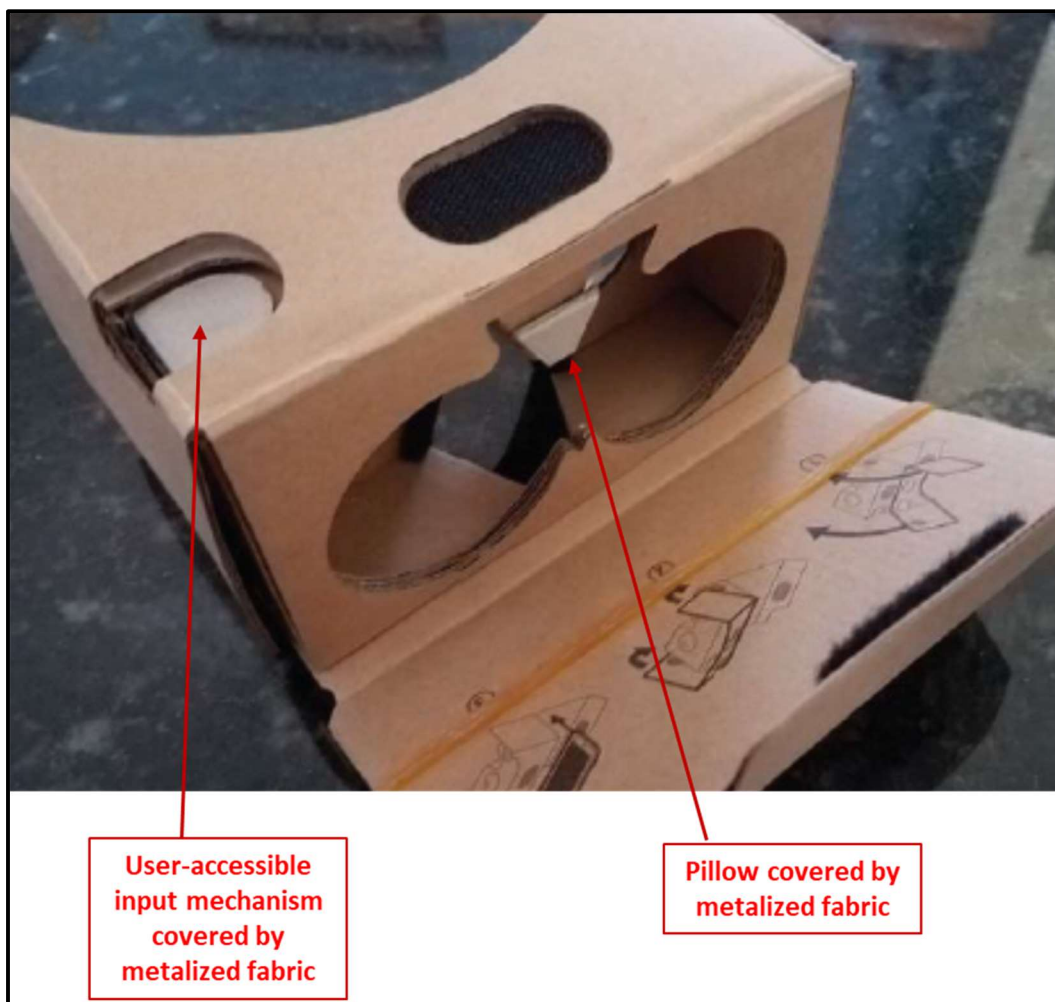
**DDC v. Merge Labs
Complaint**



Chu Fig. 3

EX1009, p. 12 (cropped and rotated); EX1004, Fig. 3 (cropped); see EX1002, ¶¶96-97.

In another litigation, the Patent Owner also accuses Google’s Cardboard Viewer of infringement. Google’s accused device has what is known as a “pillow” that contacts the touchscreen. The touchscreen-facing side of the pillow is covered by a silver-colored, metalized fabric that wraps around the bottom of the pillow and continues along a “conductive strip” all the way to the user-accessible input mechanism, as shown below.



DDC v. Google et al. Supplemental Annotated Infringement Contentions (EX1011, p. 9 (annotations added)); see EX1002, ¶98.

DDC accuses the metalized fabric that is on the pillow and the conductive strip as constituting the claimed “electrical shield.”

The input mechanism of the Cardboard Viewers comprises an electrical shield having a surface.



GCV2 Physical Unit.

The electrical shield of the Cardboard Viewers is the portion of the Cardboard Viewers comprising the metalized fabric (polyester nickle/copper) that encases the "pillow" and the "conductive strip." See also annotated supplement.

3.3. Button Specifications: Conductive Strip and Pillow

Google Cardboard (I/O 2015) button consists of two conductive parts ("pillow" and "strip"), glued to a cardboard-based "hammer".

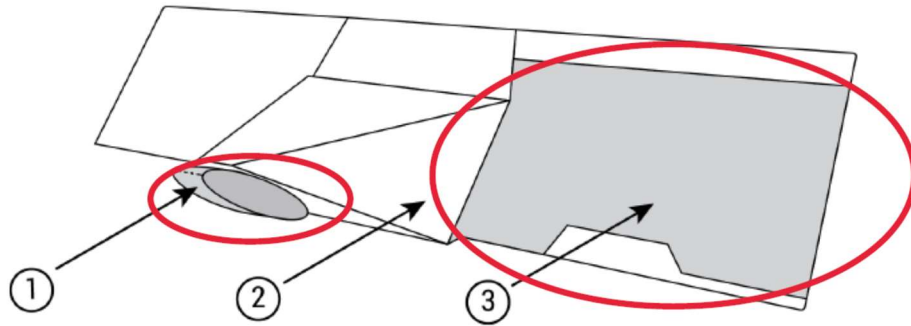
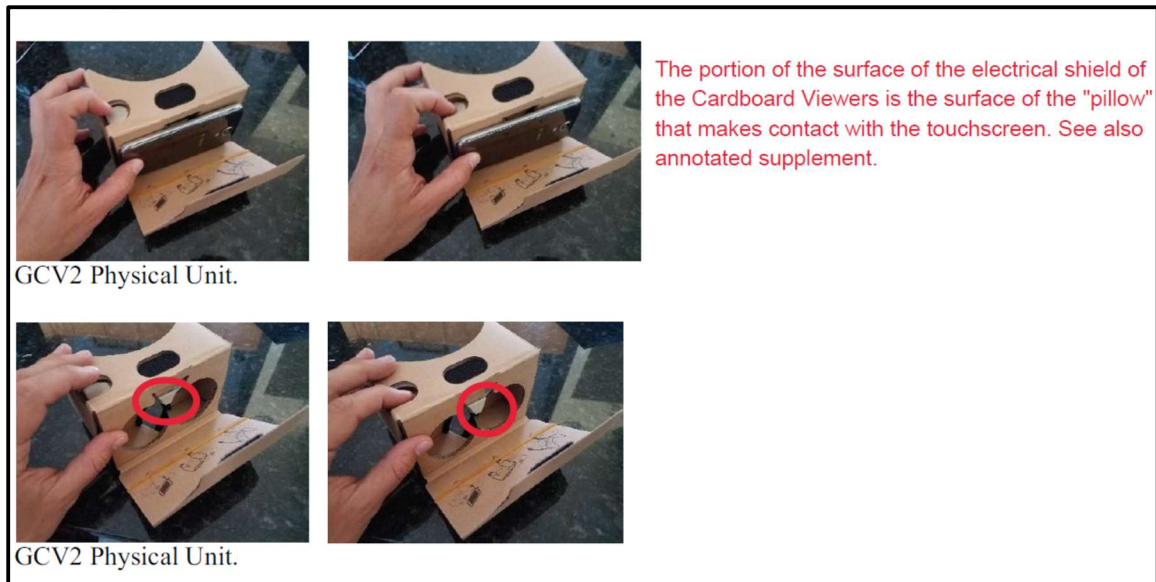


Figure 7. Cardboard button parts: (1) - "pillow", (2) - "hammer", (3) - "conductive strip"

EX1011, p. 40 (annotations in original); see EX1002, ¶99.

The Patent Owner alleges that the claimed “only a portion of the surface of the electrical shield” is the surface of the pillow that contacts the touchscreen:



EX1011, p. 42 (annotations in original); see EX1002, ¶100.

The portion of the metalized fabric that wraps around the pillow's sides which do not contact the touchscreen are not accused of being the claimed "only a portion of the surface of the electrical shield" but are claimed to be part of the electrical shield's surface. In this respect, Chu is the same. As explained above, Chu's probe pad's end contacts the touchscreen, but the probe pad extends up Chu's input device along the sides. See EX1002, ¶101.

The Patent Owner's district-court infringement positions only confirm that Chu's probe pad constitutes the claimed electrical shield in a manner consistent with how the Patent Owner is interpreting its claims. See EX1002, §VIII(A)(4), ¶102.

B. Claim 2:

See the analysis of claim 1 above for how the Kondo/Chu combination renders obvious that claim. See EX1002, §VIII(B).

- 1. Claim 2(a): The virtual reality viewer of claim 1, wherein input mechanism is configured to provide a capacitive touch input to the touch-screen when the input mechanism is in the extended position, and**

See claim 1 and for a description of the Kondo/Chu combination's input mechanism and how it works. *See also*, Chu's Figure 4 and ¶0041, where Chu explains that, when the actuator mechanism is actuated (extended), an electric charge is transferred between the user's finger and the capacitive touchscreen.

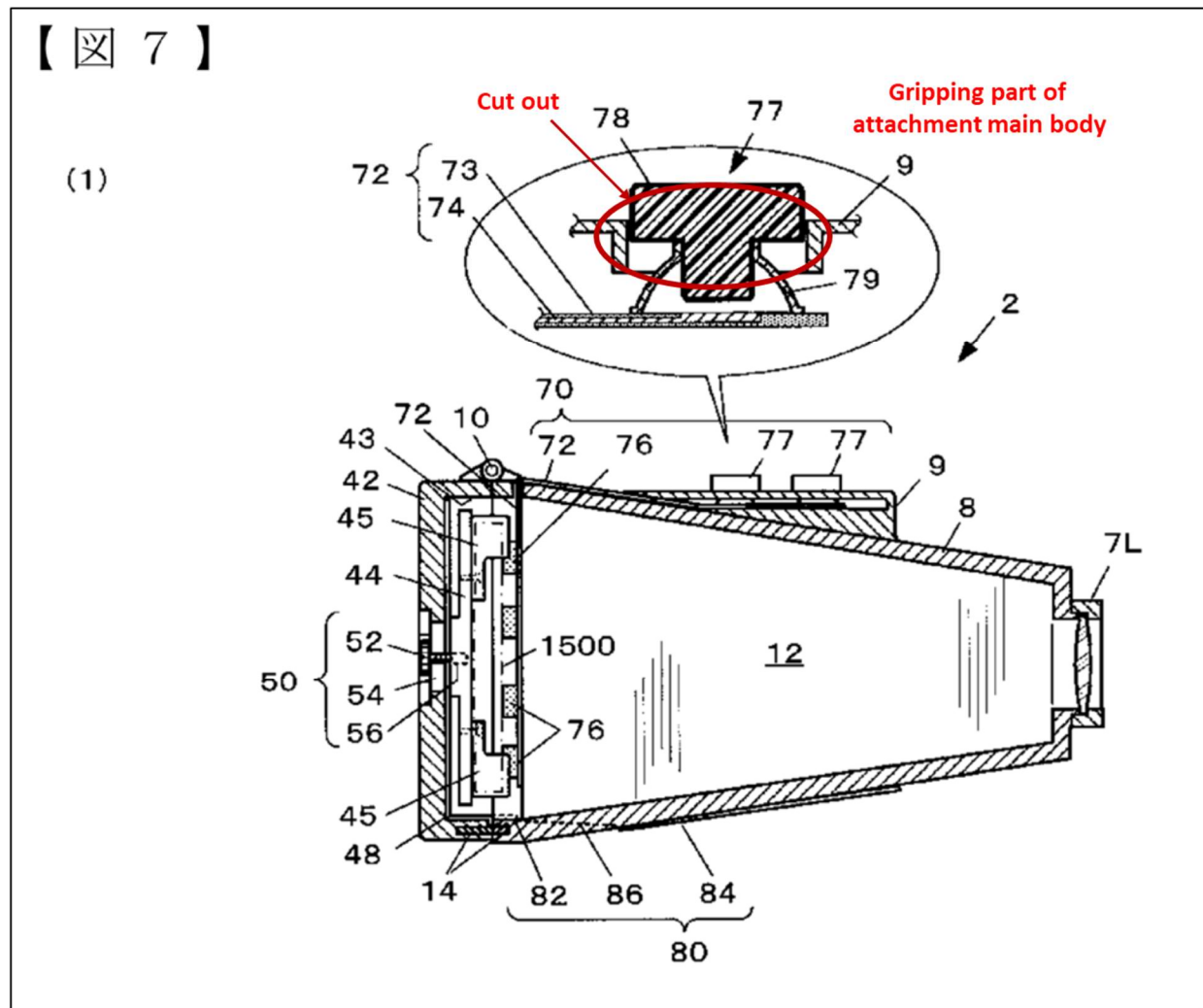
EX1004, Fig. 4, ¶0041; *see also*, ¶¶0053-0062; see EX1002, §VIII(B)(1).

- 2. Claim 2(b): wherein at least a portion of the input mechanism is moveable between the first position and the extended position and is located within a central region of the interior that is between a left and a right region of the interior and the field of view such that only the portion of the surface of the electrical shield contacts the central area of the touch-screen of the mobile electronic device.**

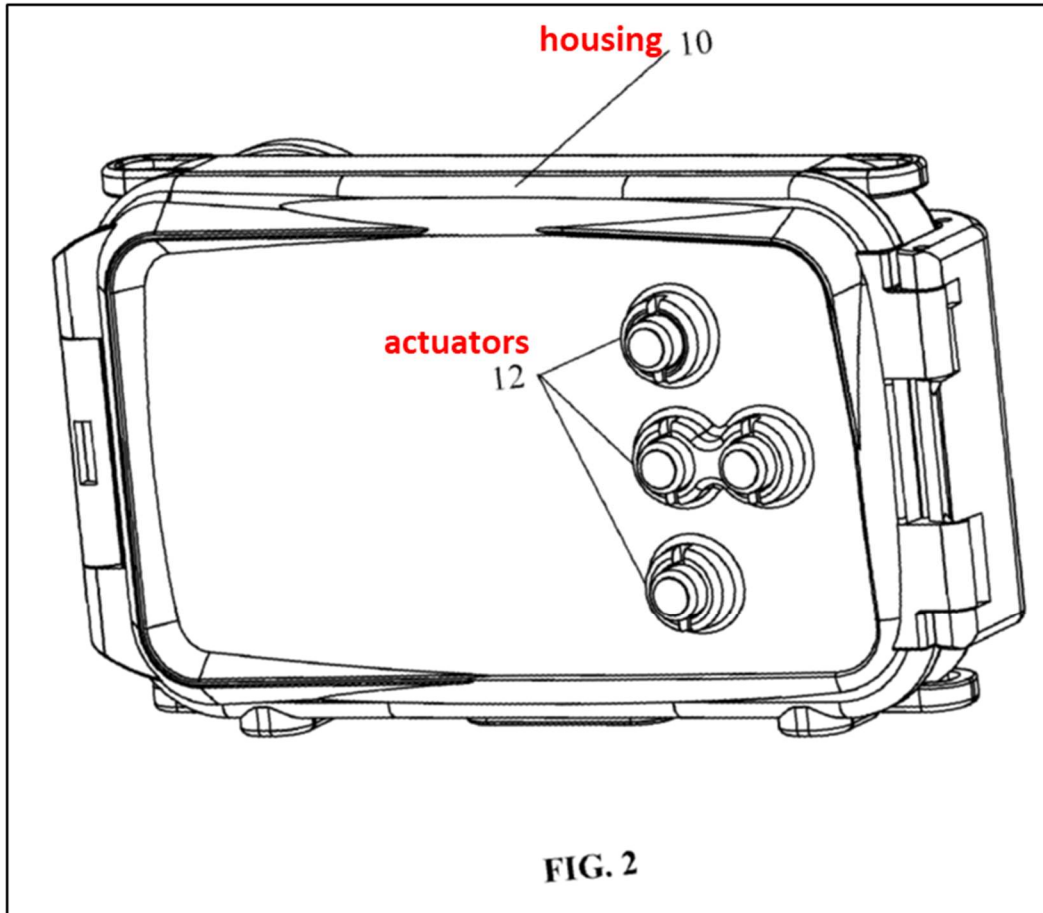
See the analysis in claim 1 for a discussion of the Kondo/Chu combination's input mechanism and how it works. *See also* Chu's Figures 3-5 and Kondo's Figure 4. See EX1002, §VIII(B)(2).

