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Patent Owner's Demonstrative Exhibit - Not Evidence

PATENT OWNER'S DEMONSTRATIVES

APRIL 30, 2025 ORAL ARGUMENT

VALVE CORP., PETITIONER

V.

IMMERSION CORP., PATENT OWNER

CASE No. IPR2024-00477 | US PATENT 7,336,260

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Roadmap

1. The '260 Patent and Background of the Invention
2. Claim construction
 - A. The claimed processor steps are performed in order
 - B. Tactile sensation means vibrotactile sensation
3. Ground 1: Komata does not anticipate or render obvious
4. Ground 2: Tsuji does not anticipate or render obvious
5. Ground 3: Rosenberg does not anticipate or render obvious

The '260 Patent



US007336260B2

(12) **United States Patent**
Martin et al.

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

(54) **METHOD AND APPARATUS FOR PROVIDING TACTILE SENSATIONS**

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(73) **Assignee:** Immersion Corporation, San Jose, CA (US)

(*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 730 days.

(21) **Appl. No.:** 10/285,450

(22) **Filed:** Nov. 1, 2002

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US 2003/0122779 A1 Jul. 3, 2003

Related U.S. Application Data

(60) Provisional application No. 60/335,493, filed on Nov. 1, 2001; provisional application No. 60/399,883, filed on Jul. 31, 2002.

(51) **Int. Cl.**
G09G 5/00 (2006.01)

(52) **U.S. Cl.** 345/169; 345/156

(58) **Field of Classification Search** 345/156, 345/173, 157, 161, 163, 167-169
See application file for complete search history.

(56) **References Cited**
U.S. PATENT DOCUMENTS
2,972,140 A 2/1961 Hirsch
3,157,853 A 11/1964 Hirsch

3,220,121 A 11/1965 Cutler
3,497,688 A 2/1979 Hirsch

(Continued)

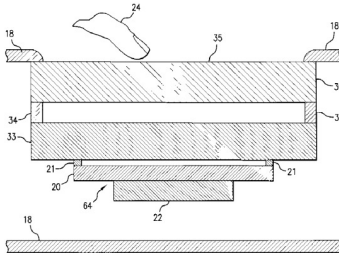
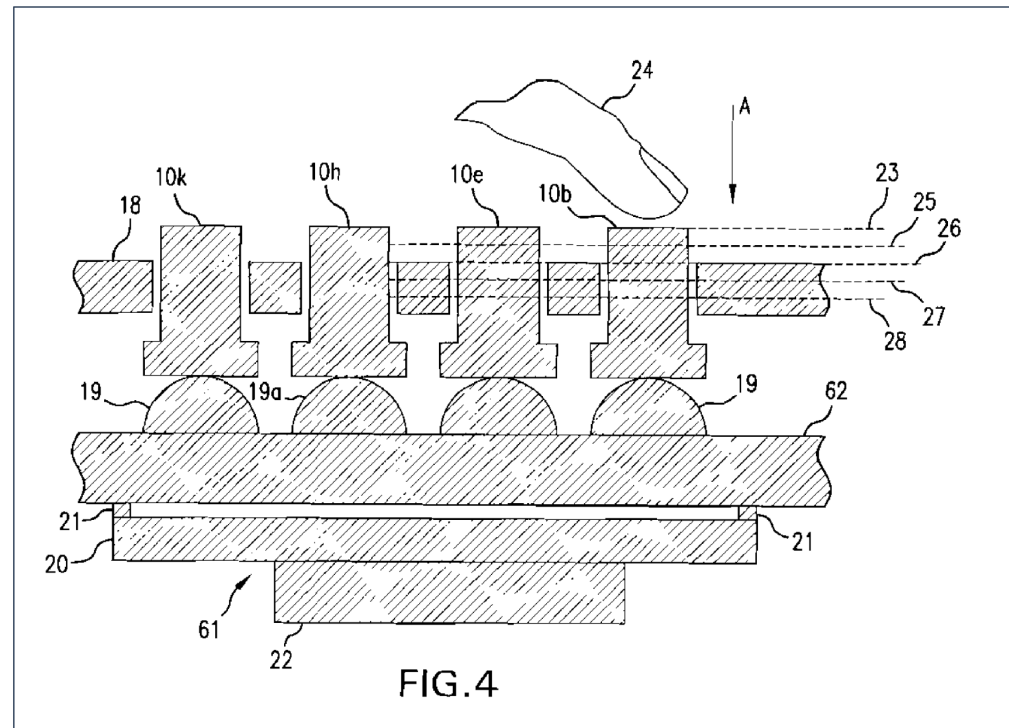
FOREIGN PATENT DOCUMENTS
EP 0349086 1/1990
(Continued)

OTHER PUBLICATIONS
Adelstein, "A Virtual Environments System For The Study of Human Arm Tremor," Ph.D. Dissertation, Dept. of Mechanical Engineering, MIT, Jun. 1989.
(Continued)

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(57) **ABSTRACT**
Products and processes for providing tactile sensations to input devices or electronic devices are provided. 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 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.

9 Claims, 11 Drawing Sheets

EX1001 at FIG 4.

EX1001 ('260 Patent)

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Background: Problem to be Solved

The '260 patent recognizes that:

- users of electronic devices cannot always rely on visual feedback in distracting environments, e.g., when they need to watch the road while driving
- users cannot reliably or consistently sense the degree of pressure they are applying to a touchscreen

The use of electronic devices using such conventional mechanical buttons and touchpad arrangements are particularly difficult to use in distracting environments or when the user is attempting to perform another task simultaneously with using the electronic device. For example, if the other task involves operating a motor vehicle or heavy machinery, it may be difficult or impossible for a user to simultaneously use such an electronic device because such devices typically require the user to look at the device, at least briefly, when interacting with the device. In addition, electronic devices relying on softkeys can be difficult to read in bright light environments such as in bright sunlight and can contain very small fonts and graphics that are difficult to read and select.

