

United States Patent and Trademark Office
Before the Patent Trial and Appeal Board

Valve Corporation

(Petitioner)

v.

Immersion Corporation

(Patent Owner)

Inter Partes Review

No. IPR2024-00477 | **U.S. Patent No. 7,336,260**

Petitioner's Demonstrative Exhibits

April 30, 2025

Valve Exhibit 1063
Valve v. Immersion
IPR2024-00477

The Challenged Patent: U.S. Patent No. 7,336,260

Petition at 3-5

United States Patent

Martin et al.



Patent No. US 7,336,260 B2

Date of Patent: Feb. 26, 2008

(12) United States Patent

Martin et al.

(10) Patent No.: US 7,336,260 B2

(45) Date of Patent: Feb. 26, 2008

(12) United States Patent

Martin et al.

(10) Patent No.: US 7,336,260 B2

(45) Date of Patent: Feb. 26, 2008

(12) United States Patent

Martin et al.

(10) Patent No.: US 7,336,260 B2

(45) Date of Patent: Feb. 26, 2008

(12) United States Patent

Martin et al.

(10) Patent No.: US 7,336,260 B2

(45) Date of Patent: Feb. 26, 2008

(12) United States Patent

Martin et al.

(10) Patent No.: US 7,336,260 B2

(45) Date of Patent: Feb. 26, 2008

(12) United States Patent

Martin et al.

(10) Patent No.: US 7,336,260 B2

(45) Date of Patent: Feb. 26, 2008

(12) United States Patent

Martin et al.

(10) Patent No.: US 7,336,260 B2

(45) Date of Patent: Feb. 26, 2008

(12) United States Patent

Martin et al.

(10) Patent No.: US 7,336,260 B2

(45) Date of Patent: Feb. 26, 2008

(12) United States Patent

Martin et al.

(10) Patent No.: US 7,336,260 B2

(45) Date of Patent: Feb. 26, 2008

(12) United States Patent

Martin et al.

(10) Patent No.: US 7,336,260 B2

(45) Date of Patent: Feb. 26, 2008

(12) United States Patent

Martin et al.

(10) Patent No.: US 7,336,260 B2

(45) Date of Patent: Feb. 26, 2008

(12) United States Patent

Martin et al.

(10) Patent No.: US 7,336,260 B2

(45) Date of Patent: Feb. 26, 2008

(12) United States Patent

Martin et al.

(10) Patent No.: US 7,336,260 B2

(45) Date of Patent: Feb. 26, 2008

(12) United States Patent

Martin et al.

(10) Patent No.: US 7,336,260 B2

(45) Date of Patent: Feb. 26, 2008

(12) United States Patent

Martin et al.

(10) Patent No.: US 7,336,260 B2

(45) Date of Patent: Feb. 26, 2008

(12) United States Patent

Martin et al.

(10) Patent No.: US 7,336,260 B2

(45) Date of Patent: Feb. 26, 2008

(12) United States Patent

Martin et al.

(10) Patent No.: US 7,336,260 B2

(45) Date of Patent: Feb. 26, 2008

(12) United States Patent

Martin et al.

(10) Patent No.: US 7,336,260 B2

(45) Date of Patent: Feb. 26, 2008

(12) United States Patent

Martin et al.

(10) Patent No.: US 7,336,260 B2

(45) Date of Patent: Feb. 26, 2008

(12) United States Patent

Martin et al.

(10) Patent No.: US 7,336,260 B2

(45) Date of Patent: Feb. 26, 2008

(12) United States Patent Martin et al.

(10) Patent No.: US 7,336,260 B2
(45) Date of Patent: Feb. 26, 2008

SUMMARY OF THE INVENTION

The present invention comprises products and processes for providing tactile sensations to input devices or electronic devices. Input devices include mechanical input devices (such as, for example, mechanical switches) and non-mechanical input devices (such as, for example, touchpads). Tactile feedback is provided by using an actuator or other means in communication with the input device or electronic device. A controller may be employed to receive signals from the input devices and to control the actuator. Tactile feedback to an input device or electronic device may be provided in response to one or more events or situations. Such an event or situation may be any one designated. Examples of such events and situations include the level of pressure placed on an input device; the availability or lack of availability of a function associated with an input device; and the function, menu, or mode of operation associated with an input device's activation. A variety of feedback types and combinations may be selected. Mobile telephones and PDAs benefit from employing such products and processes, but other devices benefit as well. The advantages offered by the various embodiments of the present invention may be understood by examining this specification.

EX1001 at 2:16-37 (cited by Petition at 3)

Embodiments of the present invention include an input device having a means for determining or sensing pressure. The input device is capable of resolving multiple levels of pressure placed on the input device, and of transmitting a signal associated with the level of pressure placed on the input device. These multiple levels of pressure may be defined by, for example, the physical location of, or distance traveled by, a switch-type input device in the x-plane when pressed by a user (higher/lower), the magnitude of pressure placed on a touchpad-type input device, or other means.

EX1001 at 5:48-53 (cited by Petition at 4)

INPUT DEVICE	INPUT SIGNAL	POSITION DATA	PRESSURE DATA	FUNCTION	TACTILE SENSATION
1	--	Location 1	< Pressure 1	Search	Sensation 1
	Input 1	Location 1	Pressure 1 <w	Select	Sensation 2
2	--	Position 1	--	On	Sensation 3
	--	Position 2	--	Off	Sensation 4
3	Input 2A	--	Pressure 1	9	Sensation 5
	Input 2B	--	Pressure 2	W	Sensation 6
	Input 2C	--	Pressure 3	X	Sensation 7
	Input 2D	--	Pressure 4	Y	Sensation 8
	Input 2E	--	Pressure 5	Z	Sensation 9
4	Input 3	--	Pressure 1	Menu 1	Sensation 10
		--	Pressure 2	Menu 2	Sensation 11
		--	Pressure 3	Menu 3	Sensation 12
		--	Pressure 1	2	Sensation 13
5	--	--	Pressure 2	A	Sensation 14
		--	Pressure 3	B	Sensation 15
		--	Pressure 4	C	Sensation 16
6	Input 4	Position 1	Pressure 1	Function 1	Sensation 17
	Input 5	Position 2	Pressure 2	Function 2	Sensation 18
	Input 6	Position 3	Pressure 3	Function 3	Sensation 19
7	Input 7	Location 1	Pressure 1	Function 1	Sensation 20
	Input 8	Location 2	Pressure 2	Function 2	Sensation 21
--	AMBIGUOUS	--	--	--	Sensation 22
--	Function Failure	--	--	--	Sensation 23

FIG. 9

EX1001 at FIG. 9 (cited by Petition at 5)

The Relevant Prior Art and Grounds

Petition at 2-3

United States
Patent Application Publication
Komata

(10) Pub. No.: **US 2001/0008849 A1**
 (11) Pub. Date: **Jul. 19, 2001**

(54) **COMPUTER WITH PRESSURE-SENSITIVE MEANS, METHOD OF COMPUTER HAVING A PRESSURE-SENSITIVE MEANS AND VIBRATION MEANS, METHOD OF USING THE SAME, AND RECORDING MEDIUM FOR THE METHOD**

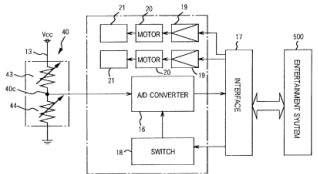
(57) **Abstract**
 A method and computer to provide control of vibrations of a controller used in video game machines provided with the controller. The method uses a computer having two or more controllers each of which has a pressure-sensitive unit and a vibration unit. Based on the output value from the pressure-sensitive unit of one of the controllers, vibration is caused in the vibration unit of the other controller, and based on the output value from the pressure-sensitive unit of the other controller, vibration is caused in the vibration unit of the first one of the controllers.

(51) Int. Cl.⁷: **A63F 9/24**
 (52) U.S. Cl.: **463/37; 463/36; 463/38**

(72) **Inventor**: **Nobuhiko Komata, Tokyo (JP)**

(73) **Assignor**: **HELICITY & KARAS, P.C., 400 FLOOR, EMPLOY VENTURE BUILDING, NEW YORK, NY 10008-4918 (US)**

(21) **Appl. No.**: **99/775282**
 (22) **Filed**: **Jan. 16, 2001**



Valve Exhibit 1005
Valve v. Immersion

(19) **Japan Patent Office (JP)**

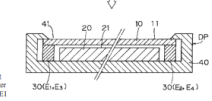
(12) **Publication of Unexamined Patent Application (A)**

(13) **Patent Application Publication No.**
Japanese Unexamined Patent Application Publication No. 11-212725
4482 (Date of Disclosure: August 8, 1995) (Heisei 11)

(51) Int. Cl.⁷: **G06F 3/033**
 (52) U.S. Cl.: **360/369**

(54) **Title of Invention**: **INFORMATION DISPLAY DEVICE AND OPERATION INPUT DEVICE**

(57) **Abstract**
 (Problem) To provide an information display device with a small number of operating surface and display surface peripheral parts providing a reliable sense of operation and enabling a tracing operation without a push stroke.
 (Resolution Means) An operating panel 10 is arranged on a liquid crystal display panel 20, and the operating panel 10 is supported by piezoelectric elements E1 through E4. Pressing an operating surface 11 of the operating panel 10 with a finger generates voltage at both ends of the piezoelectric elements E1 through E4, and an operating force and an operating position are sensed by detecting and calculating said voltage. High frequency is applied to the piezoelectric elements E1 through E4 when an operating force larger than a predetermined threshold is sensed, which thus causes the operating surface 11 to vibrate. This vibration allows an operator to obtain a reliable sense of operation. The number of parts is small because the sensing of the operating force applied to the operating surface 11 and the application of the vibration to the operating surface 11 are performed using the common piezoelectric elements E1 through E4. Furthermore, a tracing operation is made possible because an operating force smaller than the predetermined threshold causes no reaction.



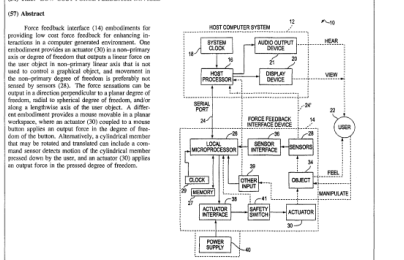
Valve Exhibit 1006
Valve v. Immersion

PCT
 WORLD INTELLECTUAL PROPERTY ORGANIZATION
 INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) **International Patent Classification**: **A63F 46/38, G09G 5/08, 5/08**
 (52) **International Publication Number**: **WO 99/66997**

(54) **Title**: **LOW COST FORCE FEEDBACK DEVICES**

(57) **Abstract**
 Force feedback interface (14) embodiments for providing low cost force feedback for enhancing the interaction in a computer generated environment. One embodiment provides an actuator (30) in a non-primary axis or degree of freedom that outputs a force on the user object in non-primary linear axis that is not used to control a graphical object, and movement in the non-primary degree of freedom is preferably not caused by sensor (24). The force excitation can be output in a direction perpendicular to a plane degree of freedom, axial to spherical degree of freedom, and/or along a longitudinal axis of the user object. A different embodiment provides a sensor monitor in a plane of freedom. When an actuator (30) outputs a force, a sensor monitor applies an output force in the degree of freedom of the sensor. Alternatively, a cylindrical member that may be rotated and translated can include a conical sensor device exterior of the cylindrical member pressed down by the user, and an actuator (30) applies an output force in the pressed degree of freedom.