C. **Claim 3: The virtual reality viewer of claim 1, wherein an exterior wall of the housing is shaped to define a cut-out, and wherein at least a first portion of the input mechanism is accessible to the user through the cut-out.**

See the analysis of claim 1 above for a description of the Kondo/Chu combination's input mechanism. See EX1002, §VIII(C). Kondo shows in Figure 7 a cut-out in the gripping part 9 of the main body of the attachment where a first portion of the input mechanism 77 is accessible to the user.



Chu's Figure 2 below shows that a portion of the actuator 12 is accessible to the user through a cut-out.



EX1004, Fig. 1 (annotations added).

Chu also shows this in Figures 3-5, 7a, and 9a because button 16 is accessible to the user on the outside of housing 10. Also, the proposed combinations of Kondo/Chu shows a portion of the actuator 12 accessible through a cut-out. See §XI(C); EX1002, §VIII(C).

D. Claim 4:

See the analysis of claims 1 and 3 above for an analysis of those claim elements. See EX1002, §VIII(D).

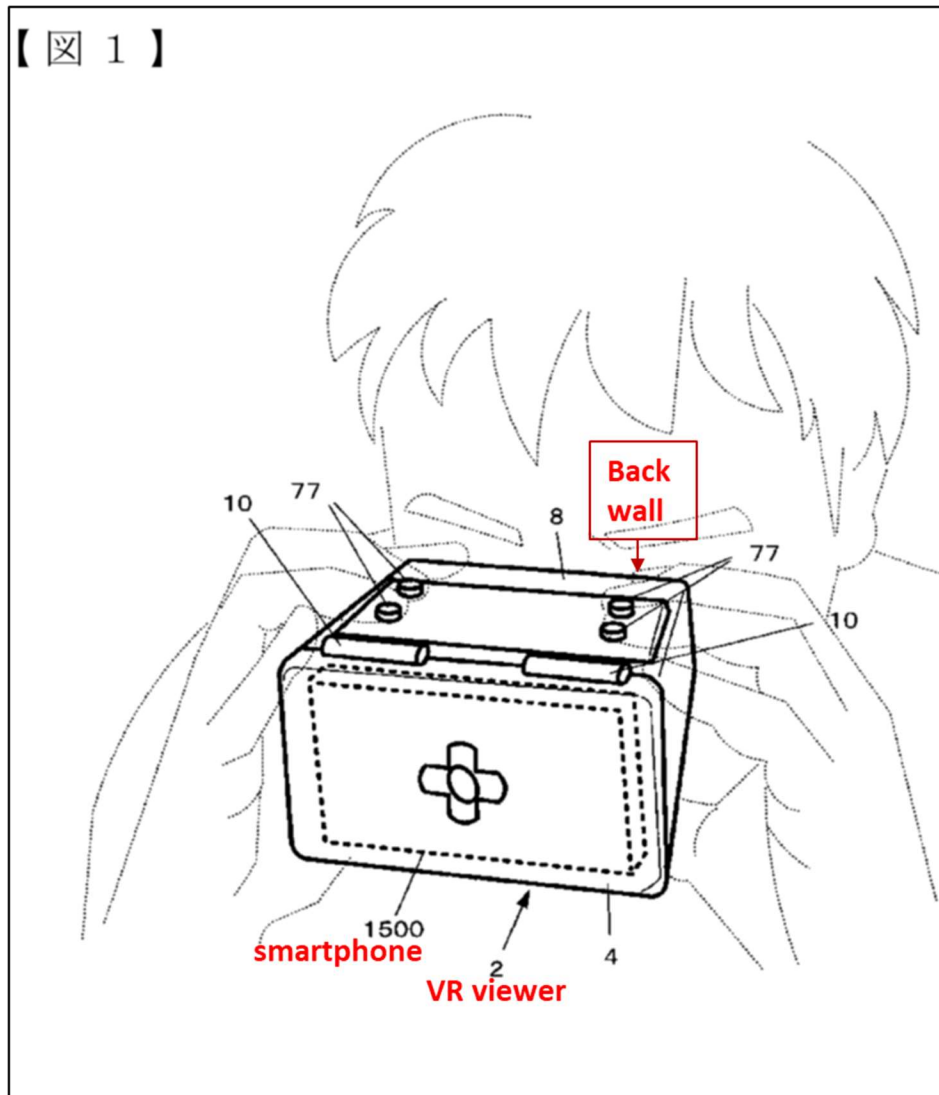
1. Claim 4(a): The virtual reality viewer of claim 3, wherein the housing substantially encloses the touch-screen within the interior, and further comprising:

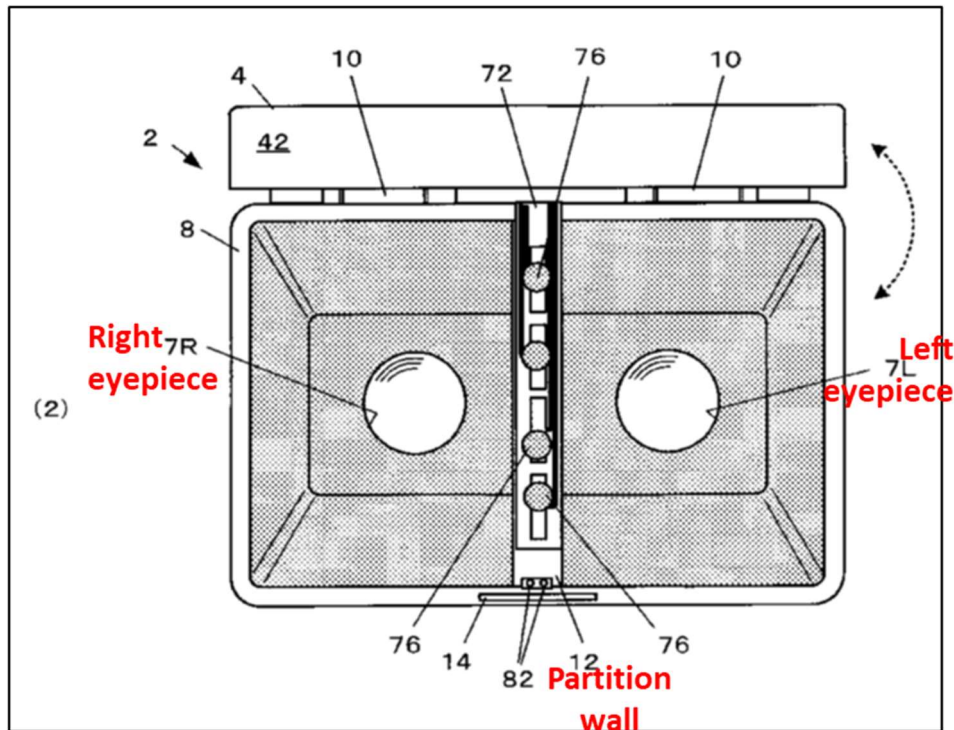
See the analysis of claim 1 above, including 1(b), where both Kondo and Chu disclose the VR viewer's housing enclosing the touchscreen within the interior. *See also*, EX1003, Figs. 1, 5, 6, 7; EX1004, Figs. 1, 2, ¶0011; see EX1002, §VIII(D)(1).

2. Claim 4(b): a back wall opposite the touch-screen, wherein the back-wall includes a left and a right lens for viewing a left and a right region of the interior and the touch-screen within the housing;

Please see the analysis of claim 1, including 1(b), for a description of Kondo's VR viewer. Kondo's Figure 1 below shows a back wall opposite the touchscreen of the smartphone 1500 and Figure 4(2) below shows a left and right lens on that back wall for viewing the left and right region of the touchscreen, which is on the opposite side.

【 図 1 】





EX1003, Figs. 1, 4(2) (annotations added).

Kondo explains that 7R is the right eyepiece and 7L is the left eyepiece. A POSA would recognize these eyepieces are lenses. 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 ’075 patent’s lenses because they perform the same function. The ’075 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, 1:47-51. Kondo’s eyepieces serve the exact 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.

Not only does Kondo disclose the claimed lenses, but the '075 patent's admissions also render them obvious. The '075 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, 1:47-51 (emphasis added).

The '075 patent also admits that the configuration, construction, and placement of lenses in VR viewers is well-known:

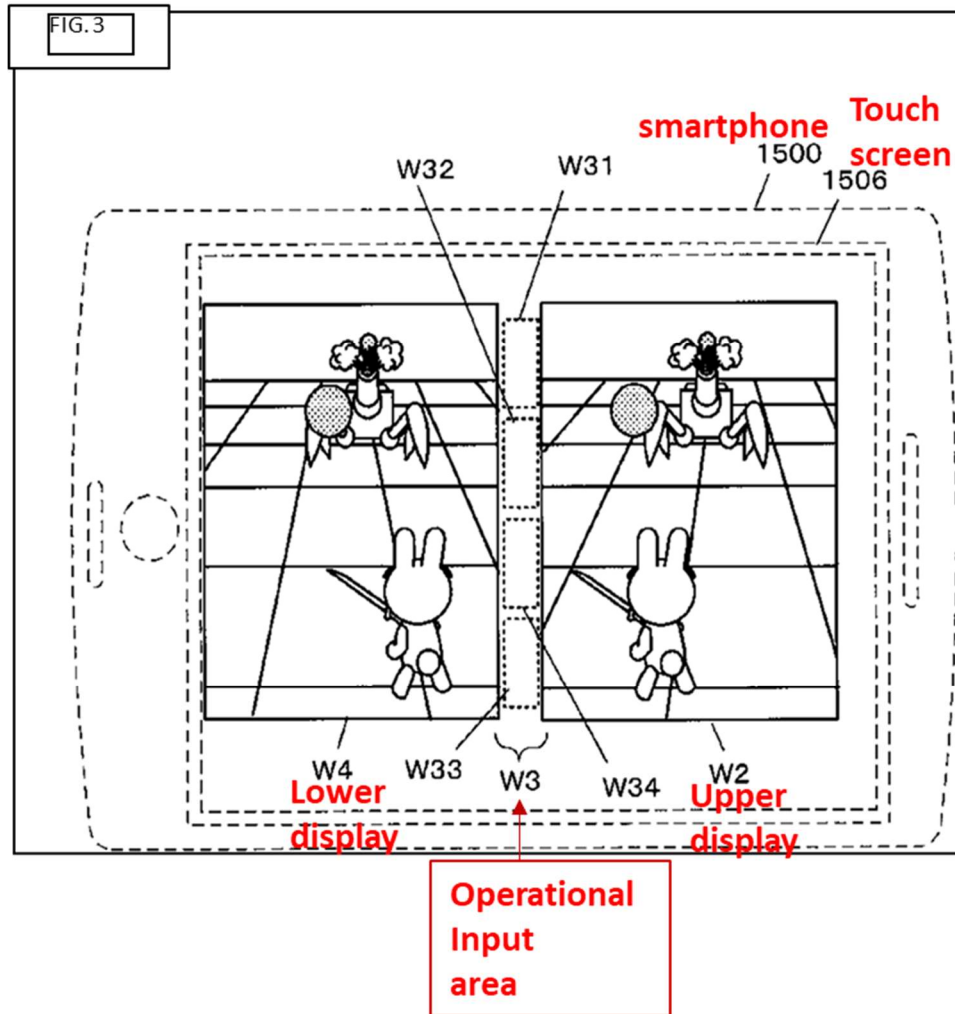
The configuration, construction and placement of a lens or lenses 70 for use in virtual reality viewers ***are generally known and understood*** by those skilled in the art. EX1001, 4:4-7.

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. Note that Kondo states the same motivation: by using its eyepieces, a user can enjoy a three-dimensional stereoscopic image. EX1003, pg. 2. 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, ¶115.

Figure 4(2) also shows a partition wall 12, separating the interior to a left and right region. Thus, 7R views a right region of the interior and 7L views a left region of the interior. See EX1002, ¶116.

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 region W2 as the right side, region W4 as the left side, and region W3 is used for input. See EX1002, ¶117.



EX1003, Fig. 3 (annotations added).

Kondo explains Figure 3's regions of the smartphone:

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).

See EX1002, §VIII(D)(2).

3. **Claim 4(c): wherein at least a second portion of the input mechanism is generally centered in the horizontal direction within the interior and is configured to move in a direction toward the touch-screen when the first portion of the input mechanism is actuated; and**

See the analysis of claim elements 1(b)-(d) and §XI(C) for a description of the Kondo/Chu combination's input mechanism and an explanation for why it is generally centered in the horizontal direction. See EX1002, §VIII(D)(3).

4. **Claim 4(d): wherein the portion of the surface of the electrical shield is disposed on the second portion of the input mechanism and is generally centered within the interior in the horizontal direction whereby the portion is generally located between the left and right regions and is moveable between the first position and the extended position.**

See the analysis of claim 1, including 1(c) and (d), for how the Kondo/Chu combination's input mechanism works and how it is generally centered in the horizontal direction. See EX1002, §VIII(D)(4).

- E. Claim 5: The virtual reality viewer of claim 1, wherein at least a portion of the input mechanism defines at least a portion of a view divider within the interior of the housing, wherein the view divider is a structure that is generally centered within the interior and at least partially separates a left and a right region of the interior.**

See the analysis of claims 1 and 4 for a description of the Kondo/Chu combination's input mechanism and its positioning. See EX1002, §VIII(E).

In the proposed combination, Chu's input mechanism would operate within the partition wall 12 of Kondo's Figure 4(2), thereby defining a portion of the view divider. EX1003, Fig. 4(2), ¶¶0037.

- F. Claim 6: The virtual reality viewer of claim 1, wherein the electrical shield comprises one or more of: a metallized fabric, a metallized polymer; a conductive polymer, a conductive fabric, a rigid flex printed circuit board and a flexographic ink.**

See the analysis of claim 1 for a description of the Kondo/Chu combination's electrical shield. See EX1002, §VIII(F).

Chu explains that the probe head is "made of material capable of conducting electric charge" and may be made of "rubber" with an additive "to enhance its electric charge transfer performance."

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); *see also* ¶¶0011, 0019.

A POSA understands that rubber is a polymer, as demonstrated by the following textbook and dictionary references:

Rubber (cis-1,4-polyisoprene) is one of the most important polymers naturally produced by plants.... EX1007, p. 1 (Mooibroek and Cornish, *Alternative Sources of Natural Rubber*, Appl Microbiol Biotechnol (2000) 53: 355-65) (emphasis added).

A polymeric substance obtained from the sap of the tree *Hevea brasiliensis*.... *It is a polymer of isoprene* containing the unit – CH₂C(CH₃):CHCH₂–. Oxford Reference On line <https://www.oxfordreference.com/display/10.1093/oi/authority.20110803100432119;jsessionid=3431CAADF7C05265E60C052BF4E2FF6D> (emphasis added).

A highly elastic solid substance...**polymerized** by the drying and coagulation of the latex or milky juice of rubber trees.... EX1006, p. 3 (Random House Webster's College Dictionary (2000), p. 3) (bold emphasis added, italics in original).

A POSA would have known that a rubber capable of conducting electric charge with an additive to improve electric charge transfer performance is, therefore, a conductive polymer. See EX1002, ¶124.

- G. Claim 7: The virtual reality viewer of claim 6, wherein the surface of the electrical shield is sized to have electrical properties that are sufficient to be detected by the touch-screen based on capacitance when the input mechanism is in the extended position and only the portion of the surface is contacting the touch-screen.**

See the analysis of claims 1, 1(c), 1(d), 2, and 6 for a description of the Kondo/Chu combination's input mechanism and how it operates to generate a touch event. See EX1002, §VIII(G).

