

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

VALVE CORPORATION,
Petitioner,

v.

IMMERSION CORPORATION,
Patent Owner.

Case IPR2024-00478
U.S. Patent No. 9,430,042

**PATENT OWNER'S PRELIMINARY RESPONSE
UNDER 35 U.S.C. §§ 311-19 AND 37 C.F.R. § 41.100, ET SEQ.**

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EXHIBIT LIST

Exhibit No.	Exhibit Description
2001	Declaration of Craig Rosenberg, Ph.D. in Support of Immersion Corporation's Patent Owner Preliminary Response, dated April 29, 2024
2002	<i>Curriculum Vitae</i> of Craig Rosenberg, Ph.D.
2003	<i>Immersion Corp. v. Valve Corp.</i> , 2:23-cv000712-TL, Joint Claim Construction Statement (Exhibit A), Dkt. # 68-1
2004	<i>Immersion Corp. v. Valve Corp.</i> , 2:23-cv000712-TL, Order on Motion to Stay Pending <i>Inter Partes</i> Review, Dkt. # 69
2005	<i>Immersion Corp. v. Valve Corp.</i> , 2:23-cv000712-TL, Case Scheduling Order, Dkt. # 46
2006	<i>Immersion Corp. v. Valve Corp.</i> , 2:23-cv000712-TL, Valve Corp.'s Invalidity Contentions

I. INTRODUCTION

Patent Owner Immersion Corporation (“Immersion”) respectfully requests the Board deny institution of this Petition as it fails to demonstrate a reasonable likelihood that Petitioner Valve Corporation (“Petitioner”) will succeed in showing that the challenged claims of Immersion’s U.S. 9,430,042 (EX1001 or the “’042 Patent”) are unpatentable.

The challenged ’042 Patent is directed to virtual controls that are implemented on touch-pads. Virtual controls are instantiated virtually rather than physically and therefore do not have physically manipulable appendages, i.e., a rotatable knob or slidable slider. As detailed in the Background section of the ’042 Patent, Immersion’s inventors recognized that with many mechanical functions being replaced by electronics, operation of controls has been made less intuitive. For example, without click-stops or “detents,” i.e., a sense of mechanical resistance, it may be difficult to achieve a similarly effective experience from an electronic substitute for a traditional mechanical control device. To mimic the experience of physically manipulatable appendages and corresponding detents (e.g., click-stops), the ’042 Patent introduced the concept of a virtual detent—which includes a simulation of a mechanical detent created through **vibrotactile feedback**. The inventors also introduced the concept of detent profiles, which serve to define

characteristics of the virtual detent depending on the system and corresponding detents being virtualized.

A common theme across the Petition's obviousness grounds is the hindsight reconstruction of the '042 Patent by combining two types of prior art. Most of the prior art in the Petition fall into two categories: (1) patents that disclose virtual controls on 2-dimensional touchpads and (2) patents that disclose detents with physical 3-dimensional controls (such as knobs and sliders) and mechanisms that provide continuous contact forces, i.e., force feedback, to mimic the feel of a traditional mechanical detent. Petitioner attempts to combine these two types of art to yield a simulated version of a mechanical detent, i.e., a "virtual detent," on a touchpad with vibrotactile feedback to simulate the feeling of the detents. But Petitioner fails to provide a sufficient rationale for why a POSA would combine touchpad patents with physical knob mechanical detent patent. A POSA would not implement such physical knobs and force feedback producing mechanisms in 2-dimensional touchpad screens, much less be able to fit such 3-dimensional apparatuses in the form factor of a touchpad. This is the epitome of hindsight reconstruction.

The Petition also ignores a key aspect of the '042 Patent—virtual controls and virtual detents—and cites art that focuses on physical input devices (e.g., 3-dimensional knobs and sliders) that provide **non-vibrational** force feedback (e.g.,

continual normal forces that do not include vibrotactile sensations). Force feedback is continuous force exerted against a user, e.g., when the user presses a brake pedal he feels a normal opposing force from the pedal. "Normal forces" are contact forces a solid object exerts in a direction opposite to which a user pushes against the contact surface. These forces are not vibrational as they do not oscillate in direction or magnitude, in contrast to vibrotactile effects which do so.

Although prior art for 3-dimensional control appendages (such as a physical slider, switch, knob, etc.) would output force feedback to mimic mechanical detent on such physical knobs and sliders, this type of detent prior art, is not applicable to the 2-dimensional touch-pad environment that provide on-screen virtual controls of the '042 Patent. As such, force feedback would also not be applicable to touchpads. Rather, vibrotactile feedback is more suited to touchpads. The force feedback prior art simply discloses the mechanical detent functions that Immersion's inventors sought to virtualize in the '042 Patent. By asserting art that only discloses the mechanical detent control appendages that the '042 Patent's virtual controls were intended to replace, the Petition merely identifies the problem the invention solved, rather than demonstrate that the prior art renders the challenged claims obvious.

Furthermore, a closer look at Grounds 1-3 reveals several fatal deficiencies in the Petition. First, Petitioner fails to meet its burden to show that the prior art is analogous to the '042 Patent because it does not even attempt to engage in the two-

part test for proving analogous art as a threshold matter in the obviousness analysis. For that reason alone, Petitioner's obviousness grounds should be rejected. In any event, Petitioner cannot show that the asserted art is analogous because they disclose physical input devices with force feedback (e.g., Levin, Wang, and Goldenberg) which are not in the same field of endeavor as, nor reasonably pertinent to, the '042 Patent and the problem it solves.

Second, the art raised in Petitioner's grounds fails to disclose key claim elements such as "vibrotactile effect," "virtual detent," and "detent profile."

Third, Petitioner cannot demonstrate that a POSA would have been motivated to combine 3-dimensional physical knob input devices providing force feedback with touch-pads as it fails to provide adequate reasons for why a POSA would make the combination. Instead, Petitioner applies hindsight bias by using the '042 Patent as a guide to reconstruct the invention using the prior art. And, Petitioner's expert declaration adds nothing more to the obviousness analysis as it is a mirror image of the Petition offering conclusory opinions in circular fashion. Also, a POSA would recognize that force feedback, for 3-dimensional appendages to exert such normal forces, cannot be applied to a touch-pad with a 2-dimensional input surface. "Normal forces" are contact forces that a solid object exerts against a surface on which a user pushes against. Normal forces are continual and non-vibrational. Thus, a POSA would also not have had a reasonable expectation of success in making this

combination. For these and additional reasons detailed below, institution should be denied.

II. IMMERSION CORPORATION—A PIONEER IN HAPTICS TECHNOLOGY

Immersion Corporation is a publicly-traded company, and since its founding 30 years ago, has been the global leader in developing haptic technology as well as licensing software solutions and intellectual property for enabling haptic interfaces in a broad array of product markets including wearable devices, mobile ads and video, mobile devices, medical applications, automotive interfaces, gaming and virtual reality. Over 3 billion devices are licensed to use Immersion's haptic feedback software and intellectual property.

Started in 1993 by Louis Rosenberg, a pioneer in sensing interfaces and feedback technology, Immersion developed and commercialized haptic innovations, allowing devices to provide tactile sensations to enhance user interactions. Immersion was one of the first companies to release haptic joysticks, computer mice and steering wheels for video games. This technology has been widely used in gaming controllers, medical simulators, and other applications to enhance realism and user engagement.

Immersion's industry-defining technology is used in over three billion devices worldwide, including tablets, smartphones, wearables, gaming controllers, and

automotive interfaces. The Institute of Electrical and Electronics Engineers (“IEEE”) has recognized Immersion in its annual IEEE Spectrum Patent Power scorecards, which evaluate the technology world’s most valuable patent portfolios by quantitative benchmarks. Immersion’s established and growing leadership in haptic technology is reflected by its consistent ranking in the top 20 in its industry segment.

Immersion’s technological advances in the haptics space has generated over 3,500 issued patents world-wide. Immersion’s patents have been proven novel through multiple challenges over the years. Exclusive of those brought by Petitioner, Immersion’s patents have been challenged in 43 IPRs¹ of which only 2 cases² have resulted in determinations of unpatentability.

¹10 of these IPRs were denied institution, 14 of them were terminated prior to an institution decision in light of settlements, while 19 of them were instituted with 17 of those terminated prior to a final written decision in light of settlements.

²*Apple Inc. v. Immersion Corp.*, IPR2016-01372, Paper 35 (Jan. 10, 2018) and *Apple Inc. v. Immersion Corp.*, IPR2016-01381, Paper 36 (Jan. 10, 2018).

III. BACKGROUND

A. Summary of the '042 Patent

The '042 Patent describes techniques for simulating the experience of physical input devices such as knobs, sliders, and levers on input devices such as touchpads. EX1001, 2:59-63. Physical input devices typically have mechanical detents such as click-stops that gave users feedback on the extent of their manipulation. *Id.*, 1:22-29. The inventors of the '042 Patent recognized that modern electronic input devices were less intuitive to use because they did not have “click-stops or ‘detents,’ or otherwise a sense of mechanical resistance” which made it “difficult [for users] to obtain a similar experience from an electronic substitute for a traditional mechanical control device” *Id.*, 1:33-37.

To solve this problem, the '042 Patent introduced the concept of the virtual detent. *Id.*, 1:15-17. A virtual detent uses vibrotactile feedback to mimic a mechanic detent. *Id.* Understanding that mechanical detents come in a variety of forms corresponding to different physical input devices (e.g., different systems), the inventors also introduced the concept of the “detent profile,” which defines “which of a plurality of simulated mechanical detents to generate.” *Id.*, 55-56. The '042 Patent discloses example detent profiles that define rotary detents (*id.*, 13:47-53), hard stop detents (*id.*, 13:54-62), damper detent profiles (*id.*, 14:27-34), among others.

B. Claim

Petitioner challenges Claims 1-19 of the '042 Patent, including independent claims 1, 9, 10, 14, and 15. Independent Claim 1 recites:

1. A method comprising:
receiving an input signal comprising information associated with a manipulation of an input device configured to control a plurality of systems, wherein the input device comprises a touch-pad;
receiving a detent profile associated with one of the systems, the detent profile comprising haptic data associated with a virtual detent; and
generating a vibrotactile signal configured to cause an actuator to produce a vibrotactile effect to the input device, the vibrotactile effect comprising the virtual detent.

EX1001, cl. 1.

IV. PERSON OF ORDINARY SKILL IN THE ART (POSA)

Petitioner identifies a POSA as one who would have possessed a bachelor's degree in electrical engineering, computer science, or a related field, plus at least two years of industry or graduate level experience with software engineering, haptics programming, and/or human-computer interaction, including experience with user-interfaces and applications involving touchscreens, touchpads, and related technologies. Pet. At 8 (citing Ward, ¶¶37-43).

Immersion submits that a POSA at the time of the ’042 Patent would have had a bachelor’s degree in electrical engineering or computer science (or an equivalent degree), and two years of practical or industry experience in the field of human computer interaction (HCI), including implementation of computer-based systems and software for providing haptic feedback effects to a user. Rosenberg Declaration (“EX2001”), ¶32. Also, a person could have qualified as a POSA with more formal education and less practical or industry experience, or vice versa. Immersion reserves the right to propose a different level of skill in the art if trial is instituted. In any event, the Petition fails to show that any challenged claim of the ’042 Patent is unpatentable under either Petitioner’s or Immersion’s definition of a POSA.

V. CLAIM CONSTRUCTION

In the parallel district court proceeding, Petitioner has proposed constructions for the following terms, while Patent Owner maintains that the terms should be afforded their plain and ordinary meaning as understood by a POSA.

Claim Term	Petitioner’s Proposed Construction in District Court
“detent”	“a sense of mechanical resistance that divides movement of a control device into discrete increments, or that arrests movement in a direction”
“virtual detent”	“vibrotactile feedback that simulates a mechanical detent”
“detent profile”	“computer code or actuator characteristics that represent a virtual detent”

See EX2002.