Valve Exhibit 1008
Valve v. Immersion

GROUND

1. Komata (EX1005)

2. Tsuji (EX1007)

3. Rosenberg (EX1008)

CLAIMS

1-7

1-7

1-7

BASIS

102/103

102/103

102/103

The Disputed Issues

GROUND	CLAIMS	BASIS
1. Komata	1-7	102/103
2. Tsuji	1-7	102/103
3. Rosenberg	1-7	102/103

- Grounds 1 and 2: Must the three claimed “*pressures*” be detected in sequential order? If not, Immersion concedes the claims are unpatentable.
- Ground 3: Is a “*tactile sensation*” limited to a “*vibrotactile sensation*” (**no**), and does Rosenberg detected three pressures and provide three tactile sensations (**yes**)?

The Sequential-Order Dispute: The Board Has Twice Rejected Immersion's Argument

Reply at 2-3

Trials@uspto.gov
571-272-7822

Paper 11
Entered: April 3, 2017

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

IMMERSION CORPORATION,
Patent Owner.

Case IPR2016-01884
Patent 7,336,260 B2

Before BRYAN F. MOORE, PATRICK R. SCANLON, and
MINN CHUNG, *Administrative Patent Judges*.

SCANLON, *Administrative Patent Judge*.

DECISION
Institution of *Inter Partes* Review
35 U.S.C. § 314 and 37 C.F.R. § 42.108

Institution Decision in IPR2016-01884 (EX1010)

Trials@uspto.gov
571-272-7822

Paper 12
Date: July 24, 2024

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

VALVE CORPORATION,
Petitioner,

v.

IMMERSION CORPORATION,
Patent Owner.

IPR2024-00477
Patent 7,336,260 B2

Before WILLIAM V. SAINDON, PATRICK R. SCANLON, and
CHRISTOPHER L. OGDEN, *Administrative Patent Judges*.

SCANLON, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

Institution Decision in IPR2024-00477 (Paper 12)

Pet. at 10-12
Reply at 2-6

[illegible]

What is claimed is:

1. A computer-readable medium having instructions, the instructions including instructions that cause a processor to:
 - detect a first pressure on a first input device;
 - provide a first tactile sensation to the first input device, the first tactile sensation based at least in part on the first pressure;
 - detect a second pressure on the first input device, the second pressure greater than the first pressure; and
 - provide a second tactile sensation to the first input device, the second tactile sensation based at least in part on the second pressure;
 - detect a third pressure on the first input device, the third pressure greater than the second pressure; and
 - provide a third tactile sensation to the first input device.

EX1001 at claim 1 (cited by Petition at 6)

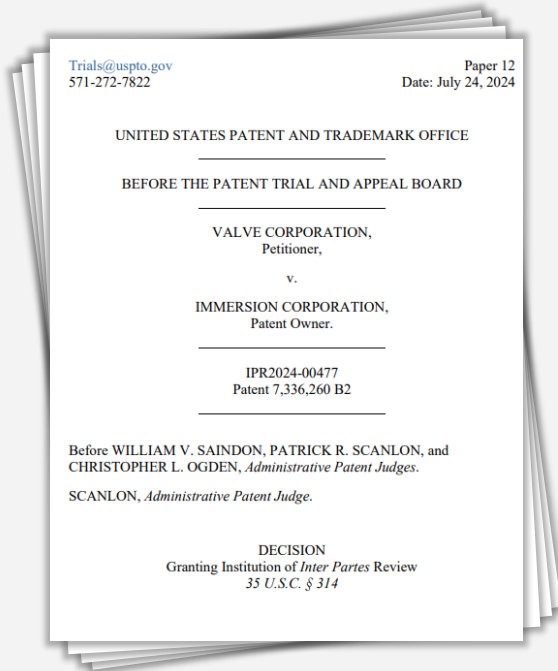


“First, we look to the words of the claims themselves...to define the scope of the patented invention.” *Vitronics Corp. v. Conceptronic*, 90 F.3d 1576, 1582 (Fed. Cir. 1996).

Cited by Petition at 10

The Board Agreed at Institution

Reply at 2-3



Institution Decision (Paper No. 12)

Institution Decision in this Trial (at 27)

the first pressure has not been detected.¹¹ However, we disagree that the second pressure must be detected after the first pressure is detected (or that the third pressure must be detected after the first pressure is detected) simply because the second pressure is greater than the first pressure (and the third pressure is greater than the second pressure). The claimed relative magnitudes of the first, second, and third pressures do not define any temporal relationships regarding the detection of the pressures.

Institution Decision at 27 (cited by Reply at 3)

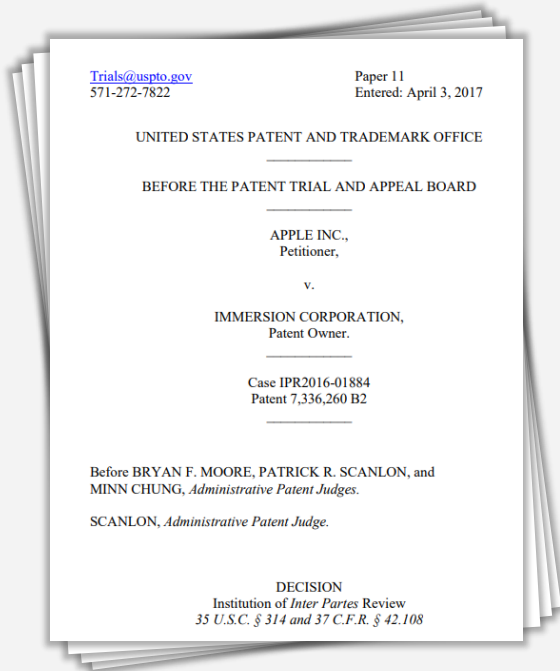


“The use of the terms ‘first’ and ‘second’ is a common patent-law convention to distinguish between repeated instances of an element or limitation.... [T]he use of the terms “first...pattern” and ‘second...pattern’ is equivalent to a reference to ‘pattern A’ and ‘pattern B,’ and should not in and of itself impose a serial or temporal limitation onto claim 1.” *3M Innov. Props. Co. v. Avery Dennison Corp.*, 350 F.3d 1365, 1371 (Fed. Cir. 2003)

Cited by Reply at 6

The Board Agreed at Institution in the Apple IPR Too

Reply at 2



Institution Decision in IPR2016-01884 (EX1010)

Institution Decision in the Apple Trial

The specific relationships Patent Owner refers to are that the second pressure is greater than the first pressure and the third pressure is greater than the second pressure. These relationships, however, do not define any temporal relationship between the detections and thus fail to require that detecting the first, second, and third pressures must occur at the same time, continuously, or as part of a single touch interaction.

Institution Decision in IPR2016-01884 (EX1010) at 23-24
(cited by Reply at 2)



“First, we look to the claim language to determine if, as a matter of logic or grammar, they must be performed in the order written...If not, we next look to the rest of the specification to determine whether it directly or implicitly requires such a narrow construction. If not, the sequence in which such steps are written is not a requirement.” *Altiris, Inc. v. Symantec Corp.*, 318 F.3d 1363, 1369-70 (Fed. Cir. 2003) (quotation omitted).

Cited by Reply at 7

The Specification Does Not Require the Pressures to Be Detected In Sequential Order

Pet. at 10-12
Reply at 7-9

Referring to FIG. 9, in one embodiment, a controller monitors input device number 5. On subsequent monitoring passes, the controller does not detect either an input signal or position data, but detects a distinct pressure, Pressure 1. Based upon the information in the table associated with Pressure 1, the controller obtains the associated function information for selecting the number "2", and information for distinct tactile Sensation 13. The controller delivers the

On a later monitoring pass, the controller detects a pressure magnitude of pressure 3 on input device number 5. Similarly, based upon the information in the table associated with Pressure 3, the controller obtains the associated function information for selecting the letter "B" and information for distinct tactile Sensation 15. The controller delivers the

EX1001, 14:43-15:15; FIG. 9 (cited by Reply at 7)

INPUT DEVICE	INPUT SIGNAL	POSITION DATA	PRESSURE DATA	FUNCTION	TACTILE SENSATION
1	--	Location 1	< Pressure 1	Search	Sensation 1
	Input 1	Location 1	Pressure 1 <=	Select	Sensation 2
2	--	Position 1	--	On	Sensation 3
	--	Position 2	--	Off	Sensation 4
3	Input 2A	--	Pressure 1	9	Sensation 5
	Input 2B	--	Pressure 2	W	Sensation 6
	Input 2C	--	Pressure 3	X	Sensation 7
	Input 2D	--	Pressure 4	Y	Sensation 8
	Input 2E	--	Pressure 5	Z	Sensation 9
4	Input 3	--	Pressure 1	Menu 1	Sensation 10
		--	Pressure 2	Menu 2	Sensation 11
		--	Pressure 3	Menu 3	Sensation 12
		--	Pressure 4	Menu 4	Sensation 13
5	--	--	Pressure 1	2	Sensation 14
		--	Pressure 2	A	Sensation 15
		--	Pressure 3	B	Sensation 16
		--	Pressure 4	C	Sensation 17
6	Input 4	Position 1	Pressure 1	Function 1	Sensation 18
	Input 5	Position 2	Pressure 2	Function 2	Sensation 19
	Input 6	Position 3	Pressure 3	Function 3	Sensation 20
7	Input 7	Location 1	Pressure 1	Function 1	Sensation 21
	Input 8	Location 2	Pressure 2	Function 2	Sensation 22
--	AMBIGUOUS	--	--	--	Sensation 23
--	Function Failure	--	--	--	Sensation 24

FIG. 9



"First, we look to the claim language to determine if, as a matter of logic or grammar, they must be performed in the order written...If not, we next look to the rest of the specification to determine whether it directly or implicitly requires such a narrow construction. If not, the sequence in which such steps are written is not a requirement." *Altiris, Inc. v. Symantec Corp.*, 318 F.3d 1363, 1369-70 (Fed. Cir. 2003) (quotation omitted).

Cited by Reply at 7

Institution Decision (at 29)

Trials@uspto.gov
571-272-7822

Paper 12
Date: July 24, 2024

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

VALVE CORPORATION,
Petitioner,

v.

IMMERSION CORPORATION,
Patent Owner.

IPR2024-00477
Patent 7,336,260 B2

Before WILLIAM V. SAINDON, PATRICK R. SCANLON, and
CHRISTOPHER L. OGDEN, *Administrative Patent Judges*.

SCANLON, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

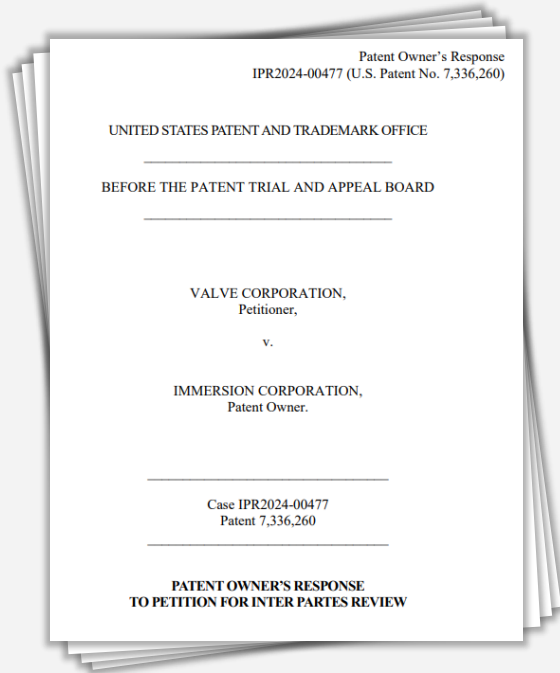
Moreover, as Petitioner argues, the '260 patent appears to disclose a scenario in which different pressures on an input device are detected separately or independently of one another. *See* Pet. 10–12 (citing Ex. 1001, 14:43–15:15, Fig. 9). The '260 patent discloses that a controller monitoring an input device detects a pressure, Pressure 1, during a monitoring pass, and then, during another monitoring pass, the controller detects another pressure, Pressure 3, on the same input device. Ex. 1001, 14:43–63. Thus, by disclosing detecting distinct Pressures 1 and 3 during different monitoring passes, the '260 patent encompasses the possibility of detecting Pressures 1 and 3 independently of one another and not in any particular order.