- H. Claim 8: The virtual reality viewer of claim 6, wherein the surface of the electric shield is sized to have sufficient capacitive properties such that contact between only the portion of the surface and the touch-screen can be detected by a capacitive touch-screen when the input mechanism is in the extended position and in the absence of human contact with the electric shield.**

See the analysis of claims 1, 2, and 6 for a description of the Kondo/Chu combination's input mechanism and how it operates. See EX1002, §VIII(H).

This claim requires “in the absence of human contact with the electric shield.” This claim's plain language excludes direct human contact with the electric shield but does not exclude indirect contact, i.e., electrical connection between the electric shield and a remote user. The proposed combination of Kondo/Chu does not allow for direct human contact with the electric shield (Chu's probe pad 30). See §XI(C); EX1003, Figs. 1-11; EX1004, Figs. 1-10; see EX1002, ¶127.

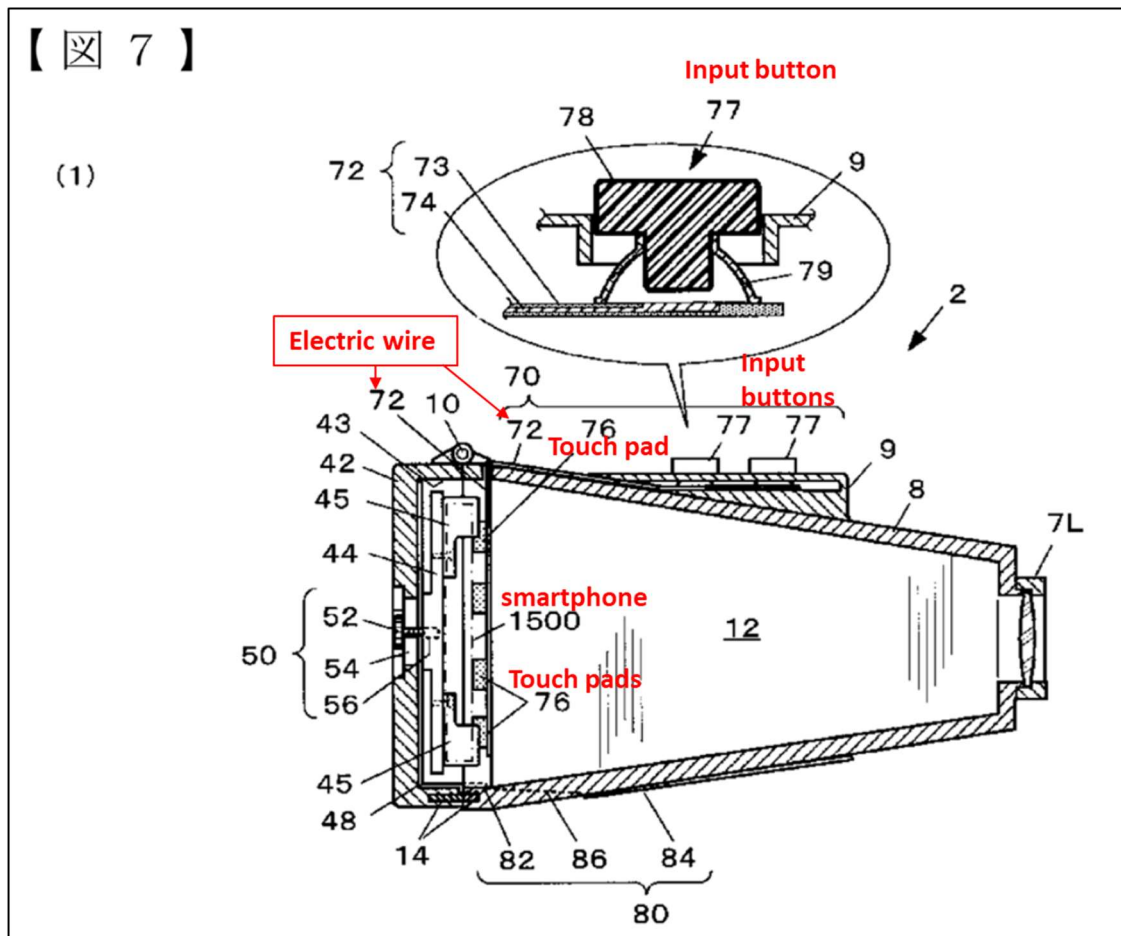
Nevertheless, even if no human contact (direct or indirect) were permitted by the claim, and it were required that no electric charge is transferred from the user to the electric shield, Kondo explicitly teaches this alternative interpretation of the claim as it describes activating the touch-screen through a “capacitive element” and “remote operation,” rather than the “human body” (i.e., rather than a user’s finger pressing a button):

For example, the button part 77 has the function of connecting the impedance imparting body, which is the human body, to the remote touch circuit 70; *however, the button can be configured to connect to a capacitive element instead of the human body. For example, a capacitive element 11 like attachment 2B illustrated in FIG. 11 can be equipped. Connect a first terminal of the capacitive element 11 to the attachment main body side ground circuit 80, and connect the second terminal to the button part 77. Furthermore, the button part 77 can be configured to connect the second terminal of the capacitive element 11 to the conductive line 74 when the button part is pressed. In this case, even if the user is wearing gloves or the like and capacitance is not appropriately formed between the button part 77 and the user, remote operation to the touch panel 1506 can be achieved.* EX1003, ¶0052 (emphasis added); see also ¶¶0007, 0008, Fig. 11.

A POSA would be motivated to use this alternative so that the user could operate the VR viewer while wearing gloves. Also, there would be a reasonable

expectation of success as it was well known at the time, and in fact, it is described by Kondo. EX1002, ¶129.

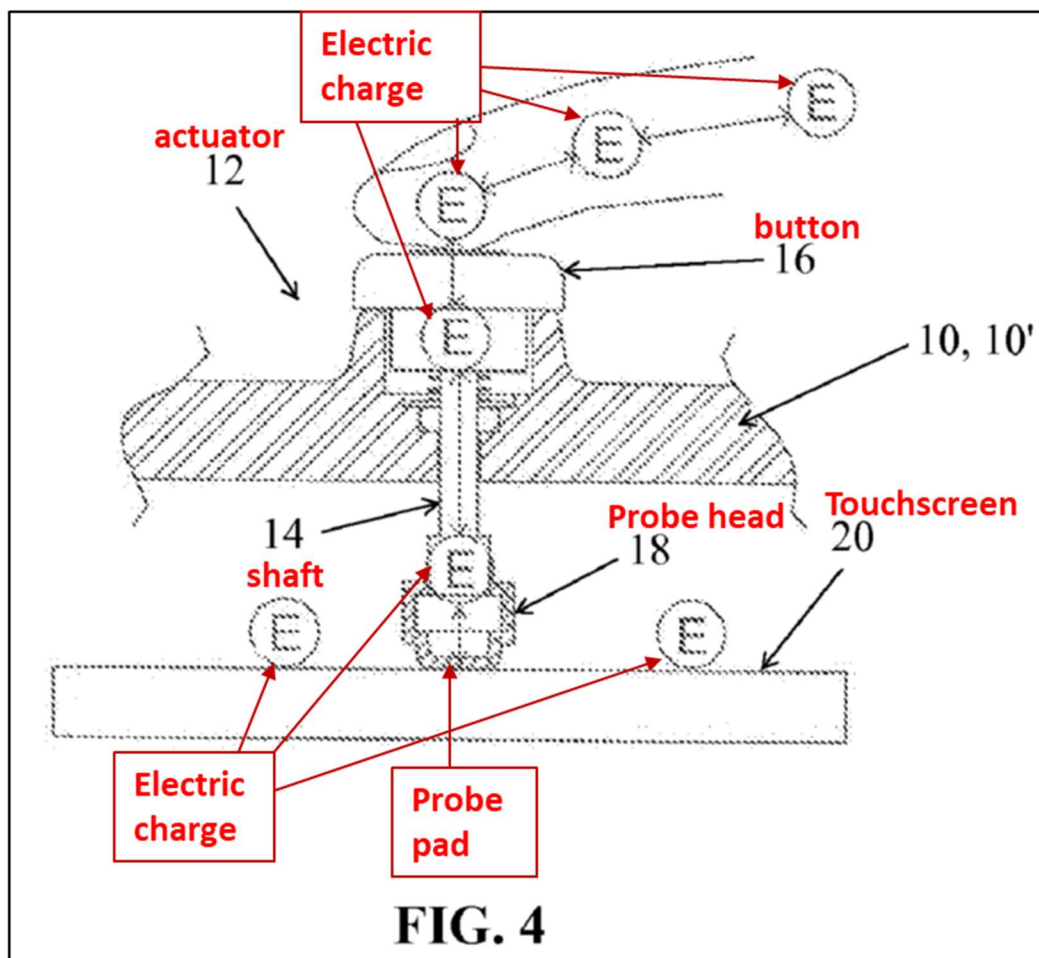
Also, as shown below, Kondo's electrical shield, touch pad 76, is sized to have sufficient capacitive properties such that contact between only a portion of its surface and the touchscreen can be detected by a capacitive touchscreen.



EX1003, Fig. 7 (annotations added); see EX1002, ¶130.

And, as shown below, Chu's electrical shield (probe pad 30) is sized to have sufficient capacitive properties such that contact between only the portion of the

surface and the touchscreen can be detected by the capacitive touchscreen when the input mechanism is in the extended position. See EX1002, ¶131.

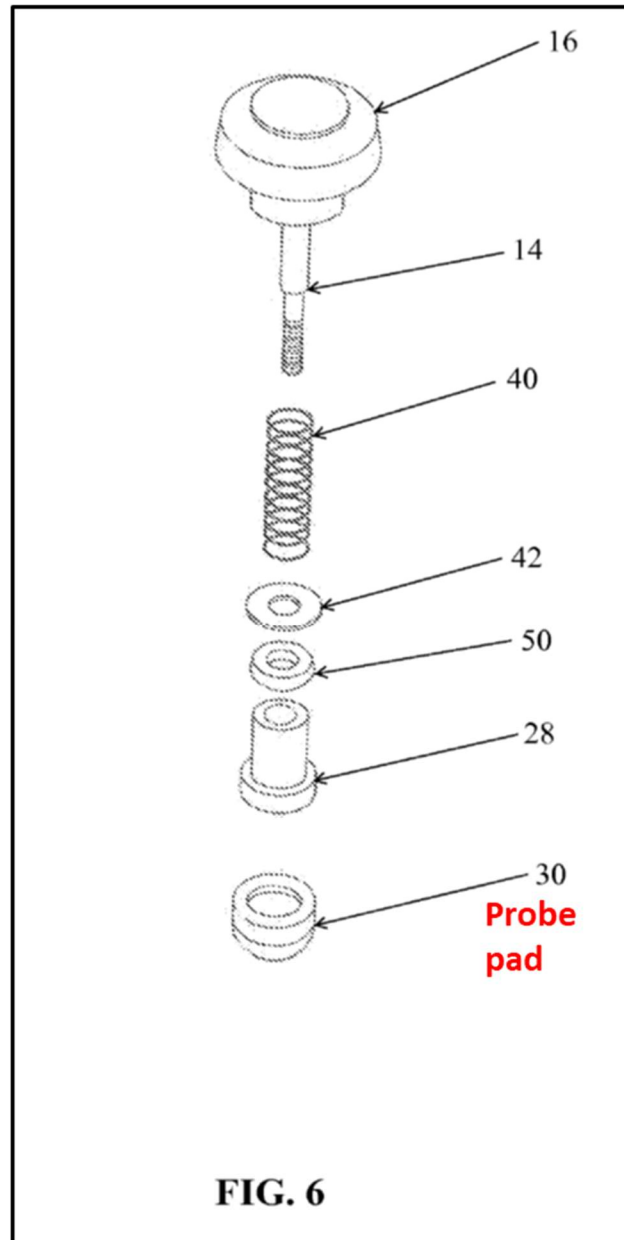


EX1004, Fig. 4 (annotations added); *see also* ¶¶0053-0062.

- I. **Claim 9:** The virtual reality viewer of claim 8, wherein the only portion of the surface that is configured to contact the touchscreen when the input mechanism is in the extended position is substantially smaller in size than the remaining portion of the surface of electric shield that is not configured to contact the touch-screen.

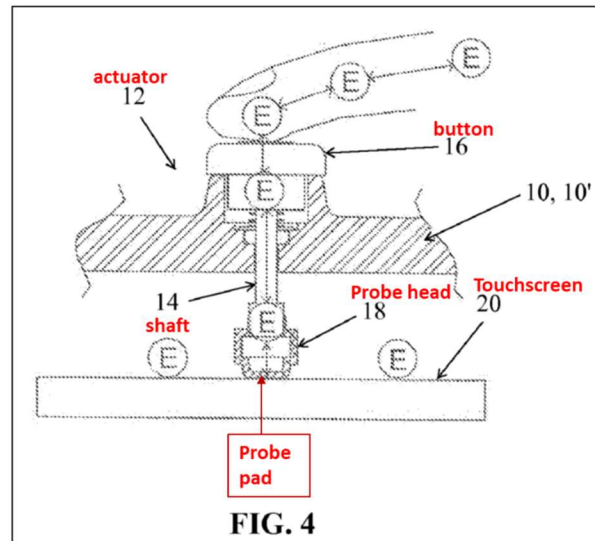
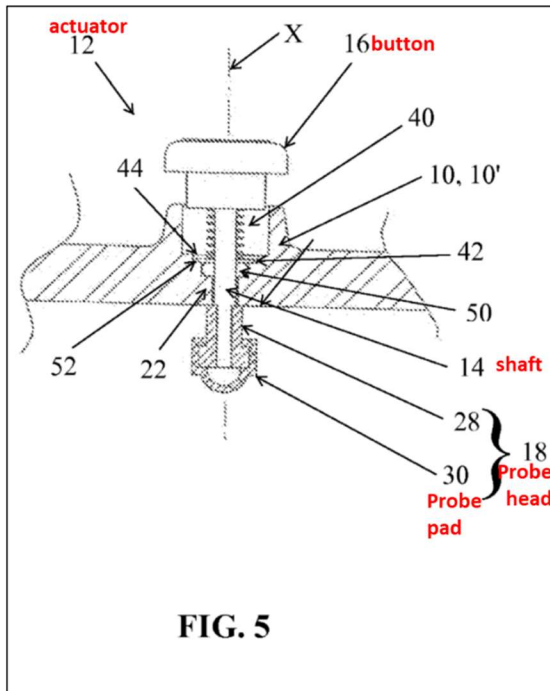
See the analysis of claims 1, 6, and 8 for a description of the Kondo/Chu combination's input mechanism and how it works. See EX1002, §VIII(I).

Chu's Fig. 6 shows the probe pad 30 (the claimed electric shield):



EX1004, Fig. 6 (annotation added); *see also* Figs. 8 and 10.

