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CONTROL NO.	FILING DATE	PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
95/000,214	04/24/07	6,347,997	

BRAD A. ARMSTRONG
P.O. BOX 2048
CARSON CITY, NV 89702

EXAMINER
FLANAGAN, B.

ART UNIT	PAPER
3993	

DATE MAILED:

07/17/07

INTER PARTES REEXAMINATION COMMUNICATION

BELOW/ATTACHED YOU WILL FIND A COMMUNICATION FROM THE UNITED STATES PATENT AND TRADEMARK OFFICE OFFICIAL(S) IN CHARGE OF THE PRESENT REEXAMINATION PROCEEDING.

All correspondence relating to this *inter partes* reexamination proceeding should be directed to the **Central Reexamination Unit** at the mail, FAX, or hand-carry addresses given at the end of this communication.

IT IS NOTED THAT IN THE REQUEST FOR REEXAMINATION FILED BY 3RD PTY REQUESTER, THE ADDRESS OF AN ASSIGNEE, ANASCAPE, LTD, AND COUNSEL FOR THE ASSIGNEE, LUKE FLEMING MCELROY, IS LISTED. HOWEVER, UNTIL SUCH TIME AS A PROPERLY EXECUTED POWER OF ATTORNEY AND/OR CHANGE OF CORRESPONDENCE ADDRESS IS FILED BY THE PATENT OWNER, ALL CORRESPONDENCE WILL BE MAILED TO THE PATENT OWNER AT THE ADDRESS OF RECORD WITH THE USPTO. SEE MPEP § 2224 AND 37 CFR 1.33(c).

A COURTESY COPY OF THIS COMMUNICATION IS BEING SENT TO ANASCAPE LTD, c/o BRAD ARMSTRONG, 16487 JOSEPH ROAD, TYLER TX 75707. ALL FURTHER COMMUNICATIONS WILL BE DIRECTED SOLELY TO THE ADDRESS OF RECORD.

PTOL-2071 (Rev.07-04)

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(THIRD PARTY REQUESTER'S CORRESPONDENCE ADDRESS)

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Transmittal of Communication to Third Party Requester *Inter Partes* Reexamination

REEXAMINATION CONTROL NUMBER *95/000,214*.

PATENT NUMBER *6,347,997*.

TECHNOLOGY CENTER *3999*.

ART UNIT *3993*.

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above-identified reexamination proceeding. 37 CFR 1.903.

Prior to the filing of a Notice of Appeal, each time the patent owner responds to this communication, the third party requester of the *inter partes* reexamination may once file written comments within a period of 30 days from the date of service of the patent owner's response. This 30-day time period is statutory (35 U.S.C. 314(b)(2)), and, as such, it cannot be extended. See also 37 CFR 1.947.

If an *ex parte* reexamination has been merged with the *inter partes* reexamination, no responsive submission by any *ex parte* third party requester is permitted.

All correspondence relating to this inter partes reexamination proceeding should be directed to the **Central Reexamination Unit** at the mail, FAX, or hand-carry addresses given at the end of the communication enclosed with this transmittal.

OFFICE ACTION IN* INTER PARTES *REEXAMINATION	**Control No.** 95/000,214	**Patent Under Reexamination** 6347997	
	Examiner Beverly M. Flanagan	**Art Unit** 3993	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address. --

Responsive to the communication(s) filed by:
Patent Owner on _____
Third Party(ies) on _____

RESPONSE TIMES ARE SET TO EXPIRE AS FOLLOWS:

For Patent Owner's Response:
2 MONTH(S) from the mailing date of this action. 37 CFR 1.945. EXTENSIONS OF TIME ARE GOVERNED BY 37 CFR 1.956.
For Third Party Requester's Comments on the Patent Owner Response:
30 DAYS from the date of service of any patent owner's response. 37 CFR 1.947. NO EXTENSIONS OF TIME ARE PERMITTED. 35 U.S.C. 314(b)(2).

All correspondence relating to this inter partes reexamination proceeding should be directed to the **Central Reexamination Unit** at the mail, FAX, or hand-carry addresses given at the end of this Office action.

This action is not an Action Closing Prosecution under 37 CFR 1.949, nor is it a Right of Appeal Notice under 37 CFR 1.953.

PART I. THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☐ Notice of References Cited by Examiner, PTO-892
2. ☐ Information Disclosure Citation, PTO/SB/08
3. ☐ _____

PART II. SUMMARY OF ACTION:

1a. ☒ Claims 32-37 are subject to reexamination.
1b. ☒ Claims 1-31 and 38-51 are not subject to reexamination.
2. ☐ Claims _____ have been canceled.
3. ☐ Claims _____ are confirmed. [Unamended patent claims]
4. ☐ Claims _____ are patentable. [Amended or new claims]
5. ☒ Claims 32-37 are rejected.
6. ☐ Claims _____ are objected to.
7. ☐ The drawings filed on _____ ☐ are acceptable ☐ are not acceptable.
8. ☐ The drawing correction request filed on _____ is: ☐ approved. ☐ disapproved.
9. ☐ Acknowledgment is made of the claim for priority under 35 U.S.C. 119 (a)-(d). The certified copy has: ☐ been received. ☐ not been received. ☐ been filed in Application/Control No 95000214.
10. ☐ Other _____

DETAILED ACTION

This first action on the merits is being mailed with the order granting reexamination.

Reexamination Procedures

In order to ensure full consideration of any amendments, affidavits or declarations, or other documents as evidence of patentability, such documents must be submitted in response to this Office action. Submissions after the next Office action, which is intended to be an Action Closing Prosecution (ACP), will be governed by 37 CFR 1.116(b) and (d), which will be strictly enforced.

Statutory Basis for Grounds of Rejections – 35 USC §§ 102 and 103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Third Party Requester's Grounds of Rejection

Ground #1. The requester submits that claims 32-37 of Armstrong '997 are unpatentable under 35 U.S.C. § 102(b) as being anticipated by Furukawa '760.

Ground #2. The requester submits that claims 32 and 33 of Armstrong '997 are unpatentable under 35 U.S.C. § 102(b) as being anticipated by O'Mara.

Ground #3. The requester submits that claims 32-37 of Armstrong '997 are unpatentable under 35 U.S.C. § 102(b) as being anticipated by Furukawa '217.

Ground #4. The requester submits that claims 32-37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Furukawa '760.

Ground #5. The requester submits that claims 32-37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Furukawa '760 in view of Switch Engineering Handbook.

Ground #6. The requester submits that claims 32-37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Furukawa '760 in view of Kramer.

Ground #7. The requester submits that claims 34, 36 and 37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Furukawa '760 in view of Mitsuhashi.

Ground #8. The requester submits that claims 34, 36 and 37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Furukawa '760 in view of Padula.

Ground #9. The requester submits that claims 34, 36 and 37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Furukawa '760 in view of Himoto.

Ground #10. The requester submits that claims 34, 36 and 37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Furukawa '760 in view of Thorner.

Ground #11. The requester submits that claims 34, 36 and 37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Furukawa '760 in view of CyberMan.

Ground #12. The requester submits that claim 37 of Armstrong '997 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Furukawa '760 in view of Inoue.

Ground #13. The requester submits that claims 34, 36 and 37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Furukawa '760 in view of CyberMan and further in view of Switch Engineering Handbook.

Ground #14. The requester submits that claim 37 of Armstrong '997 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Furukawa '760 in view of Kramer and further in view of Inoue.

Ground #15. The requester submits that claims 32-34[1] of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over O'Mara.

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[1] In the replacement request, at page 74, requester states that claims 32-37 are unpatentable under 35 U.S.C. § 103(a) as being obvious over the O'Mara reference. However, Appendix B, at page 9, indicates that claims 35-37 are not considered to rejected under O'Mara alone. Indeed, the subject matter of claim 35 – a resilient dome cap – is not

Ground #16. The requester submits that claims 32-37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over O'Mara in view of Kramer.