Institution Decision (Paper No. 12)

Institution Decision at 29 (cited by Reply at 7)

Immersion's Response to Figure 9 Invites Legal Error

Reply at 7-9



Patent Owner Response (at 29-30)

The specification provides no explicit description in this embodiment of any specific “greater-than” relationships among these three pressures. *Id.* Rather, this embodiment describes a truth table where, if the processor detects pressure 1 on input device 5 during a monitoring pass, it outputs Sensation 13; if the processor detects pressure 3 on input device 5 during another monitoring pass, it outputs sensation 15; etc., but pressure 3 is not necessarily greater than pressures 1 or 2. *See* ’260 Patent at 14:47-50, 60-63; Figure 9. EX2008 at ¶ 39. Accordingly, this disclosure does not embody claim 1. *Id.*

Patent Owner Response (Paper No. 12)

Patent Owner Response at 29-30 (cited by Reply at 7-8)



“We normally do not interpret claims in a way that excludes embodiments disclosed in the specification.” *Google LLC v. EcoFactor, Inc.*, 92 F.4th 1049, 1058 (Fed. Cir. 2024).

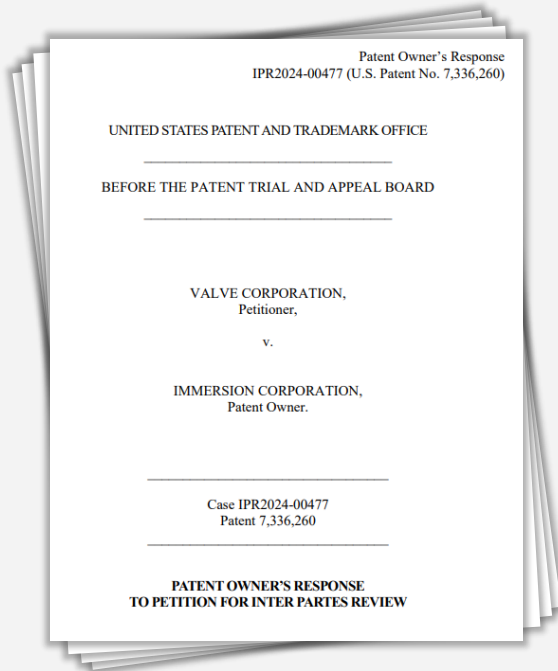
Cited by Reply at 8-9

Immersion's Response to Figure 9 Invites Legal Error

Reply at 7-9

Patent Owner Response (at 30)

In addition, the Board's conclusion that "by disclosing detecting distinct Pressures 1 and 3 during different monitoring passes, the '260 Patent encompasses the possibility of detecting Pressures 1 and 3 independently of one another and not in any particular order" (D.I. 29) improperly imports limitations from a particular embodiment into claim 1. As the Board stated in its Institution Decision, "[i]t is generally improper to read limitations from specific embodiments into the claims."



Patent Owner Response (Paper No. 12)

Patent Owner Response at 30 (cited by Reply at 8)



"Nor are claims ordinarily limited in scope to the preferred embodiment." *Altiris, Inc. v. Symantec Corp.*, 318 F.3d 1363, 1370 (Fed. Cir. 2003).

Cited by Reply at 8-9

Immersion's Logic / Grammer Argument Fails

Reply at 3-6

What is claimed is:

1. A computer-readable medium having instructions, the instructions including instructions that cause a processor to:

1A detect a first pressure on a first input device;

1B provide a first tactile sensation to the first input device, the first tactile sensation based at least in part on the first pressure;

1C detect a second pressure on the first input device, the second pressure greater than the first pressure; and provide a second tactile sensation to the first input device, the second tactile sensation based at least in part on the second pressure;
detect a third pressure on the first input device, the third pressure greater than the second pressure; and provide a third tactile sensation to the first input device.

Patent Owner Response (at ii)

- A. Each Claimed Step Must Occur in Order.....20
1. Logic requires that each pressure must be detected before its corresponding tactile sensation is provided. 21
 2. As a matter of grammar, each pressure must be detected before their corresponding tactile sensation is provided. 22
 3. Grammar and logic also require limitations [1a]-[1f] to be performed in order.....25

Patent Owner Response (at 25)

The term “the first pressure” is recited not just in limitation [1b], but it is also recited in limitation [1c]. EX1001 at 20:40. That term, as recited in limitation [1c], refers to the same “first pressure” previously recited as “a first pressure” in limitation [1a] and as “the first pressure” in limitation [1b]. Therefore, the term “the first pressure” recited in limitation [1c] finds antecedent basis in both limitations [1a] and [1b]. Just as antecedent basis indicates that limitation [1a] must be performed before limitation [1b], it also indicates that limitation [1c] must follow [1a] and [1b]. See

EX1001 at claim 1 (cited by Petition at 6)

Immersion's Logic / Grammer Argument Fails

Reply at 3-6

What is claimed is:

1. A computer-readable medium having instructions, the instructions including instructions that cause a processor to:
- 1A detect a first pressure on a first input device;
 - 1B provide a first tactile sensation to the first input device, the first tactile sensation based at least in part on the first pressure;
 - 1C detect a second pressure on the first input device, the second pressure greater than the first pressure; and provide a second tactile sensation to the first input device, the second tactile sensation based at least in part on the second pressure;
 - detect a third pressure on the first input device, the third pressure greater than the second pressure; and provide a third tactile sensation to the first input device.

EX1001 at claim 1 (cited by Petition at 6)

Institution Decision (at 27)

Id. (citing Ex. 2002 ¶¶ 68–69). We agree that, as a matter of logic, the first step of detecting a first pressure must occur before the second step of providing a first tactile sensation based at least in part on the first pressure because the first tactile sensation could not be based on the first pressure if the first pressure has not been detected.¹¹ However, we disagree that the second pressure must be detected after the first pressure is detected (or that the third pressure must be detected after the first pressure is detected) simply because the second pressure is greater than the first pressure (and the third pressure is greater than the second pressure). The claimed relative magnitudes of the first, second, and third pressures do not define any temporal relationships regarding the detection of the pressures.

Institution Decision at 27
(cited by Reply at 3-4)

WI-LAN, INC. v. APPLE, INC.

Cite as 811 F.3d 455 (Fed. Cir. 2016)

Asserted claim 1 recites a transceiver for transmitting data using three components:

1. A transceiver for transmitting a first stream of data symbols, the transceiver comprising:
 - a converter for converting the first stream of data symbols into plural sets of N data symbols each;
 - first computing means for operating on the plural sets of N data symbols to produce modulated data symbols corresponding to an invertible randomized spreading of the first stream of data symbols; and
 - means to combine the modulated data symbols for transmission.

Cited by Reply at 10

[13] The text of the asserted claims requires randomizing the modulated data symbols before combining them. Claim 1 recites a computing means that “produce [s] modulated data symbols corresponding to an invertible randomized spreading” and a means to combine that “combine[s] the modulated data symbols.” Subsequent use of the definite articles “the” or “said” in a claim refers back to the same term recited earlier in the claim. *Baldwin Graphic Sys., Inc. v. Siebert, Inc.*, 512 F.3d 1338, 1342 (Fed.Cir.2008). The term “the modulated data symbols” therefore refers back to the randomized data symbols produced by the computing means in the second claim element. Because the modulated data symbols in the second element are randomized upon being produced, those same modulated data symbols in the third element have already been randomized before they are combined.

The ordering requirement described above is consistent with the specification. Every embodiment discussed in the specification randomizes the data symbols before combining them. For instance, Fig-

Cited by Reply at 10

Immersion's Antecedent-Basis Cases Are Easily Distinguished

Reply at 9-11

***Hytera Comms. v. Motorola Sols.*, 841 F. App'x 210 (Fed. Cir. 2021)**

7. In a time division multiple access (TDMA) system having a plurality of timeslots, a method comprises the steps of: knowing a first set of synchronization patterns associated with a desired timeslot and a second set of synchronization patterns associated with each of the other timeslots in the TDMA system, wherein the first set of synchronization patterns is mutually exclusive from the second set of synchronization patterns, and each set comprising at least two different synchronization patterns as a function of at least one of a payload type and a source of the transmission;

preparing to transmit a particular payload type in a timeslot;

determining whether the timeslot is a current desired timeslot for the TDMA system;

if the timeslot is the current desired timeslot, selecting a synchronization pattern selected from the first set of synchronization patterns based on the one of the particular payload type and a particular source of the transmission; otherwise selecting a synchronization pattern selected from the second set of synchronization patterns based on the one of the particular payload type and the particular source of the transmission; and transmitting a burst in the timeslot having embedded the synchronization pattern that was selected.

Cited by Reply at 11

(Fed. Cir. 2001)). Here, in claim 7, each step of the method provides an antecedent basis for the steps that follow. That includes “a” timeslot in the “preparing” step, which grammatically provides antecedent basis for “the” timeslot in the “determining” step. Hytera argues that the antecedent basis is not meaningful because the “determining” step could have just as easily said “a” timeslot; on the contrary, the fact that the “determining” step says “the” when it could have said “a” reinforces our conclusion that it is meant to come after the “preparing” step. Moreover, as a matter of logic, we reject Hytera's position that we should construe claim 7 as requiring four of its five steps to be performed in the order they are written, but we should disregard the antecedent basis in the “preparing” step and allow that one step to be performed out of order.

Cited by Reply at 11

7. Tellingly, however, Hytera does not point to any figure or other *219 part of the specification that discloses an embodiment in which the “preparing” step is performed after the “determining” step. Though we have repeatedly held that

Cited by Reply at 11

Immersion's Antecedent-Basis Cases Are Easily Distinguished

Reply at 9-11

Tuna Processors v. Hawaii Int'l Seafood, **327 F. App'x 204 (Fed. Cir. 2009)**

What is claimed is:

1. A method for curing raw tuna meat by extra-low temperature smoking comprising the steps of:

burning a smoking material at 250° to 400° C. and passing the produced smoke through a filter to remove mainly tar therefrom;

cooling the smoke passed through the filter in a cooling unit to between 0° and 5° C. while retaining ingredients exerting highly preservative and sterilizing effects; and smoking the tuna meat at extra-low temperatures by exposure to the smoke cooled to between 0° and 5° C.

Cited by Reply at 11

We agree with HISI that to infringe the  619 patent, a method must cool the smoke before the smoke contacts the *209 tuna. The plain language of claim 1 demonstrates that the district court was correct in placing a temporal limitation on the steps of the smoking method. As the district court noted, this case is one in which the “sequential nature of the claim steps is apparent from the plain meaning of the claim language and nothing in the written description suggests otherwise.”

the filter” must have been filtered prior to being cooled. In the same manner, the use of the past participle in “the smoke cooled” in the disputed third step requires that the smoke have been cooled prior to contacting the tuna meat for infringement to occur.