Chu's Figures 4 and 5 show that the portion of the probe pad 30 that contacts the touchscreen is substantially smaller than the remaining portion of the probe pad:



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

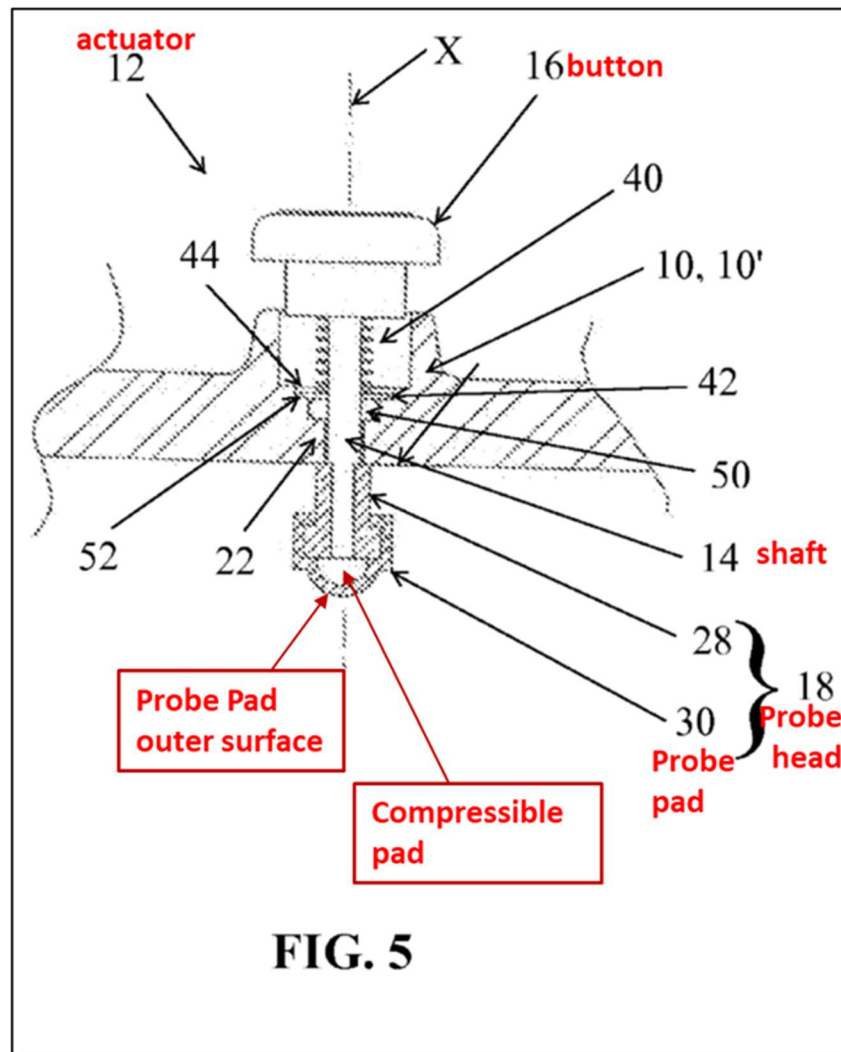
- J. Claim 10: The virtual reality viewer of claim 6, further comprising a compressible pad disposed between the second portion of the input mechanism and the portion of the surface of the electric shield, wherein the pad is configured to create a sufficiently sized area of contact between the portion of the surface and the touch-screen when the input mechanism is in the extended position.**

See the analysis of claims 1, 6, 8, and 9 for a description of the Kondo/Chu combination's input mechanism and how it works. See EX1002, §VIII(J).

For the purposes of this analysis, Petitioner will ignore that there is no antecedent basis for “the second portion of the input mechanism.”

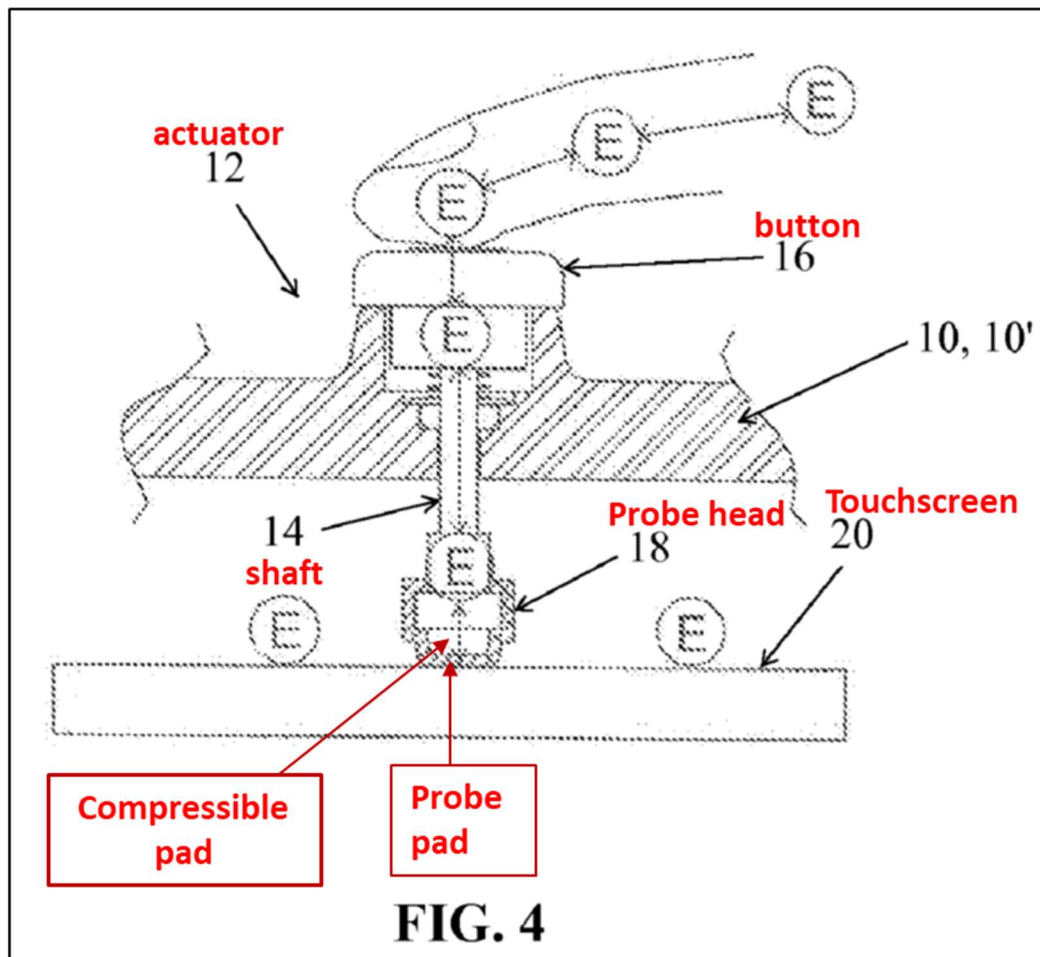
Chu's Figure 5 below shows probe pad 30 at the end of shaft 14. Chu's shaft 14 constitutes the claimed “second portion of the input mechanism.” Probe pad 30 (the claimed electric shield) has an outer surface (the claimed “surface of

the electric shield”). Of course, the probe pad has a pad (the claimed “compressible pad”) within the outer surface, hence the name “probe *pad*.” This padding within the probe pad will be referred to as the compressible pad. This Figure below shows the input mechanism in an unactivated state with the probe pad, probe pad outer surface, and compressible pad.



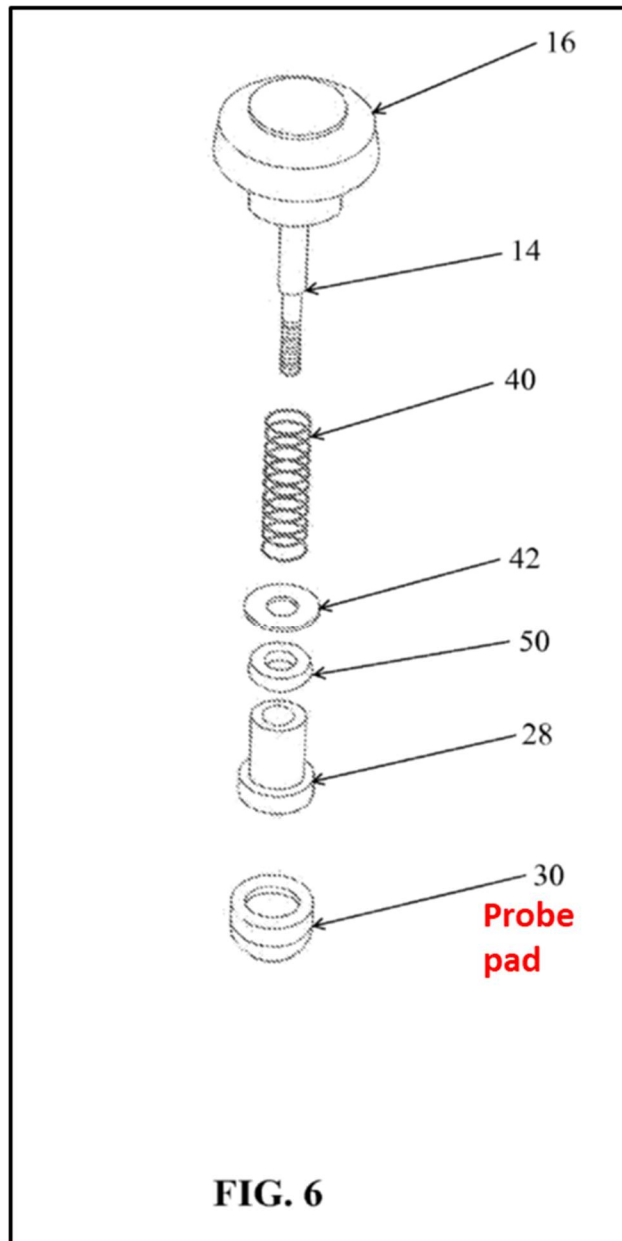
Chu’s Figure 4 below shows the input mechanism in an activated state, creating a sufficiently sized area of contact between the probe pad’s surface and

the touchscreen. The probe pad is made of rubber. EX1004, ¶¶0012, 0017, 0048, 0049. This figure shows an electric charge flowing through the probe pad when it is in an extended position and deformed (i.e., compressed), which indicates to a POSA that there is a substantial thickness to the probe pad and it is not empty. In other words, this Figure shows that there is a compressible pad.



EX1004, Fig. 4 (annotations added); *see also* ¶¶0053-0056.

Chu's Figure 6 shows that the probe pad 30 is substantially thick and it is this padding within the probe pad that constitutes the claimed "compressible pad."



EX1004, Fig. 6 (annotation added); *see also* Fig. 8.

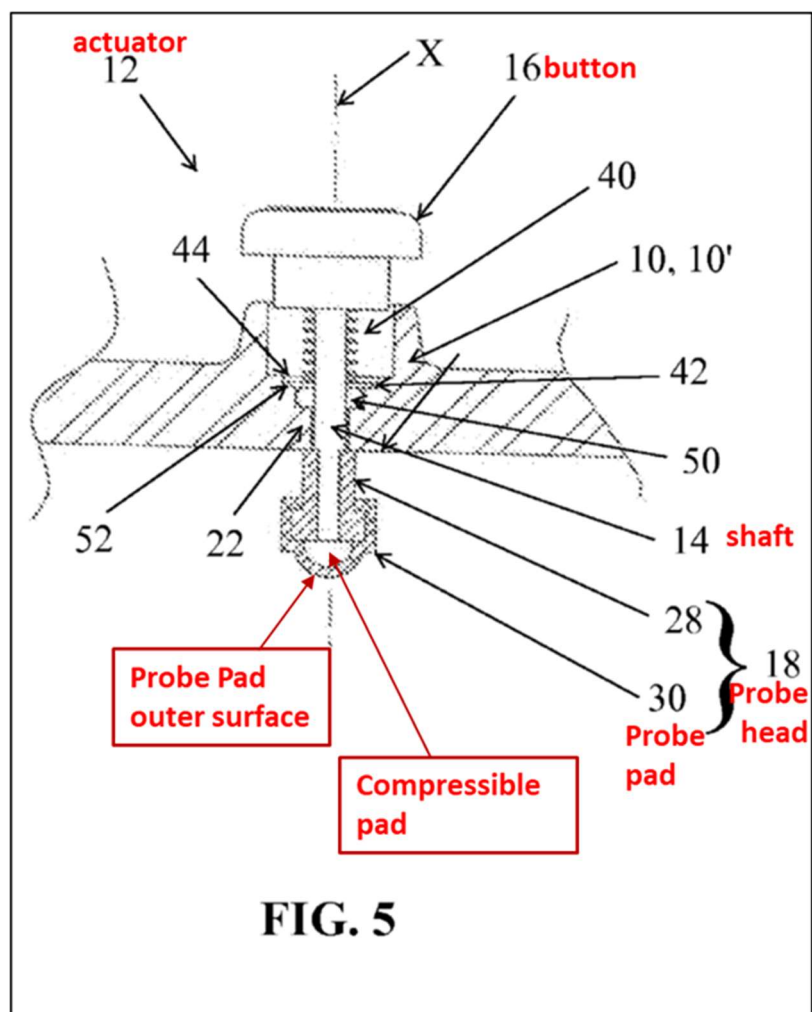
A POSA would recognize that there is padding within the probe pad, and it is this padding that would constitute the claimed compressible pad. However, even if there weren't such padding, a POSA would be motivated to add it for more of a cushioning effect against the touchscreen and increased conductivity because it

would be made of conductive rubber. EX1004, ¶0049. A POSA would have a reasonable expectation of success because they would simply be adding more conductive rubber to the probe pad. See EX1002, §VIII(J), ¶140.

K. Claim 11: The virtual reality viewer of claim 10, wherein the pad is configured to vary the size of the area of contact between the portion of the surface of the electric shield and the touch-screen as a function of a force applied to the input mechanism from the exterior of the housing.

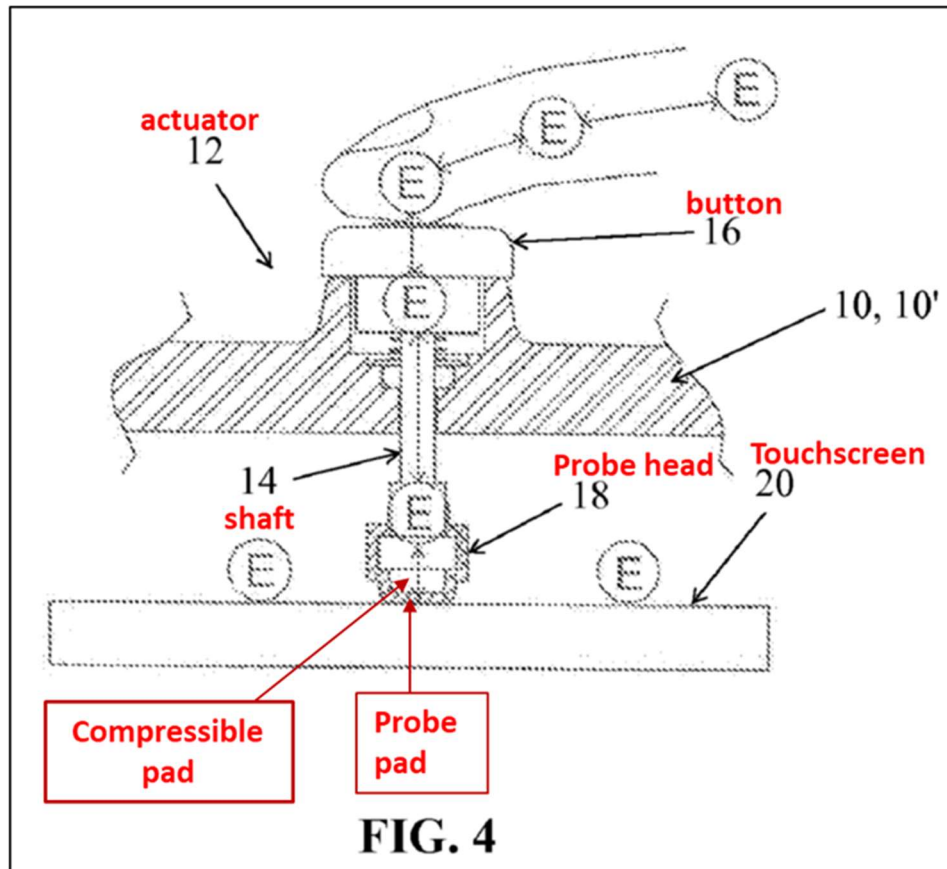
See the analysis of claims 1, 2, 6, 7, 8, and 10 for a description of the Kondo/Chu combination's input mechanism and how it works. See EX1002, §VIII(K).

Chu's Figure 5 shows the probe pad 30 (the claimed electric shield) in an unactivated state, where its tip is spherical. The probe pad's outer surface is the claimed surface of the electric shield, and the padding or thickness within the probe pad is the claimed "pad":



EX1004, Fig. 5 (annotations added).

Chu's Figure 4 discloses the probe pad (the claimed electric shield) when activated. The probe pad 30 flattens out, including the padding within it, which varies the size of the area of contact between the probe pad and the touchscreen:



EX1004, Fig. 4 (annotations added).

Chu explains that the size of the contact area of the probe pad 30 with the touchscreen increases as more force is applied.

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.

