

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 9,430,042

PATENT OWNER'S SUR-REPLY

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	CLAIM CONSTRUCTION.....	3
	A. “detent profile”	3
	B. “virtual detent”	3
	C. “a plurality of systems”	4
III.	GROUND 3: ROSENBERG-I DOES NOT DISCLOSE A “VIRTUAL DETENT” AND DOES NOT ANTICIPATE.....	7
	A. Rosenberg-I only discloses a “vibrotactile effect” and not a “virtual detent”	7
	B. Rosenberg fails to disclose a detent profile “associated with one of the systems”	12
	C. Rosenberg fails to disclose “a plurality of systems”	14
IV.	GROUND 1: ICHINOSE+LEVIN	16
	A. “Jolts” are not inherently vibrotactile	16
	B. Motivation to combine	20
V.	GROUND 2: WANG+ICHINOSE.....	21
	A. The combination does not teach “virtual detents”	21
	B. Motivation to combine	23
VI.	GROUND 4: ROSENBERG-I+GOLDENBERG	24

TABLE OF AUTHORITIES

CASES

<i>Dickinson & Co. v. Tyco Healthcare Grp.</i> , 616 F.3d 1249 (Fed. Cir. 2010).....	4, 7
<i>In re Montgomery</i> , 677 F.3d 1375 (Fed. Cir. 2012).....	11
<i>Mars Inc. v. H.J. Heinz Co.</i> , 377 F.3d 1369, 71 USPQ2d 1837 (Fed. Cir. 2004)	7
<i>Neomagic Corp. v. Trident Microsystems</i> , 287 F.3d 1062 (Fed. Cir. 2002).....	6, 15
<i>Net MoneyIN Inc. v. Verisign, Inc.</i> , 545 F.3d 1359 (Fed. Cir. 2008).....	11, 13
<i>Unigene Labs., Inc. v. Apotex, Inc.</i> , 655 F.3d 1352 (Fed. Cir. 2011).....	23
<i>Wasica Fin. GmbH v. Cont'l Auto. Sys.</i> , 853 F.3d 1272 (Fed. Cir. 2017).....	2, 4, 22
<i>Xerox Corp. v. 3Com Corp.</i> , 458 F.3d 1310 (Fed. Cir. 2006).....	13, 14

REGULATIONS

MPEP 2111.03	7
--------------------	---

I. INTRODUCTION

The '042 Patent generally teaches a host system that allows a user to manipulate multiple subsystems using a single touchpad, which provides vibrotactile effects with profiles. Each subsystem has a profile of vibrotactile effects, and though those profiles need not necessarily differ among each other¹, the vibrotactile effects they provide must mimic the mechanical controls of a given system. Merely combining generic touchpads with vibrational effects on one hand with force feedback knobs on the other does not invalidate the '042 Patent. To bridge the gap between these reference types, Valve overreaches, by conflating vibrational effects with “virtual detents,” force feedback effects and generic haptic devices with “vibrotactile effect,” and all applications as “systems”—oftentimes by presenting selectively cited disclosures out of context.

Ground 1, Ichinose and Levin: Ichinose only discloses a touchpad in a steering wheel. The Board correctly found that Levin only discloses force profiles associated with force feedback—not vibrotactile feedback. DI, 29. Valve now attempts to overcome this deficiency by citing to Levin's disclosure of “jolts.” In the context of

¹ POR, 37, n. 2 (“the claims do not require that each profile be uniquely associated with each subsystem”).

Levin's force feedback disclosure—not the '042 Patent's specification, a “jolt” is simply an abrupt movement, not a vibrotactile effect. That a vibration can be implemented to be jolty does not mean jolts are inherently vibrational.

Ground 2, Wang and Ichinose: The Board properly found that neither Wang nor Ichinose uses vibrotactile effects to simulate a mechanical detent. DI, 32. Valve's identification of Wang's “haptic device” does not overcome this deficiency, as a genus (“haptic device feedback”) does not disclose a species (“vibrotactile effect”). *See Wasica Fin. GmbH v. Cont'l Auto. Sys.*, 853 F.3d 1272, 1285 (Fed. Cir. 2017) (establishing that disclosure of genus does not necessarily disclose all of its species). Further, Ichinose, with its generic vibrational effects, adds no benefits to Wang's teaching of using a physical force feedback control. Thus, a POSA would not be motivated to combine the two.