Patent Owner submits that all terms may be given their ordinary and customary meaning, as understood by a POSA, in the context of the patent specification, and that no argument herein requires construction for any term. A POSA would understand the differences between the meanings of a “[mechanical] detent” and a “virtual detent.” EX2001, ¶36. A “detent” is a physical feature that uses force feedback to “mechanically resist or arrest” movement. *Id.* In contrast, a “‘virtual detent’ includes a simulated mechanical detent created through vibrotactile feedback.” *Id.* A POSA would understand that “a virtual detent uses haptic (touch-based) feedback to simulate the sensation of a mechanical detent without the need for actual mechanical components.” *Id.*

The specification and file history confirm this fundamental difference between a detent and a “virtual detent.” *Id.*, ¶37; EX1001 at 3:6-14 (“Such simulated mechanical detents, or virtual detents, may provide useful feedback to a user.”), 5:54-6:31 (“Specifically, in some embodiments the actuator 108 may be configured to provide the perception of a detent (i.e. a virtual detent) without the traditional means necessary for a mechanical detent”), 7:66–8:4, 8:38-46, 9:33-38, 9:59-10:49, 11:55-63, 12:33-38, 12:45-55, 13:35-14:57, Abstract; EX1002 (02/01/2016 Patent Board Decision) (Part 1), 590 (“As explained by Appellant, a detent provides a sense of mechanical resistance while operating a virtual control for a virtual device (Spec. 4; *see* Figures 9A-9H).”).

In the parallel district court proceeding, Petitioner agreed with Patent Owner insofar as a “virtual detent” must be vibrotactile, proposing the construction: “vibrotactile feedback that simulates a mechanical detent.” EX2003, 19.

As to “detent profile,” a POSA would understand that “detent profile” is tied to “vibrotactile effect” because it defines the nature of the “vibrotactile effect.” For example, a POSA would understand “the plain meaning of a ‘detent profile’ as including the specific characteristics or parameters that define how virtual detents behave in an input device . . . [for] simulat[ing] the tactile feedback that one might feel when using mechanical controls, such as the clicks felt when turning a knob or pushing a button that physically moves into discrete positions through **vibrotactile feedback.**” EX2001, ¶38.

A POSA would understand that the claims require the “detent profile” to comprise “haptic data.” *Id.* The specification discloses examples of such haptic data including: the type of vibrotactile effect felt by the user (e.g., sine wave, square wave, triangular wave, spring effect, damper effect), the magnitude of the effect, and its duration. *Id.* Accordingly, the “detent profile” must comprise haptic data relating to vibrotactile effects.

In the district court proceeding, Petitioner proposed “detent profile” to be construed as “computer code or actuator characteristics that represent a virtual detent.” EX2003, 28. Thus, Petitioner indirectly agreed that “detent profile”

represents a vibrotactile effect, because it defines “virtual detent” as “vibrotactile feedback that simulates a mechanical detent.”

VI. THE ASSERTED REFERENCES

A. Ichinose

Ichinose (U.S. 6,819,990) describes a touch-pad for vehicle applications. EX1015, Abstract. Ichinose's touch-pad is disclosed to be a 2-dimensional surface mounted to a steering wheel:

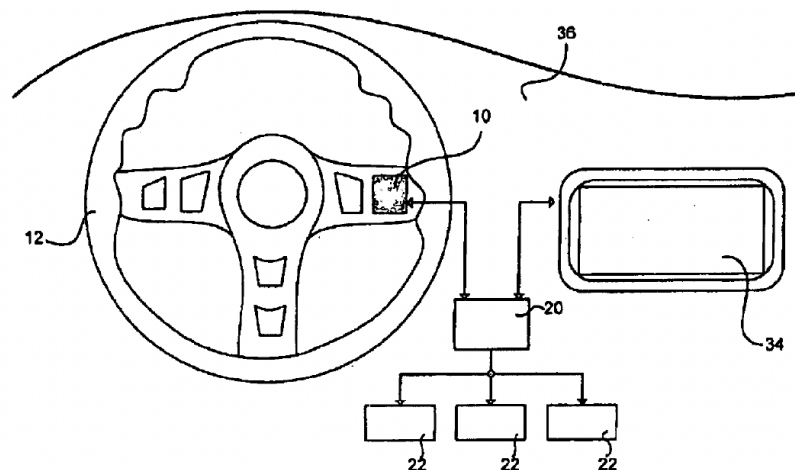


FIG. 1A

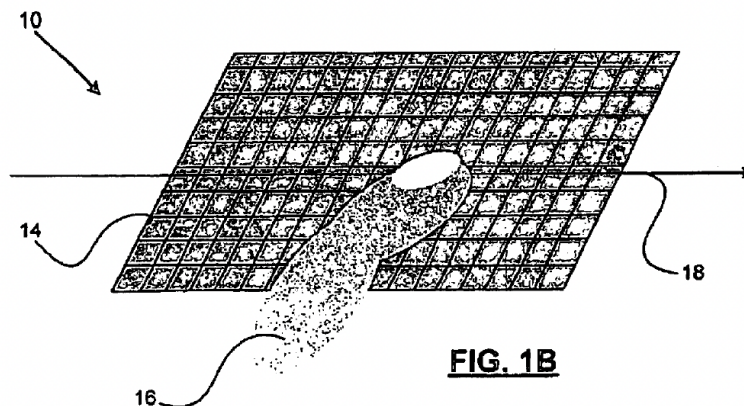


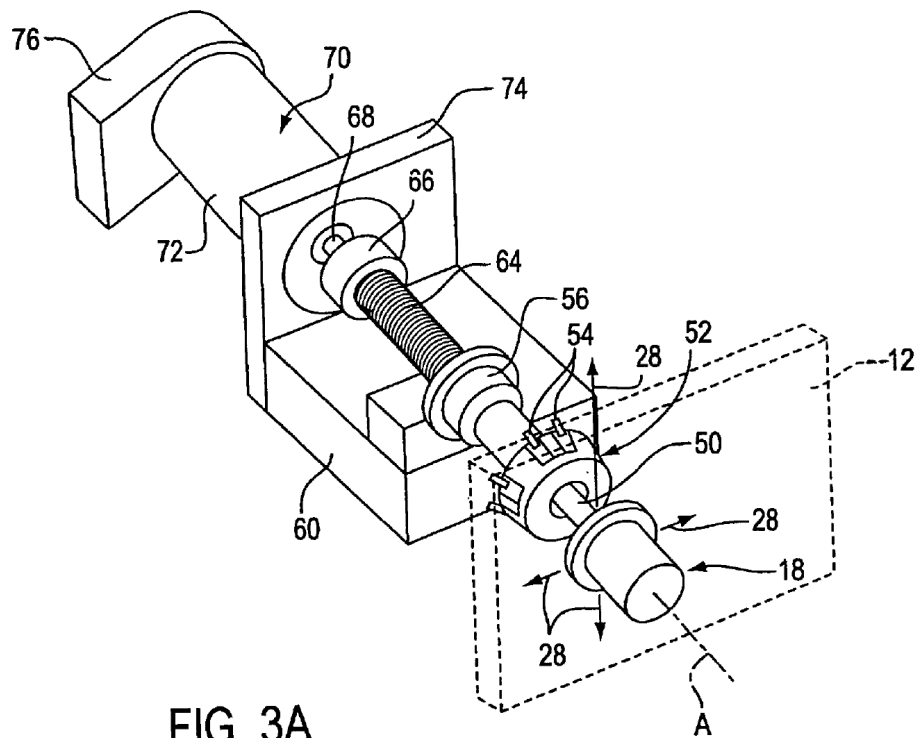
FIG. 1B

Id. At FIGS. 1A-B.

Ichinose describes that a user may control a cursor of a display interface. *Id.* Ichinose's system is taught to output a feedback signal when the user "traverses a boundary of the display region on the display." *Id.* As described, Ichinose system includes a software module that generates a feedback signal, which the feedback device outputs as a feedback signal. *Id.*, 1:45-51.

B. Levin

Levin (U.S. 6,686,911) describes a "control knob on a device that allows a user to control functions of the device." EX1016, Abstract. The control knob is described to be "rotatable in a rotary degree of freedom and moveable in at least one transverse direction approximately perpendicular to the axis." This is also illustrated below:



As shown, the knob 18 is a physical knob—not a virtual one—that the user physically moves in the transverse directions 28 (*id.*, 13:5-17). FIG. 3B further illustrates that knob 18 has a cylindrical shape with grooved surfaces for the user to manipulate in 3-dimensions:

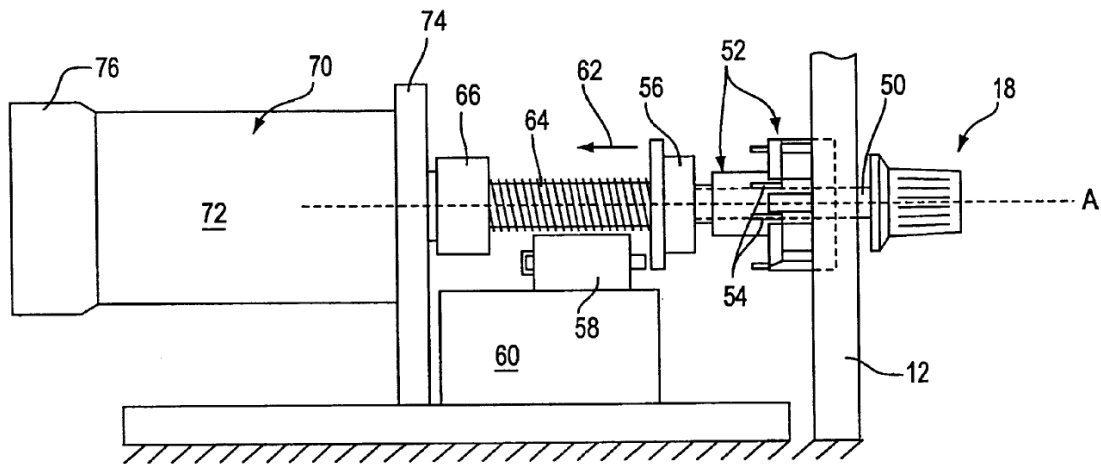


FIG. 3B

Id., FIG. 3B. According to Levin, detent forces are provided to the control knob. EX1016, 3:9-12. This force feedback is taught to be in the rotary degree of freedom for knobs (*id.*, 5:48-50) and in the linear degree of freedom for sliders (*id.*, 7:10-11).

Levin does not employ vibration forces exerted through the physical knob for the purpose of mechanical detents. The only vibration Levin discloses is for using vibration forces that “correlate with the magnitude” of, for example, fan rotation speed in a specific use case for fan adjustment controls. EX1016 at 8:11-26. This is not used for the underlying detent effects. Instead, this helps a user to adjust a rotating knob to control the fan speed in a car’s climate system along with detents. *Id.* In this case, force feedback is provided to the user to provide mechanical detents, and then another layer of vibrational feedback (indicating fan speed) is superimposed with the force feedback detents. *Id.* A faster vibration is provided for

higher fan speed such that a user can feel both the force feedback detents as well as the vibrations signifying the fan speed. In this way, the user can better select fan speed based on tactile feel as the detent indicates each discrete fan setting and the vibration provides a sense of the increasing fan speed. *Id.*

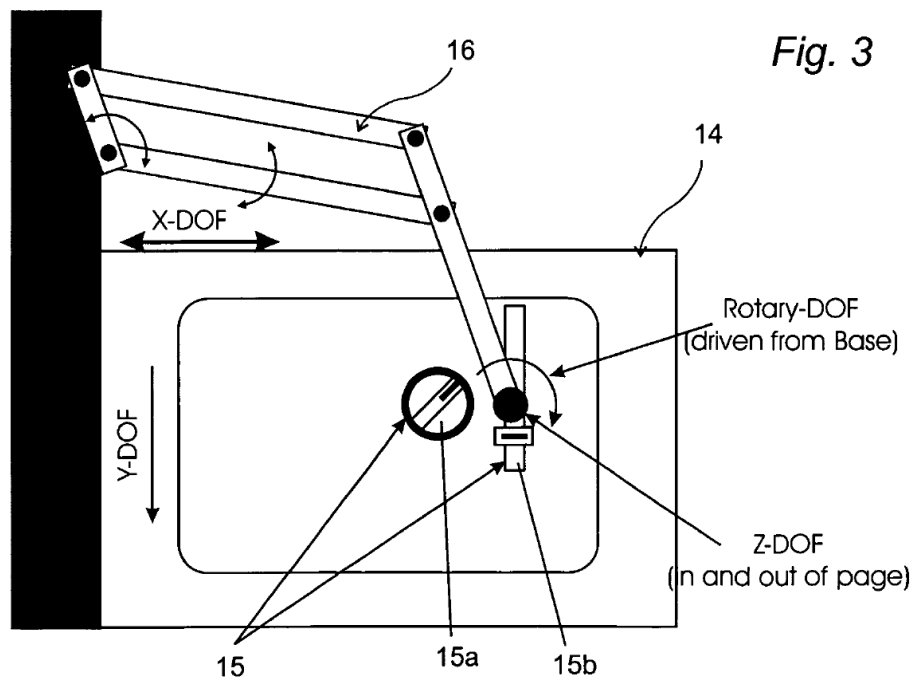
Levin teaches the augmentation of additional forces such as vibrations and jolts to force feedback detents but does not teach that these vibrations and jolts simulate the force feedback detent itself. The vibration indicates a fan speed level, but the force feedback simulates the detent. *Id.* The same is true of jolts, which is similarly not disclosed to be a detent itself. *Id.* At 11:59-67.