Ground #17. The requester submits that claim 34 of Armstrong '997 is unpatentable under 35 U.S.C. § 103(a) as being obvious over O'Mara in view of Mitsuhashi.

Ground #18. The requester submits that claim 34 of Armstrong '997 is unpatentable under 35 U.S.C. § 103(a) as being obvious over O'Mara in view of Padula.

Ground #19. The requester submits that claim 34 of Armstrong '997 is unpatentable under 35 U.S.C. § 103(a) as being obvious over O'Mara in view of Himoto.

Ground #20. The requester submits that claim 34 of Armstrong '997 is unpatentable under 35 U.S.C. § 103(a) as being obvious over O'Mara in view of Thorner.

Ground #21. The requester submits that claim 34 of Armstrong '997 is unpatentable under 35 U.S.C. § 103(a) as being obvious over O'Mara in view of CyberMan.

Ground #22. The requester submits that claims 36 and 37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over O'Mara in view of Kramer and further in view of CyberMan.

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taught by O'Mara. Accordingly, the examiner has assumed that requester intended for only claims 32-34 to be considered as rejected under 35 U.S.C. § 103(a) as being obvious over O'Mara.

Ground #23. The requester submits that claim 37 of Armstrong '997 is unpatentable under 35 U.S.C. § 103(a) as being obvious over O'Mara in view of Kramer and further in view of Inoue.

Ground #24. The requester submits that claims 32-37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Furukawa '217.

Ground #25. The requester submits that claims 32-37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Furukawa '217 in view of Switch Engineering Handbook.

Ground #26. The requester submits that claims 32-37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Furukawa '217 in view of Mitchell.

Ground #27. The requester submits that claims 32-37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Furukawa '217 in view of Matsumoto.

Ground #28. The requester submits that claims 32-37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Furukawa '217 in view of Kramer.

Ground #29. The requester submits that claims 34, 36 and 37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Furukawa '217 in view of Mitsuhashi.

Ground #30. The requester submits that claims 34, 36 and 37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Furukawa '217 in view of Padula.

Ground #31. The requester submits that claims 34, 36 and 37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Furukawa '217 in view of Himoto.

Ground #32. The requester submits that claims 34, 36 and 37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Furukawa '217 in view of Thorner.

Ground #33. The requester submits that claims 34, 36 and 37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Furukawa '217 in view of CyberMan.

Ground #34. The requester submits that claims 34, 36 and 37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Furukawa '217 in view of CyberMan and further in view of Switch Engineering Handbook.

Ground #35. The requester submits that claims 35-37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Furukawa '217 in view of Matsumoto and further in view of Kramer.

Ground #36. The requester submits that claims 32-37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Kawashima in view of Furukawa '760.

Ground #37. The requester submits that claims 32-36 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Kawashima in view of Matsumoto.

Ground #38. The requester submits that claims 32-36 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Kawashima in view of Kramer.

Ground #39. The requester submits that claim 34 of Armstrong '997 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Kawashima in view of Himoto.

Ground #40. The requester submits that claim 34 of Armstrong '997 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Kawashima in view of Thorner.

Ground #41. The requester submits that claim 34 of Armstrong '997 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Kawashima in view of CyberMan.

Ground #42. The requester submits that claims 34 and 36 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Kawashima in view of Matsumoto and further in view of Padula.

Ground #43. The requester submits that claims 34 and 36 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Kawashima in view of Furukawa '760 and further in view of Mitsuhashi.

Ground #44. The requester submits that claims 32-37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Kawashima in view of Matsumoto and further in view of Furukawa '760.

PROPOSED THIRD PARTY REQUESTER'S REJECTIONS

Proposed Third Party Requester Rejection: Ground #1

The requester submits that claims 32-37 of Armstrong '997 are unpatentable under 35 U.S.C. § 102(b) as being anticipated by Furukawa '760.

Claims 32-37 of Armstrong '997 are rejected under 35 U.S.C. § 102(b) as being anticipated by Furukawa '760. *In regard to claims 32 and 34-37*, Furukawa '760 teaches a device for controlling video game imagery comprised of a controller 10 that is connected to a video game machine via a cable 11 and includes a cross shaped key 12 for vertically and horizontally moving characters on the screen (see Fig. 1 and paragraph 8 of the accompanying translation). A rubber contact point 29 on the cross shaped key 12 is formed from elastic rubber material and a moving part 30 is disposed onto the center of each cross shaped key 12 (see Fig. 2 and paragraph 9 of the accompanying translation). Moving contact 32 is formed of conductive rubber and is disposed on the bottom end of each moving part 30, and conductive part 33, whose resistance varies with pressure, is attached to the bottom end surface of moving contact 32 (see Fig. 2 and paragraph 9 of the accompanying translation). By performing the depressing operation, moving part 30 is lowered while being resisted by the elastic bias of elastic let part 31 so that it is electrically connected to fixed contacts 7 and 7 on a

wiring pattern disposed on substrate 5 (see Fig. 2 and paragraph 9 of the accompanying translation). The pressing force applied by the fingertip on each contact point 29 on the cross shaped key 12 changes the electrical resistance through conductive part 33 and thus, the operation of a character in a video game can be freely controlled by the pressing force applied by the fingertip of the operator (see Fig. 2 and paragraph 10 of the accompanying translation). Rubber contact point 29 is dome-shaped, and includes elastic leg parts 31 where moving part 30 is lowered while being resisted by the elastic bias of elastic leg part 31 (see Fig. 2 and paragraph 9 of the accompanying translation). This elastic bias would be felt as a mechanical resistance by the user, who is applying pressing force on the button with a fingertip, thus providing active tactile feedback[2] (see paragraph 10 of the accompanying translation). *In regard to claim 33*, Furukawa '760 also discloses placing analog sensors below each of the four directional sections of a cross key in a game controller, each of which is attached to the output circuit to control movement of a game character in one direction, allowing for a user to vertically and horizontally move characters on a screen (see paragraph 8 of the accompanying translation). *In regard to claim 37*, Furukawa '760 states that additional sensors may be used in other locations on the controller, other than in the cross keys, which inherently includes placing the sensors in an array that is located in a right hand area of a housing, as shown in Fig. 1 of Furukawa '760 (see also paragraph 9 of the accompanying translation).

[2] The examiner agrees with the following assessment by third party requester: "It is not clear from the '997 patent specification what applicant means by 'active tactile feedback'. Applicant's attempts to incorporate his prior-issued patent, U.S. Pat. No. 6,222,525, for 'break-over and active tactile feedback and the like described therein.'

This rejection of claims 32-37 of Armstrong '997 based on Furukawa '760 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #2

The requester submits that claims 32 and 33 of Armstrong '997 are unpatentable under 35 U.S.C. § 102(b) as being anticipated by O'Mara.

Claims 32-37 of Armstrong '997 are rejected under 35 U.S.C. § 102(b) as being anticipated by O'Mara. *In regard to claim 32,* O'Mara teaches a device for controlling imagery comprised of a piezoeletric element, such as a force sensitive resistor, to sense pressure applied to a button and provide an analog output related to the magnitude of the force applied (see col. 2, lines 10-12, col. 3, lines 51-53 and Figs. 1-5 and 7-9). O'Mara further discloses that the device may be used as an analog push-button, which would be operated by a fingertip (see col. 7, lines 49-50 and col. 8, lines 42-45). O'Mara teaches that pad 50 and spring 60 are used to provide mechanical resistance or 'feel' to the device 10 as the user applied force to disk 40, which would constitute active tactile feedback to the user[3] (see col. 4, lines 31-33). O'Mara further teaches that as the conductive foam is compressed, it will complete the circuit of the circuit traces and provide an output voltage varying with the compression of the foam (see col. 2, lines 48-51). *In regard to claim 33*, O'Mara teaches an output circuit connected to at least four

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However, upon review, the '525 patent fails to set forth any specific means for providing 'active tactile feedback' other than possibly a dome cap." (see Appendices A-D of the replacement request, filed April 24, 2007).