Ground 3, Rosenberg-I: Rosenberg-I discloses a laptop touchpad with vibrational effects. That is not enough. The claims separately recite a “virtual detent” and a “vibrotactile effect,” which each need to be given effect. Valve acknowledges the distinction between generic vibrations and the claimed “virtual detents” by proposing that a virtual detent must further simulate a mechanical detent. Yet Valve reads out this distinction by equating generic vibrational effects with virtual detents. That is because Rosenberg-I only mentions “mechanical devices” in passing in the Background (Ex. 1009, 1:18-25) and , unlike the '042 Patent.

Additionally, Rosenberg-I does not disclose “applications” as “systems” within its four corners. To argue that *all* applications are “systems,” Valve cites to zero intrinsic evidence and instead only points to a misreading of Immersion’s infringement contentions, which is improper as a matter of law.

Accordingly, Valve has not met its burden in establishing that the prior art invalidates the ’042 Patent.

II. CLAIM CONSTRUCTION

A. “detent profile”

Valve contends that Immersion agrees with its proposed construction. Instead, Immersion proposes that this term need not be construed beyond a plain and ordinary meaning. Further, none of the issues depend on construing this term. As a result, although Immersion does not agree with Valve’s proposed construction, even if the Board adopts Valve’s proposed construction it does not affect Immersion’s arguments below.

B. “virtual detent”

For “*virtual detent*,” Immersion agrees with Valve’s proposed plain meaning construction of “vibrotactile feedback *that simulates a mechanical detent*.” Reply, 2 (emphasis added). Further, the claims distinctly recite a “vibrotactile effect,” separate from a “virtual detent,” confirming that these terms must have distinct meanings, *Dickinson & Co. v. Tyco Healthcare Grp.*, 616 F.3d 1249, 1257 (Fed. Cir.

2010) (holding that each claim term must be given effect). Moreover, mere disclosure of a broad genus (“vibrotactile feedback”) does not disclose a species (vibrotactile feedback that simulates a mechanical detent, such as “virtual detents”). *See Wasica*, 853 F.3d at 1285. Accordingly, a “virtual detent” must include more than just generic vibrotactile feedback. As detailed below in Section III.A., it is not enough for Valve to identify vibrotactile feedback in a reference, such as in *Rosenberg-I*, because by doing so Valve reads out the additional requirement—which Valve itself acknowledges in its own proposed construction—that “virtual detents” *simulate a mechanical detent*.

C. “a plurality of systems”

To clarify the meaning of “input device configured to control a plurality of systems,” Immersion proposes a construction of “an input device configured to control a plurality of systems, where each system to be manipulated provides context for virtual detents.” The ’042 Patent teaches that each manipulated system (e.g., climate control, sound system) provides the context for the experienced detents. In this way, each manipulated system can correlate detents to its own virtual, touch-based controls, which will often differ with respect to another system. When a new manipulated system with different virtual controls is installed on the host system, the new system offers different detents than the host system. This ensures detents match virtual controls.

Valve repeatedly incorrectly asserts that Immersion agrees the claimed “system” encompasses *all* software applications. *See* Reply, 20, 23. Immersion has consistently disagreed. POR, 29-38, 52-57. As noted in the POR, software applications *can be* “systems to be manipulated” but *only if* those applications provide the context for virtual detents:

the processor 106 *may* process software code running as an application on the processor and utilize the input signal *in the context* of the software code to generate signals configured to cause virtual detents

See POR, 35 (citing EX1001, 4:30-34). Valve mistakenly reads this “may” as confirming that systems need not provide context. *See* Reply, 22. The optionality here, however, pertains specifically to whether applications qualify as the claimed “system.” That is, not all applications constitute the claimed “systems.” Instead, as with the other disclosed systems, an application *may* be a “system to be manipulated” only if it provides the required context, such as when the detents vary depending on whether controlling the video system or the stereo system. *See also* EX1001, 7:29-59, 8:13-19, 12:56-61, Fig. 2.

Valve incorrectly contends that “systems” include *all* applications. Tellingly—even in its reply, Valve still cites to *zero* support in the intrinsic evidence that the claimed “plurality of systems” includes *all* applications. Further, none of the prior art discloses “applications” as “systems” within their four corners, and thus

cannot anticipate. Instead, the **only** support for Valve's interpretation relies on a misunderstanding of Immersion's ***infringement contentions***, which is improper as a matter of law. *Neomagic Corp. v. Trident Microsystems*, 287 F.3d 1062, 1074 (Fed. Cir. 2002) (establishing that claims may not be construed by reference to infringement read). Immersion's construction clarifies this misunderstanding of "manipulated systems"—particularly when it comes to "applications" as "systems."