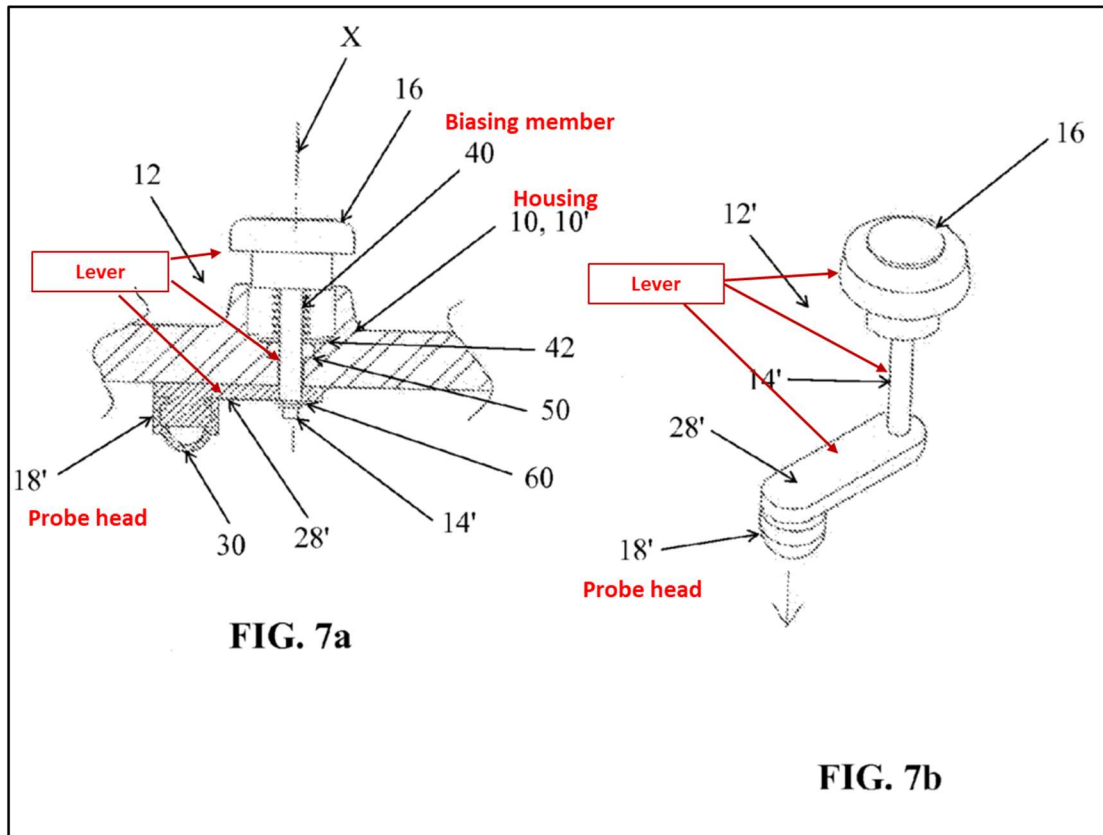
See EX1004, ¶0055; *see also* ¶¶0053-0057.

As mentioned for claim 10, a POSA would recognize that the probe pad has padding within it, and even if it didn't, it would be obvious to add such padding for the reasons already stated. This padding would vary the size of the contact area between the surface of the probe pad and the touch screen as a function of the force applied by the user because it is made of rubber. EX1004, ¶0049; see EX1002, §VIII(K), ¶145.

- L. Claim 12: The virtual reality viewer of claim 1, wherein the input mechanism includes a lever and a flexible linkage coupled to the housing, wherein the flexible linkage is configured to deform when the lever is actuated and thereby guide at least the portion of the surface between the first position and the extended position.**

Please see the analysis of claim 1 for a description of the Kondo/Chu combination's input mechanism. See EX1002, §VIII(L).

The term "lever" means "A projecting piece by which a mechanism is operated or adjusted." See §X. The proposed combinations for this claim include Chu's second and third embodiments, as explained above in §XI(C). Here is the figure from that section with additional annotations to show the claimed lever:



EX1004, Figs. 7a, 7b; *see also* Figs. 9a, 9b, ¶¶0058-0062; *see* EX1002, §VIII(L), ¶¶147-148.

Chu's lever (button 16, shaft 14, and extension arm 28') in Chu's second and third embodiments moves about a fixed position, including the biasing member 40, the center of shaft 14, as well as the housing 10. *See* EX1002, ¶149.

As an alternative, a POSA would consider Chu's shaft 14 and extension arm 28' (without button 16) as also constituting the claimed lever. *See* EX1002, §VIII(L), ¶150.

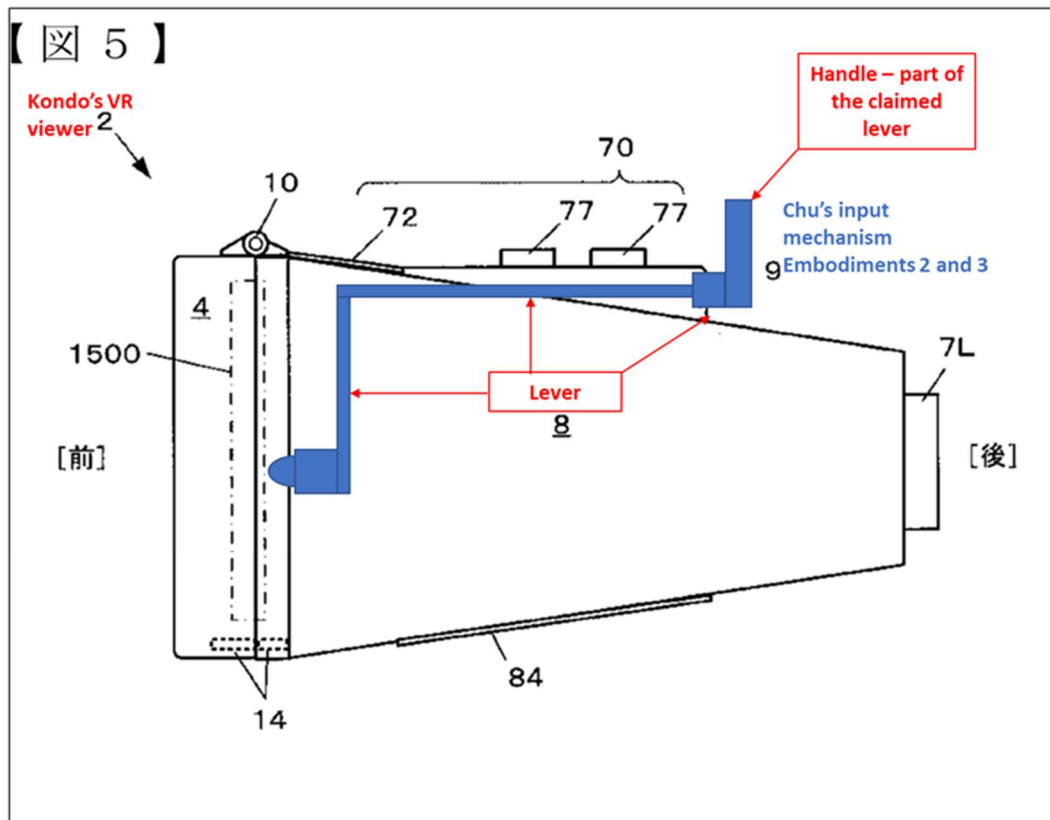
The biasing member 40 is a spring/coil structure that constitutes the claimed flexible linkage because it is coupled to housing 10 (as shown in Figure 7a above)

and deforms when the lever is actuated, thereby guiding the surface of the electric shield (probe pad 30) between an unactivated and activated position.

When the user's finger or body part continues to press downwards....[t]he press button 16 together with the actuator shaft 14 starts to move downwards. *The biasing member 40 supporting the press button 16 is compressed.* EX1004, ¶0055.

As mentioned above, a POSA would understand that the button 16, shaft 14, and extension arm 28' all combined constitute the claimed lever. The '075 patent mentions the terms "lever" and "button" in the same sentence (see EX1001, 9:17-21), but a POSA would not read this as meaning that the two terms cannot overlap. See EX1002, ¶152.

As an alternative, as shown below, a POSA would be motivated to replace Chu's button 16 with a handle, but otherwise leave the combination described above in this section the same. For example, the biasing member 40 would still be depressed when activated. The handle is shown below as being oriented vertically, but a POSA may orient it horizontally to prevent snagging.



EX1003, Fig. 5 (annotations added); see EX1002, ¶154.

A POSA would be motivated to replace Chu's button with a handle to make it easier for users to operate the VR viewer because there is more surface area to hold. Also, users would have a much easier time using the swipe feature of Chu's third embodiment by turning a handle rather than by turning a button. EX1004, ¶0058-0062; Figs. 9a, 9b, 10. A POSA would have a reasonable expectation of success because this is a simple replacement requiring little skill as long as the material was conductive. See EX1002, §VIII(L), ¶155.

M. Claim 14: The virtual reality viewer of claim 12, wherein the flexible linkage is configured to return the portion of the surface from the extended position to the first position in the absence of user interaction with the input mechanism.

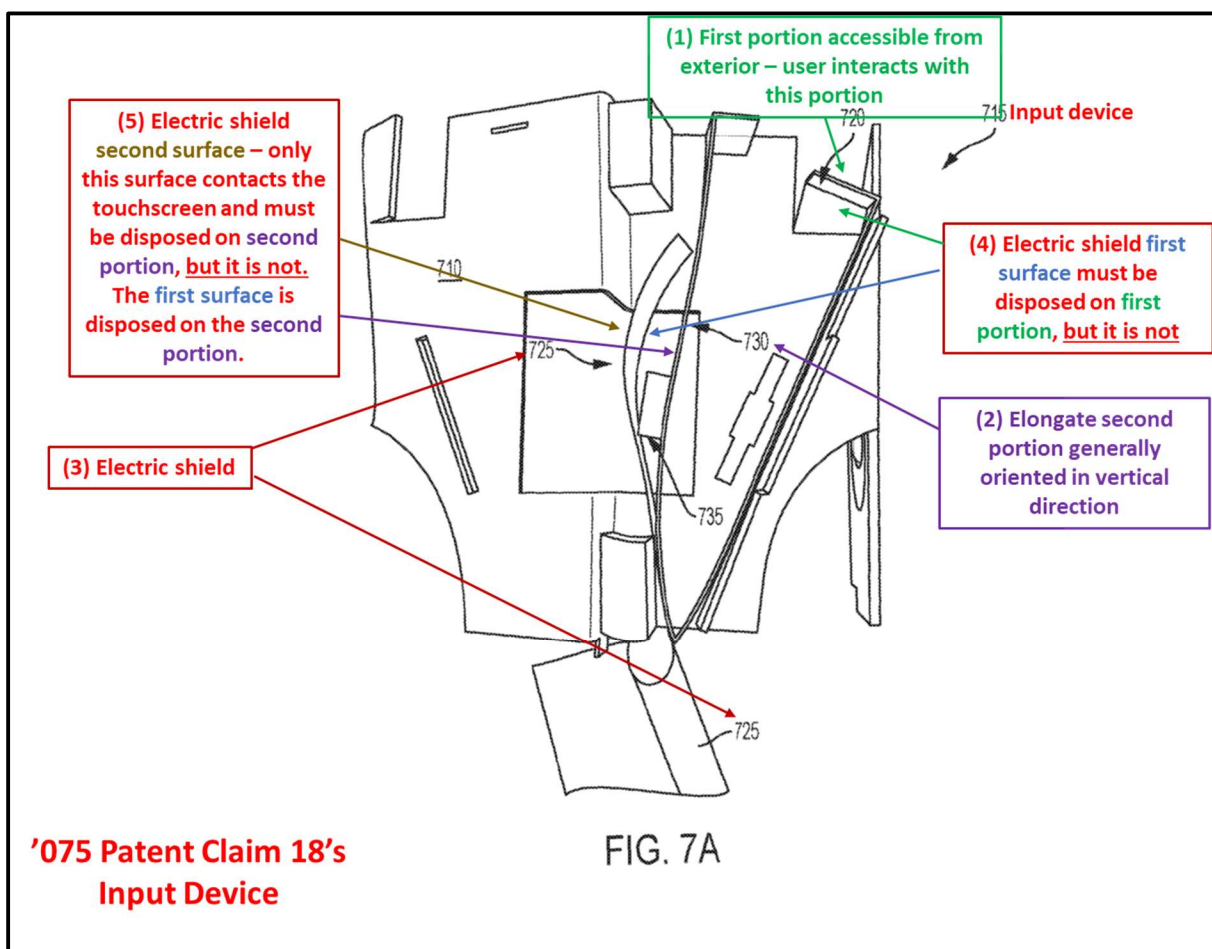
See the analysis of claims 1, 6, 10, 11, and 12 for a description of the Kondo/Chu combination's input mechanism. See EX1002, §VIII(M).

Chu's biasing member 40 (the claimed flexible linkage) returns the electric shield to the unactivated position when the user releases the input mechanism, because it is a spring. EX1004, ¶0056 ("When the press button 16 is released, the biasing member 40 then pushes press button 16 upwards.").

N. Claim 18:

A POSA would need to review the specification to try to understand this claim for two reasons. First, the claim requires an electric shield with two surfaces. However, "only the second surface of the electric shield is configured to contact ... the touchscreen." But, at the same time, this second surface "is disposed on the second portion" of the input device. Because the second surface is facing and disposed on the second portion, it could not also be disposed on and touch the touchscreen as the claim requires. Second, the claim requires that the first surface of the electric shield is "disposed on the first portion" of the input device which is "accessible from the interior of the housing." Therefore, both surfaces of the electric shield are disposed on different parts of the input device, which, from a mechanical perspective, does not allow the electric shield to contact

the touchscreen because both of its surfaces are facing and disposed on something else, and each surface can only be disposed on or touching one other object. It is therefore necessary to read the claim in view of the specification to determine the claim's scope. After doing so, a POSA would not be able to understand this claim. See EX1002, ¶158. Provided below are annotations to the '075 patent's Figure 7A to demonstrate the problems with this claim:



EX1001, Fig. 7A (annotations added); see EX1002, §VIII(N)..

As shown above, claim 18 has five limitations for its input device. The input device has two portions: (1) a **first portion** shown in **green** above and (2) a

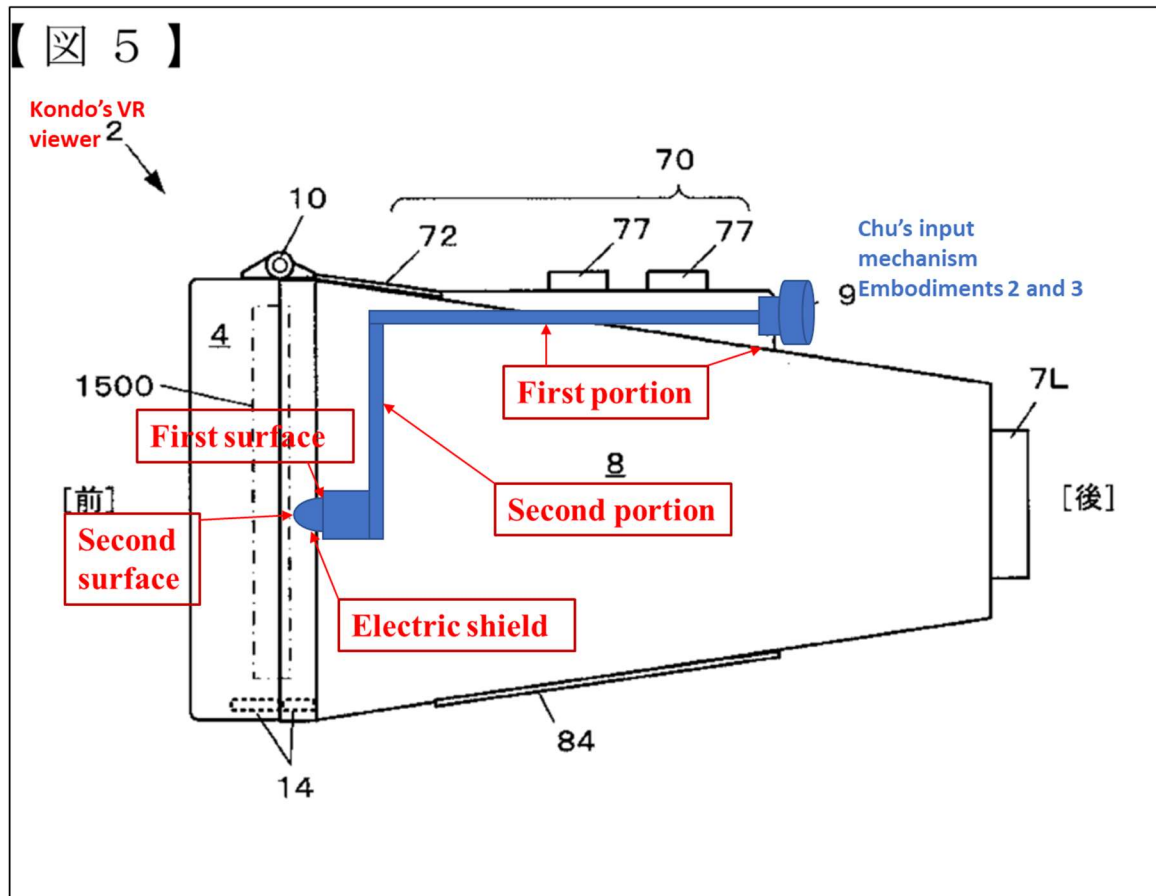
second portion shown in **purple** above. The **first portion** is accessible from the exterior so that the user can interact with it, and the **second portion** is generally oriented in a vertical direction. Claim 18's input device also includes (3) an **electric shield** shown above in **red**. The **electric shield** has (4) a **first surface** shown in **blue** and (5) a **second surface** shown in **brown**. As these annotations show and as claim 18 requires, the **electric shield's first surface** must be disposed on the **first portion**. But this claimed **first surface** is not described in the patent's specification; instead, the specification describes that the **first surface** is disposed on the **second portion**. And, in claim 18, the **electric shield's second surface** must contact the touchscreen and must be disposed on the **second portion**. But this claimed **second surface** is not described in the specification; rather, the specification describes that the **first surface** is disposed on the **second portion**. See EX1002, ¶159.