[3] *Id.*

piezoresistive elements where the output circuit provides signals representative of the sensed force (see col. 8, lines 43-45).

This rejection of claims 32 and 33 of Armstrong '997 based on O'Mara was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #3

The requester submits that claims 32-37 of Armstrong '997 are unpatentable under 35 U.S.C. § 102(b) as being anticipated by Furukawa '217.

Claims 32-37 of Armstrong '997 are rejected under 35 U.S.C. § 102(b) as being anticipated by Furukawa '217. *In regard to claims 32-37*, Furukawa '217 teaches a switch in a computer keyboard to allow the scroll rate, cursor moving speed and character reaction speed in computer games to be controlled according to the intention of a user (see paragraph 11 of the accompanying translation). Furukawa '217 also teaches a pressure-sensitive variable resistor 1 and abuts secure contact points 9 and 10 where the contact pressure between carbon powder particles is increased by the applied pressure and anisotropic conductivity established between the secure contact points 9 and 10 and the electroconductive layer 7 (see Figs. 4 and 5). The resistance of the pressure-sensitive variable resistor 1 is changed according to the applied pressure so that the voltage between the secure contact points 9 and 10 can be manually and arbitrarily controlled (see abstract). When the elastic rubber of rubber key top 6 is pressed down, the pressure-sensitive variable resistor 1 makes contact with the two

secure contact points 9 and 10 and when the contact pressure is low, the pressure-sensitive variable resistor 1 has high resistance; when the rubber key top 6 is further pressed down and the contact pressure is increased, the resistance is reduced (see paragraph 10 of the accompanying translation). Furukawa '217 also discloses that the variable resistor yields changes in resistance corresponding to operational feeling (see paragraph 5 of the accompanying translation). The operational feeling of rubber key top 6 would be felt as a mechanical resistance by the user, who is applying pressing force on the button with a fingertip. The rubber key top 6 of Furukawa '217 would have implicitly provided active tactile feedback to the finger of a user.[4]

This rejection of claims 32-37 of Armstrong '997 based on Furukawa '217 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #4

The requester submits that claims 32-37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Furukawa '760.

Claims 32-37 of Armstrong '997 are rejected under 35 U.S.C. § 103(a) as being obvious over Furukawa '760. *In regard to claims 32 and 34-37*, Furukawa '760 teaches a device for controlling video game imagery comprised of a controller 10 that is connected to a video game machine via a cable 11 and includes a cross shaped key 12 for vertically and horizontally moving characters on the screen (see Fig. 1 and

[4] *Id.*

paragraph 8 of the accompanying translation). A rubber contact point 29 on the cross shaped key 12 is formed from elastic rubber material and a moving part 30 is disposed onto the center of each cross shaped key 12 (see Fig. 2 and paragraph 9 of the accompanying translation). Moving contact 32 is formed of conductive rubber and is disposed on the bottom end of each moving part 30, and conductive part 33, whose resistance varies with pressure, is attached to the bottom end surface of moving contact 32 (see Fig. 2 and paragraph 9 of the accompanying translation). By performing the depressing operation, moving part 30 is lowered while being resisted by the elastic bias of elastic let part 31 so that it is electrically connected to fixed contacts 7 and 7 on a wiring pattern disposed on substrate 5 (see Fig. 2 and paragraph 9 of the accompanying translation). The pressing force applied by the fingertip on each contact point 29 on the cross shaped key 12 changes the electrical resistance through conductive part 33 and thus, the operation of a character in a video game can be freely controlled by the pressing force applied by the fingertip of the operator (see Fig. 2 and paragraph 10 of the accompanying translation). Rubber contact point 29 is dome-shaped, and includes elastic leg parts 31 where moving part 30 is lowered while being resisted by the elastic bias of elastic leg part 31 (see Fig. 2 and paragraph 9 of the accompanying translation). This elastic bias would be felt as a mechanical resistance by the user, who is applying pressing force on the button with a fingertip (see paragraph 10 of the accompanying translation). In addition, patent owner's admission that "most but not all elastomeric injection molded dome caps when depressed produce a soft snap which is a user discernable tactile feedback" at col. 1, lines 58-65 through col. 2,

lines 1-15 of U.S. Patent No. 6,135,886 further supports the argument that the rubber contact point 29 of Furukawa '760 would have implicitly provided active tactile feedback to the finger of a user. Accordingly, it would have been obvious for one of ordinary skill in the art at the time the invention was made to construct the dome-shaped structure disclosed in Furukawa '760 to provide active tactile feedback.[5] *In regard to claim 33*, Furukawa '760 also discloses placing analog sensors below each of the four directional sections of a cross key in a game controller, each of which is attached to the output circuit to control movement of a game character in one direction, allowing for a user to vertically and horizontally move characters on a screen (see paragraph 8 of the accompanying translation). *In regard to claim 37*, Furukawa '760 states that additional sensors may be used in other locations on the controller, other than in the cross keys, which inherently includes placing the sensors in an array that is located in a right hand area of a housing, as shown in Fig. 1 of Furukawa '760 (see also paragraph 9 of the accompanying translation).

This rejection of claims 32-37 of Armstrong '997 based on Furukawa '760 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

[5] *Id.*

Proposed Third Party Requester Rejection: Ground #5

The requester submits that claims 32-37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Furukawa '760 in view of Switch Engineering Handbook.

Claims 32-37 of Armstrong '997 are rejected under 35 U.S.C. § 103(a) as being obvious over Furukawa '760 in view of Switch Engineering Handbook. *In regard to claims 32 and 34-37*, Furukawa '760 teaches a device for controlling video game imagery comprised of a controller 10 that is connected to a video game machine via a cable 11 and includes a cross shaped key 12 for vertically and horizontally moving characters on the screen (see Fig. 1 and paragraph 8 of the accompanying translation). A rubber contact point 29 on the cross shaped key 12 is formed from elastic rubber material and a moving part 30 is disposed onto the center of each cross shaped key 12 (see Fig. 2 and paragraph 9 of the accompanying translation). Moving contact 32 is formed of conductive rubber and is disposed on the bottom end of each moving part 30, and conductive part 33, whose resistance varies with pressure, is attached to the bottom end surface of moving contact 32 (see Fig. 2 and paragraph 9 of the accompanying translation). By performing the depressing operation, moving part 30 is lowered while being resisted by the elastic bias of elastic let part 31 so that it is electrically connected to fixed contacts 7 and 7 on a wiring pattern disposed on substrate 5 (see Fig. 2 and paragraph 9 of the accompanying translation). The pressing force applied by the fingertip on each contact point 29 on the cross shaped key 12 changes the electrical resistance through conductive part 33 and thus, the operation of

a character in a video game can be freely controlled by the pressing force applied by the fingertip of the operator (see Fig. 2 and paragraph 10 of the accompanying translation). Rubber contact point 29 is dome-shaped, and includes elastic leg parts 31 where moving part 30 is lowered while being resisted by the elastic bias of elastic leg part 31 (see Fig. 2 and paragraph 9 of the accompanying translation). This elastic bias would be felt as a mechanical resistance by the user, who is applying pressing force on the button with a fingertip (see paragraph 10 of the accompanying translation). In addition, patent owner's admission that "most but not all elastomeric injection molded dome caps when depressed produce a soft snap which is a user discernable tactile feedback" at col. 1, lines 58-65 through col. 2, lines 1-15 of U.S. Patent No. 6,135,886 further supports the argument that the rubber contact point 29 of Furukawa '760 would have implicitly provided active tactile feedback to the finger of a user. In addition, Switch Engineering Handbook teaches rubber domes shaped similarly to the dome of Furukawa '760 that produce snap-through tactile feedback (see Fig. 11.5 of Switch Engineering Handbook). Accordingly, it would have been obvious for one of ordinary skill in the art at the time the invention was made to construct the dome-shaped structure disclosed in Furukawa '760 to provide active tactile feedback[6] , in the manner disclosed by Switch Engineering Handbook. *In regard to claim 33*, Furukawa '760 also discloses placing analog sensors below each of the four directional sections of a cross key in a game controller, each of which is attached to the output circuit to control movement of a game character in one direction, allowing for a user to vertically and

[6] *Id.*

horizontally move characters on a screen (see paragraph 8 of the accompanying translation). *In regard to claim 37*, Furukawa '760 states that additional sensors may be used in other locations on the controller, other than in the cross keys, which inherently includes placing the sensors in an array that is located in a right hand area of a housing, as shown in Fig. 1 of Furukawa '760 (see also paragraph 9 of the accompanying translation).