Further, Valve contends that the construction proposed by Immersion to clear up Valve's confusion of the infringement contentions runs counter to the Institution Decision because it requires "system-specific" or "application-specific" detents. Reply, 20. This is again a misreading. The Board correctly found that for "detent profiles," the claims only require "a detent profile associated with one of the systems." As previously explained (e.g., POR, 37 n. 2), a given detent profile need not be unique to a given system. Valve—with no support—improperly broadens the scope of "a plurality of systems" to include ***all*** applications. Accordingly, Immersion's construction clarifies that the manipulated systems provide context for detents, regardless of whether such detents are unique or specific to the providing system.

Lastly, Valve selectively cites to the '042 Patent when it argues that the specification "repeatedly" describes embodiments "where the processor generates detent signals (triggering virtual detents) based on the input signal ***alone***." See

Reply, 21 (citing EX1001, 4:50-60; 11:39-49; 12:33-38; FIGS. 5-6) (emphasis original). None of these disclosures say that the detent signals are based on the input signal “alone.” Indeed, all of these disclosures say the opposite by expressly stating “based at least in part” or “comprising.” See MPEP 2111.03; *Mars Inc. v. H.J. Heinz Co.*, 377 F.3d 1369, 1376, 71 USPQ2d 1837, 1843 (Fed. Cir. 2004) (finding that term “comprising” is open-ended). For example:

The processor 106 may generate a signal by accessing a detent profile stored in a memory (not shown in FIG. 1).
In one embodiment, the processor 106 may access a specific detent profile *based at least in part* on the input signal.

See EX1001, 4:50-60 (emphasis added). Immersion further addresses Valve's arguments for Ground 3 in Section III below.

III. GROUND 3: ROSENBERG-I DOES NOT DISCLOSE A “VIRTUAL DETENT” AND DOES NOT ANTICIPATE

A. Rosenberg-I only discloses a “vibrotactile effect” and not a “virtual detent”

The parties agree that virtual detents are vibrotactile effects *that simulate mechanical detents*. Further, the claims distinctly recite a “vibrotactile effect,” separate from a “virtual detent,” confirming that these terms must have distinct meanings. *Becton, Dickinson & Co.*, 616 F.3d at 1257 (holding that each claim term

must be given effect). Accordingly, the mere disclosure of vibrotactile effects does not constitute a “virtual detent.”

Rosenberg-I only discloses general vibrotactile effects—not specific vibrotactile effects that simulate mechanical detents. Notably, Rosenberg-I does not use the term “detent” at all, mechanical or virtual, nor does it discuss a “hill virtual detent,” despite its common ownership with the '042 Patent. This is fatal to Valve's argument.

With no disclosure in Rosenberg-I to cite, Valve misreads Rosenberg-I by cherry-picking its language and mischaracterizing two embodiments: (1) a hovering example, improperly framed as disclosing a button press effect; and (2) a scrolling example through the use of a cursor, wrongly equated with a “hill virtual detent.” Both hovering and scrolling through the use of a cursor, however, simply lack any mechanical detents to simulate in the first instance.

First, Valve argues that “Rosenberg-I *explicitly* teaches its “pulse[s]” provide the “physical confirmation” users expects to feel when, e.g., “pressing a physical button,” i.e., mechanical resistance.” Reply, 25-26 (emphasis original) (citing to EX1009, 13:41-54). But that is not what Rosenberg-I discloses. Instead, it teaches the opposite:

A software designer may want to allow a user to be able to select options or a software function by positioning a

cursor over an area on the screen using the touchpad, *but not require pressing a physical button or tapping the touchpad* to actually select the option. Currently, it is problematic to allow such selection because a user has physical confirmation of execution when pressing a physical button. A pulse sent to the touchpad of the present invention can act as that physical confirmation *without the user having to press a button* or other control for selection. For example, a user can position a cursor over a web page element, and once the cursor is within the desired region for a given period of time, an associated function can be executed. This is *indicated* to the user through a tactile pulse sent to the pad 16.

The passage expressly states that a *pulse* is used when the user does *not* press a button—contradicting Valve's claim that Rosenberg-I teaches mechanical resistance. Further, the passage explains that hovering, unlike physical buttons, completely *lack* detents to simulate. Because there is nothing to simulate, the disclosed pulse—a mere “vibrotactile effect”—serves as confirmation feedback as the cursor hovers over website elements, not a simulated detent. Thus, the disclosure draws a clear distinction between physical button presses (which provide inherent confirmation through mechanical detents) and confirmation pulses that occur in their absence. By attempting to erase this distinction, Valve improperly rewrites the reference.