EX1001 at 1:60-2:5.

Background: The '260 Patent's Solution

The '260 patent's solution is to provide distinct tactile feedback sensations as confirmatory feedback through a user input device, such as a touchscreen, in response to detecting different successive levels of pressure a user applies to the input device

As illustrated, the keys **10** are initially in a rest position **23**. A biasing member arrangement (not shown) as is available and understood in the art is used to hold the keys in the rest position **23**. An object **24**, for example the user's finger or a stylus, is used to select one or more of the keys **10** by applying pressure in the direction of arrow A. This pressure causes the selected key to progress through a plurality of positions. As illustrated, after leaving the rest position **23**, the keys pass sequentially through a second position **25**, a third position, **26**, a fourth position **27**, and a fifth position, **28** as greater and greater pressure is applied to the button **10**.

EX1001 at 8:62-9:5.

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.

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Disputed Claim Interpretation: Claimed Steps Must Occur in Order

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Each Claimed Step Must Occur in Order

Claim 1

[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

[1D] provide a second tactile sensation to the first input device, the second tactile sensation based at least in part on the second pressure

[1E] detect a third pressure on the first input device, the third pressure greater than the second pressure

[1F] provide a third tactile sensation to the first input device

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Each Claimed Step Must Occur in Order

- Same reasoning applies to read the claim consistently across the entire claim
- “[A] claim term should be construed consistently with its appearance in other places in the same claim or in other claims of the same patent.” *Rexnord Corp. v. Laitram Corp.*, 274 F.3d 1336, 1342 (Fed. Cir. 2001).

Each Claimed Step Must Occur in Order

Valve agrees with the Board and admits that steps 1A and 1B must be read in order, that steps 1C and 1D must be read in order, and that steps 1E and 1F must be read in order

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detecting the second pressure or before detecting the first pressure.

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

DI at 27.

But that reading of the claim is compelled by the claim language which requires that “*the first tactile sensation* [be] ***based at least in part on the first pressure.***” Limitation [1b]’s step of providing “*the first tactile sensation*” to an input device logically cannot be “*based...on*” a pressure that has not yet been detected.

³ This reasoning also applies to limitations [1c] and [1e] which recite “*provid[ing]*” tactile sensations based on the “*second*”/“*third*” pressures, respectively. POR, 21.

Pet. Reply at 4.

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DI, 27; SR, 3-4; Reply, 4.

Each Claimed Step Must Occur in Order

Consistent Read Based on Valve's Admitted Logic	Valve's Inconsistent Read
[1A] detect a first pressure on a first input device	[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 <i>[detected]</i> first pressure	[1B] provide a first tactile sensation to the first input device, the first tactile sensation based at least in part on the <i>[detected]</i> first pressure
[1C] detect a second pressure on the first input device, the <i>[detected]</i> second pressure greater than the <i>[detected]</i> first pressure	[1C] detect a second pressure on the first input device, the ~~<i>[detected]</i>~~ second pressure <i>[predefined magnitude]</i> greater than the ~~<i>[detected]</i>~~ first pressure <i>[predefined magnitude]</i>
[1D] provide a second tactile sensation to the first input device, the second tactile sensation based at least in part on the <i>[detected]</i> second pressure	[1D] provide a second tactile sensation to the first input device, the second tactile sensation based at least in part on the <i>[detected]</i> second pressure
[1E] detect a third pressure on the first input device, the <i>[detected]</i> third pressure greater than the <i>[detected]</i> second pressure	[1E] detect a third pressure on the first input device, the ~~<i>[detected]</i>~~ third pressure <i>[predefined magnitude]</i> greater than the ~~<i>[detected]</i>~~ second pressure <i>[predefined magnitude]</i>
[1F] provide a third tactile sensation to the first input device	[1F] provide a third tactile sensation to the first input device

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Each Claimed Step Must Occur in Order

Antecedent Basis

- “Subsequent use of the definite articles ‘the’ or ‘said’ in a claim refers back to the same term recited earlier in the claim.” *Wi- LAN, Inc. v. Apple Inc.*, 811 F.3d 455, 462 (Fed. Cir. 2016).
- “[w]hen the current step of a method claim refers to a previous step using the definite article ‘the,’ the claim language indicates that the previous step occurs sequentially before the current step.” *Medtronic, Inc. v. Teleflex Life Scis. Ltd.*, 2024 U.S. App. LEXIS 6703 (Fed. Cir. Mar. 21, 2024),”
- Recited steps must be performed in order in which they are written where the use of “the” with a claim term referred to the same term recited earlier in the claim. *Hytera Communs. Co. v. Motorola Sols., Inc.*, 841 Fed. Appx. 210, 218 (Fed. Cir. 2021)