This rejection of claims 32-37 of Armstrong '997 based on Furukawa '760 in view of Switch Engineering Handbook was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #6

The requester submits that claims 32-37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Furukawa '760 in view of Kramer.

Claims 32-37 of Armstrong '997 are rejected under 35 U.S.C. § 103(a) as being obvious over Furukawa '760 in view of Kramer. *In regard to claims 32 and 34-37*, Furukawa '760 teaches a device for controlling video game imagery comprised of a controller 10 that is connected to a video game machine via a cable 11 and includes a cross shaped key 12 for vertically and horizontally moving characters on the screen (see Fig. 1 and paragraph 8 of the accompanying translation). A rubber contact point 29 on the cross shaped key 12 is formed from elastic rubber material and a moving part 30 is disposed onto the center of each cross shaped key 12 (see Fig. 2 and paragraph 9 of the accompanying translation). Moving contact 32 is formed of conductive rubber

and is disposed on the bottom end of each moving part 30, and conductive part 33, whose resistance varies with pressure, is attached to the bottom end surface of moving contact 32 (see Fig. 2 and paragraph 9 of the accompanying translation). By performing the depressing operation, moving part 30 is lowered while being resisted by the elastic bias of elastic let part 31 so that it is electrically connected to fixed contacts 7 and 7 on a wiring pattern disposed on substrate 5 (see Fig. 2 and paragraph 9 of the accompanying translation). The pressing force applied by the fingertip on each contact point 29 on the cross shaped key 12 changes the electrical resistance through conductive part 33 and thus, the operation of a character in a video game can be freely controlled by the pressing force applied by the fingertip of the operator (see Fig. 2 and paragraph 10 of the accompanying translation). Rubber contact point 29 is dome-shaped, and includes elastic leg parts 31 where moving part 30 is lowered while being resisted by the elastic bias of elastic leg part 31 (see Fig. 2 and paragraph 9 of the accompanying translation). This elastic bias would be felt as a mechanical resistance by the user, who is applying pressing force on the button with a fingertip (see paragraph 10 of the accompanying translation). In addition, patent owner's admission that "most but not all elastomeric injection molded dome caps when depressed produce a soft snap which is a user discernable tactile feedback" at col. 1, lines 58-65 through col. 2, lines 1-15 of U.S. Patent No. 6,135,886 further supports the argument that the rubber contact point 29 of Furukawa '760 would have implicitly provided active tactile feedback to the finger of a user. In addition, Kramer discloses a snap-through dome cap for providing tactile feedback to the user which is break-over threshold, namely, "the rubber

dome bears against the printed circuit board 10 and, upon depression of the appropriate pushbutton 22, will first actuate a switching process with a snap effect and subsequently permit pressure-dependent adjustment of a function variable (see col. 5, lines 40-48 of Kramer). Accordingly, it would have been obvious for one of ordinary skill in the art at the time the invention was made to construct the dome-shaped structure disclosed in Furukawa '760 to provide active tactile feedback[7] , in the manner disclosed by Kramer. *In regard to claim 33*, Furukawa '760 also discloses placing analog sensors below each of the four directional sections of a cross key in a game controller, each of which is attached to the output circuit to control movement of a game character in one direction, allowing for a user to vertically and horizontally move characters on a screen (see paragraph 8 of the accompanying translation). *In regard to claim 37*, Furukawa '760 states that additional sensors may be used in other locations on the controller, other than in the cross keys, which inherently includes placing the sensors in an array that is located in a right hand area of a housing, as shown in Fig. 1 of Furukawa '760 (see also paragraph 9 of the accompanying translation).

This rejection of claims 32-37 of Armstrong '997 based on Furukawa '760 in view of Kramer was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

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[7] *Id.*

Proposed Third Party Requester Rejection: Ground #7

The requester submits that claims 34, 36 and 37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Furukawa '760 in view of Mitsuhashi.

Claims 34, 36 and 37 of Armstrong '997 are rejected under 35 U.S.C. § 103(a) as being obvious over Furukawa '760 in view of Mitsuhashi. *In regard to claims 34 and 36*, Furukawa '760 teaches that the pressing force applied by the fingertip on each contact point 29 on the cross shaped key 12 changes the electrical resistance through conductive part 33 and thus, the operation of a character in a video game can be freely controlled by the pressing force applied by the fingertip of the operator (see Fig. 2 and paragraph 10 of the accompanying translation). Rubber contact point 29 is dome-shaped, and includes elastic leg parts 31 where moving part 30 is lowered while being resisted by the elastic bias of elastic leg part 31 (see Fig. 2 and paragraph 9 of the accompanying translation). It is agreed that this elastic bias would be felt as a mechanical resistance by the user, who is applying pressing force on the button with a fingertip (see paragraph 10 of the accompanying translation). However, Mitsuhashi discloses the use of a metallic dome cap structure to provide a high click ratio and "active tactile feedback" by providing a "considerably good touch of clicking with a click ratio as high as 46.7% (see col. 1, lines 48-58 of Mitsuhashi). Mitsuhashi also teaches that "when the surface panel sheet 21 is depressed with a finger tip at a position just above the pushing head 22, the curvature of the diaphragm 25 is clickingly reversed to

give a considerably high click ratio even with a low pushing stroke (see Figs. 7 and 8 and col. 2, lines 54-66 of Mitsuhashi). It would have been obvious for one of ordinary skill in the art at the time the invention was made to replace the rubber contact point 29 of Furukawa '760 with the metallic dome cap of Mitsuhashi to improve tactile feedback. *In regard to claim 37*, Furukawa '760 states that additional sensors may be used in other locations on the controller, other than in the cross keys, which inherently includes placing the sensors in an array that is located in a right hand area of a housing, as shown in Fig. 1 of Furukawa '760 (see also paragraph 9 of the accompanying translation).

This rejection of claims 34, 36 and 37 of Armstrong '997 based on Furukawa '760 in view of Mitsuhashi was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #8

The requester submits that claims 34, 36 and 37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Furukawa '760 in view of Padula.

Claims 34, 36 and 37 of Armstrong '997 are rejected under 35 U.S.C. § 103(a) as being obvious over Furukawa '760 in view of Padula. *In regard to claims 34 and 36*, Furukawa '760 teaches that the pressing force applied by the fingertip on each contact point 29 on the cross shaped key 12 changes the electrical resistance through conductive part 33 and thus, the operation of a character in a video game can be freely

controlled by the pressing force applied by the fingertip of the operator (see Fig. 2 and paragraph 10 of the accompanying translation). Rubber contact point 29 is dome-shaped, and includes elastic leg parts 31 where moving part 30 is lowered while being resisted by the elastic bias of elastic leg part 31 (see Fig. 2 and paragraph 9 of the accompanying translation). It is agreed that this elastic bias would be felt as a mechanical resistance by the user, who is applying pressing force on the button with a fingertip (see paragraph 10 of the accompanying translation). However, Padula discloses a metallic dome cap wherein "The snap action during collapse of the dome can be sensed by the stylus user, providing a definite tactile feedback to the user, thereby providing active tactile feedback (see Fig 12 and col. 9, lines 12-13 of Padula). It would have been obvious for one of ordinary skill in the art at the time the invention was made to replace the rubber contact point 29 of Furukawa '760 with the metallic dome cap of Padula to improve tactile feedback. *In regard to claim 37*, Furukawa '760 states that additional sensors may be used in other locations on the controller, other than in the cross keys, which inherently includes placing the sensors in an array that is located in a right hand area of a housing, as shown in Fig. 1 of Furukawa '760 (see also paragraph 9 of the accompanying translation).