Second, Valve further repeatedly contends that Rosenberg-I discloses the “hill virtual detent” from the '042 Patent. *See* Petition at 54; Reply at 26-27. The entirety of the disclosure that Valve cites comes from the following, which makes no mention of “hill” effects, no mention of physical controls (such as a knob to simulate), and no mention of simulating a mechanical detent:

In other related interactions, when a *rate control or scrolling function* is performed with the touchpad (*through use of the cursor*), a vibration can be displayed on the device to *indicate* that scrolling is in process. When reaching the end of a numerical range that is being adjusted (such as volume), a pulse can be output to *indicate* that the end of the range has been reached. Pulse sensations can be used to *indicate* the location of the “ticks” for discrete values or settings in the adjusted range. A pulse can also be output to *inform* the user when the center of the range is reached.

Instead of supporting Valve's argument in any way, the above passage describes scrolling interactions within the context of a touchpad, where pulses *indicate* locations within the scrolling process. Like hovering with a cursor, scrolling “through the use of a cursor,” lacks a mechanical detent to simulate, specifically because the disclosed scrolling is a purely virtual control. Valve's attempt to equate

this disclosure with the “hill virtual detent” is unsupported, as Rosenberg-I describes only vibrotactile pulses for indication—not simulated mechanical resistance.

That Rosenberg-I's pulses can indicate locations within a range does not evidence “prior invention” of the claim's particular arrangement by simulating mechanical detents. *Net MoneyIN Inc. v. Verisign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008) (“[T]he hallmark of anticipation is prior invention” and to anticipate, art must disclose elements as arranged in the challenged claims). Indeed, Valve does not provide any evidence that Rosenberg-I's pulses simulate anything, much less mechanical detents. *See, generally*, Reply, 25-27. Indeed, as demonstrated above, the concept of “simulating” or “imitating” something mechanical is entirely missing. Nor is there inherency because pulses do not necessarily simulate mechanical detents.

Given this lack of disclosure, Valve violates a basic premise of patent law and points to the '042 Patent *specification* as also teaching pulses. *Id.*, 25. Anticipation, however, requires comparing the art with the *claims*, not the specification. *In re Montgomery*, 677 F.3d 1375, 1379 (Fed. Cir. 2012). Further, Valve incorrectly contends that the '042 Patent teaches vibrational “pulse” by itself is a virtual detent. Rather, only the '042 Patent expressly teaches using such pulses to simulate mechanical detents. EX1001, 6:16-19 (“the virtual detent may comprise a *simulated click* generated through a single pulse.”). And contrary to Valve's contention (Reply,

25), these pulses are different from generic vibrational pulses because they simulate or imitate the feel of mechanical detents. EX1001, 13:5-7 (“a user may experience a virtual detent as a system is being manipulated, giving the user the *impression of mechanical detents*”), 13:49-50 (“the rotary knob may be vibrated to generate the *feeling of a real detent.*”). The specification describes several examples for simulating the feel of mechanical detents. *Id.*, 13:54-62 (simulating the feel of a “hard stop” detent), 13:63-14:5 (simulating feel of “hill” detent), 14:21-26 (simulating “spring” detent), 14:27-34 (simulating “damper” virtual detent).

Accordingly, just as the Board found for the other references, although Rosenberg-I discloses vibrotactile pulses, it does not disclose using those pulses to emulate a detent. *See* DI, 32.

B. Rosenberg fails to disclose a detent profile “associated with one of the systems”

Immersion addresses arguments regarding pulses in the discussion above regarding “virtual detents.” Moreover, the claims implement a specific arrangement of a “detent profile” as “a detent profile associated with one of the systems . . . comprising haptic data associated with a virtual detent.” To anticipate, Valve must show “prior invention” by Rosenberg-I of these limitations. At most, Valve shows *vibrational* pulses on one hand and *force* profiles on the other and says this is close enough. Reply, 27 (“POSAs would have understood Rosenberg to teach that its

vibrational ‘pulses’ are generated using ‘profiles[.]’”). But to anticipate, Rosenberg must not only disclose all elements of the claim within the four corners of the document—which it does not—but must also disclose those elements “arranged as in the claim.” *See, e.g., Xerox Corp. v. 3Com Corp.*, 458 F.3d 1310, 1322 (Fed. Cir. 2006); *Net MoneyIN Inc.*, 545 F.3d at 1369 (holding that anticipatory references must “disclose those elements ‘arranged as in the claim’”) (citation omitted). Valve has established neither. Rosenberg only discloses profiles for force effects—not vibrational ones—and thus does not disclose all of the elements within its four corners. Further, Rosenberg does not disclose the arrangement of a profile detent profiles comprising virtual detents. Accordingly, just as the Board found for the other references, one of ordinary skill would not have applied the assisting resisting forces of a detent force profile to a touchpad. *See* DI, 30.