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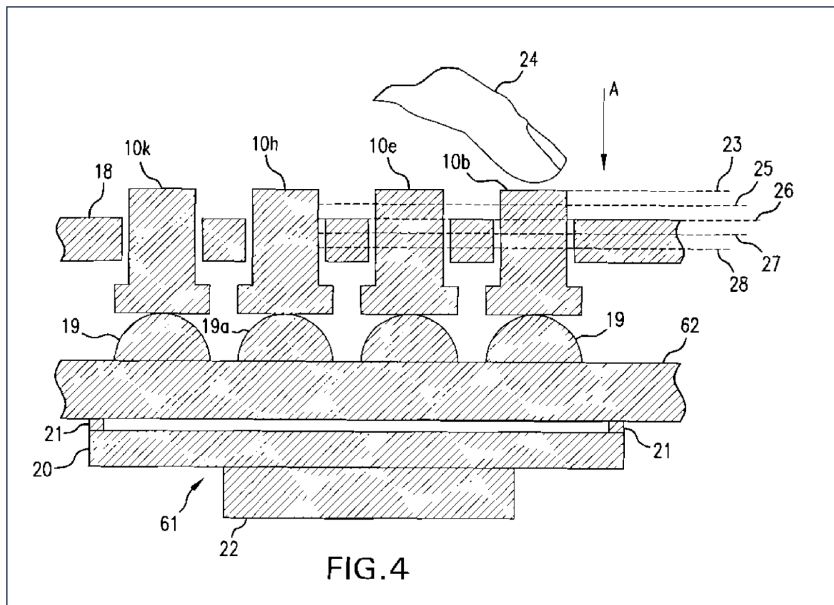
Each Claimed Step Must Occur in Order

Antecedent Basis

Further, Valve attempts to distinguish the antecedent-basis case law that Immersion cited in support of the reading the claim to require detecting the pressures in order. The alleged distinctions for cases such as *Wi-Lan v. Apple*, 811 F.3d 455, 460 (Fed. Cir. 2016), *Medtronic, Inc. v. Teleflex Life Scis*, 2024 U.S. App. LEXIS 6703 *8 (Fed. Cir. 2024), and *Tuna Processors v. Hawaii Int'l Seafood*, 327 F. App'x 204, 209-210 (Fed. Cir. 2009) are based on whether the claim language or the specification supports Immersion's reliance on the antecedent basis of the "detected pressures" recited in the claim. The instant case is not distinguishable on those grounds—as detailed throughout this sur-reply and in the POR, both the express claim language and the specification support Immersion's interpretation of the claim in accordance with the recited antecedent basis of the claim terms. *See, e.g.*, POR, 22-28.

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Each Claimed Step Must Occur in Order



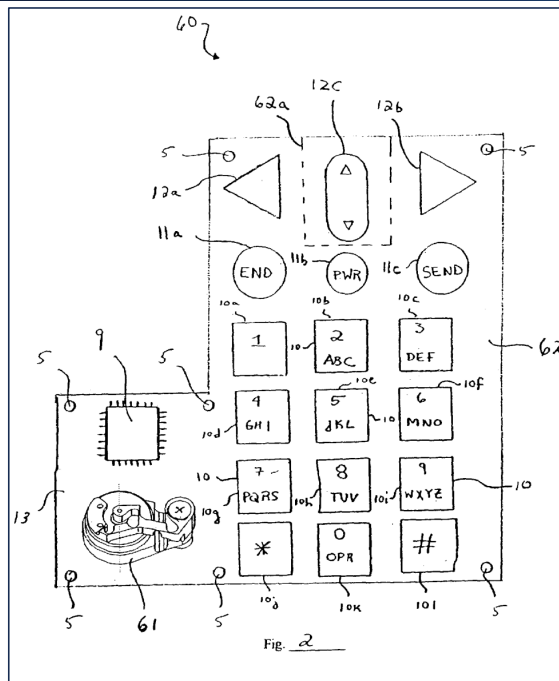
As illustrated, the keys **10** are initially in a rest position **23**. A biasing member arrangement (not shown) as is available and understood in the art is used to hold the keys in the rest position **23**. An object **24**, for example the user's finger or a stylus, is used to select one or more of the keys **10** by applying pressure in the direction of arrow A. This pressure causes the selected key to progress through a plurality of positions. As illustrated, after leaving the rest position **23**, the keys pass sequentially through a second position **25**, a third position, **26**, a fourth position **27**, and a fifth position, **28** as greater and greater pressure is applied to the button **10**.

EX1001 at 8:62-9:5.

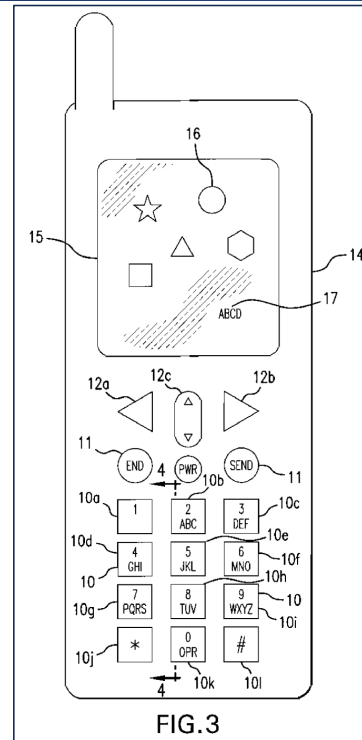
EX1001 at FIG. 4.

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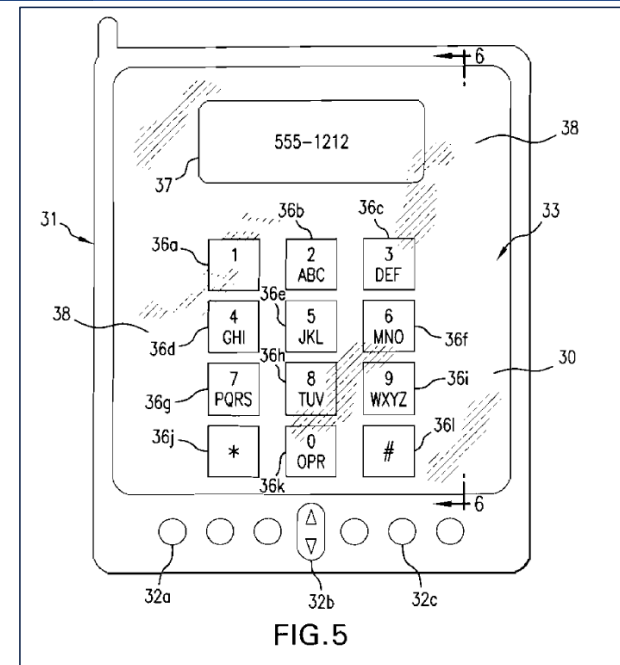
Each Claimed Step Must Occur in Order



EX1001 at FIG. 2.