This rejection of claims 34, 36 and 37 of Armstrong '997 based on Furukawa '760 in view of Padula was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #9

The requester submits that claims 34, 36 and 37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Furukawa '760 in view of Himoto.

Claims 34, 36 and 37 of Armstrong '997 are rejected under 35 U.S.C. § 103(a) as being obvious over Furukawa '760 in view of Himoto. *In regard to claims 34 and 36*, Furukawa '760 teaches that the pressing force applied by the fingertip on each contact point 29 on the cross shaped key 12 changes the electrical resistance through conductive part 33 and thus, the operation of a character in a video game can be freely controlled by the pressing force applied by the fingertip of the operator (see Fig. 2 and paragraph 10 of the accompanying translation). Rubber contact point 29 is dome-shaped, and includes elastic leg parts 31 where moving part 30 is lowered while being resisted by the elastic bias of elastic leg part 31 (see Fig. 2 and paragraph 9 of the accompanying translation). It is agreed that this elastic bias would be felt as a mechanical resistance by the user, who is applying pressing force on the button with a fingertip (see paragraph 10 of the accompanying translation). However, Himoto teaches an expansion unit 70 with a vibration unit 75 that is actuated in response to a command signal from the game apparatus body 200 or the controller body 10 and gives vibrations to the controller body 10, thereby providing active tactile feedback (see Figs. 12 and 15 and col. 16, lines 38-58 of Himoto). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the rubber contact point 29 of Furukawa '760 with the vibration unit of Himoto to improve tactile feedback.

In regard to claim 37, Furukawa '760 states that additional sensors may be used in other locations on the controller, other than in the cross keys, which inherently includes placing the sensors in an array that is located in a right hand area of a housing, as shown in Fig. 1 of Furukawa '760 (see also paragraph 9 of the accompanying translation).

This rejection of claims 34, 36 and 37 of Armstrong '997 based on Furukawa '760 in view of Himoto was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #10

The requester submits that claims 34, 36 and 37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Furukawa '760 in view of Thorner.

Claims 34, 36 and 37 of Armstrong '997 are rejected under 35 U.S.C. § 103(a) as being obvious over Furukawa '760 in view of Thorner. *In regard to claims 34 and 36*, Furukawa '760 teaches that the pressing force applied by the fingertip on each contact point 29 on the cross shaped key 12 changes the electrical resistance through conductive part 33 and thus, the operation of a character in a video game can be freely controlled by the pressing force applied by the fingertip of the operator (see Fig. 2 and paragraph 10 of the accompanying translation). Rubber contact point 29 is dome-shaped, and includes elastic leg parts 31 where moving part 30 is lowered while being resisted by the elastic bias of elastic leg part 31 (see Fig. 2 and paragraph 9 of the

accompanying translation). It is agreed that this elastic bias would be felt as a mechanical resistance by the user, who is applying pressing force on the button with a fingertip (see paragraph 10 of the accompanying translation). However, Thorner teaches a video game player where "each actuator or group of actuators interacts with the player and is individually activated to produce a localized tactile sensation, e.g., and impact or vibration, corresponding to the action portrayed by the video game as it occurs (see Thorner, abstract). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the rubber contact point 29 of Furukawa '760 with the vibration of Thorner to improve tactile feedback. *In regard to claim 37*, Furukawa '760 states that additional sensors may be used in other locations on the controller, other than in the cross keys, which inherently includes placing the sensors in an array that is located in a right hand area of a housing, as shown in Fig. 1 of Furukawa '760 (see also paragraph 9 of the accompanying translation).

This rejection of claims 34, 36 and 37 of Armstrong '997 based on Furukawa '760 in view of Thorner was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #11

The requester submits that claims 34, 36 and 37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Furukawa '760 in view of CyberMan.

Claims 34, 36 and 37 of Armstrong '997 are rejected under 35 U.S.C. § 103(a) as being obvious over Furukawa '760 in view of CyberMan. *In regard to claims 34 and 36*, Furukawa '760 teaches that the pressing force applied by the fingertip on each contact point 29 on the cross shaped key 12 changes the electrical resistance through conductive part 33 and thus, the operation of a character in a video game can be freely controlled by the pressing force applied by the fingertip of the operator (see Fig. 2 and paragraph 10 of the accompanying translation). Rubber contact point 29 is dome-shaped, and includes elastic leg parts 31 where moving part 30 is lowered while being resisted by the elastic bias of elastic leg part 31 (see Fig. 2 and paragraph 9 of the accompanying translation). It is agreed that this elastic bias would be felt as a mechanical resistance by the user, who is applying pressing force on the button with a fingertip (see paragraph 10 of the accompanying translation). However, CyberMan teaches a "pulsating tactile feedback feature" which creates active tactile feedback felt through the hand of a user (see page 1 of CyberMan). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the rubber contact point 29 of Furukawa '760 with the pulsating tactile feedback of CyberMan to improve tactile feedback. *In regard to claim 37*, Furukawa '760 states that additional sensors may be used in other locations on the controller, other than in the cross keys, which inherently includes placing the sensors in an array that is located in a right hand area of a housing, as shown in Fig. 1 of Furukawa '760 (see also paragraph 9 of the accompanying translation).

This rejection of claims 34, 36 and 37 of Armstrong '997 based on Furukawa '760 in view of CyberMan was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #12

The requester submits that claim 37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Furukawa '760 in view of Inoue.

Claim 37 of Armstrong '997 are rejected under 35 U.S.C. § 103(a) as being obvious over Furukawa '760 in view of Inoue. Furukawa '760 teaches placing analog sensors below each of the four directional sections of a cross key in a game controller, each of which is attached to the output circuit to control movement of a game character in one direction, allowing for a user to vertically and horizontally move characters on a screen (see paragraph 8 of the accompanying translation). Furukawa '760 states that additional sensors may be used in other locations on the controller, other than in the cross keys (see Fig. 1 and paragraph 9 of the accompanying translation). However, Inoue teaches multiple single individual buttons in a right hand area of a housing to be depressed by a user's thumb (see Figs. 1 and 6 of Inoue). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the device of Furukawa '760 with multiple single individual buttons in a right hand area of a housing, in the manner disclosed by Inoue.

This rejection of claim 37 of Armstrong '997 based on Furukawa '760 in view of Inoue was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #13

The requester submits that claims 34, 36 and 37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Furukawa '760 in view of CyberMan and further in view of Switch Engineering Handbook.

Claims 34, 36 and 37 of Armstrong '997 are rejected under 35 U.S.C. § 103(a) as being obvious over Furukawa '760 in view of CyberMan and further in view of Switch Engineering Handbook. *In regard to claims 34 and 36*, Furukawa '760 teaches that the pressing force applied by the fingertip on each contact point 29 on the cross shaped key 12 changes the electrical resistance through conductive part 33 and thus, the operation of a character in a video game can be freely controlled by the pressing force applied by the fingertip of the operator (see Fig. 2 and paragraph 10 of the accompanying translation). Rubber contact point 29 is dome-shaped, and includes elastic leg parts 31 where moving part 30 is lowered while being resisted by the elastic bias of elastic leg part 31 (see Fig. 2 and paragraph 9 of the accompanying translation). It is agreed that this elastic bias would be felt as a mechanical resistance by the user, who is applying pressing force on the button with a fingertip (see paragraph 10 of the accompanying translation). However, Switch Engineering Handbook teaches rubber domes shaped similarly to the dome of Furukawa '760 that produce snap-through tactile feedback (see

Fig. 11.5 of Switch Engineering Handbook). Accordingly, it would have been obvious for one of ordinary skill in the art at the time the invention was made to construct the dome-shaped structure disclosed in Furukawa '760 to provide active tactile feedback[8], in the manner disclosed by Switch Engineering Handbook. Furthermore, CyberMan teaches a "pulsating tactile feedback feature" which creates active tactile feedback felt through the hand of a user (see page 1 of CyberMan). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the rubber contact point 29 of Furukawa '760 with the pulsating tactile feedback of CyberMan to improve tactile feedback. *In regard to claim 37*, Furukawa '760 states that additional sensors may be used in other locations on the controller, other than in the cross keys, which inherently includes placing the sensors in an array that is located in a right hand area of a housing, as shown in Fig. 1 of Furukawa '760 (see also paragraph 9 of the accompanying translation).