A POSA would therefore not be able to understand this claim. See EX1002, ¶160. Petitioner notes that these problematic claim limitations were added by amendment, and thus, claim 18 violates the written description requirement of 35 U.S.C. §112(a). See EX1008, p. 27. If the Board so finds that this claim's scope cannot be discerned, Petitioner requests an explicit finding.

Nevertheless, a POSA could understand this claim if the words "disposed on" included an indirect connection. For example, in the above diagram, electric

shield 725 is far removed from the externally accessible input device (lever 720).

If “disposed on” is interpreted in this manner, the Kondo/Chu combination renders this claim obvious in the following manner, shown in the annotated Figure below and further described in the following sections:



EX1003, Fig. 5 (annotations added); see EX1002, ¶160.

Please see the proposed combinations of Kondo/Chu discussed in §XI(C), the descriptions of Kondo and Chu in §§XI(A) and (B), and the analysis of claim 1. The below analysis expands on those sections.

1. Claim 18(a): A virtual reality viewer for use with a mobile electronic device having a capacitive touch-screen, the viewer comprising:

See the analysis of claim 1(a) for a description of the Kondo/Chu combination's VR viewer. The touchscreen is a capacitive touchscreen. EX1003, cls. 1, 4; ¶¶0005, 0009, 0023, 0024; see EX1002, §VIII(N)(1).

2. Claim 18(b): a housing configured to receive the mobile electronic device and substantially enclose the touch-screen within a generally hollow interior of the housing, wherein the housing holds the touch-screen in a position that is generally centered in a horizontal direction and directly in a user's field of view when viewing the touch-screen through a back wall of the housing, wherein the back-wall is opposite the touch-screen and includes a left and a right lens for viewing a left region and a right region of the interior and the touch-screen;

See §XI(C) and the analysis of claims 1(b), 1(d), and claim 4 for a description of the Kondo/Chu combination's VR viewer. See EX1002, §VIII(N)(2).

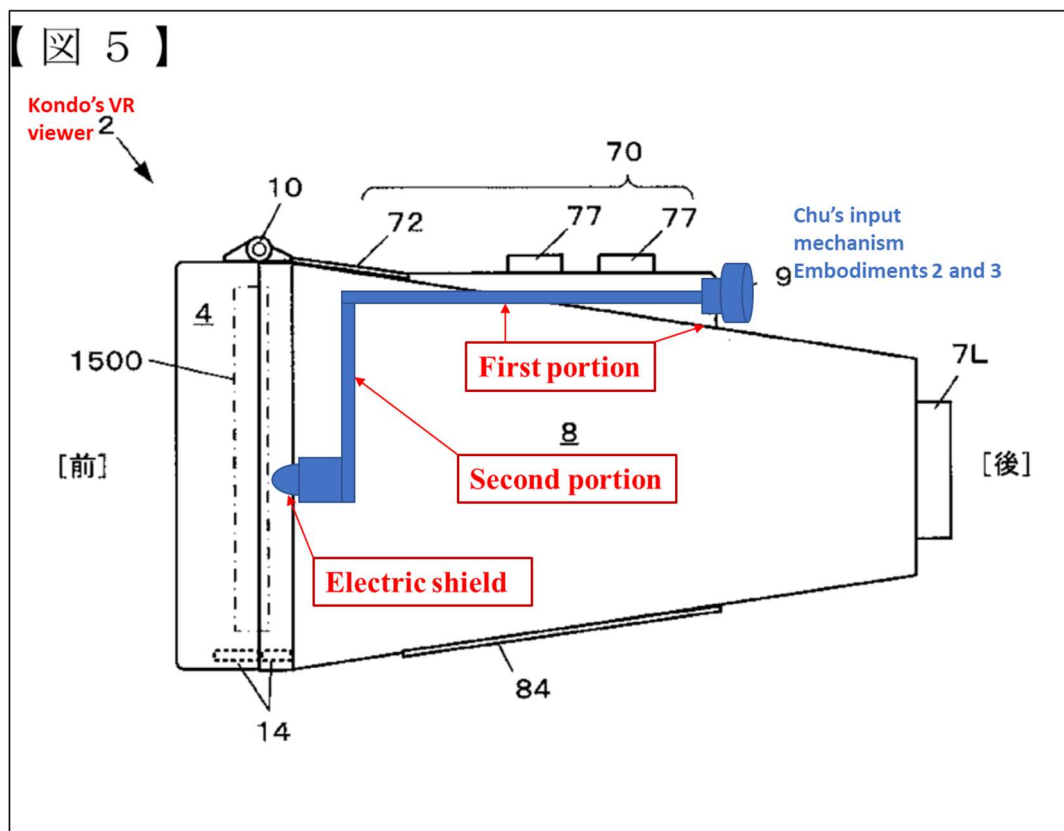
3. Claim 18(c): an input device including,

See the analysis of claim 1(c) and 1(d) for a description of the Kondo/Chu combination's input mechanism. See EX1002, §VIII(N)(3).

4. Claim 18(d): a first portion that is accessible from an exterior of the housing,

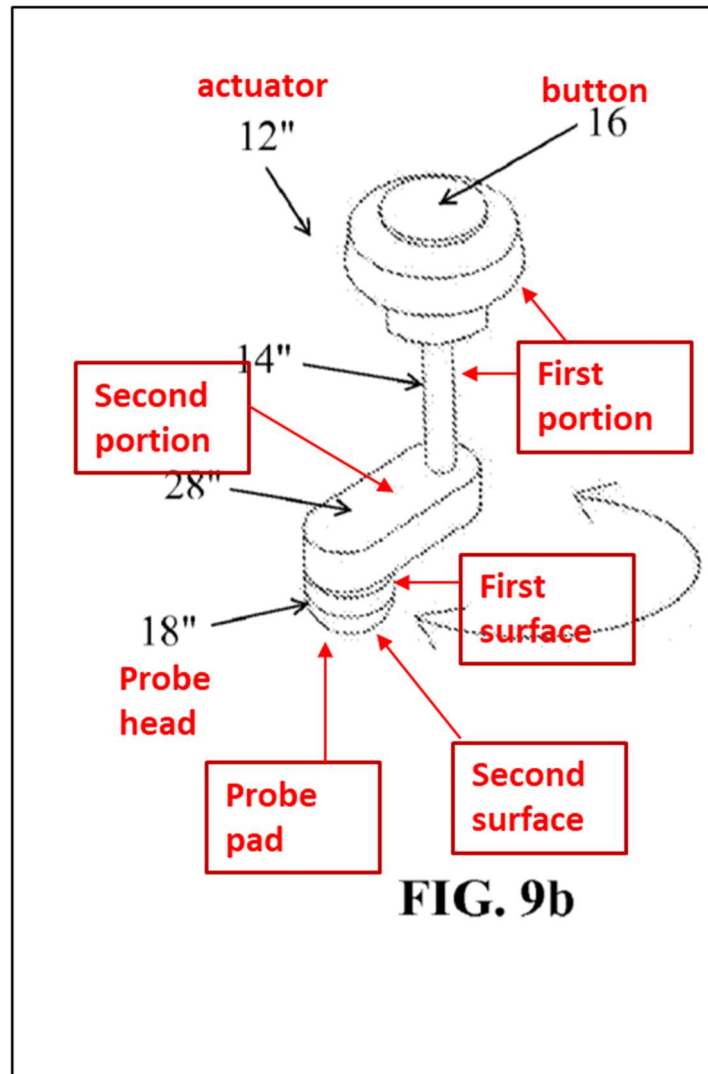
The proposed combination from §XI(C) for Chu's second and third embodiments has been annotated to show the first portion, which is accessible

from the exterior, as well as the second portion for claim 18(e) and the electric shield of claim 18(f).



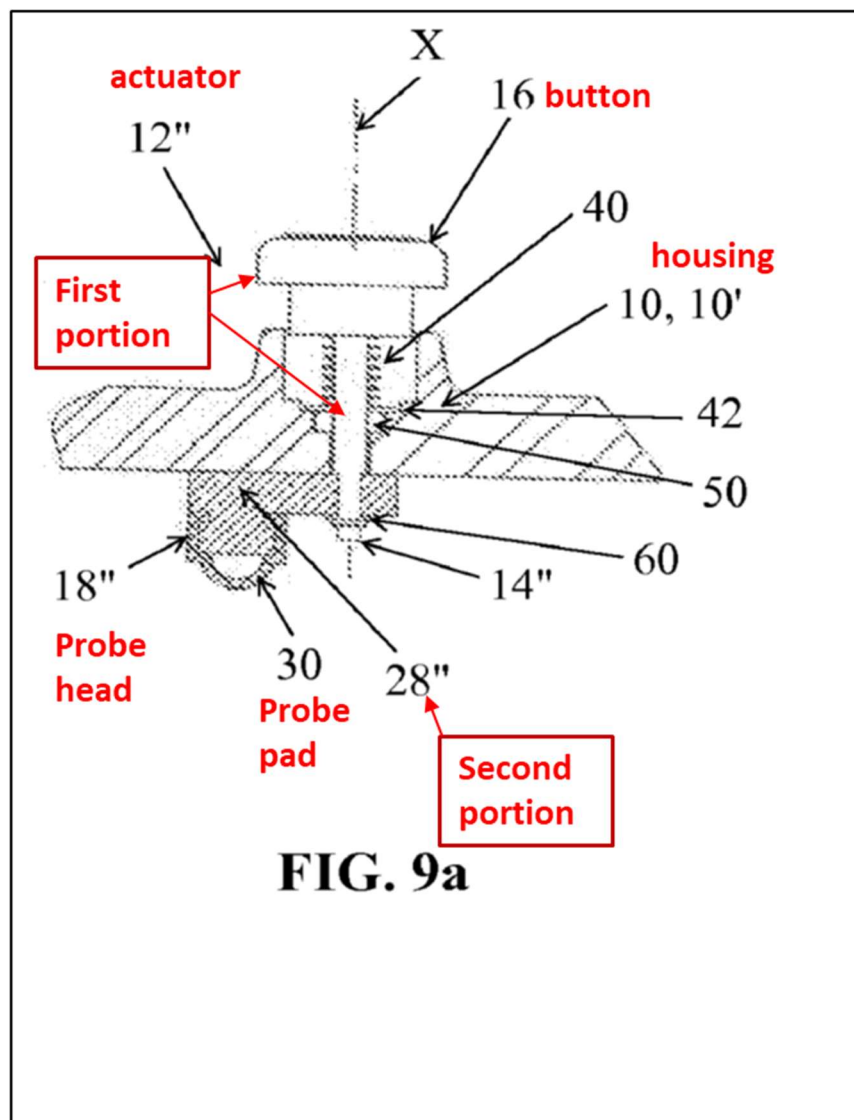
EX1003, Fig. 5 (annotations added); *see also* §XI(C); *see* EX1002, ¶165.

Chu's Figure 9b below shows the first portion and second portion, as well as the probe pad 30 (the claimed electric shield in claim 18(f)) and the two surfaces of the electric shield.



EX1004, Fig. 9b (annotations added); see EX1002, ¶166.

Chu's Figure 9a shows button 16 is on the exterior of the housing.

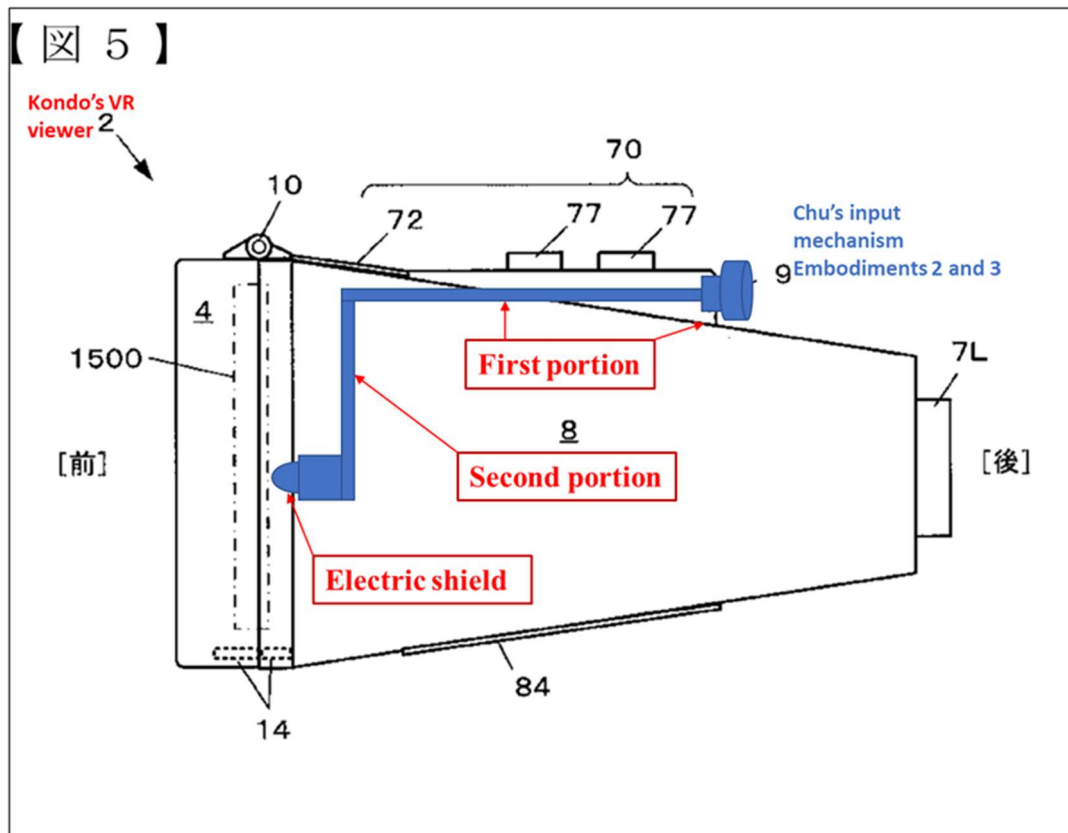


EX1004, Fig. 9a (annotations added); see EX1002, §VIII(N)(4), ¶167.

5. **Claim 18(e):** and an elongate second portion disposed within the interior of the housing between the left and right regions wherein the second portion is generally oriented in a vertical direction that is perpendicular to the horizontal direction;

See the analysis of 18(d) for a description of the Kondo/Chu combination's first portion, second portion, and electric shield.

The below figure shows the proposed combination of Kondo/Chu from §XI(C) with an elongate second portion horizontally centered (see §XI(C) and the analysis from claim 1(d), claim 2, and claim 4) within the interior of the housing and generally oriented in a vertical direction that is perpendicular to the horizontal direction.