EX1001 at FIG. 3.



EX1001 at FIG. 5.

Each Claimed Step Must Occur in Order

PO's position in previous IPR urged a special construction "single touch interaction" that the Board found as not grounded in the plain claim language

For instance, Patent Owner argues that the claims of the '260 patent recite a processor that provides first, second, and third tactile sensations *during an interaction*. Prelim. Resp. 8 (emphasis added). Relying on the testimony of Dr. Meldal, Patent Owner asserts that "[a]s a user applies pressure to an input device to the second pressure level, the processor may first detect a first pressure." *Id.* (citing Ex. 2001 ¶ 24). According to Patent Owner, "first, second and third tactile sensations are provided as the user progresses through the multiple different pressure levels *during a single touch interaction*." *Id.* at 8–9 (emphasis added).

EX1010 at 21.

Next, Patent Owner argues that "Petitioner's argument that the word 'interaction' does not appear in these embodiments or the claims . . . exalts form over substance." Sur-Reply 4. This argument is inapposite.

Concentrating on the claim language is not a mere matter of form. Rather, "a claim construction analysis must begin and remain centered on the claim language itself." *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1116 (Fed. Cir. 2004).

EX1010 at 23.

Upon review of the arguments of both parties, we agree with Petitioner that the challenged claims do not require detecting the three pressures during a single touch interaction. Thus, Patent Owner's argument

EX1010 at 24.

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Disputed Claim Term: “tactile sensation”

Patent Owner's Demonstrative Exhibit - Not Evidence

Tactile sensation: Vibrotactile sensation

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 arrangements of a flexure coupled to a motor may be used as an actuator. For example, U.S. patent application Ser. No. 09/585,741, filed Jun. 2, 2000, illustrates suitable arrangements of flexures and motors for use as an actuator in embodiments of the present invention. The entire disclosure of the application Ser. No. 09/585,741 is incorporated herein by reference. Tactile sensations can also be delivered to the

EX1001, 3:53-67

used to fit within the electronic device. In another embodiment, the actuator 6 is mounted directly to the input device 2 or to any component of the input device. Alternatively, the actuator 6 is mounted to the PCB 4 to which the input device is attached, communicating tactile sensations to the input 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.

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 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, 4:30-42

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PR, 10, 31-34; SR, 10-11.

Tactile sensation: Vibrotactile sensation

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 arrangements of a flexure coupled to a motor may be used as an actuator. For example, U.S. patent application Ser. No. 09/585,741, filed Jun. 2, 2000, illustrates suitable arrangements of flexures and motors for use as an actuator in embodiments of the present invention. The entire disclosure of the application Ser. No. 09/585,741 is incorporated herein

EX1001, 3:53-67

- The phrase “other haptic sensations” refers to how the vibrotactile actuator includes a flexure coupled to the rotating shaft of a DC motor can transform the rotation of the shaft to into a haptic sensation.
- This does not disclose a non-vibrotactile sensation.

Tactile sensation: Vibrotactile sensation

alternate actuator 61 and physical placement of the actuator 61 is shown in FIG. 4. The actuator 61 is in communication with the various input devices, and is configured to provide vibrations of varying frequencies, magnitudes, and waveforms to the input devices. The actuator 61 is also in communication with the controller 9. Further description of embodiments of such communication and configuration is provided below.

EX1001, 8:1-8.

For example, the controller 9 of FIG. 2 is configured such that when the controller 9 receives a signal associated with the second level from button 10i (the “9” key), the controller 9 sends a first control output signal to the actuator, and when the controller receives a signal associated with the third level from the button 10i, the controller sends a second control output signal to the actuator 61, and so on. The first control output signal is one that causes the actuator to provide a vibration of a certain, first frequency. The second control output signal is one that causes the actuator to provide a vibration of a certain, higher frequency, and so on. In other embodiments, the vibrations provided may be of the same frequency.

EX1001, 8:13-25.

the switch 19a. The controller transmits the first controller output signal to the actuator 61. The actuator 61 is configured to provide a vibration of a first pre-selected frequency to the metal diaphragm 20 of a pre-selected duration upon receipt of such a first signal. In the embodiment shown, the actuator 61 provides a side-to-side vibration to the diaphragm. The diaphragm 20 thus vibrates at the pre-selected frequency, in turn causing the PCB 62 to vibrate at that same frequency, and thus in turn causing the switches 19 to vibrate at that frequency. The switch 19a is in communication with the button 10i, thus causing the button 10i to vibrate at that frequency.

EX1001, 9:34-44.

second controller output signal to the actuator 61. The actuator 6 is configured to provide a vibration of a second pre-selected frequency, different from the first pre-selected frequency, for a pre-determined duration to the metal diaphragm 20 upon receipt of such a second signal. In other embodiments, the first and second pre-selected frequencies are the same. As above, the actuator 61 provides a side-to-side vibration to the diaphragm, which is communicated through the PCB 62 and switches 19 to the button 10i.

EX1001, 9:56-64.

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SR, 10-11.

Tactile sensation: Vibrotactile sensation

“dwelled” at that level for the pre-determined time. Upon so determining, the controller 9 transmits a signal to a processor (not shown) indicating that the user has selected the function associated with the second level of button 10i, in this case the selection of the letter “W.” In embodiments, the controller 9, upon so determining, also transmits a signal to the actuator 61 to cause the actuator 61 to vibrate at a frequency, magnitude, and/or wave-form indicative of selection of the function.