This rejection of claims 34, 36 and 37 of Armstrong '997 based on Furukawa '760 in view of CyberMan and further in view of Switch Engineering Handbook was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

[8] *Id.*

Proposed Third Party Requester Rejection: Ground #14

The requester submits that claim 37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Furukawa '760 in view of Kramer and further in view of Inoue.

Claim 37 of Armstrong '997 is rejected under 35 U.S.C. § 103(a) as being obvious over Furukawa '760 in view of Kramer and further in view of Inoue. Furukawa '760 teaches a device for controlling video game imagery comprised of a controller 10 that is connected to a video game machine via a cable 11 and includes a cross shaped key 12 for vertically and horizontally moving characters on the screen (see Fig. 1 and paragraph 8 of the accompanying translation). A rubber contact point 29 on the cross shaped key 12 is formed from elastic rubber material and a moving part 30 is disposed onto the center of each cross shaped key 12 (see Fig. 2 and paragraph 9 of the accompanying translation). Moving contact 32 is formed of conductive rubber and is disposed on the bottom end of each moving part 30, and conductive part 33, whose resistance varies with pressure, is attached to the bottom end surface of moving contact 32 (see Fig. 2 and paragraph 9 of the accompanying translation). By performing the depressing operation, moving part 30 is lowered while being resisted by the elastic bias of elastic let part 31 so that it is electrically connected to fixed contacts 7 and 7 on a wiring pattern disposed on substrate 5 (see Fig. 2 and paragraph 9 of the accompanying translation). The pressing force applied by the fingertip on each contact point 29 on the cross shaped key 12 changes the electrical resistance through conductive part 33 and thus, the operation of a character in a video game can be freely

controlled by the pressing force applied by the fingertip of the operator (see Fig. 2 and paragraph 10 of the accompanying translation). Rubber contact point 29 is dome-shaped, and includes elastic leg parts 31 where moving part 30 is lowered while being resisted by the elastic bias of elastic leg part 31 (see Fig. 2 and paragraph 9 of the accompanying translation). This elastic bias would be felt as a mechanical resistance by the user, who is applying pressing force on the button with a fingertip (see paragraph 10 of the accompanying translation). However, Kramer discloses a snap-through dome cap for providing tactile feedback to the user which is break-over threshold, namely, "the rubber dome bears against the printed circuit board 10 and, upon depression of the appropriate pushbutton 22, will first actuate a switching process with a snap effect and subsequently permit pressure-dependent adjustment of a function variable (see col. 5, lines 40-48 of Kramer). Accordingly, it would have been obvious for one of ordinary skill in the art at the time the invention was made to construct the dome-shaped structure disclosed in Furukawa '760 to provide active tactile feedback[9] to the user. Furthermore, Furukawa '760 discloses placing analog sensors below each of the four directional sections of a cross key in a game controller, each of which is attached to the output circuit to control movement of a game character in one direction, allowing for a user to vertically and horizontally move characters on a screen (see paragraph 8 of the accompanying translation). Furukawa '760 also states that additional sensors may be used in other locations on the controller, other than in the cross keys (see Fig. A and paragraph 9 of the accompanying translation). Inoue teaches multiple single individual

[9] *Id.*

buttons in a right hand area of a housing to be depressed by a user's thumb (see Figs. 1 and 6 of Inoue). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the device of Furukawa '760 with multiple single individual buttons in a right hand area of a housing, in the manner disclosed by Inoue.

This rejection of claim 37 of Armstrong '997 based on Furukawa '760 in view of Kramer and further in view of Inoue was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #15

The requester submits that claims 32-34 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over O'Mara.

Claims 32-37 of Armstrong '997 are rejected under 35 U.S.C. § 103(a) as being unpatentable O'Mara. *In regard to claims 32 and 34,* O'Mara teaches a device for controlling imagery comprised of a piezoeletric element, such as a force sensitive resistor, to sense pressure applied to a button and provide an analog output related to the magnitude of the force applied (see col. 2, lines 10-12, col. 3, lines 51-53 and Figs. 1-5 and 7-9). O'Mara further discloses that the device may be used as an analog push-button, which would be operated by a fingertip (see col. 7, lines 49-50 and col. 8, lines 42-45). O'Mara teaches that pad 50 and spring 60 are used to provide mechanical resistance or 'feel' to the device 10 as the user applied force to disk 40, which would

constitute active tactile feedback to the user[10] (see col. 4, lines 31-33). O'Mara further teaches that as the conductive foam is compressed, it will complete the circuit of the circuit traces and provide an output voltage varying with the compression of the foam (see col. 2, lines 48-51). *In regard to claim 33*, O'Mara teaches an output circuit connected to at least four piezoresistive elements where the output circuit provides signals representative of the sensed force (see col. 8, lines 43-45).

This rejection of claims 32-34 of Armstrong '997 based on O'Mara was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #16

The requester submits that claims 32-37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over O'Mara in view of Kramer.

Claims 32-37 of Armstrong '997 are rejected under 35 U.S.C. § 103(a) as being unpatentable O'Mara in view of Kramer. *In regard to claims 32, and 34-37,* O'Mara teaches a device for controlling imagery comprised of a piezoeletric element, such as a force sensitive resistor, to sense pressure applied to a button and provide an analog output related to the magnitude of the force applied (see col. 2, lines 10-12, col. 3, lines 51-53 and Figs. 1-5 and 7-9). O'Mara further discloses that the device may be used as an analog push-button, which would be operated by a fingertip (see col. 7, lines 49-50 and col. 8, lines 42-45). O'Mara teaches that pad 50 and spring 60 are used to provide

[10] *Id.*

mechanical resistance or 'feel' to the device 10 as the user applied force to disk 40, which would constitute active tactile feedback to the user[11] (see col. 4, lines 31-33). O'Mara further teaches that as the conductive foam is compressed, it will complete the circuit of the circuit traces and provide an output voltage varying with the compression of the foam (see col. 2, lines 48-51). However, Kramer discloses a snap-through dome cap for providing tactile feedback to the user which is break-over threshold, namely, "the rubber dome bears against the printed circuit board 10 and, upon depression of the appropriate pushbutton 22, will first actuate a switching process with a snap effect and subsequently permit pressure-dependent adjustment of a function variable (see col. 5, lines 40-48 of Kramer). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the device of O'Mara with a resilient dome cap, in the manner disclosed by Kramer, to provide increased tactile feedback to the user. *In regard to claim 33*, O'Mara teaches an output circuit connected to at least four piezoresistive elements where the output circuit provides signals representative of the sensed force (see col. 8, lines 43-45).

This rejection of claims 32-37 of Armstrong '997 based on O'Mara in view of Kramer was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

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[11] *Id.*

Proposed Third Party Requester Rejection: Ground #17

The requester submits that claim 34 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over O'Mara in view of Mitsuhashi.