Levin teaches combining jolts with an underlying force feedback detent. *Id.*, 11:37-53; 11:62-65; 12:12-18. For example, in the context of a rotary knob or a slider, the underlying force feedback detents are output at particular rotational or linear positions of the knob or slider to inform the user how much the knob has rotated. *Id.* To enhance the feedback or make the detent's position more noticeable, Levin teaches that a jolt or bump force can be added on top of the underlying force feedback. *Id.* At 7:63-67, 10:11-32, 11:62-65. This combination of force feedback and jolts can make selection easier for the user by providing more pronounced physical feedback when the knob reaches a detent position. *Id.* Consequently, Levin's vibrations and jolts are not taught to simulate the force feedback detents itself, but rather augment the force feedback.

C. Wang

Wang (WO 02/102616) describes a “haptic reconfigurable dashboard system for controlling and monitoring various subsystems and hardware in a vehicle.” EX1022, 1:3-5. Wang discloses replacing “conventional physical knobs, levers and controls [] with virtual knobs, levers, control and haptic technology.” *Id.*, 2:5-7. Wang’s “virtual knobs” are implemented using **a physical control appendage (haptic device 16) overlaid** on a “picture of dial (a virtual control device) on the virtual device panel.” *Id.*, 6:15-18 (emphasis added). The haptic device 16 is a 3-dimensional object, which “feels solid” and is physically rotatable. *Id.*, 6:18-20.

The haptic device 16 is taught to have a rotary, X, Y, and Z degrees of freedom. *Id.*, FIG. 3. This is shown below:



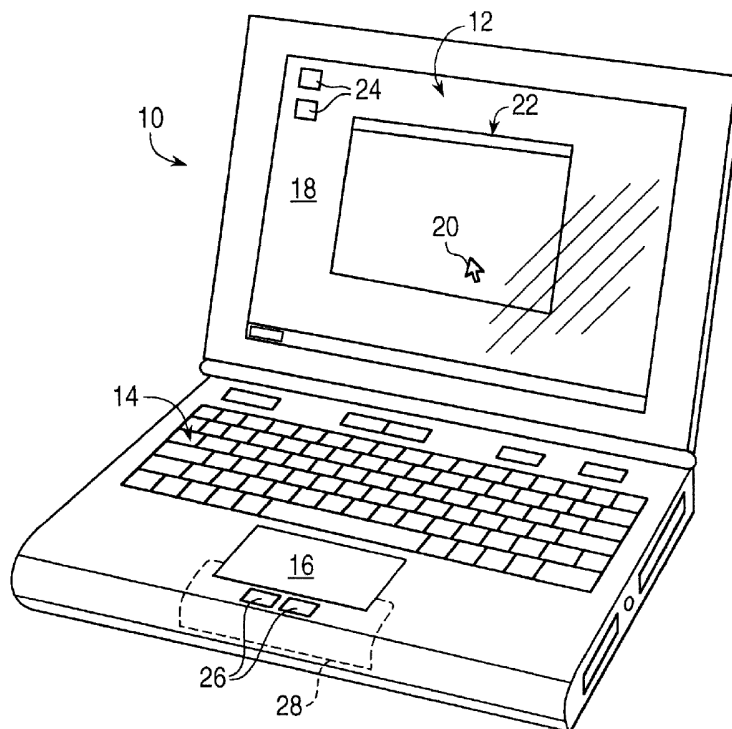
Id.

In Wang, the control knob is provided with “a haptic feedback mechanism for providing a force effect to the haptic device when it manipulates the virtual control device or indicator.” *Id.*, 2:15-17.

D. Rosenberg I

Rosenberg I (U.S. 6,429,846) describes “a haptic feedback planar touch control used to provide input to a computer.” EX1009, Abstract. The planar touch control is described to control a “cursor in a displayed graphical environment.” *Id.*

This is shown below:

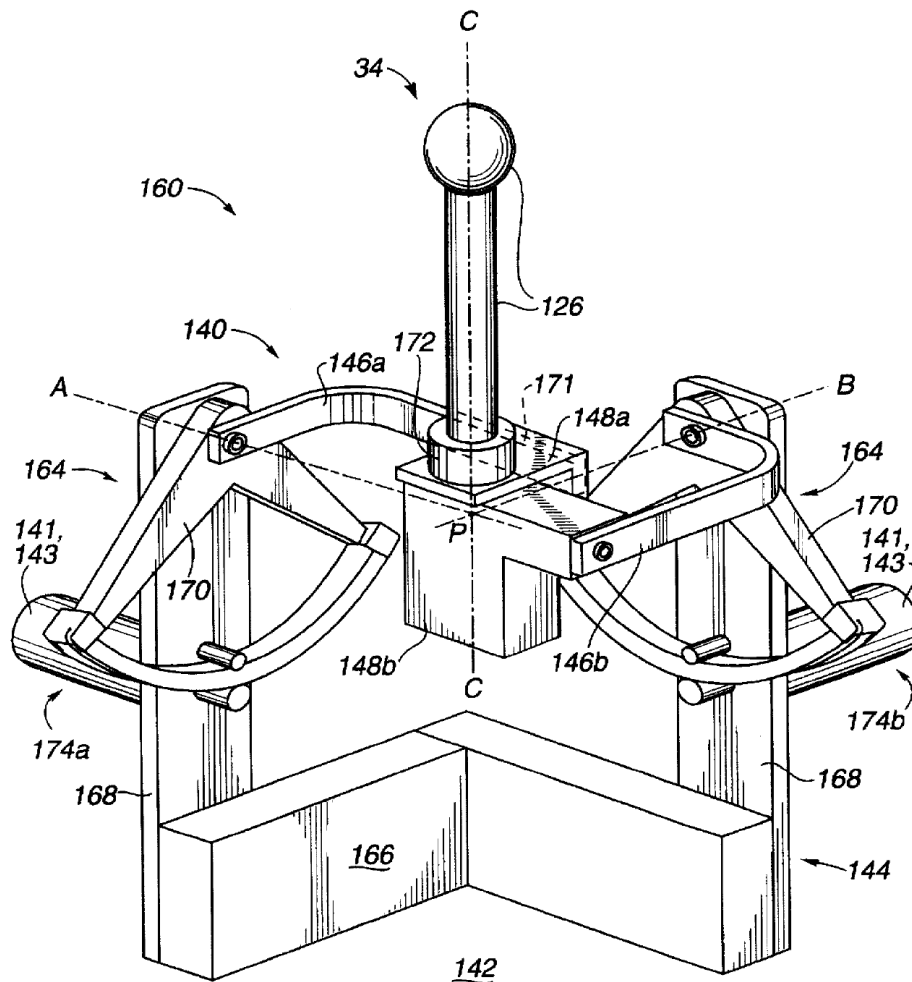


Id., FIG. 1.

Rosenberg I describes that an “actuator is coupled to the touch input device and outputs a force on the touch input device to provide a haptic sensation to the user contacting the touch surface.” *Id.*, 2:14-19. The haptic feedback is described to “assist and inform the user of interactions and events within a graphical user interface.” *Id.*, 2:56-58. According to Rosenberg I, the haptic sensations are associated with user interaction with interface elements: “haptic sensation, such as a pulse, vibration, or spatial texture, are preferably output in accordance with a interaction of a controlled cursor with a graphical object in the graphical environment.” *Id.*, 2:41-44.

E. Rosenberg II

Rosenberg II (U.S. 5,734,373) describes a physical, 3-dimensional control object such as a joystick for interfacing with a computer. EX1010, Abstract. Rosenberg II’s “host computer updates a host application process, such as a simulation or video game, in response to the input control signal [and a] microprocessor local to the interface apparatus and separate from the host computer receives the host command and provides a processor output control signal.” *Id.*, 3:35-40 Rosenberg discloses that “[a]n actuator receives the processor output control signal and provides a force along a degree of freedom to a user-manipulated object, such as a joystick, in accordance with the processor output control signal.” *Id.*, 40-44. An example joystick is shown below:

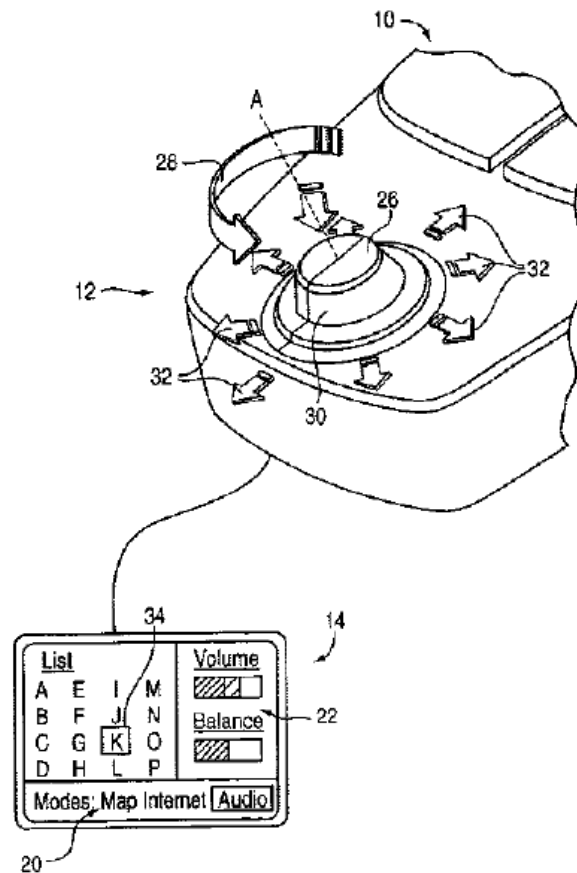


Id., FIG. 7.

As shown, Rosenberg II's joystick comprises 3-dimensional surfaces for “providing a mechanical input and output” *Id.*, 26:62-63. According to Rosenberg II, the force feedback is associated with events such as interactions with displayed objects: “Forces are preferably associated with the interactions of the cursor with displayed graphical objects.” *Id.*, 11:28-29.

F. Goldenberg

Goldenberg (U.S. 6,636,197) describes “haptic sensations for a haptic feedback device and especially for a rotational device such as a knob.” EX1007, Abstract. According to Goldenberg, the force effects can include “hill force effect and barrier force effect allow easier selection of menu items, menus, values, or other options by the user.” *Id.* The knob is disclosed to be a thumb-stick, as shown below:



Id., FIG. 1.

Goldenberg's knob is a physical, 3-dimensional object for physical manipulation rather than a virtual control. For example, Goldenberg states that “the

user preferably grips or contacts the circumferential surface of the knob 26 and rotates it.” *Id.*, 5:21-24.

In Goldenberg, force feedback is associated with events such as user interaction with menu items: “detent force can be output when the cursor moves from one menu item to a different menu item.” *Id.*, 2:40-42.

VII. GROUND 1: THE ICHINOSE-LEVIN COMBINATION DOES NOT RENDER THE CHALLENGED CLAIMS OBVIOUS

Ground 1 should be rejected for three independent reasons. *First*, Petitioner does not even attempt to meet its burden of demonstrating that Levin is analogous art. *Second*, neither Ichinose nor Levin, individually or in combination, discloses a key claim limitation—a “detent profile comprising haptic data associated with a virtual detent.” *Third*, Petitioner fails to demonstrate a valid motivation to combine.

A. Petitioner Has Not Met its Burden of Demonstrating that Levin is Analogous Art

The Petition does not address the question of analogous art, and thus fails to meet its burden of demonstrating that Levin is analogous art. The Board should deny institution as to Ground 1 on this basis alone.