EX1001, 10:17-25.

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.

softkey 36 corresponding to the touched location. Based upon this information, the controller causes the actuator 64 to provide a corresponding tactile sensation. The actuator 64 can cause vibrations in the touchpad 35 in a direction parallel to the surface 35 of the touch pad or perpendicular

EX1001, 11:63-67

In another example, if the user is moving the object 24 over the “9” key, a relatively high frequency vibration can be output on all the keys. When the pressure associated with the object is detected at the “6” key, a lower frequency vibration can be output, allowing the user to determine which key is presently in contact with the object through the sense of touch. Since it is unlikely that a user would press or contact more than one softkey simultaneously, a single vibrotactile actuator outputting the same sensation to all of the buttons simultaneously can be used. When the user applies increased pressure to a softkey with the object 24 and that pressure is greater than a predetermined threshold pressure level, the function associated with that softkey is activated.

EX1001, 13:11-24

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SR, 10-11.

Prior Art Summary

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Prior Art Summary

1. Ground 1: Komata does not disclose the ordered claim steps
2. Ground 2: Tsuji does not disclose the ordered claim steps
3. Ground 3: Rosenberg
 - A. Discloses only one pressure (button click) – not increasing three pressures
 - B. Does not disclose the ordered claim steps
 - C. Does not disclose “tactile sensations”

Ground 1: Komata

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Ground 1: Komata

- Komata does not anticipate or render obvious
 - Komata does not disclose the ordered claim steps

Komata Does Not Disclose the Ordered Claim Steps

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

FIG. 2

Komata does not disclose detecting progressively increasing pressure levels that were applied in sequence and providing corresponding tactile sensations for each of the detected pressures in the ordered sequence

EX1005 at FIG. 2.

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POR, 50-54; SR, 10-11.

Komata Does Not Disclose the Ordered Claim Steps

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

FIG. 2

EX1005 at FIG. 2.

POR, 51-52.

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23

1 A Sir, do you have a searchable copy of the
2 Komata reference? The one I have up here does not
3 appear to be word searchable.

4 Q That's the only one that I have
5 immediately available but -- unfortunately. Let me
6 just check.

7 Yeah, it doesn't appear to be word
8 searchable, but based on your understanding of
9 Komata, as you sit here now, does Figure 2 disclose
10 the Pressure-Sense Value zero to 255 must be detected
11 in order?

12 A Again, Paragraph 134 of Figure 2
13 illustrates sensing 256 different pressure levels and
14 generating 256 corresponding drive signals, and I see
15 nothing in the figure right now that would -- goes in
16 order.

EX2010 at 23:1-16.

Komata Does Not Disclose the Ordered Claim Steps

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

FIG. 2

EX1005 at FIG. 2.

POR, 51-52.

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20 Q And is it your understanding that the
21 pressure represented by digital Pressure-Sense Value
22 10 would be greater than the pressure represented by
1 digital Pressure-Sense Value 1?

2 A For the purposes of this example, that
3 was what is intended in this example, but I do not
4 see that the table necessarily places an order on
5 that values. The table just says that there are
6 pressure values.

EX2010 at 26:20-27:6.

Komata Does Not Disclose the Ordered Claim Steps

“Inherency [...] may not be established by probabilities or possibilities. The mere fact that a certain thing **may result** from a given set of circumstances is not sufficient.”
Cont'l Can Co. USA, Inc. v. Monsanto Co., 948 F.2d 1264, 1269 (Fed. Cir. 1991).

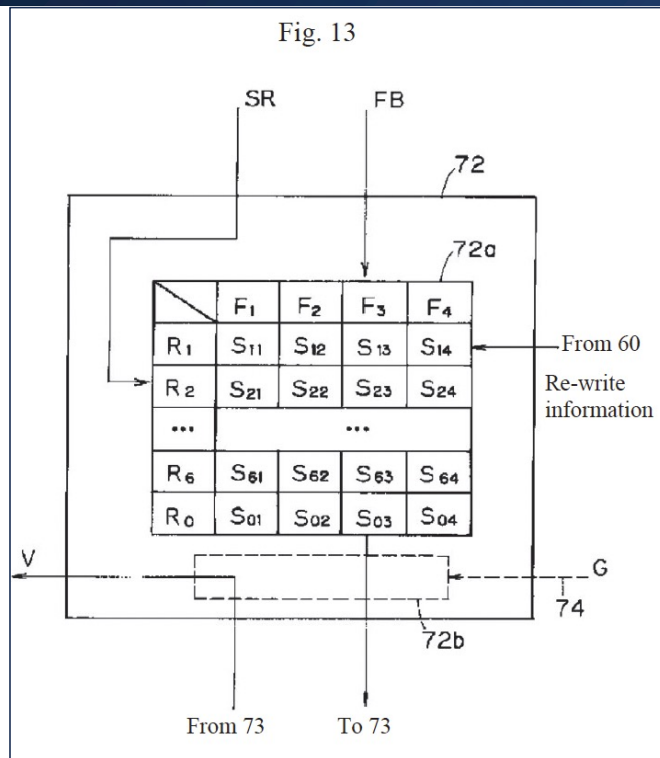
Ground 2: Tsuji

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Ground 2: Tsuji

- Tsuji does not anticipate or render obvious
 - Tsuji does not disclose the ordered claim steps