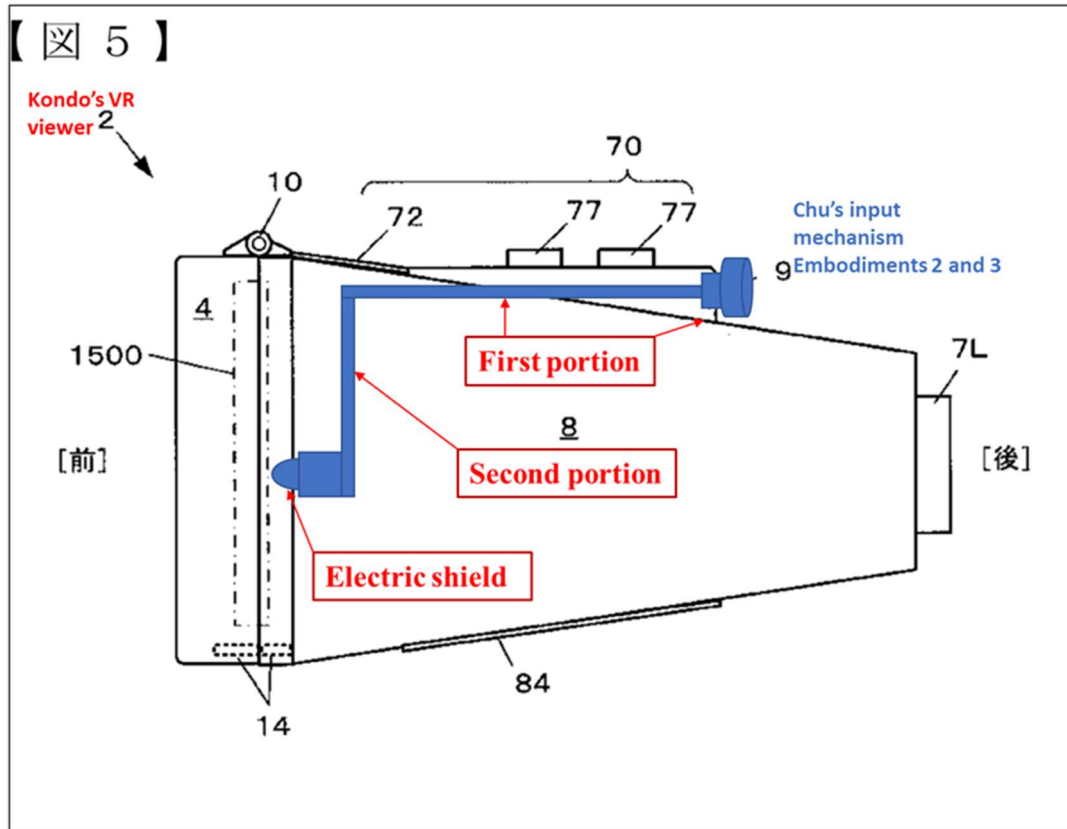


EX1003, Fig. 5 (annotations added); *see also* §XI(C), claim 18(d); *see* EX1002, §VIII(N)(5), ¶169.

6. Claim 18(f): an electric shield,

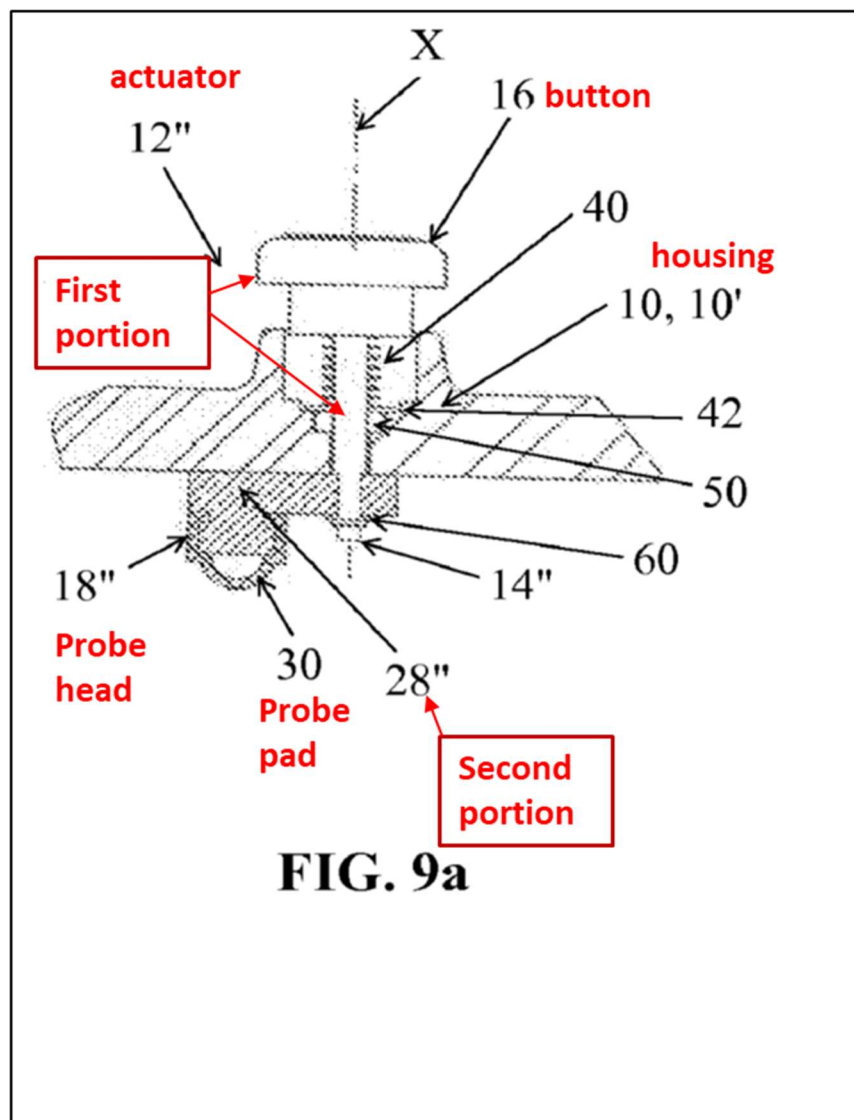
See claim 1(d) and claims 18(d) and 18(e) for a description of the Kondo/Chu combination's electric shield.

The Figure below shows the electric shield in the proposed combination.



EX1003, Fig. 5 (annotations added); *see also* §XI(C) and claim 1(d); *see* EX1002, ¶171.

Probe pad 30 is the claimed electric shield and is shown in Chu's Figure 9a below.

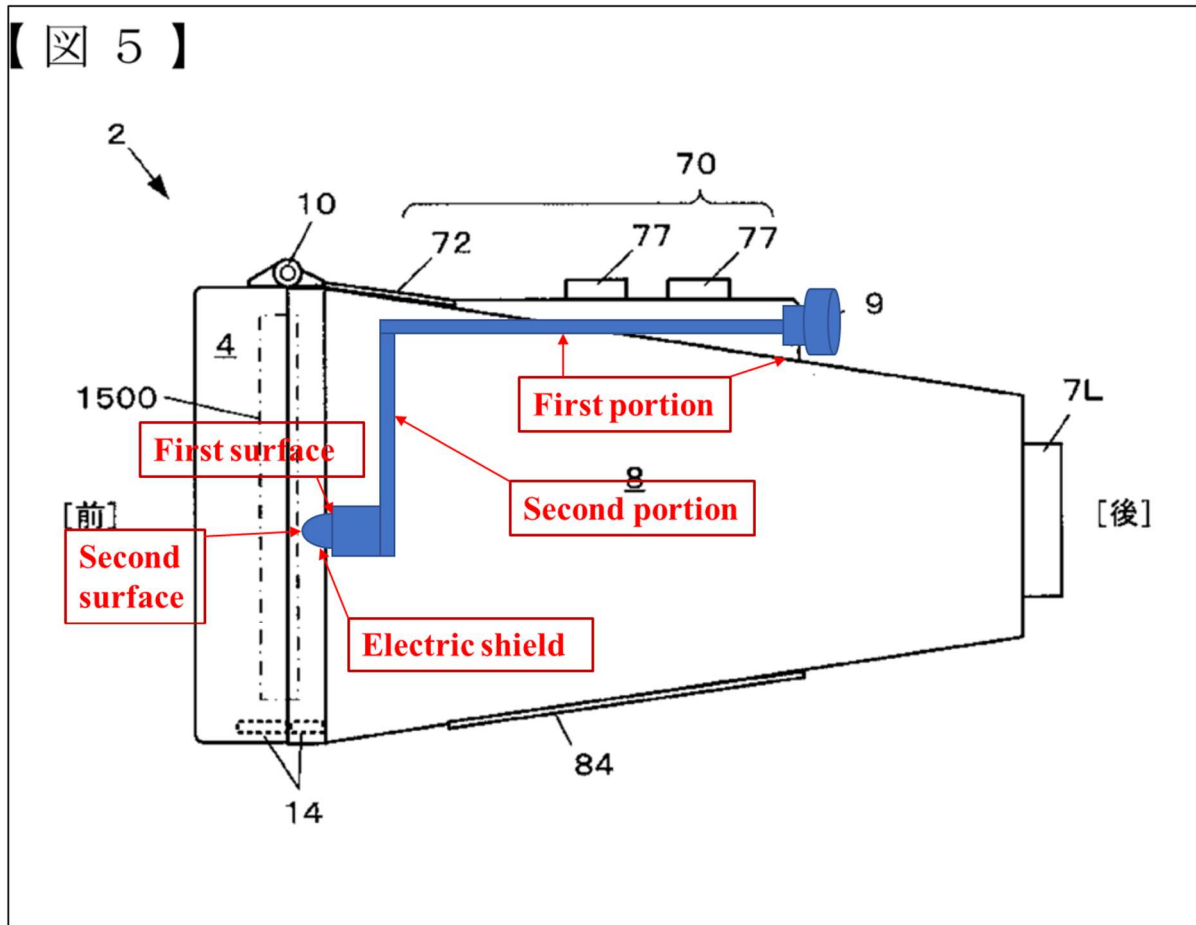


EX1004, Fig. 9a (annotations added); see EX1002, §VIII(N)(6), ¶172.

7. **Claim 18(g): wherein a first surface of the electric shield is disposed on the first portion and is electrically coupled to a second surface of the electric shield,**

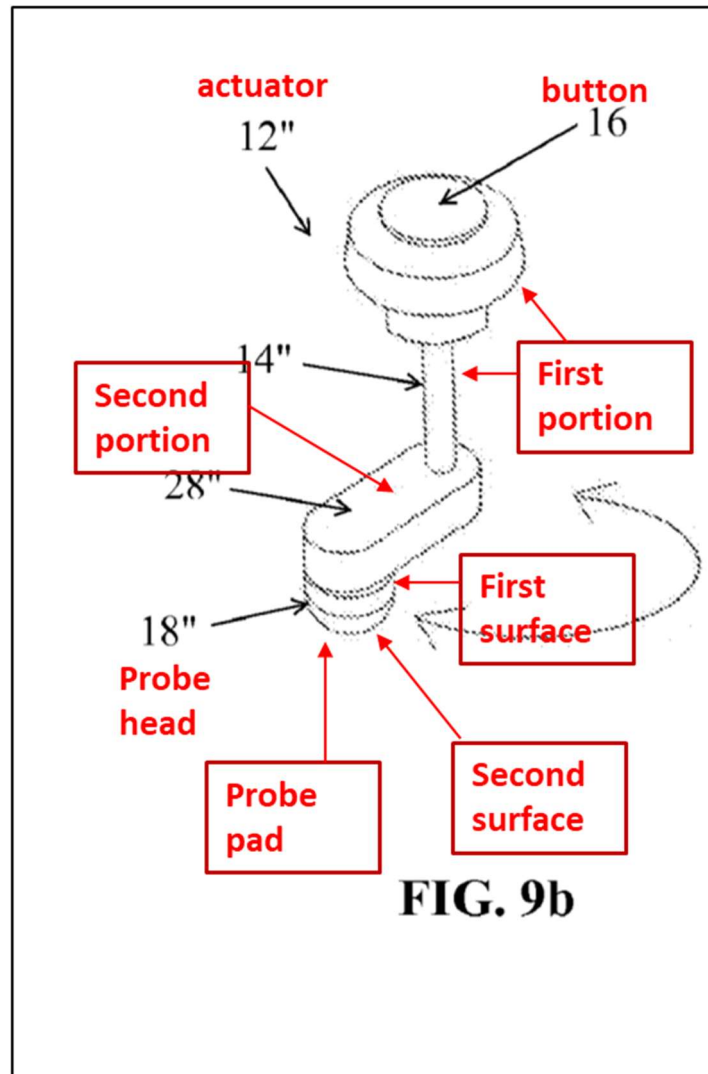
See the analysis from claim 1(d) and claims 18(c)-(f) for a description of the Kondo/Chu combination's electric shield. The analysis of 1(d) explains how electric charge is transferred through Chu's probe pad, indicating that the two surfaces of the probe pad are electrically coupled.

The proposed Kondo/Chu combination has the electric shield's first surface “disposed on” (as interpreted above to include indirect connection) to the first portion very similar to the '075 patent.



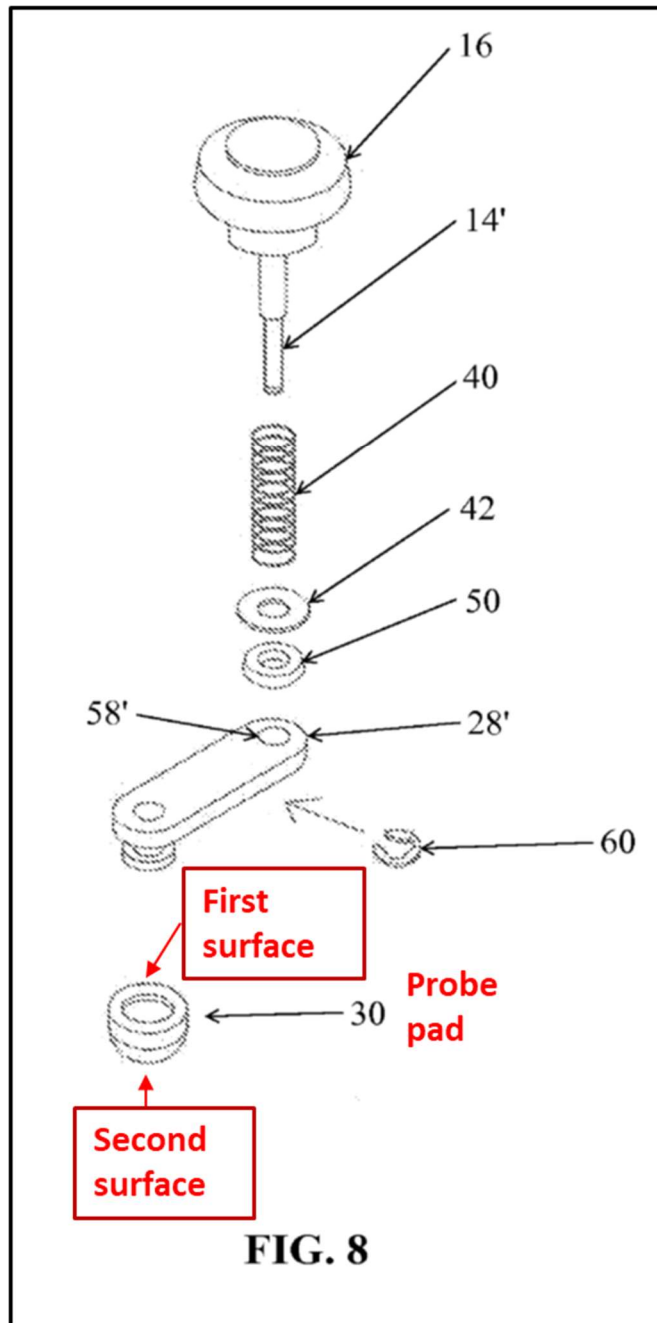
EX1003, Fig. 5 (annotations added); see EX1002, ¶174.

Figure 9b shows the claimed electric shield (probe pad 30) with two surfaces. The probe pad’s “first surface” is that portion that contacts the second portion 28”.



EX1004, Fig. 9b (annotations added).

Figure 8 shows the surfaces of the probe pad in greater detail.