Further, Valve also does not show that Rosenberg-I’s force profiles are associated with one of the manipulated systems. Nor can it, because they are only taught to be 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. Valve’s obviousness showing is also deficient because it does not attempt to supply this missing piece. *See, generally,*

Pet., 55-56 (citing no evidence or arguing that it would have been obvious to modify Rosenberg-I to associate Rosenberg-I's force profiles with one of the manipulated systems), Reply, 27-28 (same), EX1003, ¶¶312-16 (same). Accordingly, Rosenberg-I does not disclose "a detent profile associated with one of the systems . . . comprising haptic data associated with a virtual detent."

C. Rosenberg fails to disclose "a plurality of systems"

Rosenberg-I fails to anticipate for multiple reasons. First, Rosenberg-I does not disclose the claimed "plurality of systems," only a single system—i.e., the host computer. POR, 53. Further, Rosenberg-I does not teach applications as a "systems." Accordingly, it does not anticipate the invention as it does not disclose a "plurality of systems" within its four corners. *See Xerox Corp.*, 458 F.3d at 1322 ("anticipation requires that the four corners of a single, prior art document describe every element of the claimed invention."). Because Rosenberg-I only discloses a single system (the host computer) and never discloses applications as systems, regardless of whether the Board adopts Immersion's clarifying construction, Rosenberg-I does not anticipate under the plain and ordinary meaning of the term "plurality of systems."

Second, unable to dispute that Rosenberg-I only discloses a single system under the plain meaning of that term, Valve's argument depends on an unsupported construction of "systems" to include any and all applications. But Rosenberg-I never defines applications as systems, and Valve cites nothing from Rosenberg-I that could

support its argument. Instead, Valve bases its contention that “a plurality of systems” can be met by *all* software applications solely on an improper reading of Immersion’s infringement contentions. Pet., 52-53. Not only does Valve misrepresent Immersion’s infringement contentions to arrive at this conclusion, but its effort to shoehorn Immersion’s infringement contentions into these proceedings is improper. Indeed, accepting Valve’s reliance on Immersion’s infringement contentions as substitute for Rosenberg-I’s actual disclosures would lead to reversible error and should be rejected. *Neomagic Corp.*, 287 F.3d 1062.

Finally, Valve contends that if the Board were to adopt Immersion’s clarifying construction, Rosenberg-I still anticipates. Reply, 23. As support, Valve cites to Rosenberg-I’s disclosure that an application “utilizes the input from the touchpad 16 and outputs force feedback commands to the touchpad.” EX1009, 6:16-18. This disclosure simply states that applications originate force feedback commands. Citing no evidence in support, Valve argues that this disclosure supports its contention that “applications determine what vibrotactile feedback the touchpad outputs, and the feedback is thus application-specific.” But as discussed in Section III.B above, Rosenberg-I has no disclosure of “virtual detents.” And there is no mention of “determining” the feedback or the feedback being “application-specific”—only that applications use the input from the touchpad to output force feedback commands

back to the touchpad. Accordingly, Valve has no evidence to support its argument that Rosenberg- anticipates under Immersion's proposed construction.

IV. GROUND 1: ICHINOSE+LEVIN

A. "Jolts" are not inherently vibrotactile

The Board was correct in its finding that Ichinose-Levin does not teach vibrotactile effects and that one of ordinary skill would not have applied the assisting and resisting forces from Levin's detent *force* profile to Ichinose's touchpad. DI, 29-31. Petitioner does not identify any new disclosures and instead emphasizes Levin's "jolts" as vibrational effects. Reply, 8-13. As explained in the POPR (at 31), Levin does not disclose that jolts are vibrations. Instead, Levin merely describes jolts as a *force* that is "stronger in magnitude than *normal detents*"—not as a virtual detent. *Id.*, 11:62-63 (emphasis added). Valve's treatment of "jolts" does not disturb the Board's preliminary finding.