Tsuji Does Not Disclose the Ordered Claim Steps



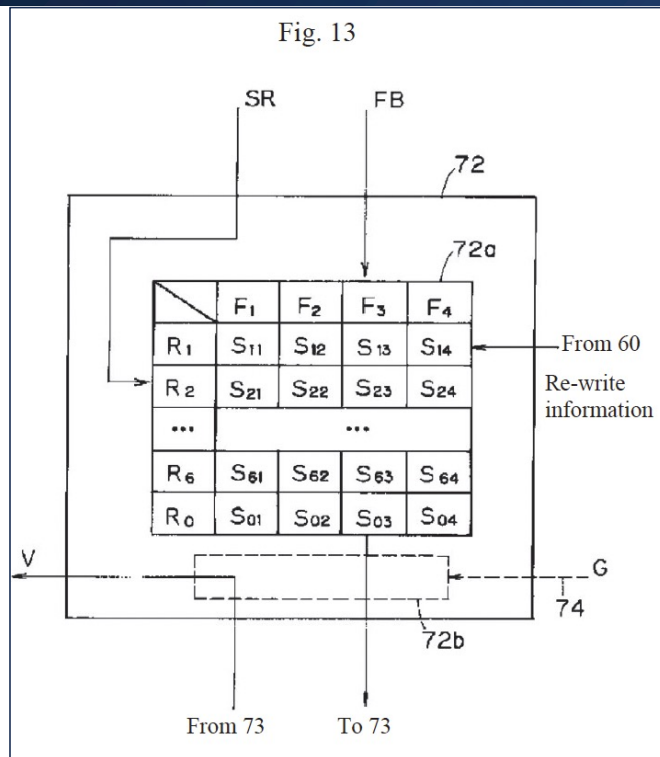
EX1007 at Fig. 13.

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POR, 54-58; SR, 14-17.

Komata does not disclose detecting three progressively increasing pressure levels that were applied in sequence to the touchscreen in the successive order and providing corresponding tactile sensations for each of the detected pressures in the ordered sequence

Tsuji Does Not Disclose the Ordered Claim Steps



EX1007 at Fig. 13.

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2 Q Sure. The disclosure of Tsuji, in
 3 general, doesn't require that the forces must be
 4 detected in any particular order, does it?
 5 MR. WICHMAN: Objection. Form.
 6 THE WITNESS: I don't see that
 7 right now, no, sir.

EX2010 at 40:2-7.

Tsuji Does Not Disclose the Ordered Claim Steps

“Inherency [...] may not be established by probabilities or possibilities. The mere fact that a certain thing **may result** from a given set of circumstances is not sufficient.”
Cont'l Can Co. USA, Inc. v. Monsanto Co., 948 F.2d 1264, 1269 (Fed. Cir. 1991).

Ground 3: Rosenberg

Patent Owner's Demonstrative Exhibit - Not Evidence

Ground 3: Rosenberg

- Rosenberg does not anticipate or render obvious
 - Discloses only one pressure (button click) – not increasing three pressures
 - Does not disclose the ordered claim steps
 - Does not disclose “tactile sensations”

Patent Owner's Demonstrative Exhibit - Not Evidence

Rosenberg Does Not Disclose All Claim Elements

- Rosenberg's conventional (single click) mouse does not provide multi-press or multi-stage button functionality, and thus does not disclose three increasing pressures under the plain and ordinary meaning of the challenged claims
- Rosenberg does not disclose the ordered claim steps
- Rosenberg does not disclose the mouse outputting "tactile sensations"
- **Each of these deficiencies is independently fatal**

Rosenberg Does Not Disclose Continuous Detection of Progressively Increasing Pressure During Normal Operation

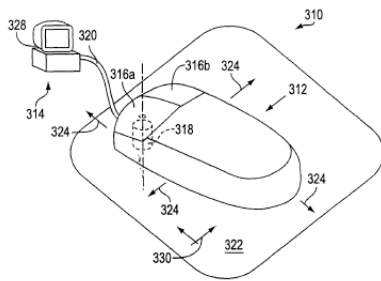


FIG. 8

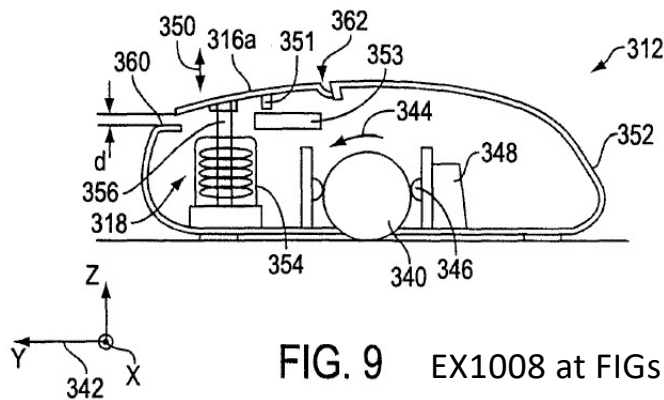
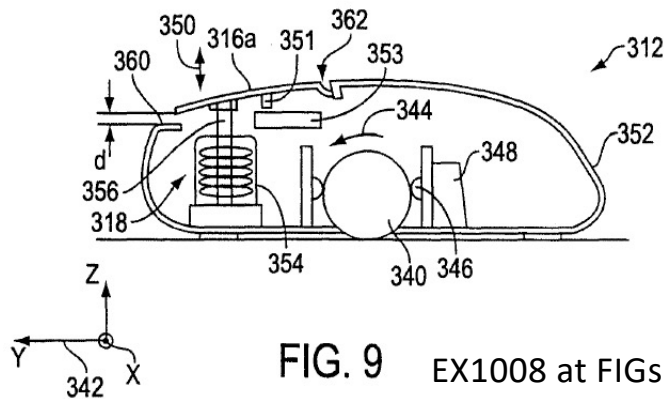
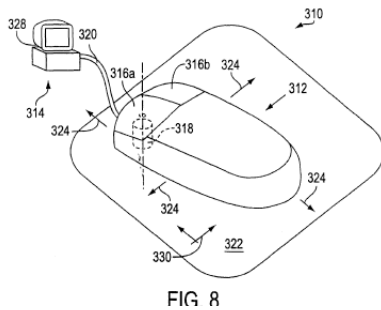


FIG. 9 EX1008 at FIGs. 8-9.