Nothing in the specification dissuades us from reading a temporal limitation in the third step of claim 1. Indeed, the specification confirms the appropriateness of such a temporal limitation. The second step of claim 1 states that the smoke

Cited by Reply at 11

Immersion's Antecedent-Basis Cases Are Easily Distinguished

Reply at 9-11

***Medtronic, Inc. v. Teleflex Life Scis.,* 2024 U.S. App. LEXIS 6703 (Fed. Cir. 2024)**

What is claimed is:

1. A method of providing backup support for an interventional cardiology device for use in the coronary vasculature, the interventional cardiology device being adapted to be passed through a standard guide catheter, the standard guide catheter having a continuous lumen extending for a pre-defined length from a proximal end at a hemostatic valve to a distal end adapted to be placed in a branch artery, the continuous lumen of the guide catheter having a circular cross-sectional inner diameter sized such that interventional cardiology devices are insertable into and through the lumen, the method comprising:

further inserting a substantially rigid portion that is proximal of, operably connected to, and more rigid along a longitudinal axis than the flexible tip portion, into the continuous lumen of the standard guide catheter, the

inserting the interventional cardiology device into and through the continuous lumen of the standard guide catheter alongside of the substantially rigid portion and advancing the interventional cardiology device through and beyond a lumen of the flexible tip portion into contact with or past a lesion in the second artery.

It is important when the substantially rigid portion is in its final position because inserting the ICD "into and *through*" the standard guide catheter occurs "alongside of the substantially rigid portion." *Id.* (emphasis added). The use of "into and through" indicates that the ICD moves through the standard guide catheter during the inserting and advancing the ICD step. This movement, which is "alongside of" the substantially rigid portion, cannot logically occur "alongside of" unless the substantially rigid portion is already positioned inside the standard guide catheter. Since the substantially rigid portion is not in its final position until completion of the advancing the flexible tip portion step (step 1.e), the logic of claim 1 suggests that the inserting and advancing the ICD step must occur after advancing the flexible tip portion.

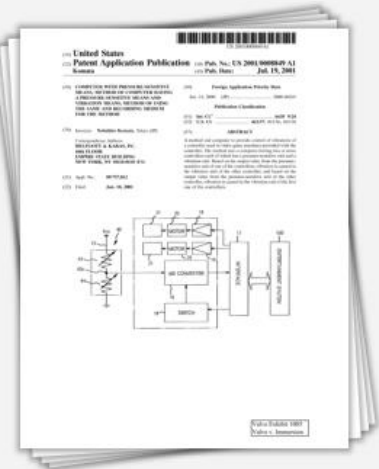
The specification also touts the advantages of performing claim 1's steps in the recited order. Claim 1 recites "[a] method of providing backup support." The

Cited by Reply at 10

Cited by Reply at 10

Even Under Immersion's Construction, Komata Anticipates

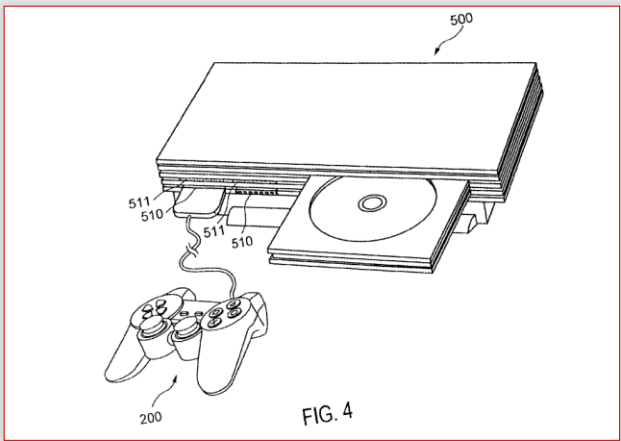
Reply at 17-18



**Komata
EX1005**

[0091] Changes in the level of the analog signal output from the output terminal 40c of the resistor 40 correspond to changes in the pushing pressure received from the control button 221 (control element) as described above. Therefore, the digital signal outputted from the A/D converter 16 corresponds to the pushing pressure on the control button 221 (control element) from the user. If the actions of the game characters and the like are controlled based on the digital signal that has such a relationship with the pushing pressure from the user, it is possible to achieve smoother and more analog-like action than with control based on a binary digital signal based only on zeroes and ones.

EX1005, [0091]
(cited by Reply at 17)



EX1005, FIG. 4
(cited by Petition at 14)

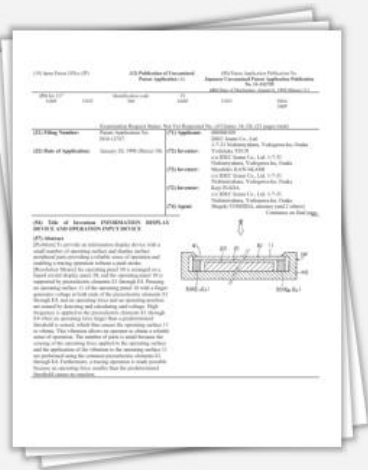
PRESSURE-SENSE VALUE	DRIVE SIGNAL
0	0
1	P 1
⋮	⋮
2 5 5	P 2 5 5

FIG. 2

EX1005, FIG. 2
(cited by Petition at 18)

Even Under Immersion's Construction, Tsuji Anticipates

Reply at 18-19



**Tsuji
EX1007**

EX1007 at [0111]
(cited by Reply at 18)

Ward Opening Decl.

Ward Decl. (EX1003) at 260
(cited by Reply at 18)

[0111] Returning to FIG. 13, variations can be introduced with respect to how the operating surface 11 is driven by changing the content stored in table 72a. For example, when weak vibration is to be applied to operating regions R1 through R6, codes in the range of S11 through S64 can be determined to specify the vibration mode in FIG. 14 (a). Furthermore, when a stronger vibration is to be applied as the operating force F gets larger, the vibration mode in FIG. 14 (a) may be specified in the operating force classifications F1 and F2 in FIG. 13, and the vibration mode in FIG. 14 (b) may be specified in the operating force classifications F3 and F4, respectively. While it is preferred that codes S01 through S04 for the non-operating region R0 specify “no driving,” it is acceptable to apply weak vibrations to this region.

[0111] (emphasis added). In other words, Tsuji’s microcomputer can detect when the force applied to the display device or a particular region (e.g., R1) increases, that is, “gets larger,” from one force classification (e.g., F1) to another (e.g., F2), and can do so in a single contact as the user exerts more pressure. Tsuji thus also satisfies the “single contact” claim construction that the Patent Owner advanced before the International Trade Commission and which I discuss above in Section X.B.

GROUND	CLAIMS	BASIS
1. Komata	1-7	102/103
2. Tsuji	1-7	102/103
3. Rosenberg	1-7	102/103

- Grounds 1 and 2: Must the three claimed “*pressures*” be detected in sequential order? If not, Immersion concedes the claims are unpatentable.
- Ground 3: Is a “*tactile sensation*” limited to a “*vibrotactile sensation*” (**no**), and does Rosenberg detected three pressures and provide three tactile sensations (**yes**)?

The Rosenberg Disputes: “Tactile Sensation”

Reply at 12-16

19

US 7,336,260 B2

20

tactile haptic effect as the user highlights each of the options in the main menu 108. The effect may change in pitch or in some other manner to alert the user to the fact that the highlighted option has changed. The user may either click the center of the D-pad 106 to select an option or click the down arrow. Performing either of these actions over the D-pad option produces sub-menu 112.

The user clicks the down arrow to move through the sub-menu 112. In the embodiment shown, when a directional arrow of the D-pad 108 is held down, the menu options in sub-menu 112 scroll as a fluid unit, and a haptic effect plays with each option that appears below the cursor. The longer the directional arrow is held down, the faster the rate of scrolling. The PDA 106 communicates the rate of scrolling by a corresponding change in the haptic effect, such as an increase in frequency. If the user clicks the right arrow when the cursor highlights the Send To option, the secondary sub-menu 114 is displayed. Navigation through the secondary sub-menu 114 occurs in a manner similar to that which occurs in sub-menu 112. To select an option within the secondary sub-menu 114, the user clicks the center of the D-pad 106. Clicking the center of the D-pad 106 triggers the playing of yet another distinct haptic effect. In addition, the D-pad switch 106 either a way or a away, can provide haptic effects indicating the direction that the switch was being pressed.

The embodiment shown in FIG. 11 is applicable to a variety of applications, particularly to applications that display lists. For example, in one embodiment, an address book containing a list of names is displayed on the PDA 106. In such an embodiment, the actuator plays an effect as the user scrolls through the list. Further, the actuator plays a distinct haptic effect as the user navigates from names starting with one letter, for example, A, to the next letter, B. Such an embodiment may also include a distinct effect corresponding to names that the user has previously identified as favorites in the address book.

Another embodiment of the present invention provides the user with distinct haptic effects corresponding to the operational mode of an electronic device. For example, if an embodiment utilizing a PDA, such as PDA 31 or FIG. 8, the user may activate one of many modes, including, for example, the phone interface shown in FIG. 8. The user interface shown in FIG. 12, an address book, email, or other mode. Referring to FIG. 12, in one such embodiment, the user clicks a button 32 to activate the phone application. When the user clicks the button, the PDA 31 displays a phone interface 38. While the PDA 31 is in phone mode, the actuator provides a persistent haptic effect indicating to the user that the phone mode is active. In this way, the user is able to determine the mode of the PDA 31 without visually referring to it.

Another embodiment of the present invention provides the user with distinct haptic effects for modes within a cell phone or other electronic device. Referring to FIG. 3, users of cell phones, such as cell phone 14, often store a list of numbers that are frequently dialed in a memory associated with one or a combination of number keys 18. In such an embodiment, the user may click a function key before clicking the number key 18, providing a signal to the phone 31 that the user will specify a number to dial by clicking a number key combination. In one embodiment of the present invention, when the user clicks the function button, the actuator provides a persistent haptic effect, indicating to the user that the cell phone is in the rapid-dialing mode. The haptic effect alerts the user to the fact that when the user selects a number key combination, the cell phone will dial

the phone number associated with the number-key combination in memory. By providing a haptic effect identifying the mode that the cell phone 31 is in, the embodiment minimizes or eliminates the user's need to refer to the cell phone 31 visually.

In another embodiment of the present invention, an actuator provides feedback when an option or function is unavailable (referred to herein as “negative feedback”). In such an embodiment implemented in a cell phone, such as cell phone 31 shown in FIG. 3, the user is able to place calls. The user dials a combination of number keys 18 and then presses the send key 31 to execute the phone call. In an embodiment utilizing negative feedback, if the user enters an invalid phone number, for example, a phone number including only 15 0 digits, the cell phone provides negative feedback, indicating that the send function is not available. The negative feedback may, for example, comprise a very low frequency buzz. In another embodiment, the actuator provides negative feedback to the user if the user clicks a redial button (not shown) without having previously dialed a number.