In response, Valve conflates "physical sensations" and "force feedback" with "vibrations" by contending that "Levin uses the term 'force feedback' to refer to various 'physical sensations' provided to a user, including vibrations." Reply, 6 (citing to EX1016, 1:36-38, 10:11-21, 14:26-29). The full disclosure of Valve's citations illustrate the distinction between these conflated positions.

For the first two citations (EX1016, 1:36-38, 10:11-21), the full paragraph confirms that "force feedback" means what it says—feedback that produces *force*.

EX1016, 1:40-45 (“The microprocessor . . . sends appropriate force feedback control signals to the motor so that the *motor provides forces* on the knob . . . such as detents, spring forces, or the like.”); 10:11-12 (“The force feedback output on knob 18 can include a variety of different *force sensations*.”). These disclosures do not mention “vibration.”

Only the last citation uses the word “vibration” to describe “other” force effects: “*Other* force effects include damping forces, texture forces, jolts, obstruction forces, assistive forces, periodic forces such as vibration forces, and end-of-travel forces.” *Id.*, 14:26-29. As discussed in the POPR (at 14-15) and POR (at 10-11), Levin only discloses such “vibration forces” as an augment or overlay “other” effect, such as indicating fan speed—not as a mechanical detent. *See* POR, 10-11 (citing EX1016, 8:11-26) (“a small vibration can be output on the knob . . . where the frequency (or magnitude) of the vibration forces correlate with the magnitude of fan rotation speed, i.e., a high fan speed provides a fast vibration. Furthermore, [force feedback] detents are preferably output superimposed on the vibration forces so that the user can feel the fan settings at the detents.”)

Further, Valve’s own citations demonstrate that Levin’s “jolts” are force feedback: “*force* detents can be simple *jolts*[,]” EX1016, 10:14-18; “a detent *force* (e.g., *jolt*)[,]” *id.*, 7:65. “Jolts” are a subset of detent forces, which Levin describes

only as non-vibrational. *Id.*, 7:12-17, 10:17-19 (“The ***force detents*** can be simple jolts or bump forces to indicate the detent's position . . .”).

Unable to cite express disclosure, Valve contends “POSAs understood jolts are vibrations of short duration.” Reply, 10. A “jolt,” however, is simply “an abrupt, sharp, jerky blow or movement.” See <https://www.merriam-webster.com/dictionary/jolt>. As demonstrated above, Levin’s “jolts” merely refer to abrupt forces. Valve’s extensive discussion of “jolts” only shows that vibrotactile effects can implement jolts—not that all jolts are vibrational. That is, Valve’s citations to the Ward Declaration (EX1003) and prior art teachings show that vibrotactile effects can be implemented to simulate jolts—i.e., abrupt effects. Reply, 10-12. But this fails to show that jolts themselves are vibrational. Indeed, Valve’s supporting exhibits show the distinction between the different kinds of feedback. EX1060 explains that “haptic feedback” can be broken up into (1) “kinesthetic feedback (such as, without limitation, active and resistive force feedback)” and (2) “tactile feedback (such as, without limitation, vibration, texture, and heat)[.]” 3:4-6. Levin is concerned only with “kinesthetic” or force feedback rather than tactile. “Jolts” in the force feedback context are simply abrupt forces. See EX2011 (U.S. Patent No. 8,004,492), 34:66-35:11 (“about 3 ounces of ***force*** to create realistic force sensations on the user power can be stored over time and then ***immediately dissipated*** to provide a ***jolt force*** to the user object 130.”); EX2012 (U.S. Patent No.

9,275,488), 1:39-43 (“By measuring a change of acceleration, it is possible to detect positive or negative changes in the applied *forces*. Such is known in physics as a ‘jerk’ or “*jolt*”, which are vectors.”).

Levin does not discuss “jolts” in the vibrotactile context. A POSA reading Levin would understand its “jolt” to simply be an abrupt rather than gradual force. Mr. Ward’s reliance on EX1061 confirms that jolts are not vibrational by nature but can be simulated by vibrotactile effects. EX1003, ¶71 n. 20. In fact, EX1061 defines “jolt” as “a single impulse of *force* that quickly rises to the desired magnitude and then is turned off” EX1061, ¶45 (emphasis added). This is consistent with the plain meaning. Then, EX1061 discusses that a “jolt”—single impulse of force—can be *produced* vibrationally, not that jolts *are* vibrational: “[i]n vibrotactile embodiments, only a very small range of motion is required to produce effective pulses (jolts) or vibrations on the direction pad 18.” *Id.*, ¶60. A “jolt” is thus *produced* vibrationally using a smaller “range of motion” otherwise required to produce the “jolt.”