Whether or not asserted prior art is analogous to the claimed invention is a threshold question, and it is Petitioner's burden to make this showing. *See In re Klein*, 647 F.3d 1343, 1348 (Fed. Cir. 2011) (“A reference qualifies as prior art for an obviousness determination under § 103 only when it is analogous to the claimed

invention.”); *Penda Corp. v. United States*, 29 Fed. Cl. 533, 557-58 (Fed. Cl. 1993) (“Non-analogous art is too remote to constitute prior art.”) (citations omitted); *Victoria’s Secret Stores LLC v. Andra Group, LP*, IPR2020- 00853, Paper 14, 3 (Dec. 11, 2020) (“An assessment of whether relied-upon art is analogous is a threshold inquiry in an obviousness analysis.”); *Kingston Tech. Co., v. Polaris*, IPR2016-01623, Paper 33, 23 (Feb. 9, 2018) (“The threshold issue is whether [the reference] is analogous art.”).

The Federal Circuit applies a two-part test to determine whether a reference is analogous: (1) whether the art is from the same field of endeavor, regardless of the problem addressed or, (2) if the reference is not within the field of the inventor’s endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved. *In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004).

Here, Petitioner does not attempt to prove that Levin is analogous art—the Petition is devoid of any analogous art contentions. *See generally* Pet., 13-17. Petitioner does not contend that the challenged patent and Levin are from the same field of endeavor, nor that Levin was reasonably pertinent to the problem solved by the ’042 Patent. *In re Bigio*, 381 F.3d at 1325. Petitioner should not be permitted to cure this. *Intelligent Bio-Systems, Inc. v. Illumina Cambridge, Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016) (“[T]he expedited nature of IPRs bring with it an obligation

for petitioner to make their case in their petition to institute.”). *Wasica Fin.GmbH v. Continental Auto. Sys., Inc.*, 853 F.3d 1272, 1286-87 (Fed. Cir. 2017) (“We also are unpersuaded by [the petitioner]’s attempts to cure the petition’s deficiencies in its subsequent briefing to the Board and to us.”).

But even if Petitioner attempts to show that Levin is analogous art, it will fail on the merits because Levin deals with force feedback *mechanical* detents, not virtual detents of the ’042 Patent. Thus, Levin is not in the same field of endeavor as, nor reasonably pertinent to, the problem that the ’042 Patent solves.

Because Levin is not analogous art, the Board should not consider it as relevant prior art for Petitioner’s obviousness allegations. The Board regularly denies institution for failure to meet this threshold burden of showing that an obviousness reference is analogous art. *See Schott Gemtron Corp. v. SSW Holding Co., Inc.*, IPR2013-00358, Paper 106, 26 (Aug. 20, 2014) (“Petitioner bears the burden of showing by a preponderance of evidence that the asserted prior art references are analogous art ...”); *Vanguard Products Group, Inc. v. Invue Security Products Inc.*, IPR2020-00018, Paper 7, 14-18 (Mar. 31, 2020).

1. Levin is not in the same field of endeavor as the ’042 Patent

The ’042 Patent and Levin are not in the same field of endeavor. Courts look to the specification of the challenged patent with particular attention to the “Field of Invention” sections to determine the field of endeavor. *Airbus S.A.S., Firepass*

Corp., 941 F.3d 1374, 1381, n. 8 (Fed. Cir. 2019) (“[T]he specification of each reference includes a ‘Field of the Invention’ section that distinctly describes each applicable field of endeavor.”); *In re Wood*, 599 F.2d 1032, 1036 (CCPA 1979) (determining field of endeavor based on “Background of Invention”); *Wyers v. Master Lock Co.*, 616 F.3d 1231, 1238 (Fed. Cir. 2010) (finding reference concerning padlocks to be in same field of endeavor where “patent itself refers to ‘the prior art padlock’ in the background of the invention.”).

Courts must also be careful to not be overbroad in their characterization of the field of endeavor. *See Wang Laboratories, Inc. v. Toshiba Corp.*, 993 F.2d 858, 864 (Fed. Cir. 1993); *see also In re Clay*, 966 F.2d 656, 659 (Fed. Cir. 1992) (finding too broad characterization of field of endeavor as “petroleum industry”). In *Wang Laboratories*, which is directly on point, the Federal Circuit held that the relatively narrow characterization of “computer memory” was too broad because of differences between the patent’s “compact modular memories” and the references “memory circuits in which modules of various sizes may be added or replaced.” *Wang Laboratories, Inc.*, 993 F.2d at 864.

Here the inventors of the ’042 Patent endeavored to solve a problem in the field of virtual controls implemented on touch-pad input devices. *See, e.g.*, EX1001, cl. 1 (“the input device comprises a touch-pad”), *id.*, 12:27-32 (“One or more sensors 104 can be configured to detect pressure or movement on a touch pad.”), *id.*, 1:14-17

(inventive solution “relates to *methods and systems for providing virtual detents through vibrotactile feedback*”) (emphasis added). Therefore, the '042 Patent's field of endeavor relates to virtual detents through vibrotactile feedback provided to virtual controls implemented on a touch pad.

In contrast, Levin is concerned with providing mechanical detents for physical input controls such as knobs and sliders. For example, Levin explains in the Abstract that “[t]he *present invention provides a control knob on a device that allows a user to control functions of the device*. In one embodiment, *the knob is rotatable in a rotary degree of freedom and moveable in at least one transverse direction approximately perpendicular to the axis*. An actuator is coupled to the knob to output a force in the rotary degree of freedom about the axis, thus providing force feedback.” EX1016, Abstract (emphasis added). Every embodiment Levin describes is a physical input device. *See id.*, FIGS. 3A-B (physically rotatable knob), FIGS. 4A-C, FIG. 5 (physically slidable slider). Further as described in § VI.B., not only is Levin not concerned with simulating mechanical detents with virtual detents, but Levin also does not disclose the use of vibrotactile effects to simulate or replace force feedback detents.

Further, while Levin's discloses a display in FIG. 2, it is only for the purpose of displaying visual icons and images rather than for accepting touch-based input such as with a touch-pad or touch-screen. EX1016, 7:32-34 (“FIG. 2 is an example

showing images which can be displayed on display 14 to assist the user in selecting options with [physical] knobs 18 and/or slider control 32"). Consequently, a POSA would understand that the '042 Patent and Levin are from different fields of endeavor. EX2001, ¶¶65-72. The '042 Patent and Levin should not be considered to share the same field of endeavor for input devices generally because this is the kind of overbroad characterizations precluded by the Federal Circuit. *Wang*, 993 F.2d at 865 (references disclosing memory controllers for differently sized applications held non-analogous).

2. Levin's force feedback on physical knobs is not reasonably pertinent to the problem solved by the '042 Patent

Levin is not reasonably pertinent to the problem that the '042 Patent solves. "A reference is reasonably pertinent if [...] it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem." *Clay*, 966 F.2d at 659.

A POSA would not find Levin reasonably pertinent to the problem of providing virtual detents on a touch pad. EX2001, ¶73. Levin's rotary force mechanisms that can only be implemented on physical control knobs are inapposite to the '042 Patent inventor's attention because Levin's force mechanism cannot produce virtual detents. Moreover, Levin's force mechanism cannot be implemented on virtual input devices with virtual controls such as on touchpads because there is

no way to apply Levin's rotary force on a 2-dimensional touch-pad. *Id.* And as discussed above, the purpose of Levin is different from the purpose of the '042 Patent's. Levin is directed to applying mechanical detents to physical knobs, while the '042 Patent is directed to applying virtual detents to virtual controls on touch-pads. Accordingly, Levin is non-analogous art. For at least this reason alone, institution of Ground 1 should be denied.

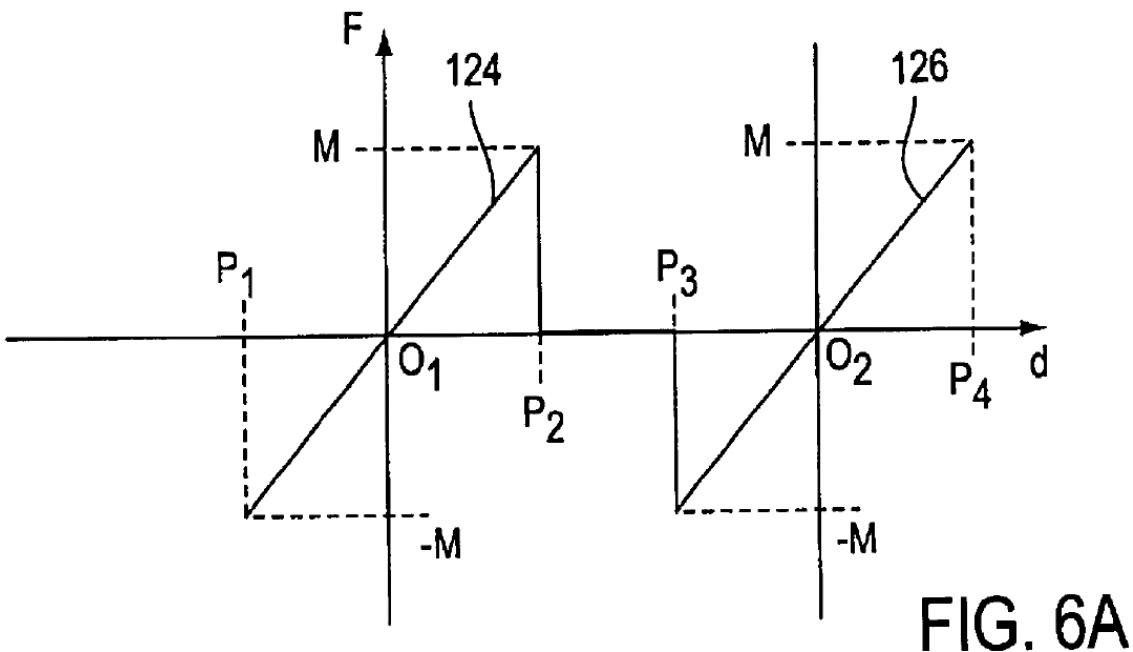
B. Neither Ichinose nor Levin Alone or in Combination Discloses “a Virtual Detent”

The plain and ordinary meaning of “virtual detent” includes a simulated mechanical detent created through *vibrotactile feedback*. See *supra* § V. In the district court proceeding, Petitioner agreed that the “virtual detent” must include “vibrotactile feedback that simulates a mechanical detent.” Now, Petitioner attempts to map Levin's force feedback to “virtual detent.” But force feedback does not include vibrotactile effect because they are different types of feedback altogether. The former exerts a continual force or pressure against the user such as when a user presses a brake pedal and feels a continual, normal force exerted by the pedal mechanism. “Normal forces” are contact forces that a solid object exerts in a direction opposite to which a user pushes against. EX2001, ¶87. This force is not vibrational as it does not oscillate in direction (e.g., forward and backward) and magnitude. On the other hand, vibrotactile effects are by nature vibrational because

the force or pressure exerted oscillates in different directions and magnitudes. A POSA would understand this fundamental distinction. *Id.*

Petitioner glosses over this distinction and maps Levin's non-vibrational, force feedback to the vibrotactile effect required by "virtual detent," stating: "Levin explains that its 'detent force profiles' include data that 'represents the magnitude of force' an actuator outputs based on 'position' of an input device." Pet. at 19 (citing EX1016, 14:30-45); *see also* Pet. at 20 (citing Ward, ¶¶135-136). But this mapping fails because continual force is not the same as vibrotactile effect. A POSA would understand that Levin's force feedback comprises a normal, continual force rather than an oscillating or vibrational sensation.

Levin expressly confirms that its physical knob based detent force does not include vibrotactile feedback, for example, in FIG. 6A:



EX1016, FIG. 6A, 14:46-59 (detent force profile in which force assists user in moving knob clockwise and force resists motion in increasing manner until knob is moved to position P1). A POSA would understand this disclosure to mean Levin's detent force is not vibrational and that such continual assistive and resistive forces exerts a consistent pressure to assist or resist knob turning. *See id*; EX2001, ¶90. A POSA would understand Levin's assistive or resistive forces do not include oscillating or vibrational effects. *Id.*

Despite this lack of disclosure, Petitioner also contends that a POSA would have understood a similar detent profile *could* include the “magnitude of the vibration” that the actuator outputs to simulate the detent. Pet., 20. Levin does not support this reading. The only support Petitioner provides is Levin's statement that

“force detents can be simple jolts.” *Id.* (citing EX1016, 10:16-17); *see also* Pet., 15 (citing EX1016 at 7:65 (“detent force (e.g., jolt)”, i.e., a vibrotactile effect). Reliance on this statement is misplaced and in fact contradicts Levin’s express disclosure that jolts are a ***force feedback*** effect—not vibrational.