Claim 34 of Armstrong '997 is rejected under 35 U.S.C. § 103(a) as being unpatentable O'Mara in view of Mitsuhashi. O'Mara teaches that pad 50 and spring 60 are used to provide mechanical resistance or 'feel' to the device 10 as the user applied force to disk 40, which would constitute tactile feedback to the user (see col. 4, lines 31-33). However, Mitsuhashi discloses the use of a metallic dome cap structure to provide a high click ratio and "active tactile feedback" by providing a "considerably good touch of clicking with a click ratio as high as 46.7% (see col. 1, lines 48-58 of Mitsuhashi). Mitsuhashi also teaches that "when the surface panel sheet 21 is depressed with a finger tip at a position just above the pushing head 22, the curvature of the diaphragm 25 is clickingly reversed to give a considerably high click ratio even with a low pushing stroke (see Figs. 7 and 8 and col. 2, lines 54-66 of Mitsuhashi). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the device of O'Mara with the metallic dome cap of Mitsuhashi to improve tactile feedback.

This rejection of claim 34 of Armstrong '997 based on O'Mara in view of Mitsuhashi was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #18

The requester submits that claim 34 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over O'Mara in view of Padula.

Claim 34 of Armstrong '997 is rejected under 35 U.S.C. § 103(a) as being unpatentable O'Mara in view of Padula. O'Mara teaches that pad 50 and spring 60 are used to provide mechanical resistance or 'feel' to the device 10 as the user applied force to disk 40, which would constitute tactile feedback to the user (see col. 4, lines 31-33). However, Padula discloses a metallic dome cap wherein "The snap action during collapse of the dome can be sensed by the stylus user, providing a definite tactile feedback to the user, thereby providing active tactile feedback (see Fig 12 and col. 9, lines 12-13 of Padula). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the device of O'Mara with the metallic dome cap of Padula to improve tactile feedback.

This rejection of claim 34 of Armstrong '997 based on O'Mara in view of Padula was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #19

The requester submits that claim 34 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over O'Mara in view of Himoto.

Claim 34 of Armstrong '997 is rejected under 35 U.S.C. § 103(a) as being unpatentable O'Mara in view of Himoto. O'Mara teaches that pad 50 and spring 60 are

used to provide mechanical resistance or 'feel' to the device 10 as the user applied force to disk 40, which would constitute tactile feedback to the user (see col. 4, lines 31-33). However, Himoto teaches an expansion unit 70 with a vibration unit 75 that is actuated in response to a command signal from the game apparatus body 200 or the controller body 10 and gives vibrations to the controller body 10, thereby providing active tactile feedback (see Figs. 12 and 15 and col. 16, lines 38-58 of Himoto). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the device of O'Mara with the vibration unit of Himoto to improve tactile feedback.

This rejection of claim 34 of Armstrong '997 based on O'Mara in view of Himoto was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #20

The requester submits that claim 34 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over O'Mara in view of Thorner.

Claim 34 of Armstrong '997 is rejected under 35 U.S.C. § 103(a) as being unpatentable O'Mara in view of Thorner. O'Mara teaches that pad 50 and spring 60 are used to provide mechanical resistance or 'feel' to the device 10 as the user applied force to disk 40, which would constitute tactile feedback to the user (see col. 4, lines 31-33). However, Thorner teaches a video game player where "each actuator or group of actuators interacts with the player and is individually activated to produce a localized

tactile sensation, e.g., and impact or vibration, corresponding to the action portrayed by the video game as it occurs (see Thorner, abstract). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the device of O'Mara with the vibration of Thorner to improve tactile feedback.

This rejection of claim 34 of Armstrong '997 based on O'Mara in view of Thorner was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #21

The requester submits that claim 34 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over O'Mara in view of CyberMan.

Claim 34 of Armstrong '997 is rejected under 35 U.S.C. § 103(a) as being unpatentable O'Mara in view of CyberMan. O'Mara teaches that pad 50 and spring 60 are used to provide mechanical resistance or 'feel' to the device 10 as the user applied force to disk 40, which would constitute tactile feedback to the user (see col. 4, lines 31-33). However, CyberMan teaches a "pulsating tactile feedback feature" which creates active tactile feedback felt through the hand of a user (see page 1 of CyberMan). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the device of O'Mara with the pulsating tactile feedback of CyberMan to improve tactile feedback.

This rejection of claim 34 of Armstrong '997 based on O'Mara in view of CyberMan was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #22

The requester submits that claims 36 and 37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over O'Mara in view of Kramer and further in view of CyberMan.

Claims 36 and 37 of Armstrong '997 are rejected under 35 U.S.C. § 103(a) as being unpatentable O'Mara in view of Kramer and further in view of CyberMan. *In regard to claims 36 and 37,* O'Mara teaches that pad 50 and spring 60 are used to provide mechanical resistance or 'feel' to the device 10 as the user applied force to disk 40, which would constitute active tactile feedback to the user[12] (see col. 4, lines 31-33). O'Mara further teaches that as the conductive foam is compressed, it will complete the circuit of the circuit traces and provide an output voltage varying with the compression of the foam (see col. 2, lines 48-51). However, Kramer discloses a snap-through dome cap for providing tactile feedback to the user which is break-over threshold, namely, "the rubber dome bears against the printed circuit board 10 and, upon depression of the appropriate pushbutton 22, will first actuate a switching process with a snap effect and subsequently permit pressure-dependent adjustment of a function variable (see col. 5, lines 40-48 of Kramer). It would have been obvious for one of ordinary skill in the art at

[12] *Id.*

the time the invention was made to provide the device of O'Mara with a resilient dome cap, in the manner disclosed by Kramer, to provide increased tactile feedback to the user. *In regard to claim 33*, O'Mara teaches an output circuit connected to at least four piezoresistive elements where the output circuit provides signals representative of the sensed force (see col. 8, lines 43-45). Furthermore, CyberMan teaches a "pulsating tactile feedback feature" which creates active tactile feedback felt through the hand of a user (see page 1 of CyberMan). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the device of O'Mara with the pulsating tactile feedback of CyberMan to improve tactile feedback.

This rejection of claims 36 and 37 of Armstrong '997 based on O'Mara in view of Kramer and further in view of CyberMan was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #23

The requester submits that claim 37 of Armstrong '997 is unpatentable under 35 U.S.C. § 103(a) as being unpatentable over O'Mara in view of Kramer and further in view of Inoue.

Claim 37 of Armstrong '997 is rejected under 35 U.S.C. § 103(a) as being unpatentable O'Mara in view of Kramer and further in view of Inoue. O'Mara teaches that pad 50 and spring 60 are used to provide mechanical resistance or 'feel' to the device 10 as the user applied force to disk 40, which would constitute active tactile

feedback to the user[13] (see col. 4, lines 31-33). O'Mara further teaches that as the conductive foam is compressed, it will complete the circuit of the circuit traces and provide an output voltage varying with the compression of the foam (see col. 2, lines 48-51). However, Kramer discloses a snap-through dome cap for providing tactile feedback to the user which is break-over threshold, namely, "the rubber dome bears against the printed circuit board 10 and, upon depression of the appropriate pushbutton 22, will first actuate a switching process with a snap effect and subsequently permit pressure-dependent adjustment of a function variable (see col. 5, lines 40-48 of Kramer). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the device of O'Mara with a resilient dome cap, in the manner disclosed by Kramer, to provide increased tactile feedback to the user. Inoue teaches multiple single individual buttons in a right hand area of a housing to be depressed by a user's thumb (see Figs. 1 and 6 of Inoue). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the device of O'Mara with multiple single individual buttons in a right hand area of a housing, in the manner disclosed by Inoue.

This rejection of claim 37 of Armstrong '997 based on O'Mara in view of Kramer and further in view of Inoue was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

[13] *Id.*

Proposed Third Party Requester Rejection: Ground #24

The requester submits that claims 32-37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over Furukawa '217.