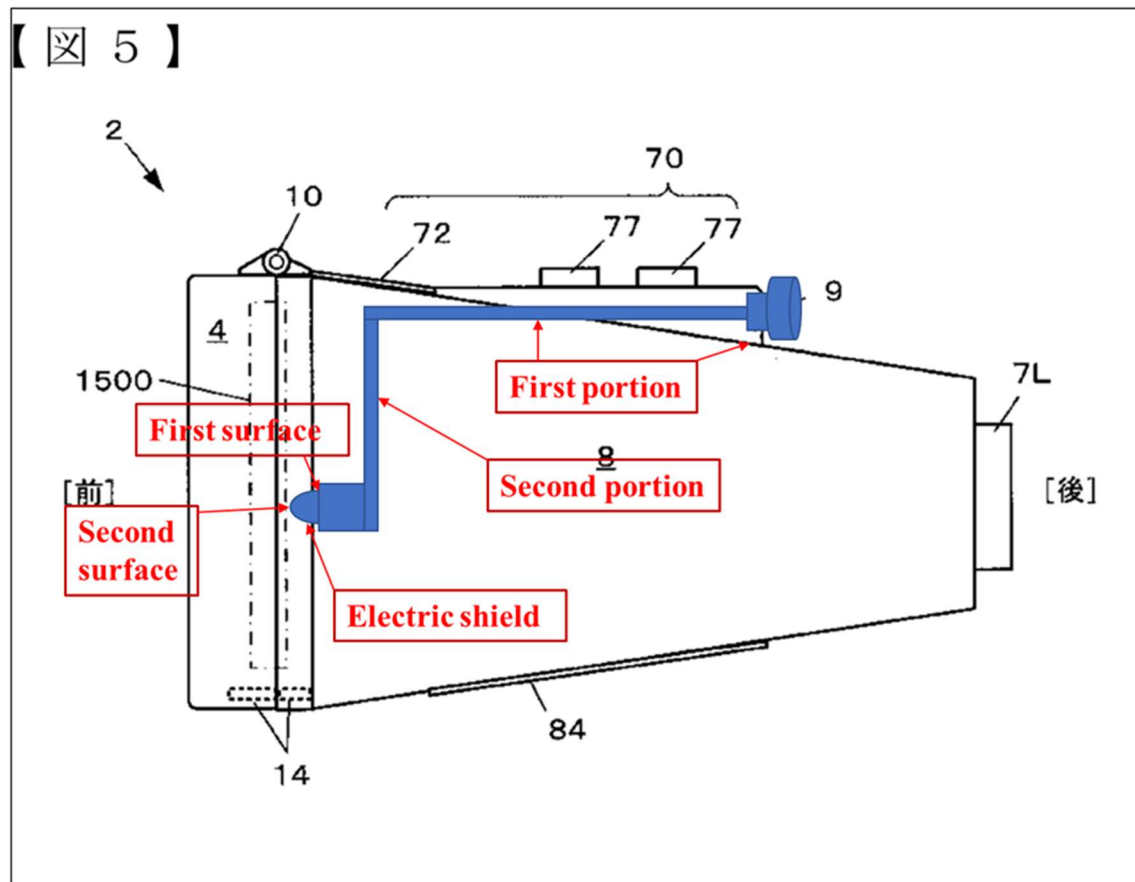


EX1004, Fig. 8 (annotations added); see EX1002, §VIII(N)(7).

8. **Claim 18(h): wherein the second surface is disposed on the second portion within the interior and is generally centered in the horizontal direction between the left and right regions, and wherein only the second surface of the electric shield is configured to contact a central portion of the touch-screen of the mobile electronic device and selectively transfer a capacitive touch input to the touch-screen in response to a user interaction with the first portion of the input mechanism.**

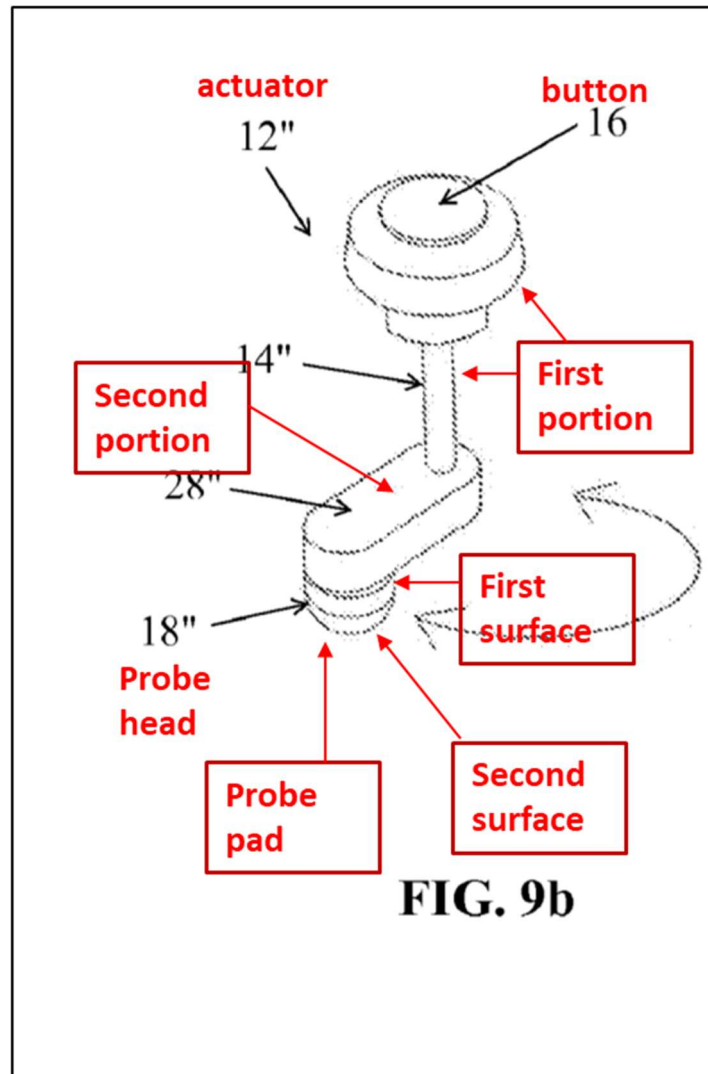
See §XI(C) and claims 1(b), 1(c), 1(d), 2(b), and 4 for an explanation of how the proposed combination contacts the central portion of the touchscreen and is generally centered in the horizontal direction. Also, please see the analysis of claim limitations 18(a-g) for context and explanation.

As shown below, the proposed combination of Kondo/Chu has the electric shield's second surface "disposed on" the second portion very similar to the '075 patent. Again, "disposed on" is interpreted to include indirect connection.



EX1003, Fig. 5 (annotations added); see EX1002, ¶178.

Chu's Figure 9b shows the second portion.



EX1004, Fig. 9b (annotations added); see EX1002, ¶179.

Please see the analysis of claims 1(c) and 1(d) for an explanation for how a user's touch of Chu's button 16 results in a capacitive touch to the touchscreen.

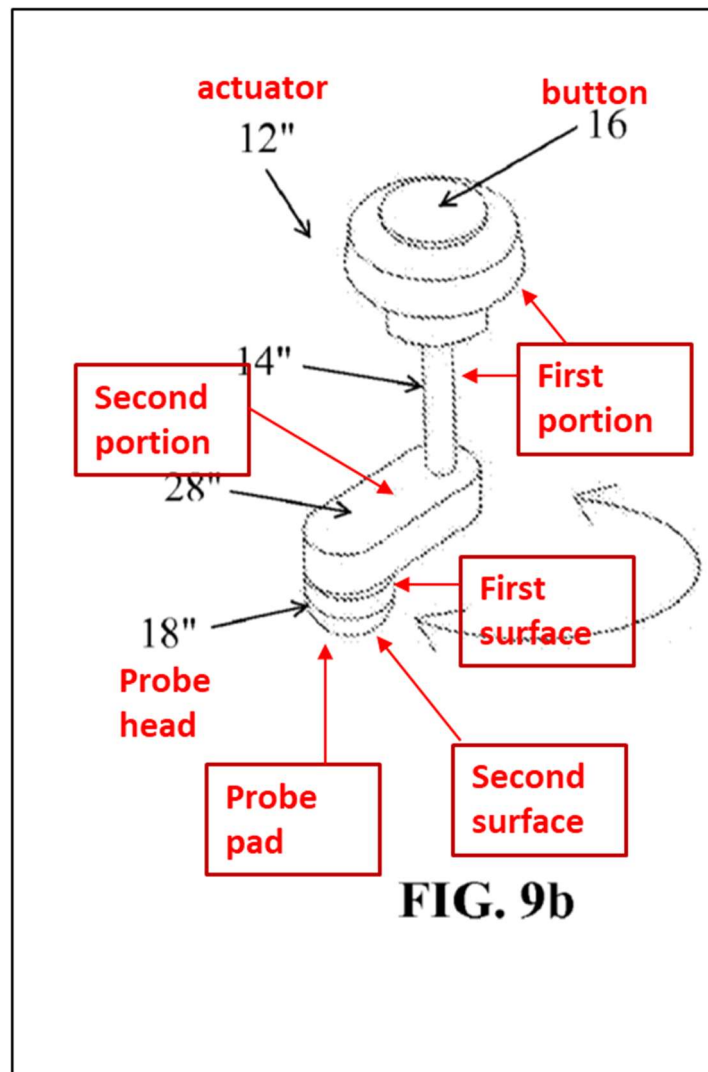
See EX1002, §VIII(N)(8).

O. Claim 19: The virtual reality viewer of claim 18, further comprising:

See EX1002, §VIII(O).

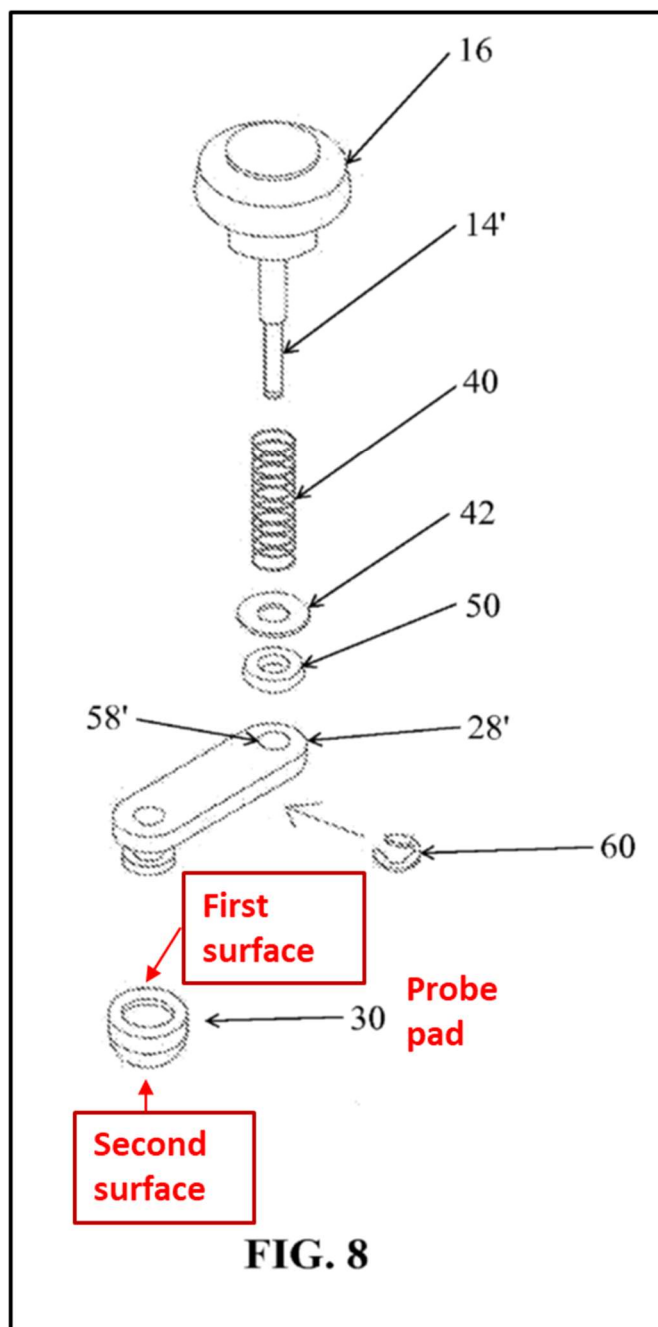
1. **Claim 19(a): a compressible pad disposed between the second portion and the second surface to provide an area of contact between the second surface and the touch-screen that is sufficient to transfer the capacitive touch input;**

See claims 1(c), 1(d), 7, 8, 10, 11, and 18 for a discussion of how Chu's probe pad 30 constitutes the claimed compressible pad as well as how capacitive touch input is transferred through the probe pad to the touchscreen. The claimed second surface is the outer surface of the probe pad. The probe pad is shown below in Chu's Figure 9b.



EX1004, Fig. 9b (annotations added); see EX1002, ¶181.

Figure 8 discloses the probe pad 30 with its two surfaces in greater detail.



EX1004, Fig. 8 (annotations added); see EX1002, §VIII(O)(1).

2. **Claim 19(b): wherein at least the electric shield includes a conductive material configured to transfer electrical capacitance between the first surface and the touch-screen via the second surface in response to a user interaction with the first surface; and**

See claims 1(c), 1(d), 6, 7, 8, 9, 10, and 18 for a description of the Kondo/Chu combination's electric shield and how it operates. See EX1002, §VIII(O)(2).

3. **Claim 19(c): wherein the second portion of the input mechanism at least partially divides the left and right regions.**

See claims 1(c), 1(d), 4, and claim 5 for a description of the Kondo/Chu combination's second portion and how the combination's input mechanism operates within partition wall 12 of Kondo's Figure 4(2). See EX1002, §VIII(O)(3).

P. Claim 20:

See claim 1 for a description of those claim limitations in common with this claim. See EX1002, §VIII(P).

1. **Claim 20(a): A virtual reality viewer for use with a mobile electronic device having a touch-screen, the viewer comprising:**

See claim 1(a) for a description of the Kondo/Chu combination's VR viewer. See EX1002, §VIII(P)(1).

2. **Claim 20(b): a housing configured to receive a mobile electronic device within an interior of the housing, wherein the housing is formed to define a cut-out through an exterior side of the housing;**

See claim 1(b) and claim 3 for a description of the Kondo/Chu combination's VR viewer and how it has a cut-out. See EX1002, §VIII(P)(2).

3. **Claim 20(c): an input mechanism that is accessible from an exterior of the housing and is moveable within the interior between at least a first position and an extended position, the input mechanism comprising:**

See claims 1(c), 1(d), and 18 for a description of the Kondo/Chu combination's input mechanism. See EX1002, §VIII(P)(3).

4. **Claim 20(d): a lever that is accessible through the cut-out;**

See claims 1(c), 3, and 12 for a description of how the Kondo/Chu combination has a lever. See EX1002, §VIII(P)(4).

5. **Claim 20(e): an electrical shield, wherein only portion of a surface of the electrical shield is configured to contact the touch-screen of the mobile electronic device when in the extended position,**

See claim 1(d) and claim 18 for a description of how the Kondo/Chu combination has an electrical shield and how it operates. See EX1002, §VIII(P)(5).

6. **Claim 20(f): a flexible linkage coupled to the lever and the housing, wherein the linkage is configured to deform in response to actuation of the lever and thereby guide the portion of the surface between the first position and the extended position, and**

See claims 12 and 14 for a description of how the Kondo/Chu combination has a flexible linkage and how it operates. See EX1002, §VIII(P)(6).

7. **Claim 20(g): wherein at least a portion of the input mechanism defines at least a portion of a view divider within the interior of the housing.**

See claim 5 for a description of how the Kondo/Chu combination's input mechanism defines a portion of a view divider. See EX1002, §VIII(P)(7).

XIII. 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. 9,420,075
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	Mooibroek and Cornish, <i>Alternative Sources of Natural Rubber</i> , Appl Microbiol Biotechnol (2000) 53: 355-65.
EX1008	Selected portions of '075 Patent's prosecution history
EX1009	<i>DDC v. Merge Labs</i> complaint
EX1010	<i>DDC v. Google, et al.</i> infringement contentions
EX1011	DDC's '075 patent infringement chart for Google
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 13,193 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 '075 Patent:

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Denver, CO 80202

And by delivering a copy via Express Mail to lead litigation counsel:

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