Petitioner’s citation to Levin is incomplete and can be easily taken out of context: “a basic force sensation is force detents that are output at particular rotational positions of the knob to inform the user how much the knob has rotated and/or to designate a particular position of the knob. ***The force detents can be simple jolts.***” *Id.* at 10:14-18 (emphasis added). The paragraph actually begins, however, by expressly stating that “[t]he ***force feedback output*** on knob 18 can include a variety of different force sensations”—again, not vibrational. EX1016 at 10:11-12.

Levin does not disclose that jolts are vibrations. Instead, Levin merely describes jolts as a kind of force feedback detent that simply are “stronger in magnitude than ***normal detents***”—not as a virtual detent. *Id.* at 11:62-63 (emphasis added). Indeed, Levin does not contemplate or use the word “virtual.” Accordingly, there is no disclosure in Levin for the use of vibration effects for mechanical detents. The only use of vibration remotely related to detents is where vibration effects can ***augment***—not simulate—detent effects to provide the user with more information. *See* § VI.B (vibrational effects superimposed on force feedback detents to indicate

increase in fan speed adjustment). Thus, Petitioner fails to show that Levin discloses vibrotactile effects used to simulate detent effects.

Petitioner also maps Ichinose's vibration to "virtual detent." Pet. at 18. This mapping of Ichinose's vibration to "virtual detent" also fails because these vibrations are not used to *simulate a mechanical detent*. Petitioner understands "virtual detent" to mean "vibrotactile feedback that *simulates a mechanical detent*." *Supra* § V. However, Ichinose's vibration is responsive to cursor interaction with interface elements, but not for simulating mechanical detents. EX1015 at 4:7-17 (Feedback device 80 provides vibration as the user interacts with touchpad 10 and moves the cursor with his finger); EX2001, ¶91. When a user experiences Ichinose's vibration, they are not provided with a simulated experience of rotating a dial or sliding a slider with click stops. In other words, nowhere in Ichinose is there any disclosure of using vibrational effects for simulating a mechanical detent. Mere teachings of generally outputting vibrations in response to cursor interactions with icons and user interface elements does not disclose simulating a mechanical detent. Indeed, Ichinose does not mention or contemplate detents at all.

C. Neither Ichinose nor Levin Alone or in Combination Discloses "a detent profile comprising haptic data associated with a virtual detent"

Because Levin does not teach a virtual detent, it also does not teach a detent profile comprising haptic data associated with the virtual detent. Levin teaches a

profile associated with force feedback—the type of force it uses for its physical knob based detent. Force feedback is not vibrotactile feedback. *See supra* § VII.B. Thus, any profile associated force feedback does not disclose a detent profile comprising haptic data associated with a virtual detent.

Petitioner itself implicitly acknowledges that “detent profile” must be tied to a “vibrotactile effect” because the “virtual detent” that the profile comprises is vibrotactile. *See supra* § V. A POSA would understand this based on the plain claim language itself because the virtual detent requires a vibrotactile effect: “the ***vibrotactile effect*** comprising the virtual detent.” *See* '042 Patent, cl. 1 (emphasis added). The specification confirms this understanding, stating that “the present invention relates to methods and systems for providing virtual detents through ***vibrotactile feedback***.” *Id.*, 1:15-17 (emphasis added). Thus, the claimed “detent profile” must comprise haptic data associated with vibrotactile effects. EX2001, ¶92. A force feedback profile cannot meet the claimed “detent profile” for the same reasons force feedback cannot meet vibrotactile feedback—the force feedback profile defines non-vibrational, continual normal forces whereas the “detent profile” defines oscillating, vibrational effect. *Id.*

As with “virtual detent,” Petitioner similarly maps Levin’s force feedback profile to the “detent profile,” but fails to show how such force feedback profile includes haptic data associated with ***vibrational haptic data***. *See* Pet., 20. Petitioner

argues that a detent profile would have included “magnitude of the vibration” that the actuator outputs to simulate a click because Levin states that “force detents can be simple jolts.” *Id.*, 20 (citing EX1016, 10:16-17). But the Petition does not provide any evidence that a jolt is a vibrational effect. Levin does not disclose that such jolts vibrate. Levin merely states that “a jolt force can be output that is stronger than normal detents, which informs the user that the end of the frequency range has been reached.” Thus, Levin does not disclose or render obvious this claim limitation. EX2001, ¶¶92-95.

D. Petitioner Has Not Demonstrated a Motivation to Combine Ichinose and Levin with a Reasonable Expectation of Success

1. Petitioner has failed to show that a POSA would be motivated to modify Ichinose with Levin

Petitioner also fails to provide adequate reasoning for why a POSA would have thought to modify Ichinose's touchscreen, which is 2-dimensional, with Levin's rotary and linear force feedback used for its detent, which require 3-dimensional input devices such as knobs and sliders. A POSA would not see a need to modify a 2-dimensional touchscreen with rotary and linear force feedback requiring 3-dimensional appendages. EX2001, ¶74. Obviousness requires “a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.” *Johns Manville Corp. v. Knauf Insulation, Inc.*, IPR2018-00827, Paper 9, 13 (Oct. 18, 2018) (quoting *KSR*

Int'l Co. v. Teleflex Inc., 550 U.S. 398, 418 (2007)) (informative). Rather than rely on conclusory statements, Petitioner must provide “specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.” *In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016). The Federal Circuit has reiterated that “[t]he factual inquiry whether to combine references must be thorough and searching[.]” *In re NuVasive, Inc.*, 842 F.3d 1376, 1381-82 (Fed. Cir. 2016).

Petitioner fails to provide a “thorough and searching” reason for why a POSA would modify a 2-dimensional touchscreen surface with rotary and linear forces that require 3-dimensional shapes. For example, Petitioner’s rationale merely explains why vibrotactile feedback is beneficial to both Levin and Ichinose. Pet., 13-14. However, this only explains how feedback, in general, is beneficial to both references without a specific reason why a POSA would seek to modify Ichinose’s 2-dimensional touchscreen with Levin’s rotary or linear forces used for mechanical detent that require 3-dimensional knobs. EX2001, ¶¶74-78. The mere fact that Ichinose recognized the benefits of vibrotactile feedback (which it already employed) is not sufficient to demonstrate why a POSA would have further modified it with physical knob-based detents from Levin, much less modified it to incorporate detents at all.

Petitioner’s contention that Levin’s force detents were “known variations” in Ichinose’s 2-dimensional touchscreens (Pet., 14) is conclusory and unsupported by

any evidence. *See In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d at 1380 (“petitioner cannot employ mere conclusory statements [but] . . . must instead articulate specific reasoning, based on evidence of record . . .”). But Petitioner has not offered any evidence for why Levin’s non-vibrational force detents were considered “known variations.” No evidence is shown that the “other variations” Ichinose mentions would include the force detents in Levin.

Further, Petitioner continues to assume what it must prove—that implementing rotary and linear forces in 2-dimensional touchscreens were “known techniques.” Pet., 14. Petitioner provides no evidence that Levin’s rotary and linear detent forces were “known techniques” for 2-dimensional touchscreens. In fact, a POSA would understand the opposite to be true; for example, a POSA would not think to implement Levin’s force feedback mechanism in the form factor of a touchpad. EX2001, ¶¶76. Mr. Ward’s supporting declaration is similarly conclusory and devoid of evidence or analysis. EX1003, ¶125. In fact, Mr. Ward’s declaration is merely a *verbatim copy* of the Petition in this regard. *Compare* Pet., 14 with EX1003, ¶¶125. This circular citation, without any actual factual basis, lends no weight to Petitioner’s assertion that a POSA would have been motivated to combine Ichinose with Levin. *See Apple Inc. v. Immersion Corp.*, Case IPR2016-01371, Paper 7, 13-14 (disregarding expert testimony on obviousness where testimony is “simply a verbatim copy of the argument in the Petition”); *Arendi S.A.R.L. v. Apple*

Inc., 832 F.3d 1355, 1366 (Fed. Cir. 2016) (reversing finding of obviousness where PTAB relied on “conclusory statements and unspecific expert testimony”).

Contrary to Petitioner’s conclusory assertions, a POSA would see no need to implement Levin’s detent profiles, which are for rotary and linear force feedback, on the 2-dimensional surface of Ichinose’s touch-pad. EX2001, ¶78.

2. Petitioner improperly applies hindsight bias in its proposed combination of Levin and Ichinose

Even if Petitioner offered a plausible explanation why a POSA would have thought to produce rotary and linearly resistive forces on a 2-dimensional touch-pad (which it did not), Petitioner cannot do so without using the claims as a roadmap for hindsight reconstruction. Hindsight reconstruction of a patent claim using multiple prior art references in piecemeal fashion is impermissible to show obviousness. *See Grain Processing Corp. v. Am.-Maize Prods. Co.*, 840 F.2d 902, 907 (Fed. Cir. 1988) (“Care must be taken to avoid hindsight reconstruction by using ‘the patent in suit as a guide through the maze of prior art references, combining the right references in the right way so as to achieve the result of the claims in suit.’”) (internal quotations omitted). The Federal Circuit has observed that “the prejudice of hindsight bias” often overlooks that the “genius of invention is often a combination of known elements which in hindsight seems preordained.” *Polaris Indus. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1068 (Fed. Cir. 2018) (citations omitted). It has also

recognized that where, as here, “the art in question is relatively simple . . . the opportunity to judge by hindsight is particularly tempting.” *Id.* (citing *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351 (Fed. Cir. 2001)). “In fact, objective consideration of simple technology is often the most difficult because, once the problem and solution appear together in the patent disclosure, the advance seems self-evident.” *Mintz v. Dietz & Watson, Inc.*, 679 F.3d 1372, 1379 (Fed. Cir. 2012).

Here, Petitioner engages in the behavior that the Federal Circuit has cautioned against. Petitioner uses the '042 Patent as a blueprint to explain why a POSA would combine Ichinose's touch-pad with Levin's force detents. EX2001, ¶81. For example, Petitioner alleges that “POSAs had reasons to implement Ichinose's system such that it used Levin's ‘force detents’ to simulate common mechanical detents like a simple mechanical ‘click.’” Pet., 13. This alleged rationale comes from the '042 Patent itself: “Such an illustrative embodiment may be advantageously employed to simulate mechanical detents through vibrotactile feedback. Such simulated mechanical detents, or virtual detents, may provide useful feedback to a user.” EX1001, 3:6-9.

Petitioner, however, does not and cannot offer any rationale that does not use the claimed invention as a guide. Petitioner never cites any reasoning from the references themselves speaking to a need or desire to combine a touch-pad with rotary or linearly resistive forces. Indeed, although Petitioner explains that Ichinose

contemplates variations of vibrational feedback on its touch-pad, Petitioner fails to explain why one of those variations should be implementing rotary and linear force feedback on a touch-pad. Pet., 14. Similarly, although Petitioner explains that Levin contemplates physical “force detents,” Petitioner fails to explain why this suggests a motivation to apply virtual “force detents” on a 2-dimensional surface. *Id.*, 13-14. Petitioner also does not explain why knowledge or skill of the POSA would have motivated the application of rotary and linear force feedback to a 2-dimensional surface. *See generally id.*, 13-17. Petitioner’s proffered motivation is gleaned from ’042 Patent itself—the hallmark of hindsight reconstruction. *See In re McLaughlin*, 443 F.2d 1392, 1395 (CCPA 1971) (motivation gleaned from the patent disclosure is improper).

3. Petitioner fails to demonstrate a reasonable expectation of success

Petitioner also fails to demonstrate a reasonable expectation of success in implementing Levin’s linear and rotary detents on Ichinose’s 2-dimensional touchscreen. “An obviousness determination requires finding that [an ordinarily skilled artisan] would have been motivated to combine or modify the teachings in the prior art and would have had a reasonable expectation of success in doing so.” *Regents of Univ. of Cal. v. Broad Inst., Inc.*, 903 F.3d 1286, 1291 (Fed. Cir. 2018) (emphasis added).