Other embodiments and uses of the present invention will be apparent to those skilled in the art from consideration of this application and practice of the invention disclosed herein. The present description and examples should be considered exemplary only, with the true scope and spirit of the invention being indicated by the following claims. As will be understood by those of ordinary skill in the art, variations and modifications of each of the disclosed embodiments, including combinations thereof, can be made 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145 150 155 160 165 170 175 180 185 190 195 200 205 210 215 220 225 230 235 240 245 250 255 260 265 270 275 280 285 290 295 300 305 310 315 320 325 330 335 340 345 350 355 360 365 370 375 380 385 390 395 400 405 410 415 420 425 430 435 440 445 450 455 460 465 470 475 480 485 490 495 500 505 510 515 520 525 530 535 540 545 550 555 560 565 570 575 580 585 590 595 600 605 610 615 620 625 630 635 640 645 650 655 660 665 670 675 680 685 690 695 700 705 710 715 720 725 730 735 740 745 750 755 760 765 770 775 780 785 790 795 800 805 810 815 820 825 830 835 840 845 850 855 860 865 870 875 880 885 890 895 900 905 910 915 920 925 930 935 940 945 950 955 960 965 970 975 980 985 990 995 1000

What is claimed is:

1. A computer-readable medium having instructions, the instructions including instructions that cause a processor to detect a first pressure on a first input device; provide a first tactile sensation to the first input device; the first tactile sensation based at least in part on the first pressure.

2. The computer-readable medium of claim 1, further comprising stored instructions, the stored instructions including instructions which, when executed by a processor, cause the processor to: detect a second pressure on the first input device; detect a second pressure greater than the first pressure; and provide a second tactile sensation to the first input device; the second tactile sensation based at least in part on the second pressure.

3. The computer-readable medium of claim 1, further comprising stored instructions, the stored instructions including instructions which, when executed by a processor, cause the processor to: detect a third pressure on the first input device; the third pressure greater than the second pressure; and provide a third tactile sensation to the first input device.

4. The computer-readable medium of claim 1, further comprising stored instructions, the stored instructions including instructions which, when executed by a processor, cause the processor to provide the first tactile sensation to a second input device.

5. The computer-readable medium of claim 1, further comprising stored instructions, the stored instructions including instructions which, when executed by a processor, cause the processor to provide the second tactile sensation to the second input device.

6. The computer-readable medium of claim 1, further comprising stored instructions, the stored instructions including instructions which, when executed by a processor, cause the processor to:

What is claimed is:

1. A computer-readable medium having instructions, the instructions including instructions that cause a processor to: detect a first pressure on a first input device; provide a first tactile sensation to the first input device, the first tactile sensation based at least in part on the first pressure; detect a second pressure on the first input device, the second pressure greater than the first pressure; and provide a second tactile sensation to the first input device, the second tactile sensation based at least in part on the second pressure; detect a third pressure on the first input device, the third pressure greater than the second pressure; and provide a third tactile sensation to the first input device.

Immersion's
Position

“tactile sensation”
(Claims 1-7)

“vibrotactile sensation”

Patent Owner Response at 19

Patent Owner Response (at 63)

Rosenberg does not disclose providing tactile sensations that correspond to the detection of a first, second, and third pressure applied to the input device, i.e., the mouse in Rosenberg. Instead, what Petitioner points to as a tactile sensation in Rosenberg is the blunt push-back or resistive effect that the user experiences when pushing down on the mouse button. As explained in Section IV.B. above, this force feedback effect does not meet the claimed tactile sensation limitation in the '260 Patent.

Patent Owner Response at 63

Everyone Agrees that the Plain Meaning of “*Tactile Sensation*” Is Not Limited To Vibrotactile Sensations

Reply at 12-16, 25-26

Patent Owner Response (at 33)

unreasonably broad interpretation. Construed broadly, “tactile” means “perceptible by touch.” See <https://www.merriam-webster.com/dictionary/tactile> (last visited Sep. 12, 2024). Under this interpretation, merely resting a finger on any button

There are many kinds of possible tactile feedback, such as resistive force feedback, electrotactile feedback, ultrasonic feedback, and thermal feedback.

Patent Owner Response at 33

Petitioner’s Reply (at 12)

Starting with the claim language, “*tactile*” is a common word with a well-understood meaning, *i.e.*, perceptible by touch. EX1060; EX1061-1062 (similar). Immersion *agrees*. POR, 33. Immersion also concedes there are “many kinds of possible tactile feedback” beyond vibrotactile feedback including resistive force feedback. *Id.* The ordinary meaning of “*tactile sensation*” is thus not limited to vibrotactile sensations and includes all sensations perceptible by touch.

Reply at 12

Institution Decision (at 39)

Patent Owner’s argument that the tactile sensations recited in claim 1 must be vibrotactile sensations contradicts its assertion that “all [claim] terms may be given their ordinary and customary meaning, as understood by a [person having ordinary skill in the art], in the context of the patent specification, and that no argument herein requires a special construction for any particular term.” See Prelim. Resp. 20. We disagree that the ordinary and customary meaning of “tactile sensation” is limited to only tactile sensations that are vibratory in nature. Furthermore, Patent Owner’s

Institution Decision at 39

There is No Disavowal or Redefinition

Reply at 12-16

Immersion's "Support"

Suitable tactile sensations include vibrations, for example, jolts and textures, and a plurality of distinct tactile sensations can be created by varying the frequency, amplitude and 50 waveform output by the actuator 6. The actuator 6 is selected

EX1001, 3:44-52 (cited by POR at 31-32)



"[A] definition that states what a term 'includes' is open-ended." *Charleston Area Med. Ctr. v. United States*, 940 F.3d 1362, 1367 (Fed. Cir. 2019)

Cited by Reply at 13



"The words of a claim are generally given their ordinary and customary meaning as understood by a person of ordinary skill in the art when read in the context of the specification and prosecution history. There are only two exceptions to this general rule: 1) when a patentee sets out a definition and acts as his own lexicographer, or 2) when the patentee disavows the full scope of a claim term either in the specification or during prosecution." *Thorner v. Sony Comp. Ent. Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012) (quotation and cite omitted)

Cited by Reply at 12-13

There is No Disavowal or Redefinition

Reply at 12-16

Immersion's Additional "Support"

waveform output by the actuator 6. The actuator 6 is selected to deliver the desired tactile sensations to the input device 2. The actuator 6 shown in FIG. 1 is a voice coil actuator. Other suitable actuators include, for example, piezo-electric actuators, eccentric mass actuators, moving magnet actuators, and friction brakes in contact with metal shafts. In addition, the actuator can include a flexure, for example an arrangement of flexible material, couple to the rotating shaft of a DC motor or step motor to transform the rotation of the motor shaft into vibrations or other haptic sensations. Various

EX1001, 3:51-60 (cited by POR at 32)

But Exemplary Embodiments Are Not Limiting

FIG. 1 is a perspective view of an embodiment of an apparatus according to the present invention;

EX1001, 3:14 (cited by Reply at 13)

herein. The present description and examples should be considered exemplary only, with the true scope and spirit of the invention being indicated by the following claims. As

EX1001, 20:24-26 (cited by Reply at 13)



"[W]e have repeatedly held that it is not enough that the only embodiments, or all of the embodiments, contain a particular limitation to limit claims beyond their plain meaning." *Unwired Planet, LLC v. Apple, Inc.*, 829 F.3d 1353, 1359 (Fed. Cir. 2016) (quotation omitted).

Cited by Reply at 14

There is No Disavowal or Redefinition

Reply at 12-16

Immersion's Additional "Support"

waveform output by the actuator 6. The actuator 6 is selected to deliver the desired tactile sensations to the input device 2. The actuator 6 shown in FIG. 1 is a voice coil actuator. Other suitable actuators include, for example, piezo-electric actuators, eccentric mass actuators, moving magnet actuators, and friction brakes in contact with metal shafts. In addition, the actuator can include a flexure, for example an arrangement of flexible material, couple to the rotating shaft of a DC motor or step motor to transform the rotation of the motor shaft into vibrations or other haptic sensations. Various

EX1001, 3:51-60 (cited by POR at 32)

Immersion Does Not Dispute that Friction Brakes Are Not Limited To Providing Vibrations

Figure 1 is just one embodiment. In other embodiments, different actuators such as "friction brakes in contact with metal shafts" can be used, and such *resistive* actuators are plainly not limited to providing vibrations. Regardless, even if "the

Reply at 14

"[W]e have repeatedly held that it is not enough that the only embodiments, or all of the embodiments, contain a particular limitation to limit claims beyond their plain meaning." *Unwired Planet, LLC v. Apple, Inc.*, 829 F.3d 1353, 1359 (Fed. Cir. 2016) (quotation omitted).

Cited by Reply at 14



There is No Disavowal or Redefinition

Reply at 12-16

Immersion's Additional "Support"

35 device through the PCB. In another embodiment, the actuator is an existing eccentric mass motor as is used, for example, as a vibrating ringer in a pager or mobile telephone.

40 The vibrotactile actuator 6 can also be mounted to a portion of the case or housing of the electronic device in which the apparatus 1 is disposed, communicating the tactile sensations to the entire electronic device. In one embodiment, two actuators can be incorporated in the case or back of an electronic device, for example the case of a mobile
45 phone in an area that contacts the user's hand. This arrangement effectively doubles the amplitude of the tactile sensation, and the user's fingers do not tend to attenuate the tactile sensation.

EX1001, 4:35-42 (cited by POR at 32)

But Exemplary Embodiments Are Not Limiting

FIG. 1 is a perspective view of an embodiment of an apparatus according to the present invention;

EX1001, 3:14 (cited by Reply at 13)

The apparatus 1 shown in FIG. 1 also includes a vibrotactile actuator 6 in communication with the input device 2.

EX1001, 20:24-26 (cited by Reply at 13)



**"[W]e have repeatedly held that it is not enough that the only embodiments, or all of the embodiments, contain a particular limitation to limit claims beyond their plain meaning."
Unwired Planet, LLC v. Apple, Inc., 829 F.3d 1353, 1359 (Fed. Cir. 2016) (quotation omitted).**

Cited by Reply at 14

There is No Disavowal or Redefinition

Reply at 12-16

Immersion's Additional "Support"

EX1001, 3:44-52. Indeed, the '260 patent repeatedly describes vibrational output by the actuator. *Id.*, 4:35-38, 8:2-5, 8:19-25, 9:34-44, 9:56-64, 10:21-25, 10:54-59, 11:65-67, 13:11-17, 14:53-57.

Sur-Reply at 11

But Exemplary Embodiments Are Not Limiting

the number "2" has been selected. The controller uses the information for distinct tactile Sensation 13 to produce Sensation 13 in an input device 56, by for example, causing an actuator to cause the input device to vibrate at a frequency associated with Sensation 13.

EX1001, 14:53-57

or different types of feedback. As another example, the actuator and input devices may be configured to provide vibration to only the button that is receiving pressure from the user, or they may be configured to provide vibration to all buttons or at least more buttons than the one(s) receiving pressure from the user.

EX1001, 10:54-59



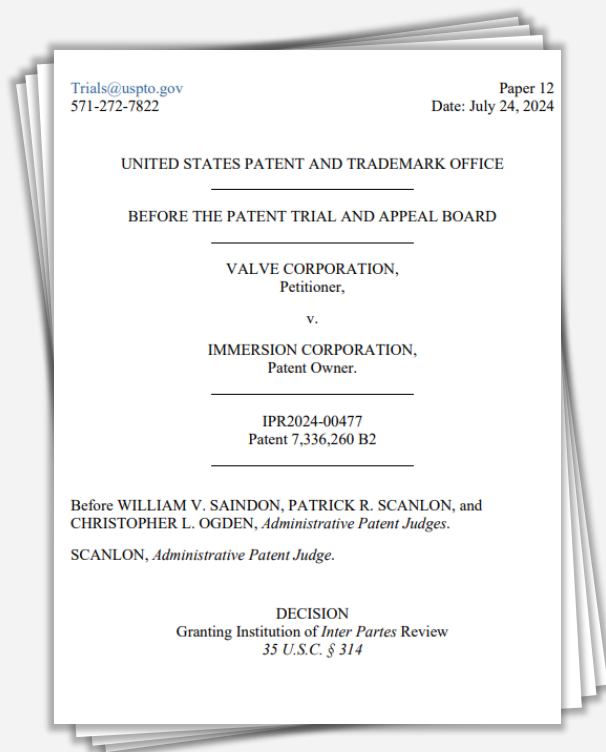
"[W]e have repeatedly held that it is not enough that the only embodiments, or all of the embodiments, contain a particular limitation to limit claims beyond their plain meaning." *Unwired Planet, LLC v. Apple, Inc.*, 829 F.3d 1353, 1359 (Fed. Cir. 2016) (quotation omitted).