Valve’s reliance on the ’042 Patent and Rosenberg-I suffer the same fate. Both explain, as Valve admits, in the vibrational context a jolt or pulse can be produced vibrationally. Reply, 11. Neither say a “jolt” standing alone *is* vibrational. In fact, Rosenberg-I is clear that outside of the vibrotactile context, a “jolt” is simply “a

single impulse of *force* that quickly rises to the desired magnitude” EX1009, 11:30-31 (emphasis added).

Accordingly, Levin’s “jolts” merely disclose another force effect, and the Board properly found that one of ordinary skill would not have applied such *force* profiles to Ichinose’s vibrational touchpad.

B. Motivation to combine

Valve offers no additional reasons to disturb the Board’s finding that one of ordinary skill would not have applied Levin’s *force* profiles to Ichinose’s *vibrational* touchpad. Instead, Valve again identifies Levin’s “jolts” and contends that two use cases do not require linear or rotary forces. Reply at 14.

For the reasons stated above, Levin’s jolts are not vibrational and further do not constitute virtual detents. Even if Levin’s jolts were vibrational, Valve has not established that vibrational jolts were “*a known technique* for simulating a detent” (Reply at 15, emphasis original) because as discussed, Levin’s hovering and scrolling through the use of a cursor do not include detents to simulate in the first instance. Thus, without sufficient evidence that a technique was known, Valve has not shown a reasonable expectation of success.

The Board correctly found that one of ordinary skill would not have applied such assisting resisting forces of a detent *force* profile to a *vibrational* touchpad. See DI, 30. In response, Valve notes that it identified two use cases *from Ichinose* that

did not use Levin's "rotary and linear forces." Reply, 14. But Valve misses the point. Immersion contends that a POSA would not have applied Levin's rotary and linear forces to Ichinose's 2-dimensional touchpad. The fact that *Ichinose* unremarkably discloses non-rotary and non-linear use cases is orthogonal to the fact that Levin *only* discloses such examples. Again, the point is, a POSA would not have combined the teachings from Levin (rotary and linear forces only) to Ichinose's 2-dimensional touchpad.

Valve's use case involving Levin's virtual slider (Reply at 14) fails for the same reasons. Levin's full disclosure explains that the virtual slider is controlled via slider knob 34 moved in the *linear direction*. Levin at 7:8-10 ("A slider control 32 includes a *slider knob 34* which is grasped by the user and moved in a *linear direction* as shown by arrow 36.") Valve continues to fail to explain why a POSA would want to apply Levin's linear forces to Ichinose's touchpad. Accordingly, Valve has failed to establish why a POSA would be motivated to combine Levin with Ichinose.

V. GROUND 2: WANG+ICHINOSE

A. The combination does not teach "virtual detents"

Ichinose discloses a vibrating touchpad (EX1015, 4:8-9), and Wang discloses a knob with force detents (EX1022, 2:15-17). The Board correctly found that the references individually failed to disclose "virtual detents." DI, 32 ("neither reference

appears to disclose using vibrotactile signals to emulate a detent.”). Valve does not dispute this finding and suggests the Board consider the references in combination rather than individually. Reply, 19. The Board did that in the very next sentence and still did not find obviousness: “It is not clear to us that the Petition explains sufficiently why the emulated detents *in the proposed combination* would be vibrotactile effects.” DI, 32 (emphasis added).

The Board further correctly found that Valve fails to explain why Wang’s command signals would generate a vibrotactile signal to emulate detents. In response, Valve argues Wang individually, contending that Wang’s “haptic device” includes vibrotactile feedback. Reply, 17-18. Of course, a genus (“haptic device”) does not disclose a species (“vibrotactile effects”). *See Wasica Fin. GmbH*, 853 F.3d 1272. Thus, Wang does not disclose vibrotactile feedback. More to the Board’s point, taking the mere disclosure of detents (Wang) and vibrotactile effects (Ichinose) as granted, neither disclose using vibrotactile effects to emulate a detent. Accordingly, even if Wang teaches vibrotactile feedback in addition to Ichinose, neither perturbs this finding.