Rather than meet its burden, Petitioner deploys boilerplate: “POSAs would have reasonably expected success in implementing any of the above implementations because Levin’s ‘force detents’ are executed by a processor (Levin, 19:54-20:3), like Ichinose’s command processor, and can be output by ‘any of a variety of different types of actuators’ (Levin, 10:1-5), which Ichinose’s system includes.” Pet., 24. Petitioner alleges that there is a reasonable expectation of success simply because both references use processors and actuators. It does not, however, explain why a POSA would expect success when implementing Levin’s rotary actuators (“DC motor, voice coil, pneumatic or hydraulic actuator, magnetic particle brake, etc.” EX1016, 10:2-5) or linear actuators (“linear voice coil actuator 104.” *Id.*, 12:40-41) with Ichinose’s touchpad. EX2001, ¶83. A POSA would not have expected success because it would not have been possible at the time of the patent (or at present for that matter) to apply rotary and linear force feedback on a touchpad. *Id.* In other words, a POSA would have understood that a 2-dimensional touchpad cannot physically exert rotary or linearly resistant forces and would not expect to be able to do so. *Id.*

Also, Mr. Ward contends that the force detents output on a physical knob or slider can include vibrations or jolts. EX1003, ¶127. But as explained above, according to Levin, vibrations or jolts are used to augment a force detent rather than be used as a force feedback detent itself. EX1016, 8:11-26, 10:11-32, 11:37-65,

12:12-18; *see also supra* § VI.B. Other than repeating the Petition almost verbatim, Mr. Ward also fails to explain how a POSA could achieve rotary and linearly resisting forces on a 2-dimensional surface without undue experimentation.

Petitioner's conclusory attempt to show reasonable expectation of success is insufficient to meet Petitioner's burden of pointing out with particularity the evidence supporting its grounds. *See* 35 U.S.C. § 312(a)(3) (The Petition must identify "with particularity ... the evidence that supports the grounds for the challenge to each claim."); *Eli Lilly & Co. v. Teva Pharms. Int'l GmbH*, 8 F.4th 1331, 1348–49 (Fed. Cir. 2021) ("[I]t was, at all times, [petitioner's] burden to show . . . a reasonable expectation of success . . .").

VIII. GROUND 2: THE WANG-ICHINOSE COMBINATION DOES NOT RENDER THE CHALLENGED CLAIMS OBVIOUS

Ground 2 suffers from similar deficiencies as Ground 1. *First*, Petitioner does not (nor does it even attempt to) meet its burden of demonstrating that Wang is analogous art. *Second*, neither Wang nor Ichinose, individually or in combination, discloses at least two key limitations of the challenged claims—a "virtual detent" and "vibrotactile signal." *Third*, even if the combination were to disclose all claim elements, which it does not, Petitioner fails to show that a POSA would have had a motivation to combine Wang and Ichinose with a reasonable expectation of success.

A. Petitioner Has Not Met its Burden of Demonstrating that Wang is Analogous Art

As with the Ichinose-Levin combination discussed above, Petitioner also fails to even allege, let alone prove, that Wang is analogous art. *See generally* Pet., 32-35. The Board should deny institution as to Ground 2 on this basis alone. As discussed above in § VII.A, whether or not asserted prior art is analogous to the claimed invention is a threshold question, and it is Petitioner's burden to make this showing.

Petitioner should not be permitted to cure this deficiency. *Intelligent Bio-Systems*, 821 F.3d at 1369. But even if Petitioner attempts to do so, it will fail on the merits because Wang deals with *non-vibrational, force feedback* detents for physical knobs and sliders rather than the vibrotactile virtual detents of the '042 Patent. As detailed below for the two-part analogous art inquiry, Wang's non-vibrational, force feedback is not in the same field of endeavor as, nor reasonably pertinent to, the problem the '042 Patent solves.

1. Wang is not in the same field of endeavor as the '042 Patent

The '042 Patent and Wang are not in the same field of endeavor. The '042 Patent's field of endeavor relates to virtual detents through vibrotactile feedback provided to virtual controls implemented on a touch pad, *see supra* § VII.A (citing, e.g., the '042 Patent, cl. 1, 1:14-17 (Field of Invention), 12:27-32), and as discussed

above in § VII.A, care must be taken to avoid overbroad characterizations of the field of endeavor. *See Wang Laboratories, Inc.*, 993 F.2d at 864.

Wang, on the other hand, is directed to providing non-vibrational force feedback mechanical detents to physical objects such as knobs and sliders that are overlaid and manipulated on a planar virtual display surface. For example, Wang teaches the generation of forces by the haptic device when operating physical knobs and mechanical sliders:

That is, the *outside of the dial feels solid and, through the generation of proper forces exerted by the haptic device, the user is able to 20 rotate the dial*. In parallel, the image of the dial is updated to show that the dial is being rotated. Similarly, *the haptic device can be used to operate sliders, push knobs, rocker switches and other common mechanical devices*.

EX1022, 5:18-22 (emphasis added). Every embodiment Wang describes is a physical input device. *See* EX1022, FIG. 2 (physically rotatable knob and slider), FIG. 3, FIG. 4.

Although Wang teaches a “virtual device panel 14,” this is only for the purpose of displaying visual output rather than for accepting touch-based input. *See, e.g.*, EX1022, 5:14-20 (virtual device panel 14 used to display a layout of various virtual controls), 6:3-5 (virtual display device implemented as a heads-up display on

windshield or steering wheel), 8:4-5 (virtual display of control icons). Note that, as discussed above in the overview of Wang, although Wang includes a display of virtual icons of control objects such as knobs or sliders, that is only for display purposes since the actual input is still controlled by a physical knob that is overlaid on the surface displaying the virtual icon. *See* § VI.C. Thus, Wang's field of endeavor relates to force feedback on physical control knobs rather than vibrational feedback on virtualized controls in touch-pads and a POSA would so understand. EX2001, ¶¶99-100.

1. Wang's force feedback on physical knobs and sliders is not reasonably pertinent to the problem solved by the '042 Patent

Wang is not reasonably pertinent to the problem the '042 Patent solves. *Clay*, 966 F.2d at 659. A POSA would not find Wang's physical knob overlaid on a display surface reasonably pertinent to the problem of simulating detents for virtual controls on touch-pads as with the '042 Patent. EX2001, ¶¶101. Again, the unidirectional rotary and linear force feedback disclosures of Wang are made possible only on physical, 3-dimensional knobs and sliders. A POSA would recognize it is not possible to impart unidirectional rotary and linear forces through a touch-pad. *Id.* Therefore, Wang's force feedback would not commend itself to the inventors of the '042 Patent because these types of forces in Wang would not be useful to the problem relating to touch-pads. *Id.* More suitable feedback sensations for touch-pads are

vibrotactile feedback. *Clay*, 966 F.2d at 659; EX2001, ¶¶101. Moreover, as with Levin, Wang's purpose is to provide mechanical, non-vibrational detents rather than virtual, vibrational detents. Non-vibrational, force feedback mechanical detents would not be helpful to inventors solving a problem relating to vibrational, virtual detents. Accordingly, Wang would not be reasonably pertinent to the problem solved by the '042 Patent.

B. Neither Ichinose nor Wang Alone or in Combination Discloses “a Virtual Detent”

The Wang-Ichinose combination fails to teach a “virtual detent” because the alleged combination only teaches force feedback, which does not include vibrotactile feedback. The plain and ordinary meaning of “virtual detent” is a detent simulated using vibrotactile effects. *See supra* § V. The Petition fails to appreciate this meaning of “virtual detent” and fails to demonstrate that Wang or Ichinose alone or in combination discloses vibrational detent effects. Ichinose does not disclose detent effects at all and Wang does not disclose vibrational detent effects.

As with Levin, Petitioner incorrectly maps Wang's non-vibratory rotational and linear force feedback to the “virtual detent.” Pet., 37 (citing, e.g., EX1022, 7:21-22; 8:6-9 (“Force effects to emulate the feel of a mechanical rotary knob or a slider...”), 8:29-31 (“emulate a series of detents as the knob rotates.”)). But, rotational and linear forces, are not the same thing as vibrotactile effects because the

former exerts consistent unidirectional forces while the latter provides oscillating forces. EX2001, ¶¶108-09; *supra* § VII.B. Petitioner does not otherwise contend that Wang teaches a virtual detent comprising a vibrotactile effect. Petitioner's own description of Wang confirms that the haptic device provides non-vibratory "force effects" which do not include vibrotactile effects. Pet., 32 (Wang "provides '**a force effect**' so the driver 'can feel a sense of touching or force'" (emphasis added).

A POSA would understand that Wang does not disclose the claimed virtual detent. EX2001, ¶¶109. Wang provides a sensation of resistance to the user by way of contact force effects that are exerted in the degrees of freedom that the overlaid haptic device (i.e., physical control appendages) is moved around on the surface of the virtual device panel. EX1022, 7:23-26 (haptic feedback actuator generating force effects in each of the **active degrees-of-freedom**), 7:26-31. Thus, Petitioner's combination does not disclose this element, and thus is not obvious over Claim 1.

C. Neither Ichinose nor Wang Alone or in Combination Discloses "generating a vibrotactile signal configured to cause an actuator to produce a . . . virtual detent"

As detailed above, the Wang-Ichinose combination does not disclose vibrotactile feedback for a virtual detent. A POSA would understand that Wang does not teach that its actuators produce vibrotactile effects through the virtual detent. EX2001, ¶¶110-12. On the contrary, since Wang's actuators are only disclosed to generate unidirectional force feedback, the corresponding signals do not produce

vibration. *Id.* Petitioner instead attempts to gloss over this distinction, stating: “these signals cause the actuator(s) to produce emulated detents, i.e., vibrotactile effects.” The Petition, however, provides no evidence that Wang discloses vibrotactile effects.

D. Petitioner Has Not Demonstrated a Motivation to Combine Wang and Ichinose

1. A POSA would not be motivated to modify Wang with Ichinose and Petitioner has not demonstrated otherwise

Petitioner merely states that a POSA would have used Ichinose's touchpad to implement Wang's haptic device as a substitution. Pet., 34. Here, Petitioner fails to acknowledge that it is not possible to implement physical knobs and sliders that provide rotational and linear force feedback on a touch-pad. EX2001, ¶¶102-03. Any explanation would invariably involve hindsight bias because that is the very point of the invention—to provide a simulation of mechanical detents on a touch-pad using virtual detents. *Id.*, ¶¶104.

Second, Petitioner's assertions of simple substitution and design choice are irrelevant because these substitutions do not arrive at the challenged claim. For example, Petitioner alleges that using Ichinose's touchpad to implement Wang's haptic device would have been a substitution. Pet., 34-35 (“simple substitution of a known element (Wang's touch-sensitive [physical knob] haptic device) for another (Ichinose's touchpad 10)”).

Here, a POSA would understand that the substitution of Wang's physical rotary knob haptic device with Ichinose's touch-pad would actually result in a touch-pad without any ability to provide detents. EX2001, ¶105. Substitutions that do not arrive at the challenged claim, no matter how simple they are, are not relevant. To arrive at the challenged claim, however, Ichinose's touch-pad and Wang's physical input object would require additional modification to enable virtual detents. EX2001, ¶¶105-06. That is, Wang's physical knob haptic device and force feedback effect would need to be virtualized on Ichinose's touch-pad, e.g., by representing them as virtual controls and virtual, vibrational effects. By definition, this is not a simple substitution. *See Intel Corp. v. PACT XPP Schweiz AG*, IPR2020-00518, Paper 34, 45 (Aug. 9, 2021) (substitution that requires further modification of references are not "simple substitution."). Moreover, this substitution is a hindsight reconstruction of the claimed invention. Accordingly, Petitioner has not met its burden of demonstrating a motivation to combine.

2. Petitioner fails to demonstrate a reasonable expectation of success

As with the Ichinose-Levin combination in Ground 1, Petitioner also fails to demonstrate a reasonable expectation of success in implementing Wang's physical knob with force feedback detents on Ichinose's 2-dimensional touch-pad. Petitioner's rationale suggests that there is a reasonable expectation of success

because touch-pads were known and share common components such as actuators. Pet., 35. This does not demonstrate a reasonable expectation of success. EX2001, ¶¶107.