- Rosenberg's conventional mouse button does not offer multi-press / multi-stage functionality, and thus Rosenberg does not disclose continuous detection of progressively increasing pressure on the mouse button and corresponding tactile sensations for each successive press
- Rosenberg only offers the user a single ON/OFF mouse button click functionality

Patent Owner's Demonstrative Exhibit - Not Evidence

Rosenberg's Conventional Mouse Does Not Support Multi-Press Functionality



EX1008 at FIGs. 8-9.

- Rosenberg's disclosure and whether it meets the claims of the '260 patent must be read in the context of the state of the art at the time of Rosenberg. *Innova/Pure Water, Inc. v. Safari Water Filtration Sys.*, 381 F.3d 1111, 1116 (Fed. Cir. 2004).
- At the time, Rosenberg's mouse was a conventional mouse that did not support multi-press, multi-stage input buttons

Patent Owner's Demonstrative Exhibit - Not Evidence

Rosenberg's Conventional Mouse Does Not Support Multi-Press Functionality

- Rosenberg is titled “Low Cost Feedback Devices”
- Rosenberg deliberately uses a conventional mouse to keep costs low

One problem with current force feedback controllers in the home consumer market is the high manufacturing cost of such devices, which makes the devices expensive for the consumer. A large part of this manufacturing expense is due to the inclusion of multiple actuators and corresponding control electronics in the force feedback device. In addition, high quality mechanical and force transmission components such as linkages and bearings must be provided to accurately transmit forces from the actuators to the user manipulandum and to allow accurate sensing of the motion of the user object. These components are complex and require greater precision in their manufacture than many of the other components in an interface device, and thus further add to the cost of the device. A need therefore exists for a force feedback device that is lower in cost to manufacture yet offers the user force feedback to enhance the interaction with computer applications.

EX1008 at 2:5-15.

Patent Owner's Demonstrative Exhibit - Not Evidence

POR, 46-50; SR, 21-22.

Rosenberg's Conventional Mouse Does Not Support Multi-Press Functionality

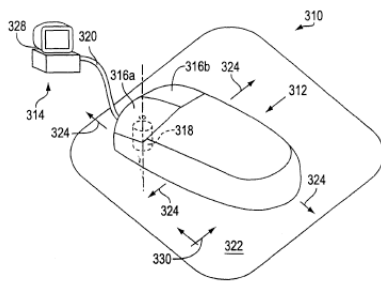


FIG. 8

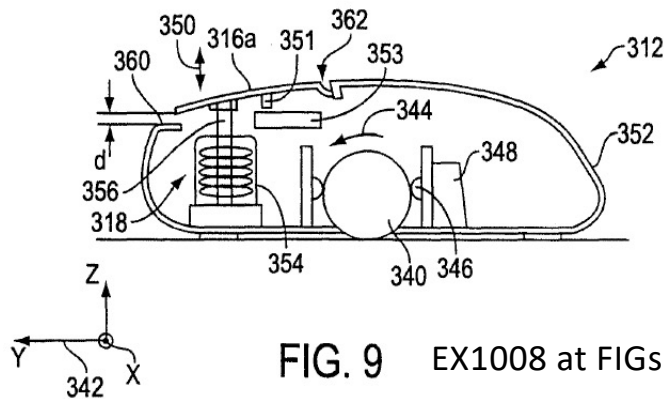


FIG. 9 EX1008 at FIGs. 8-9.

Valve's expert confirms that Rosenberg's conventional mouse does not disclose multi-press

19 Q Yeah, so in Paragraph 310, you started
20 that paragraph with: As with a conventional mouse,
21 and the question is: What do you mean by the phrase
22 conventional mouse in that paragraph?

1 A A mouse that would have been conventional
2 at the time of this -- this reference.

3 Q And the time of this reference, depending
4 on the filing date and priority date used, would be
5 in 1998 or 1999, correct?

6 A Approximately that, yes, sir.

7 Q So we're talking about a conventional
8 mouse from 1998 or 1999, that time period?

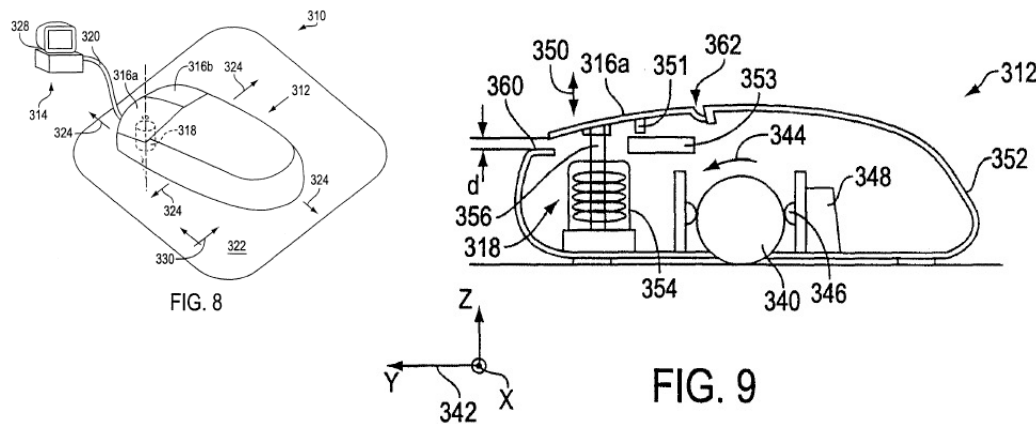
9 A Yes, sir.