Cited by Reply at 14

The Board's Preliminary Construction Is Right

Reply at 12

Institution Decision (at 39)



any particular term.” *See* Prelim. Resp. 20. We disagree that the ordinary and customary meaning of “tactile sensation” is limited to only tactile sensations that are vibratory in nature. Furthermore, Patent Owner’s proposed interpretation of “tactile sensation” is an attempt to improperly read limitations from the Specification into the claims. *See Cadence Pharms.*, 780 F.3d at 1369 (“[E]ven if all of the embodiments discussed in the patent included a specific limitation, it would not be proper to import from the patent’s written description limitations that are not found in the claims themselves.” (internal quotations omitted)); *see also SuperGuide Corp.*, 358 F.3d at 875 (“Though understanding the claim language may be aided by the explanations contained in the written description, it is important not to import into a claim limitations that are not a part of the claim.”).

Institution Decision at 39

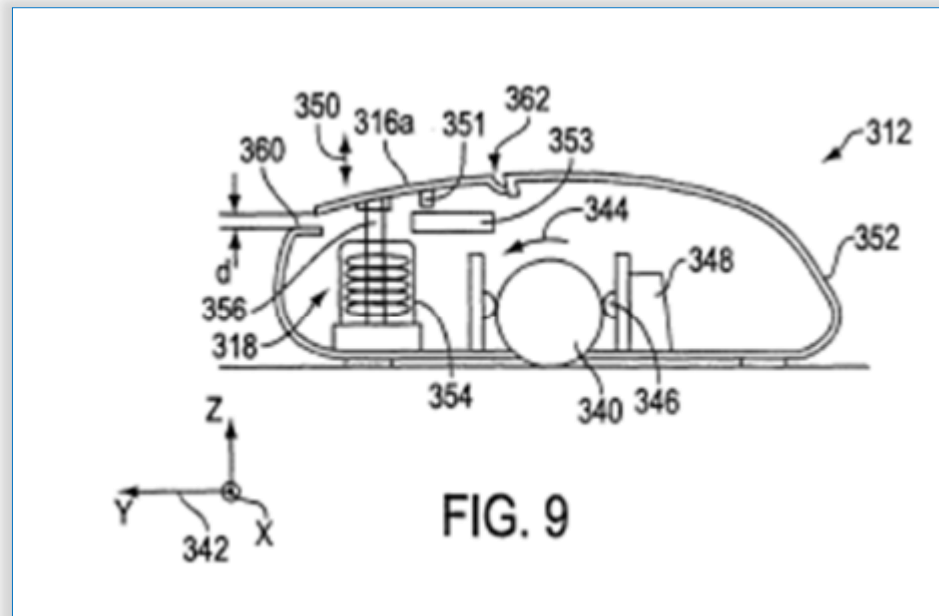
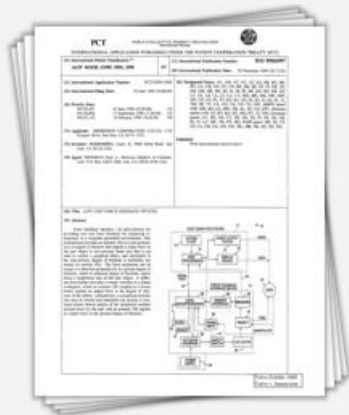


“[W]e have repeatedly held that it is not enough that the only embodiments, or all of the embodiments, contain a particular limitation to limit claims beyond their plain meaning.” *Unwired Planet, LLC v. Apple, Inc.*, 829 F.3d 1353, 1359 (Fed. Cir. 2016) (quotation omitted).

Cited by Reply at 14

Rosenberg's Spring-Force Embodiment Anticipates

Petition at 57-73
Reply at 19-26



EX1008, FIG. 9 (cited by Reply at 19-20)

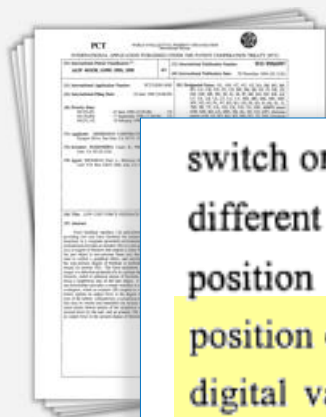
Another type of force sensation is a spring force provided by the actuator 318 rather than (or in addition to) force provided by a mechanical spring. The magnitude of this force sensation is dependent on the distance of the button from the origin of the spring. Thus, a more sophisticated sensor 413 is preferably used to sense the position of the button 316a in its degree of freedom. If the origin of the spring is at the rest position of the button, then the further the button is moved from the rest position, the greater the spring force opposing that motion. This

EX1008, 30:29-31 (cited by Reply at 19-20)

Rosenberg's Spring-Force Embodiment Anticipates

Petition at 57-73

Reply at 19-26



switch or other type of digital sensor can alternatively be provided to detect a button press. In a different continuous-range button embodiment, a sensor can be used to detect the precise position of the button 316a in its range of motion (degree of freedom). For example, each position of the button can be sensed as a different analog value and used as an analog value or a digital value in processing the button position. This allows the host computer 314 (or local microprocessor) to determine the position of the button and to control a force output based on that position, as described in greater detail with respect to Fig. 11.

EX1008, 25:33-26:4 (cited by Reply at 22)

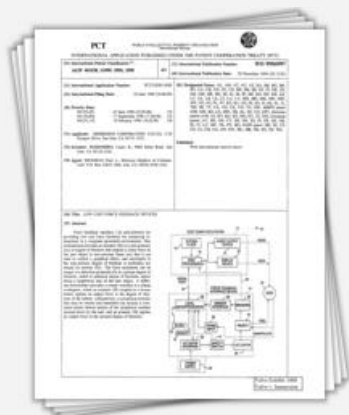
Another type of force sensation is a spring force provided by the actuator 318 rather than (or in addition to) force provided by a mechanical spring. The magnitude of this force sensation is dependent on the distance of the button from the origin of the spring. Thus, a more sophisticated sensor 413 is preferably used to sense the position of the button 316a in its degree of freedom. If the origin of the spring is at the rest position of the button, then the further the button is moved from the rest position, the greater the spring force opposing that motion. This

EX1008, 30:29-33 (Reply at 22)

Rosenberg's Spring-Force Embodiment Anticipates

Petition at 57-73

Reply at 19-26



35. A force feedback mouse as recited in claim 30 wherein said sensor detects a range of at least three positions of said button in said degree of freedom of said button.

36. A force feedback mouse as recited in claim 33 wherein said output force is dependent, at least in part, on said position of said button in said degree of freedom.

EX1008, Claims 35 & 36 (cited by Reply at 24-25)

Rosenberg's Spring-Force Embodiment Anticipates

Petition at 57-73

Reply at 19-26

324. Rosenberg's processor "*detect[s] a first pressure on*" each button 316. Specifically, as discussed above in my overview of Rosenberg, Rosenberg's mouse includes a "force sensing switch" that "is used to detect the position of [] button 316a" within its range of movement by "detect[ing] the amount of force applied to [the] button." Rosenberg at 28:20-25; *see also* Rosenberg at 30:31-33 ("a more sophisticated sensor 413 is preferably used to sense the position of the button 316a in its degree of freedom.").

than...by a mechanical spring"). Rosenberg explains that: "The magnitude of this force sensation is dependent on the distance of the button from the origin of the spring." Rosenberg at 30:30-31. In other words, the magnitude of the force sensation that the actuator provides on button 316a increases as the pressure applied by the user increases pressure/force to push the button farther down. Rosenberg at 30:29-34.

339. As I discussed above for limitation [1B], Rosenberg's processor instructs the actuator to output a force sensation (*i.e.*, "tactile sensation") on button 316a, and that instruction is "based on" the "position of the button." Rosenberg at 25:33-26:6 ("In a different continuous-range button embodiment, a sensor can be used to detect the precise 35 position of the button 316a in its range of motion (degree of freedom). For example, each position of the button can be sensed as a different analog value and used as an analog value or a digital value in processing the button position. This allows the host computer 314 (or local microprocessor) to determine the position of the button and to control a force output based on that position.") (emphasis added); *see also* Rosenberg at 38:21-22 ("A force feedback mouse...wherein said output force is dependent, at least in part, on said position of said button in said degree of freedom.").

340. Accordingly, when as discussed for limitation [1C], Rosenberg's processor "*detect[s] a second pressure*," the processor would instruct the actuator to output a force sensation based on that detected pressure, *i.e.*, "a *second tactile sensation*." For example, when the force sensation is a "spring effect," the processor instructs the actuator to output a force sensation with greater magnitude than the force sensation output in response to the first detected pressure so as to simulate the increasing resisting force of a mechanical spring. Rosenberg at 30:29-34.

Immersion's Counter-Argument Attacks a "Click" Strawman and Is Premised on Speculation

Reply at 20-25

Immersion's Strawman (POR at 60)

A POSA would understand that in this embodiment of Rosenberg, there is only one click that registers and one corresponding feedback sensation associated with that click because that is how conventional mice work, both at the time of the invention and even today. EX2008 at ¶ 105; *see also* EX2010 at 43:21-44:9 (Petitioner's expert describing Rosenberg's mouse as conventional). Moreover, a POSA would understand the short range of a mouse button is too narrow for a user to conveniently, efficiently, and reliably register multiple-stage clicks, each with an associated tactile sensation. EX2008 at ¶ 105. Rather, as Rosenberg explains, the switch determines "a simple on or off state of the button." *Id.* at 25:32; EX2008 at ¶

Immersion's argument attacks a strawman. The Petition never mapped the claimed "*tactile sensation[s]*" to the conventional "click" one would expect to feel (or hear) when pressing a mouse button. Rather the Petition mapped the claimed "*tactile sensation[s]*" to the "spring force" that Rosenberg implements, and which effect mimics the tactile sensation one feels when pressing down on physical button that is biased by a mechanical spring. Pet., 59-66. The "spring force" is entirely different from the "click" sensation that Immersion *speculates* would occur in Rosenberg.⁷

⁷ Notably, Rosenberg never even uses the word "click."

Reply at 21

Immersion's Counter-Argument Attacks a "Click" Strawman and Is Premised on Speculation

Reply at 20-25

Immersion's Strawman (POR at 60)

A POSA would understand that in this embodiment of Rosenberg, there is only one click that registers and one corresponding feedback sensation associated with that click because that is how conventional mice work, both at the time of the invention and even today. EX2008 at ¶ 105; *see also* EX2010 at 43:21-44:9 (Petitioner's expert describing Rosenberg's mouse as conventional). Moreover, a POSA would understand the short range of a mouse button is too narrow for a user to conveniently, efficiently, and reliably register multiple-stage clicks, each with an associated tactile sensation. EX2008 at ¶ 105. Rather, as Rosenberg explains, the switch determines "a simple on or off state of the button." *Id.* at 25:32; EX2008 at ¶

In one embodiment, an electrical lead 351 can be made to contact a sensing lead 353 as with any mechanical switch to determine a simple on or off state of the button. An optical switch or other type of digital sensor can alternatively be provided to detect a button press. In a different continuous-range button embodiment, a sensor can be used to detect the precise position of the button 316a in its range of motion (degree of freedom). For example, each position of the button can be sensed as a different analog value and used as an analog value or a digital value in processing the button position. This allows the host computer 314 (or local microprocessor) to determine the position of the button and to control a force output based on that position, as described in greater detail with respect to Fig. 11.