Lastly, Valve incorrectly contends that “(i) Wang teaches emulating detents with haptic feedback, and (ii) Ichinose discloses a particular form of haptic feedback (vibrotactile) that POSAs had reason to implement in Wang’s system. Nothing more is needed to establish obviousness.” Reply, 19. As a threshold matter, each limitation

must first be disclosed amongst the references. There is nothing in the record, documentary evidence, testimony, or even attorney argument for *emulating* detents with vibrotactile effects. “Virtual detents” are completely missing. Moreover, “[o]bviousness requires more than a mere showing that the prior art includes separate references covering each separate limitation in a claim under examination.” *See Unigene Labs., Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1360 (Fed. Cir. 2011) (“Rather, obviousness requires the additional showing that a person of ordinary skill at the time of the invention would have selected and combined those prior art elements”). As discussed in the next section, a POSA further would not have had a motivation to combine Wang and Ichinose.

B. Motivation to combine

Valve contends that Immersion limited its analysis to Figures 2 and 3 and instead should have also looked at Figure 4. Yet Figure 4 simply depicts an embodiment where the haptic device is remote to the virtual device panel on the steering wheel. *See* EX1022 at 6:26-28. Further, Wang expressly states that “in all cases,” Wang specifically teaches using a mechanical haptic device:

In all cases, the objective is to use a multi degree of freedom haptic device to *create forces* on the user to make the images feel real so as to make the user think they are interfacing to an *actual mechanical control device* as opposed to an image of a control device.

See EX1022 at 6:22-26. That is because Wang itself explained that no longer physically feeling, e.g., the lack of force feedback, the road is a disadvantage:

A *disadvantage* of a drive-by-wire approach is that the driver *no longer 'feels'* the road. Accordingly, *there is a need* to provide a haptic reconfigurable dashboard system, which enables the driver *to feel interaction forces* between a control device and a vehicle subsystem or hardware to be controlled, as in a non drive-by-wire vehicle, and which can include all the control button and knobs in a vehicle.

EX1022, 1:26-2:2. Valve readily admits that Ichinose “does not describe what vibrotactile feedback is provided when the user taps ‘tuning control button 56’” Petition at 15. Accordingly, a POSA would not be motivated to replace Wang’s external haptic output device, which enables drivers to physically feel interaction forces, with Ichinose’s generic vibrational touchpad. Such simple replacement adds nothing to Wang and merely results back to Ichinose’s disclosure.

VI. GROUND 4: ROSENBERG-I+GOLDENBERG

In Section III above, Immersion has explained why Rosenberg-I does not anticipate. Valve has not argued how Goldenberg cures any of these deficiencies. Accordingly, the combination does not invalidate.

Respectfully Submitted,

Dated: February 28, 2025

/David D. Schumann/

David D. Schumann, Reg. No. 53,569
Palani P. Rathinasamy Reg. No. 63,541
Moses Xie Reg. No. 74,491
Folio Law Group PLLC
1200 Westlake Ave. N.
Seattle, WA 09109
Tel: (206) 880-1802
Email: david.schumann@foliolaw.com
palani@foliolaw.com
moses.xie@foliolaw.com
ryan.meyer@foliolaw.com

Timothy Dewberry Reg. No. 62,947
Folio Law Group PLLC
13492 Research Blvd.
Ste. 120, No. 177
Tel: (206) 880-1802
Email: timothy.dewberry@foliolaw.com

(Case No. IPR2024-00478)

Attorneys for Patent Owner

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 Response totals 5,317 words per Microsoft Word, which complies with the requirement of 5,600 words allowed under 37 C.F.R. § 42.24(c)(4).

Respectfully Submitted,

Dated: February 28, 2025

/David D. Schumann/
David D. Schumann (Reg. No. 53,569)
Folio Law Group PLLC
1200 Westlake Ave N., Suite 809
Seattle, WA 98109
Tel: (206) 880-1802

(Case No. IPR2024-00478)

Attorneys for Patent Owner

CERTIFICATE OF SERVICE

As authorized by Patent Owner's Mandatory Notice, I hereby certify that on February 28, 2025, a copy of this document has been served in its entirety by electronic mail on Petitioner's lead and backup counsel.

Richard F. Guinta
RGuinta-PTAB@wolfgreenfield.com

Andrew R. Varrenti
AVarrenti-PTAB@wolfgreenfield.com

Nathan R. Speed
Nathan.Speed@wolfgreenfield.com

Dated: February 28, 2025

/David D. Schumann/
David D. Schumann (Reg. No. 53,569)
Folio Law Group PLLC
1200 Westlake Ave N., Suite 809
Seattle, WA 98109
Tel: (206) 880-1802

(Case No. IPR2024-00478)

Attorneys for Patent Owner