IX. GROUND 3: ROSENBERG I DOES NOT ANTICIPATE ANY OF THE CHALLENGED CLAIMS

In Ground 3, Petitioner relies on Rosenberg I to allege anticipation of the challenged claims. Petitioner also relies on the teachings from Rosenberg II, which Petitioner alleges is incorporated by reference into Rosenberg I. As detailed below, Rosenberg I and II do not disclose at least two key limitations of the challenged claims—(1) a “manipulation of an input device configured *to control a plurality of systems*” and (2) “receiving a detent profile *associated with one of the systems.*”

A. Claim [1A]: Rosenberg I Does Not Disclose “manipulation of an input device configured to control a plurality of systems”

Rosenberg I does not teach “manipulation of an input device configured to control a plurality of systems” because Rosenberg I’s trackpad has only one common configuration for a mouse cursor to interact with graphical user interface elements and control any number of different applications using the same cursor. Thus, Rosenberg I does not disclose virtualizing different input controls configured for each different system from a plurality of systems.

During prosecution, applicants specifically noted that Claim 1 was amended to recite in part “an input device configured to control a plurality of systems ...

receiving a detent profile associated with one of the [plurality of] systems.” EX1002 (Part 1), 213-14. As annotated, the “detent profile associated with one of *the* systems” finds antecedent basis in “an input device configured to control *a* plurality of systems.” Thus, these terms must be read together. In particular, applicants expressly highlighted that the prior art did not disclose “an input device configured to control a *plurality of systems*.” *See id.*, 213 (“while Huang may disclose an input device configure to control a system, e.g. a brake controller, Huang does not teach an ‘an input device configured to control a plurality of systems’”). Taken together, applicants explained that “[s]uch functionality enables the claimed device to receive one detent profile, and that profile may be associated with one system controlled by the input device (e.g., an audio system), and another type of profile may be used when a different system (e.g., a temperature system) is being controlled by the input device.” *Id.*, 214. That is, the claims cover an input device configured to control a plurality of systems, including by receiving a system-specific detent profile for each of the controlled systems. EX2001, ¶¶118.

Rosenberg I does not disclose an input device configured to control a plurality of systems with system-specific detent profiles, e.g., a trackpad with virtual controls with system-specific configuration. Rather, Rosenberg I merely discloses a mouse cursor that is system-unaware. EX1009, 11:23-29 (“The user moves a finger or other object within region 70 to correspondingly move the cursor 20”). This input device

is only configured to control the cursor, regardless of which application Rosenberg I's computer 10 runs. EX2001, ¶¶119. That is, when a user of Rosenberg I's computer interacts with different applications, they do so by controlling the same virtual control—the mouse cursor, without any system-specific configuration, such as a system-specific detent profile. *See, e.g.*, EX1009, 13:41-45, 14:10-12; EX2001, ¶119.

Indeed, Petitioner merely maps a trackpad that can *interact* with different applications to this limitation. Pet., 52 (“Rosenberg-I touchpad is also ‘configured to control a plurality of systems [...]’”). But Petitioner does not attempt to demonstrate that the trackpad is actually “configured to control” each of the alleged plurality of systems. *See generally id.*, 51-53; EX2001, ¶119-20. Instead, Petitioner merely states that for computer 10 runs multiple different applications (e.g., gaming apps and web-browser app), each of which utilizes input from the touchpad 16 with no distinction between applications, *i.e.*, with a single common input device configuration. Pet., 51-52; EX2001, ¶¶119-20. Therefore, just like the prior art cited during prosecution, Rosenberg I's trackpad is not “configured to control a *plurality* of systems.” *Id.*

B. Claim [1B]: Rosenberg I Does Not Disclose “receiving a detent profile associated with one of the systems”

Rosenberg I and II do not disclose this limitation because they disclose profiles associated with user interaction with graphical interface elements; not with each one of the systems. Claim 1 requires a plurality of systems, and that each of those system have a detent profile associated with it. Petitioner attempts to map different applications to the claimed plurality of systems. Pet., 52. But neither Rosenberg I nor Rosenberg II discloses an application-specific profile associated with any of those applications. The Rosenberg references do not teach a detent profile customized to an application such that the input device is configured specifically to control a certain application.

In other words, the challenged claims require a special configuration for controlling one of a plurality of systems (i.e., Claim limitation 1[A]), where such special configuration includes a detent profile associated with that specific system (i.e., Claim limitation 1[B]). *See, e.g.*, EX1002 (Part 1), 207 (Amending Claim 1 to recite in part “an input device ***configured to control*** a plurality of systems [...] receiving a detent profile associated with one of the systems.” Where each detent profile may be associated with one system controlled by the input device and another profile used when a different system is controlled by the input device). As explained

above in § IX.A, the “configured to control” limitation goes hand in hand with the system-specific detent profiles. Rosenberg I discloses neither limitation.

Here, Rosenberg I explicitly states that its forces are associated with interactions with user interface elements. *See, e.g.*, EX1009, 11:23-29 (“cursor control region 70 of the pad 16 can cause forces to be output on the pad ***based on the interactions*** of the controlled cursor [...] forces are preferably associated ***with the interactions*** of the cursor with displayed graphical objects”), 12:5-6, 12:27-49, 13:18-20, 15:19-23. Thus, Rosenberg I only contemplates forces that are associated with ***interactions***, not with one of a plurality of applications or systems. EX2001, ¶¶121-22. The forces are not customized in any way that is unique to each different system or application. *Id.*

Rosenberg I relatedly does not disclose custom configurations to control different systems or applications, as discussed above in § IX.A. Rosenberg teaches the generic use of a cursor to control various applications. There is nothing unique about the cursor's configuration as to specific applications. Rather the cursor controls the application in the same manner that it would control any other application. There is no specially configured input device unique to an application. As such, there is no unique detent profile associated with an application since the two claim limitations go hand in hand. Rather, the forces depend on the cursor's interaction with graphical interface elements. EX1009, 11:23-29.

Likewise, Rosenberg II teaches profiles that are associated with events rather than systems. *See, e.g.*, EX1010, 23:16-26 (change in the type of force is required depending on the sensor data read by the host computer in step 108 and ***depending on the events*** of the application program). But the input configuration remains the same for the cursor, and hence no unique force profile, let alone detent profile, associated with the application. Thus, just like Rosenberg I, Rosenberg II teaches haptic feedback associated with interactions with objects rather than systems. EX2001, ¶¶123.

X. GROUND 4: THE ROSENBERG-GOLDENBERG COMBINATION DOES NOT RENDER ANY OF THE CHALLENGED CLAIMS OBVIOUS

Ground 4 also suffers from similar deficiencies as the preceding grounds. *First*, Petitioner does not (nor does it even attempt to) meet its burden of demonstrating that Goldenberg is analogous art. *Second*, neither Rosenberg I nor Goldenberg, individually or in combination, discloses at least two key limitations of the challenged claims—(1) a “manipulation of an input device configured *to control a plurality of systems*” and (2) “receiving a detent profile *associated with one of the systems*.” *Third*, even if the combination were to disclose all claim elements, which it does not, Petitioner still fails to show that a POSA would have had a motivation to combine Rosenberg I and Goldenberg with a reasonable expectation of success.

**A. Petitioner Has Not Met its Burden of Demonstrating that
Goldenberg is Analogous Art**

As in Grounds 1 and 2 discussed above, Petitioner fails to allege, let alone prove, that Wang is analogous art. The Board should deny institution as to Ground 4 on this basis alone. *See* § VII.A. But even if Petitioner attempts to address the question of analogous art, it will fail on the merits because Goldenberg deals with physical objects; not virtual controls. Goldenberg's system involves physical objects, and therefore, is not in the same field of endeavor, nor reasonably pertinent to the problem that the '042 Patent solves. Institution of the Petition should be denied for this reason alone.

1. Goldenberg is not in the same field of endeavor as the '042 Patent

The '042 Patent and Goldenberg are not in the same field of endeavor, and, care must be taken to avoid overbroad characterizations of the field of endeavor. § VII.A.

Like Levin and Wang, Goldenberg teaches a physically grip-able object rather than a virtual control device. For example, Goldenberg states that “the present invention provides haptic sensations for a rotational haptic feedback device such as a knob.” EX1007, 2:6-10; *see also, e.g., id.*, 6:21-25 (“user preferably grips or contacts the circumferential surface of the knob”).

Like Levin and Wang, Goldenberg is concerned with a physical input device rather than a virtual device as in the '042 Patent. Thus, a POSA would understand that Wang is not in the same field of endeavor as the '042 Patent. EX2001, ¶126.

2. Goldenberg's force feedback on physical knobs is not reasonably pertinent to the problem solved by the '042 Patent

A POSA would not find Goldenberg's physical knob reasonably pertinent to the problem of simulating detents for virtual controls on touch-pads as with the '042 Patent. EX2001, ¶127.

Goldenberg's feedback is specific to physical, 3-dimensional mechanical knobs such as a "thumb-stick" (EX1007, FIG. 1) that a user can grip; it would not be applicable to 2-dimensional touch-pads. *Id.* Therefore, Goldenberg's force effects on physical knobs would not commend itself to the inventors of the '042 Patent because these forces would not help the inventors solve their problems with touchpads. *Clay*, 966 F.2d at 659; EX2001, ¶127.

B. Neither Rosenberg I nor Goldenberg Alone or in Combination Discloses "manipulation of an input device configured to control a plurality of systems"

As demonstrated above for Ground 3, Rosenberg I does not disclose "manipulation of an input device configured to control a plurality of systems." The Petition does not attempt to cure this deficiency with Goldenberg, as Petitioner only introduces Goldenberg for purposes of meeting the claimed limitation, "detent

profiles.” Thus, for similar reasons, the Rosenberg I-Goldenberg combination does not disclose “manipulation of an input device configured to control a plurality of systems.” Accordingly, this combination does not render Claim 1 obvious.

C. Neither Rosenberg I nor Goldenberg Alone or in Combination Discloses “a detent profile comprising haptic data associated with a virtual detent”

Just like Rosenberg I, Goldenberg teaches profiles associated with user interface objects and user interactions with them rather than with one of the plurality of systems. Although Petitioner contends that Goldenberg teaches a plurality of systems, Goldenberg does not teach that profiles should be associated with those specific systems—only to specific *interactions* across systems.

Petitioner's own mapping highlights this deficiency: “when adjusting the volume in a videogame or scrolling through a menu list presented on an Internet browser, Rosenberg-I's processor would receive from memory Goldenberg's ‘force detent profile’ associated with that *function*.” Pet., 70. Here, Petitioner explicitly associates Goldenberg's profile to the *function* of scrolling through menu lists rather than one of the alleged *systems*, e.g., videogame or Internet browser. *Id.* That is because Goldenberg does not teach that the alleged profiles can be associated with the alleged systems. Rather in Goldenberg, these alleged profiles would produce the same behavior across the video game and Internet browser applications, further indicating the lack of association with one of the specific *systems*. Each of

Petitioner's citations to Goldenberg confirms this association of the alleged profile with a *function* rather than a *system*. See EX1007 at 2:40-42 ("detent force can be output when the cursor moves from one menu item to a different menu item."), 16:15-19, 21:48-51 ("each item has a force detent effect associated with it, where the detent biases knob motion to the center of the item"), 22:52-57. Thus, Petitioner's own mapping and citations confirm Goldenberg contemplates profiles associated with interactions with objects and not with one of a plurality of systems. Accordingly, Petitioner has not met its burden of demonstrating obviousness.

D. Petitioner Has Not Demonstrated a Motivation to Combine

1. A POSA would not be motivated to modify Rosenberg with Goldenberg and Petitioner has not demonstrated otherwise

The proposed Rosenberg I-Goldenberg combination fails to disclose key claim limitations as detailed above. But even if the combination satisfied all claim limitations, Petitioner fails to provide adequate reasoning for why a POSA would have thought to combine the two references. Rosenberg I discloses a touchpad input device (just like Ichinose) and Goldenberg teaches a physical knob (just like Levin and Wang). Petitioner fails to provide sufficient reasoning for why a POSA would seek to modify Rosenberg's touchpad with Goldenberg's knob. For example, Petitioner does not explain what would lead a POSA to modify Rosenberg's touchpad, which is 2-dimensional and not capable of exerting resistive or assistive

force feedback, with Goldenberg's 3-dimensional knob. To the contrary, a POSA would not be motivated to attempt to apply Goldenberg's resistive and assistive forces on a two-dimensional touchpad because they would recognize a 2-dimensional touchpad is not capable of supporting such forces nor would a POSITA implement such force feedback mechanisms in the form factor of a touchpad. EX2001, ¶128.