The "on-off" switch is a different embodiment.

EX1008, 25:33-26:4 (cited by Petition at 58 and Reply at 22)

Immersion's Counter-Argument Attacks a “Click” Strawman and Is Premised on Speculation

Reply at 20-25

Immersion's Strawman (POR at 60)

A POSA would understand that in this embodiment of Rosenberg, there is only one click that registers and one corresponding feedback sensation associated with that click because that is how conventional mice work, both at the time of the invention and even today. EX2008 at ¶ 105; *see also* EX2010 at 43:21-44:9 (Petitioner's expert describing Rosenberg's mouse as conventional). Moreover, a POSA would understand the short range of a mouse button is too narrow for a user to conveniently, efficiently, and reliably register multiple-stage clicks, each with an associated tactile sensation. EX2008 at ¶ 105. Rather, as Rosenberg explains, the switch determines “a simple on or off state of the button.” *Id.* at 25:32; EX2008 at ¶

Sensor 413 is used to detect the position of the button 316a. As explained above, sensor 413 can be a simple on/off detection switch to determine if the button has been pressed or not. Alternatively, a more sophisticated sensor, such as an analog potentiometer or optical encoder, can be used to determine the position of the button in its degree of freedom. Sensor 413 can alternatively be a force sensing switch to detect the amount of force applied to button 16a. Button 316b and/or any other buttons and controls can include sensors similar to sensor 413.

The “on-off” switch is a different embodiment.

EX1008, 28:20-25 (cited by Reply at 22)

Immersion's Counter-Argument Attacks a "Click" Strawman and Is Premised on Speculation

Reply at 20-25

Immersion's Strawman (POR at 60)

A POSA would understand that in this embodiment of Rosenberg, there is only one click that registers and one corresponding feedback sensation associated with that click because that is how conventional mice work, both at the time of the invention and even today. EX2008 at ¶ 105; *see also* EX2010 at 43:21-44:9 (Petitioner's expert describing Rosenberg's mouse as conventional). Moreover, a POSA would understand the short range of a mouse button is too narrow for a user to conveniently, efficiently, and reliably register multiple-stage clicks, each with an associated tactile sensation. EX2008 at ¶ 105. Rather, as Rosenberg explains, the switch determines "a simple on or off state of the button." *Id.* at 25:32; EX2008 at ¶

Another type of force sensation is a spring force provided by the actuator 318 rather than (or in addition to) force provided by a mechanical spring. The magnitude of this force sensation is dependent on the distance of the button from the origin of the spring. Thus, a more sophisticated sensor 413 is preferably used to sense the position of the button 316a in its degree of freedom. If the origin of the spring is at the rest position of the button, then the further the button is moved from the rest position, the greater the spring force opposing that motion. This

The "on-off" switch is a different embodiment.

EX1008, 30:29-34 (cited by Reply at 22)

Immersion's Counter-Argument Attacks a “Click” Strawman and Is Premised on Speculation

Reply at 20-25

Petitioner's Expert (Mr. Ward)

335. On this point, a POSITA would know that the use of digital values teaches the detection of discrete positions and discrete pressures/forces, since digital values are quantized to discrete values – for example, an eight-bit analog-to-digital converter would output 256 discrete values (0-255). Rosenberg itself teaches that conversion to binary or digital values are necessary so that they can be interpreted by the microprocessor or host computer system. Rosenberg at 12:16-31. A POSITA would expect the analog-to-digital converter in Rosenberg to teach at least a 5-bit converter with at least 32 discrete values for positions/pressures. This is inasmuch as a POSITA would know that even historically early electronic analog-to-digital converters already provided five bits of resolution.³²

Ward Decl. at ¶ 335
(cited by Petition at 63)

In one embodiment, an electrical lead 351 can be made to contact a sensing lead 353 as with any mechanical switch to determine a simple on or off state of the button. An optical switch or other type of digital sensor can alternatively be provided to detect a button press. In a different continuous-range button embodiment, a sensor can be used to detect the precise position of the button 316a in its range of motion (degree of freedom). For example, each position of the button can be sensed as a different analog value and used as an analog value or a digital value in processing the button position. This allows the host computer 314 (or local microprocessor) to determine the position of the button and to control a force output based on that position, as described in greater detail with respect to Fig. 11.

EX1008, 25:33-26:4 (cited by Reply at 22)

Immersion's Counter-Argument Attacks a “Click” Strawman and Is Premised on Speculation

Reply at 20-25

Immersion's Strawman (POR at 61-62)

corresponding to the different stage clicks. *Id.* at 25:33-26:4. The “continuous-range” of Rosenberg’s button is meant to provide flexibility on where to define the threshold line for the ON or OFF state—i.e., where the mouse click happens and dead zones before or after the click happens. EX2008 at ¶ 106. There is no disclosure

In one embodiment, an electrical lead 351 can be made to contact a sensing lead 353 as with any mechanical switch to determine a simple on or off state of the button. An optical switch or other type of digital sensor can alternatively be provided to detect a button press. In a different continuous-range button embodiment, a sensor can be used to detect the precise position of the button 316a in its range of motion (degree of freedom). For example, each position of the button can be sensed as a different analog value and used as an analog value or a digital value in processing the button position. This allows the host computer 314 (or local microprocessor) to determine the position of the button and to control a force output based on that position, as described in greater detail with respect to Fig. 11.

EX1008, 25:33-26:4 (cited by Reply at 22)



Immersion's Counter-Argument Attacks a "Click" Strawman and Is Premised on Speculation

Reply at 20-25

Immersion's Strawman (POR at 62)

30. A force feedback mouse coupled to a host computer implementing a host application program, said mouse physically contacted by a user and movable in a planar workspace, the mouse comprising:

a sensor device coupled to a housing of said mouse, said sensor device detecting said movement of said mouse in said planar workspace and to output sensor signals representative of said movement;

a button coupled to said housing of said mouse and having a degree of freedom and a sensor for detecting a position of said button, such that when said button is pressed by said user to a predetermined position, a command signal is sent to said host computer; and

an actuator coupled to said button of said mouse, said actuator operative to apply an output force in said degree of freedom of said button.

35. A force feedback mouse as recited in claim 30 wherein said sensor detects a range of at least three positions of said button in said degree of freedom of said button.

36. A force feedback mouse as recited in claim 33 wherein said output force is dependent, at least in part, on said position of said button in said degree of freedom.

Petitioner points to claims 35 and 36 of Rosenberg as disclosing detecting a range of at least three positions of the button and that output force is dependent, at least in part of the position of the button, but all they describe is a button with, e.g., a rest position, a stop position, and a predetermined threshold position at which the mouse outputs a force. EX2008 at ¶ 107; *see also* EX1008 at 26:14-36 (Rosenberg's explanation of a rest position and stop position). In other words, Rosenberg's mouse has only one "ON" position that registers a single click with a single corresponding feedback. Claims 35 and 36 are separate claims, they do not depend on each other, and there is no indication in Rosenberg that they describe the same embodiment or can be combined. Both claims ultimately depend on claim 30, which states that when the "button is pressed by said user to a predetermined position, a command signal is sent to said host computer." EX1008 at 38:5-6. This indicates that there is a single predetermined position that registers a click to send a single command signal, consistent with Rosenberg's previously described mouse button embodiment that registers an on or off state as mouse buttons typically do.

EX1008, Claims 30, 35-36
(Reply at 24-25)

Immersion's Counter-Argument Attacks a "Click" Strawman and Is Premised on Speculation

Reply at 20-25

Immersion's Strawman (POR at 62)

30. A force feedback mouse coupled to a host computer implementing a host application program, said mouse physically contacted by a user and movable in a planar workspace, the mouse comprising:

a sensor device coupled to a housing of said mouse, said sensor device detecting said movement of said mouse in said planar workspace and to output sensor signals representative of said movement;

a button coupled to said housing of said mouse and having a degree of freedom and a sensor for detecting a position of said button, such that when said button is pressed by said user to a predetermined position, a command signal is sent to said host computer; and

an actuator coupled to said button of said mouse, said actuator operative to apply an output force in said degree of freedom of said button.

35. A force feedback mouse as recited in claim 30 wherein said sensor detects a range of at least three positions of said button in said degree of freedom of said button.

36. A force feedback mouse as recited in claim 33 wherein said output force is dependent, at least in part, on said position of said button in said degree of freedom.

Petitioner points to claims 35 and 36 of Rosenberg as disclosing detecting a range of at least three positions of the button and that output force is dependent, at least in part of the position of the button, but all they describe is a button with, e.g., a rest position, a stop position, and a predetermined threshold position at which the mouse outputs a force. EX2008 at ¶ 107; *see also* EX1008 at 26:14-36 (Rosenberg's explanation of a rest position and stop position). In other words, Rosenberg's mouse has only one "ON" position that registers a single click with a single corresponding feedback. Claims 35 and 36 are separate claims, they do not depend on each other, and there is no indication in Rosenberg that they describe the same embodiment or can be combined. Both claims ultimately depend on claim 30, which states that when the "button is pressed by said user to a predetermined position, a command signal is sent to said host computer." EX1008 at 38:5-6. This indicates that there is a single predetermined position that registers a click to send a single command signal, consistent with Rosenberg's previously described mouse button embodiment that registers an on or off state as mouse buttons typically do.

EX1008, Claims 30, 35-36
(Reply at 24-25)

Immersion's Counter-Argument Attacks a “Click” Strawman and Is Premised on Speculation

Immersion's Strawman (Sur-Reply at 17-18)

First, this characterization is incorrect—Immersion is not attacking a strawman; Immersion addresses the same argument Valve advanced in its Petition. In the Petition, Valve argued that Rosenberg disclosed a force-sensing switch embodiment for allegedly determining the position of the mouse button and to control a force output based on that position—i.e., the feedback felt for when the mouse button is clicked—by citing to, e.g., EX1008, 25:33-26:4. Pet., 61. This is the same embodiment and same citations to Rosenberg that Immersion's POR addresses. POR, 60-62 (citing to and discussing EX1008, 25:33-26:4).

In one embodiment, an electrical lead 351 can be made to contact a sensing lead 353 as with any mechanical switch to determine a simple on or off state of the button. An optical switch or other type of digital sensor can alternatively be provided to detect a button press. In a different continuous-range button embodiment, a sensor can be used to detect the precise position of the button 316a in its range of motion (degree of freedom). For example, each position of the button can be sensed as a different analog value and used as an analog value or a digital value in processing the button position. This allows the host computer 314 (or local microprocessor) to determine the position of the button and to control a force output based on that position, as described in greater detail with respect to Fig. 11.

EX1008, 25:33-26:4 (cited by Petition at 58)

Immersion's Attorney Argument Ignores Valve's Expert Testimony

Immersion's Sur-Reply Argument

than...by a mechanical spring"). Rosenberg explains that: "The magnitude of this force sensation is dependent on the distance of the button from the origin of the spring." Rosenberg at 30:30-31. In other words, the magnitude of the force sensation that the actuator provides on button 316a increases as the pressure applied by the user increases pressure/force to push the button farther down. Rosenberg at 30:29-34.