EX2010 at 43:19-44:9.

Patent Owner's Demonstrative Exhibit - Not Evidence

Rosenberg's Conventional Mouse Does Not Support Multi-Press Functionality

Dr. Akl's testimony is un rebutted and confirmed by Valve's expert



EX1008 at FIGs. 8-9.

105. The computer mouse of this embodiment is a conventional computer mouse from the time of the invention, which, based on the filing date and priority dates of the application that issued as the '260 Patent, would be approximately 1998-1999. Accordingly, a POSA would understand that the mouse shown has buttons 316a and 316b which operate over a short range of travel in a single degree of freedom to input a single command signal (*i.e.*, a mouse click) when pressed. A POSA would further understand that in the conventional mouse described in this embodiment of Rosenberg, pressing the mouse button results in only one click that registers and one corresponding feedback sensation associated with that click because that is how conventional computer mice work, both at the time of the invention and even today. Moreover, 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. Rather, Rosenberg explains that, as with a conventional computer mouse, the switch determines "a simple on or off state of the button." Rosenberg at 25:32.

EX2010 at ¶105.

Patent Owner's Demonstrative Exhibit - Not Evidence

Rosenberg Does Not Disclose Continuous Detection of Three Increasing Pressures

Rosenberg's passage below does not disclose detecting successive pressures and outputting tactile sensations for each successive press—instead, only discloses “determine the position” (continuously) and “to control a force output,” e.g., “a simple on or off”

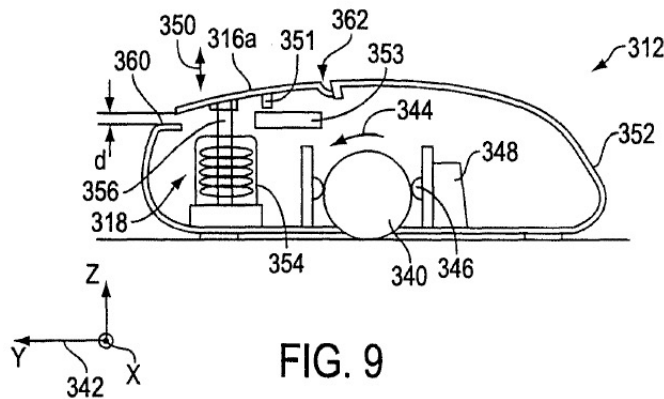


FIG. 9

EX1008 at FIGs. 8-9.

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 at 25:33-26:4.

Patent Owner's Demonstrative Exhibit - Not Evidence

Rosenberg Does Not Disclose Continuous Detection of Three Increasing Pressures

- Immersion does not attack a “strawman”
- Rosenberg only describes a “spring force” effect, where a magnitude of force depends on distance of the button from the origin of the spring.
- Rosenberg describes how to implement this effect on a *conventional* mouse, i.e., with an inverse relationship for only two positions:
 1. Single button press: single pressure, light spring force
 2. Resting position: no pressure, heavy spring force

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 force sensation can be associated with graphical objects and can be differentiated using magnitude. For example, 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 at 30:29-36.

Patent Owner's Demonstrative Exhibit - Not Evidence

Rosenberg Does Not Disclose Continuous Detection of Three Increasing Pressures

- Rosenberg does not describe *multi-press*
- Valve's erroneous read of Rosenberg's disclosure:

“For example, when the user positions the cursor 446 over an icon 456 and presses the button [lightly], a light spring force resists the pressed motion of the button. When the user positions cursor 446 over a different graphical object, such as icon 460, [and presses the button harder], a heavy spring force is output having a greater magnitude than the spring force for icon 456.”

Rosenberg Does Not Disclose Continuous Detection of Three Increasing Pressures

- Claim 30 only describes a predetermined position for a single button press
- Claim 30 does not describe three pressures – it only describes one.
- Claim 35 depends on claim 30 and thus only recites detecting three positions – nothing more
- Claim 36 depends on Claim 33, which depends on Claim 30, and thus by way of antecedent basis:
 - the “said position of said button” refers to the predetermined position for the single button press
 - the “said output force” refers to the output force applied for the single button press

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 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.

EX1008 at 37:28-38:22.

Patent Owner's Demonstrative Exhibit - Not Evidence

Rosenberg's Mouse Button Does Not Output Vibrotactile Sensations

Petitioner admits that Rosenberg's mouse button provides feedback that mimics a mechanical spring

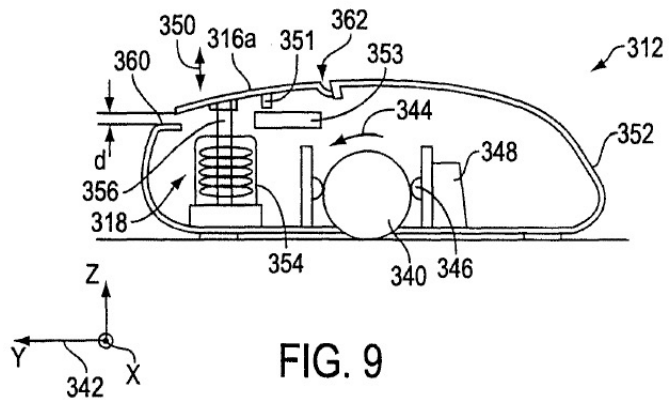


FIG. 9

EX1008 at FIG. 9.

Rosenberg teaches that the force sensation(s) the actuator provides button 316a is “based on” the “position of the button.” 25:33-26:4, 38:21-22 (“output force is dependent...on said position of said button”). For example, Rosenberg teaches a force sensation that mimics a mechanical spring so “[t]he magnitude of this force

Petition at 62.

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