None of Petitioner's motivation to combine rationales satisfies its burden. Petitioner's first motivation to combine rationale merely explains why "force detents" are beneficial generally, but not why a POSA would see a specific benefit to a touchpad. Petitioner contends that Goldenberg teaches that force detents provide a better user experience, and thus, a POSA would have sought to improve the user experience of Rosenberg I by using Goldenberg's force detents. Pet., 67. Here, Petitioner does not explain specifically how or why a POSA would modify Rosenberg's touchpad with a mechanical force detents mechanism that requires a physical knob.

Petitioner's second motivation to combine rationale also explains why Goldenberg's force effects are beneficial, but not why a POSA would see a specific benefit to modifying Rosenberg's touchpad with it. Pet., 67-68 ("FIG. 6. It likewise discloses 'a jolt force' that is 'stronger in magnitude than normal detents, [and] which informs the user that the end of a value range or other range has been

reached.”). Moreover, Petitioner erroneously equates combinability with motivation to combine: “POSAs would have understood that these ‘detent effects would work with Rosenberg’s rate control function and scrolling functions.” Pet., 68; *see Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (“[O]bviousness concerns whether a skilled artisan not only could have made but would have been motivated to make the combinations or modifications of prior art to arrive at the claimed invention.”).

In Petitioner’s final motivation to combine rationale, Petitioner asserts that the combination “is no more than the combination of familiar elements according to known methods” without providing any evidence. Pet., 68. This kind of reasoning was recently rejected by the Federal Circuit in *Virtek Vision Int’l ULC v. Assembly Guidance Sys., Inc.*, 2024 U.S. App. LEXIS 7185 (Fed. Cir. Mar. 27, 2024). There, the Court reversed the Board’s finding of a motivation to combine the primary reference’s angular direction system and the secondary reference’s 3D coordinate system, which the Board reasoned was obvious to try. *Id.* at *9. The Court reasoned “[i]t does not suffice to meet the motivation to combine requirement to recognize that two alternative arrangements such as an angular direction system using a single camera and a 3D coordinate system using two cameras were both known in the art.” *Id.* The Court further noted that although *KSR* provided that POSAs may find motivations from market pressure and design needs to solve a problem with a finite

number of identified, predictable solutions, “this case involves nothing other than an assertion that because two coordinate systems were disclosed in a prior art reference and were therefore ‘known,’ that satisfies the motivation to combine analysis[,which is] an error as a matter of law.” *Id.* Here, Petitioner makes no attempt to demonstrate that force effects were an identified and predictable solution to problems involving touchpads. *See* Pet., 68. Moreover, Petitioner makes no attempt to demonstrate a market or design need. *See id.*

2. Petitioner fails to demonstrate a reasonable expectation of success

As with the Ground 1 and 2 combinations, Petitioner fails to demonstrate a reasonable expectation of success. Specifically, Petitioner does not address how a POSA would approach applying resistive and assistive forces, which require 3-dimensional knobs and sliders, on Rosenberg I’s 2-dimensional touchpad. Instead, Petitioner argues success should be expected because both systems use computers, processors, and actuators. Pet., 69. The fact that both Rosenberg I and Goldenberg employ processors and actuators does not demonstrate that a POSA would have expected success in attempting to apply Goldenberg’s assistive and resistive forces to Rosenberg I’s touchpad. EX2001, ¶¶129. To the contrary, a POSA would not have expected success in modifying Rosenberg I’s touchpad to exert Goldenberg’s force effects. *Id.*

XI. *FINTIV*

As explained above, Petitioner fails to set forth evidence establishing a reasonable likelihood that it will prevail, much less that such evidence is “compelling” under the Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation, PTO Director’s Memorandum (June 21, 2022) (“Interim Guidance”). As Director Vidal clarified, “the compelling merits standard is a higher standard than the standard for institution set by statute,” and is met “if it is **highly likely** that the petitioner would prevail with respect to at least one challenged claim.” *CommScope Technologies LLC, v. Dali Wireless, Inc.*, IPR2022-01242, Paper 23, 3-4 (Feb. 27, 2023) (emphasis added). Moreover, a compelling merits inquiry is not a substitute for a full *Fintiv* analysis. *Id.* at 4.

The merits of the Petition are not compelling. As discussed above, Grounds 1-4 asserted in the Petition suffer from several deficiencies fatal to the merits, including, for example, the fact that Petitioner fails to meet its burden to establish that the asserted references are analogous art to the '042 Patent as a threshold matter in the obvious analysis, fails to show a motivation to combine, engages in hindsight reconstruction of the claimed invention, and fails to show that the proposed obviousness combinations disclose key limitations of the challenged claims.

In addition, under the Interim Guidance, a petition should not ordinarily be denied in accordance with the *Fintiv* factors where Petitioner has offered a *Sotera* stipulation “that if the IPR is instituted, the Petitioner will not pursue in the District Court Litigation any ground raised or that could have been reasonably raised in an IPR for the challenged patent.” The inverse is also true: if, as here, the Petitioner has not offered a *Sotera* stipulation, then the Board should exercise its discretion and deny institution on the basis that “Petitioner has not submitted a *Sotera*-type stipulation that would make discretionary denial inappropriate.” *Zhuhai Cosmox Battery Co., Ltd. v. Ningde Ampere Technology Limited*, IPR2023-00587, Paper 12 at 15, 27 (Sept. 22, 2023) (discretionarily denying institution where Petitioner stipulated not to re-raise same grounds in district court as in IPR but where stipulation “does not extend to any ground ‘that could have been reasonably raised,’ pursuant to *Sotera*.”)

Petitioner has not offered a *Sotera* stipulation—or even a weaker commitment not to assert duplicative grounds in the District Court proceeding—and thus the sound logic recognized in *Zhuhai* applies with even more force here. The Board should find that Petitioner’s decision not to offer a *Sotera* stipulation neutralizes the effects of the pre-institution stay entered by the District Court, and merits denial under a holistic analysis of the *Fintiv* factors due to the duplication of the invalidity grounds asserted in the parallel District Court proceedings. *Apple Inc. v. Fintiv, Inc.*,

IPR2020-00019, Paper 11 (Mar. 20, 2020) (precedential), 2-3; *see also Cisco Sys., Inc. v. Oyster Optics, LLC*, IPR2021-00238, Paper 10 (Jun. 1, 2021) (Panel exercising discretion to deny institution after holistic analysis of *Fintiv* factors).

A. Whether the Court Granted a Stay or Evidence Exists That One May Be Granted if a Proceeding Is Instituted

The first *Fintiv* factor addresses the likelihood of a stay if this proceeding is instituted. Patent Owner recognizes that a stay of District Court proceedings, when coupled with a *Sotera* stipulation, can make discretionary denial under *Fintiv* inappropriate. But here, Petitioner has not offered a *Sotera* stipulation, and there is no reason to conclude that the District Court's stay reflects any analysis regarding the merits of Petitioners' invalidity defense. As such, the Board should not weigh the pre-institution stay against using its discretion to deny institution.

Here, the District Court in the Western District of Washington instituted a stay of proceedings despite the fact that (a) no institution decisions have been made on any of the seven patents asserted in the District Court litigation; (b) Petitioner did not offer a *Sotera* stipulation; (c) Petitioner has not asked the Board to construe any terms; and (d) contrary to Petitioner's insistence, in seeking the stay, that the mere filing of its IPR petitions will inevitably simplify the District Court case, only 29 of the 463 patent claims owned by Immersion that have been subject to IPR proceedings have been canceled, and in each of those cases the challenging party

ultimately took a license to Immersion's patents.³ Because the District Court entered the stay (a) before the Board has made any institution decisions and (b) before the District Court had the opportunity to consider the merits of Petitioner's invalidity positions, and further (c) the District Court's order entering the stay contains no analysis of the merits of Petitioner's invalidity positions, there is no reason for the Board to infer that the District Court's entry of the stay reflects its assessment of the merits of Petitioner's invalidity positions. EX2004. The Board should thus give the stay little weight in its *Fintiv* analysis because if the Board denies institution and the stay is lifted, the litigation can resume status quo ante.

B. Proximity of the Court's Trial Date to the Board's Projected Deadline for a Final Written Decision

In the parallel Western District of Washington litigation, before the Court stayed the case the District Court set trial for June 2025 (EX2005, 1), approximately 1.5 months before the expected Final Written Decision date in July 2025 if the Board institutes proceedings. If the Board denies institution and the matter proceeds with an approximate delay of 3.5 to 4 months from the previous schedule, the District

³<https://www.businesswire.com/news/home/20180129005190/en/Immersion-Reaches-Global-Settlement-With-Apple>.

Court action will head to trial on or about December 2025. Moreover, the District Court can hear not only Petitioner's invalidity defense but can resolve infringement and damages. Especially in light of Petitioner's failure to offer a *Sotera* stipulation, it is more efficient to allow this matter to proceed in District Court.

C. Investment in the Parallel Proceeding by the Court and the Parties

The third *Fintiv* factor addresses investment into the parallel proceeding. Here, the parties have already invested time and effort in the District Court such that Institution would be inefficient. The parties served invalidity and infringement contentions over six months and two months ago respectively (EX2005, 1-2, EX2006), and were in the midst of claim construction briefing when the Court stayed the case (EX2005, 2). Fact discovery in the parallel litigation was underway and could efficiently be resumed if the stay is lifted. EX2005.

Petitioner has already served nearly 2000 pages of invalidity contentions including the same Ichinose, Levin, Wang, and Rosenberg references that are asserted in this IPR, as well as similar references with cumulative subject matter. EX2006, 9-10. As a result of this overlap, and the absence of a *Sotera* stipulation, there will be no inefficiencies that result from resuming proceedings in front of the District Court.

D. Overlap Between the Issues Raised in the Petition and the Parallel Proceeding

The fourth *Fintiv* factor, which addresses the overlap between the issues raised in the Petition and the parallel proceeding, should also weigh in favor of denial. In the parallel litigation, Petitioner has attacked the validity of the challenged claims in view of the same prior art addressed here. EX2006, 9-10.

By failing to offer a *Sotera* stipulation, Petitioner has not even indicated that it would reduce its invalidity assertions based on the outcome of the Board's institution decision. Petitioner is seeking two bites at the apple. This violates the fundamental tenet of IPRs, which is that a litigant cannot hedge its bets on the forum in which to pursue invalidity until it can better weigh its chances, but instead should make a decision regarding where it wishes to litigate invalidity and honor that decision. 77 Fed. Reg. 48680-01 (Aug. 14, 2012) (IPRs are intended "to create a timely, cost-effective **alternative** to litigation") (emphasis added).

E. Whether the Petitioner and the Defendant in the Parallel Proceeding are the Same Party

The fifth *Fintiv* factors addresses whether the Petitioner and the defendant in the parallel proceeding are the same party. Petitioner admits that it is the defendant in the parallel litigation. Pet., 75. This factor weighs in favor of denial. *Cisco Sys., Inc. v. Oyster Optics, LLC*, IPR2021-00238, Paper 10, 16-17.

F. Other Circumstances That Impact the Board's Exercise of Discretion, Including the Merits

Finally, the sixth *Fintiv* factor addresses other circumstances that impact the Board's discretion. Patent Owner raises substantive reasons why the Petition should be denied on the merits. These reasons are also relevant to discretionary denial.

XII. CONCLUSION

Petitioner has not established a reasonable likelihood of prevailing on Grounds 1-4 and institution of IPR should be denied.

Respectfully Submitted,

Dated: April 29, 2024

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(Case No. IPR2024-00478)

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CERTIFICATION UNDER 37 C.F.R. § 42.24(d)

Under the provisions of 37 C.F.R. § 42.24(d), the undersigned hereby certifies that the word count for all portions of the foregoing Patent Owner's Preliminary Response totals 13,944 words per Microsoft Word, which complies with the requirement of 14,000 words allowed under 37 C.F.R. § 42.24(d).

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CERTIFICATE OF SERVICE

As authorized by Patent Owner's Mandatory Notice, I hereby certify that on April 29, 2024, a copy of this document has been served in its entirety by electronic mail on Petitioner's lead and backup counsel.

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