331. A POSITA would be well aware of spring effects and how they are simulated in electronic devices using an actuator. Mention of springs or spring effects in context would have brought to mind familiar teachings from references

Ward Decl. at ¶¶ 330-31 (cited by Petition at 62 and Reply at 19)

Second, and more importantly, Valve further maps to Rosenberg's disclosure at 30:31-33 in support of its "spring force effect" embodiment by reading this disclosure out of context: "the magnitude of this force sensation is dependent on the distance of the button from the origin of the spring." Reply, 22-23 (citing EX1008, 30:29-33). To be clear, this disclosure on how the traditional mouse behaves on a single press does *not* say that "the magnitude of the resistive force sensation that the actuator provides on the button thus increases *as the pressure applied by the user* increases to push the button further down," as Valve contends. See Reply, 22. There is no disclosure whatsoever in Rosenberg that the user continually feels increasing *progressive* magnitudes of force dependent on incremental pressures applied by the user. That is because Rosenberg only discloses a *conventional* mouse (not a multi-

Sur-Reply at 19-20

Petitioner's Expert (Mr. Ward)

Immersion's Attorney Argument Misunderstands How a Spring Works

Immersion's Sur-Reply Argument

than...by a mechanical spring”). Rosenberg explains that: “The magnitude of this force sensation is dependent on the distance of the button from the origin of the spring.” Rosenberg at 30:30-31. In other words, the magnitude of the force sensation that the actuator provides on button 316a increases as the pressure applied by the user increases pressure/force to push the button farther down. Rosenberg at 30:29-34.

331. A POSITA would be well aware of spring effects and how they are simulated in electronic devices using an actuator. Mention of springs or spring effects in context would have brought to mind familiar teachings from references

Ward Decl. at ¶¶ 330-31 (cited by Petition at 62 and Reply at 19)

Further, the quote Valve cites above is nothing more than a general description of how a traditional spring fundamentally works: “The magnitude of this force sensation is dependent on the distance of the button from the origin of the spring [...] If the origin of the spring is at the rest position of the button, then the further the button is moved from the rest position, the greater the spring force opposing that motion.” EX1008 at 30:30-34. This disclosure merely states that a force output at a given *single* location is greater, the further button is moved from the rest position. That is, this disclosure only discusses two positions: the resting position (with no pressure) and another single position some distance away whose effect is a function of that distance—not a progression of multiple pressures applied by the user.

Sur-Reply at 20

Petitioner's Expert (Mr. Ward)

Immersion's Attorney Argument Misunderstands How a Spring Works

Immersion's Sur-Reply Argument

than...by a mechanical spring”). Rosenberg explains that: “The magnitude of this force sensation is dependent on the distance of the button from the origin of the spring.” Rosenberg at 30:30-31. In other words, the magnitude of the force sensation that the actuator provides on button 316a increases as the pressure applied by the user increases pressure/force to push the button farther down. Rosenberg at 30:29-34.

331. A POSITA would be well aware of spring effects and how they are simulated in electronic devices using an actuator. Mention of springs or spring effects in context would have brought to mind familiar teachings from references

Ward Decl. at ¶¶ 330-31

Indeed, the specific embodiment Valve points to actually supports this natural reading. The passage Valve cites only discloses two positions, a single button press (with a single pressure) and a resting position (positioning the cursor without a button press and no pressure):

When the user positions the cursor 446 over an icon 456 and *presses the button*, a light spring force resists the pressed motion of the button. When the user *positions the cursor 446 over a different graphical object*, such as icon 460, a heavy spring force is output having a greater magnitude than the spring force for icon 456

EX1008, 30:36-31:3. Given that the resting position has no pressure, Rosenberg instead bases its magnitude of force on which *graphical object* the mouse cursor hovers over—*not* dependent on the variance of pressure applied by the user.

Sur-Reply at 20-21

Petitioner's Expert (Mr. Ward)

Additional Slides

Immersion's Antecedent Basis Fails

Reply at 5-6, 9-11

Petitioner's Reply (at 6)

What is claimed is:

1. A computer-readable medium having instructions, the instructions including instructions that cause a processor to:

- A detect a first pressure on a first input device;
 - B provide a first tactile sensation to the first input device, the first tactile sensation based at least in part on the first pressure;
 - C detect a second pressure on the first input device, the second pressure greater than the first pressure; and provide a second tactile sensation to the first input device, the second tactile sensation based at least in part on the second pressure;
- detect a third pressure on the first input device, the third pressure greater than the second pressure; and provide a third tactile sensation to the first input device.

Limitation [1c] contains an appositive phrase (“the second pressure greater than the first pressure”) that merely *quantifies* its antecedent “the second pressure,” i.e., the second pressure needs to be greater than the first pressure. The appositive phrase, however, says nothing about any *sequence* for detecting pressures in limitations [1a] and [1c].

As a matter of grammar, there is nothing in the claim’s language that precludes the pressures from being, for example, predefined values which can be detected in any order. *3M Innovative Props. Co. v. Avery Dennison Corp.*, 350 F.3d 1365, 1371 (Fed. Cir. 2003) (explaining the terms “first” and “second” do not themselves “impose a serial or temporal limitation”). For example, the claim lacks any sequencing language such as “*then* detect a second pressure” or “detect a second pressure greater than the *detected* first pressure.” If the inventors wanted to impose an order of operations on claim 1, they could have done so but they did not.

INPUT DEVICE	INPUT SIGNAL	POSITION DATA	PRESSURE DATA	FUNCTION	TACTILE SENSAT
1	--	Location 1	< Pressure 1	Search	Sensation 1
	Input 1	Location 1	Pressure 1 <=	Select	Sensation 2
2	--	Position 1	--	On	Sensation 3
	--	Position 2	--	Off	Sensation 4
3	Input 2A	--	Pressure 1	9	Sensation 5
	Input 2B	--	Pressure 2	W	Sensation 6
	Input 2C	--	Pressure 3	X	Sensation 7
	Input 2D	--	Pressure 4	Y	Sensation 8
	Input 2E	--	Pressure 5	Z	Sensation 9
4	Input 3	--	Pressure 1	Menu 1	Sensation 10
		--	Pressure 2	Menu 2	Sensation 11
		--	Pressure 3	Menu 3	Sensation 12
5	--	--	Pressure 1	2	Sensation 13
		--	Pressure 2	A	Sensation 14
		--	Pressure 3	B	Sensation 15
		--	Pressure 4	C	Sensation 16
6	Input 4	Position 1	Pressure 1	Function 1	Sensation 17
	Input 5	Position 2	Pressure 2	Function 2	Sensation 18
	Input 6	Position 3	Pressure 3	Function 3	Sensation 19
	Input 7	Location 1	Pressure 1	Function 1	Sensation 20
7	Input 8	Location 2	Pressure 2	Function 2	Sensation 21
	AMBIGUOUS	--	--	--	Sensation 22
--	Function Failure	--	--	--	Sensation 23

FIG. 9

EX1001, FIG. 9 (cited by Reply at 8)

There is No Disavowal or Redefinition

Reply at 12-16

Patent Owner Response (at 33)

Immersion's Argument

The Board's conclusion that the ordinary and customary meaning of "tactile sensation" is not limited to only vibratory tactile sensations (D.I. at 39) leads to an unreasonably broad interpretation. Construed broadly, "tactile" means "perceptible by touch." See <https://www.merriam-webster.com/dictionary/tactile> (last visited Sep. 12, 2024). Under this interpretation, merely resting a finger on any button would provide a tactile sensation, as would the "switch closure force displacement profile" and "raised bumps" referenced in the Background. However, "tactile sensation" must be construed in the context of the '260 Patent, which relates to providing tactile sensations in modern "input devices or electronic devices" (EX1001 at 2:16-18) and expressly refers only to "vibrations" as "[s]uitable tactile sensations." *Id.* at 3:48.

042 Patent

The present invention comprises products and processes for providing tactile sensations to input devices or electronic devices. Input devices include mechanical input devices (such as, for example, mechanical switches) and non-mechanical input devices (such as, for example, touchpads).

EX1001 at 2:18-20 (cited by Reply at 15)

Immersion's Argument

Patent Owner Response (at 34)

sensations. Interpreting “tactile sensation” to include types of feedback that it was never meant to cover would improperly render the claims invalid for lack of enablement and written description. *See Ruckus Wireless, Inc. v. Innovative Wireless Solutions, LLC*, 824 F.3d 999, 1004 (Fed. Cir. 2016) (declining to construe claims to encompass certain subject matter since doing so “would likely render the claims invalid for lack of written description”); EX2008 at ¶ 44. The disclosure of the ’260 Patent establishes that the claims must be limited to “vibrotactile sensations.”



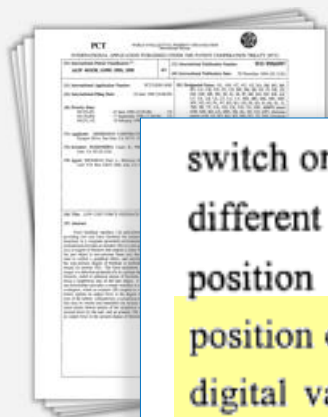
“The canons of claim construction provide additional reason to limit the scope of the claims to wired communication. **If, after applying all other available tools of claim construction, a claim is ambiguous,** it should be construed to preserve its validity.” *Ruckus Wireless, Inc. v. Innovative Wireless Solutions*, 824 F.3d 999, 1004 (Fed. Cir. 2016).

Cited by Reply at 16

Rosenberg's Spring-Force Embodiment Anticipates

Petition at 57-73

Reply at 19-26



switch or other type of digital sensor can alternatively be provided to detect a button press. In a different continuous-range button embodiment, a sensor can be used to detect the precise position of the button 316a in its range of motion (degree of freedom). For example, each position of the button can be sensed as a different analog value and used as an analog value or a digital value in processing the button position. This allows the host computer 314 (or local microprocessor) to determine the position of the button and to control a force output based on that position, as described in greater detail with respect to Fig. 11.

EX1008, 25:33-26:4 (cited by Reply at 22)

Sensor 413 is used to detect the position of the button 316a. As explained above, sensor 413 can be a simple on/off detection switch to determine if the button has been pressed or not. Alternatively, a more sophisticated sensor, such as an analog potentiometer or optical encoder, can be used to determine the position of the button in its degree of freedom. Sensor 413 can alternatively be a force sensing switch to detect the amount of force applied to button 16a. Button 316b and/or any other buttons and controls can include sensors similar to sensor 413.

EX1008, 28:20-25 (cited by Reply at 22)

Immersion Does Not Dispute that the Claimed “*Tactile Sensations*” Can Be The Same.

Petition at 12-13

B. Prior ITC Interpretations

The ITC construed two terms:

Term	Construction
“pressure”	“application of force from a contact”
“first/second/third/fourth tactile sensation”	“the first/second/third/fourth haptic tactile sensation can be the same or different from the other claimed tactile sensations.”

EX1018, 43; *see also id.* at 34-38 (providing rationale for the constructions).

Both above-identified constructions were ones that patent owner proposed. *Id.*, 34, 36. Judicial estoppel thus bars patent owner from advancing a construction of either “pressure” or “first/second/third/fourth tactile sensation” that is inconsistent with the construction it successfully advanced before the ITC. *Interactive Gift Express, Inc. v. Compuserve, Inc.*, 256 F.3d 1323, 1349 (Fed. Cir. 2001).

Petition at 12-13

Patent Owner Response

Does Not Dispute