Claims 32-37 of Armstrong '997 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Furukawa '217. *In regard to claims 32-37*, Furukawa '217 teaches a switch in a computer keyboard to allow the scroll rate, cursor moving speed and character reaction speed in computer games to be controlled according to the intention of a user (see paragraph 11 of the accompanying translation). Furukawa '217 also teaches a pressure-sensitive variable resistor 1 and abuts secure contact points 9 and 10 where the contact pressure between carbon powder particles is increased by the applied pressure and anisotropic conductivity established between the secure contact points 9 and 10 and the electroconductive layer 7 (see Figs. 4 and 5). The resistance of the pressure-sensitive variable resistor 1 is changed according to the applied pressure so that the voltage between the secure contact points 9 and 10 can be manually and arbitrarily controlled (see abstract). When the elastic rubber of rubber key top 6 is pressed down, the pressure-sensitive variable resistor 1 makes contact with the two secure contact points 9 and 10 and when the contact pressure is low, the pressure-sensitive variable resistor 1 has high resistance; when the rubber key top 6 is further pressed down and the contact pressure is increased, the resistance is reduced (see paragraph 10 of the accompanying translation). Furukawa '217 also discloses that the variable resistor yields changes in resistance corresponding to operational feeling (see paragraph 5 of the accompanying translation). The operational feeling of rubber key

top 6 would be felt as a mechanical resistance by the user, who is applying pressing force on the button with a fingertip. The rubber key top 6 of Furukawa '217 would have implicitly provided active tactile feedback to the finger of a user.[14] In addition, patent owner's admission that "most but not all elastomeric injection molded dome caps when depressed produce a soft snap which is a user discernable tactile feedback" at col. 1, lines 58-65 through col. 2, lines 1-15 of U.S. Patent No. 6,135,886 further supports the argument that the rubber key top 6 of Furukawa '217 would have implicitly provided active tactile feedback to the finger of a user.

This rejection of claims 32-37 of Armstrong '997 based on Furukawa '217 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #25

The requester submits that claims 32-37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over Furukawa '217 in view of Switch Engineering Handbook..

Claims 32-37 of Armstrong '997 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Furukawa '217 in view of Switch Engineering Handbook. *In regard to claims 32-37*, Furukawa '217 teaches a switch in a computer keyboard to allow the scroll rate, cursor moving speed and character reaction speed in computer games to be controlled according to the intention of a user (see paragraph 11 of the accompanying

[14] *Id.*

translation). Furukawa '217 also teaches a pressure-sensitive variable resistor 1 and abuts secure contact points 9 and 10 where the contact pressure between carbon powder particles is increased by the applied pressure and anisotropic conductivity established between the secure contact points 9 and 10 and the electroconductive layer 7 (see Figs. 4 and 5). The resistance of the pressure-sensitive variable resistor 1 is changed according to the applied pressure so that the voltage between the secure contact points 9 and 10 can be manually and arbitrarily controlled (see abstract). When the elastic rubber of rubber key top 6 is pressed down, the pressure-sensitive variable resistor 1 makes contact with the two secure contact points 9 and 10 and when the contact pressure is low, the pressure-sensitive variable resistor 1 has high resistance; when the rubber key top 6 is further pressed down and the contact pressure is increased, the resistance is reduced (see paragraph 10 of the accompanying translation). Furukawa '217 also discloses that the variable resistor yields changes in resistance corresponding to operational feeling (see paragraph 5 of the accompanying translation). The operational feeling of rubber key top 6 would be felt as a mechanical resistance by the user, who is applying pressing force on the button with a fingertip. The rubber key top 6 of Furukawa '217 would have implicitly provided active tactile feedback to the finger of a user.[15] In addition, patent owner's admission that "most but not all elastomeric injection molded dome caps when depressed produce a soft snap which is a user discernable tactile feedback" at col. 1, lines 58-65 through col. 2, lines 1-15 of U.S. Patent No. 6,135,886 further supports the argument that the rubber key top 6

[15] *Id.*

of Furukawa '217 would have implicitly provided active tactile feedback to the finger of a user. Furthermore, Switch Engineering Handbook teaches rubber domes shaped similarly to the dome of Furukawa '760 that produce snap-through tactile feedback (see Fig. 11.5 of Switch Engineering Handbook). Accordingly, it would have been obvious for one of ordinary skill in the art at the time the invention was made to construct the dome-shaped structure disclosed in Furukawa '760 to provide active tactile feedback[16], in the manner disclosed by Switch Engineering Handbook.

This rejection of claims 32-37 of Armstrong '997 based on Furukawa '217 in view of Switch Engineering Handbook was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #26

The requester submits that claims 32-37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over Furukawa '217 in view of Mitchell.

Claims 32-37 of Armstrong '997 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Furukawa '217 in view of Mitchell. *In regard to claims 32-37*, Furukawa '217 teaches a switch in a computer keyboard to allow the scroll rate, cursor moving speed and character reaction speed in computer games to be controlled according to the intention of a user (see paragraph 11 of the accompanying translation). Furukawa '217 also teaches a pressure-sensitive variable resistor 1 and abuts secure contact points 9 and 10 where the contact pressure between carbon powder particles is

[16] *Id.*

increased by the applied pressure and anisotropic conductivity established between the secure contact points 9 and 10 and the electroconductive layer 7 (see Figs. 4 and 5). The resistance of the pressure-sensitive variable resistor 1 is changed according to the applied pressure so that the voltage between the secure contact points 9 and 10 can be manually and arbitrarily controlled (see abstract). When the elastic rubber of rubber key top 6 is pressed down, the pressure-sensitive variable resistor 1 makes contact with the two secure contact points 9 and 10 and when the contact pressure is low, the pressure-sensitive variable resistor 1 has high resistance; when the rubber key top 6 is further pressed down and the contact pressure is increased, the resistance is reduced (see paragraph 10 of the accompanying translation). Furukawa '217 also discloses that the variable resistor yields changes in resistance corresponding to operational feeling (see paragraph 5 of the accompanying translation). The operational feeling of rubber key top 6 would be felt as a mechanical resistance by the user, who is applying pressing force on the button with a fingertip. The rubber key top 6 of Furukawa '217 would have implicitly provided active tactile feedback to the finger of a user.[17] In addition, patent owner's admission that "most but not all elastomeric injection molded dome caps when depressed produce a soft snap which is a user discernable tactile feedback" at col. 1, lines 58-65 through col. 2, lines 1-15 of U.S. Patent No. 6,135,886 further supports the argument that the rubber key top 6 of Furukawa '217 would have implicitly provided active tactile feedback to the finger of a user. Furthermore, Mitchell discloses pressure-sensitive variable-conductance materials in analog sensors where, when pressure is

[17] *Id.*

exerted on the material, electrical resistance to current flow between two electrodes is reduced (see col. 2, lines 58-62, col. 5, line 57 through col. 6, line 35 and Figs. 4 and 6 of Mitchell). Mitchell also identifies numerous types of materials that can be used to make thin pressure-sensitive variable-conductance layers. Thus, it would have been obvious for one of ordinary skill in the art at the time the invention was made to utilize materials disclosed by Mitchell to form the pressure-sensitive variable conductance sensor of Furukawa '217.

This rejection of claims 32-37 of Armstrong '997 based on Furukawa '217 in view of Mitchell was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #27

The requester submits that claims 32-37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over Furukawa '217 in view of Matsumoto.

Claims 32-37 of Armstrong '997 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Furukawa '217 in view of Matsumoto. *In regard to claims 32-37*, Furukawa '217 teaches a switch in a computer keyboard to allow the scroll rate, cursor moving speed and character reaction speed in computer games to be controlled according to the intention of a user (see paragraph 11 of the accompanying translation). Furukawa '217 also teaches a pressure-sensitive variable resistor 1 and abuts secure contact points 9 and 10 where the contact pressure between carbon powder particles is

increased by the applied pressure and anisotropic conductivity established between the secure contact points 9 and 10 and the electroconductive layer 7 (see Figs. 4 and 5). The resistance of the pressure-sensitive variable resistor 1 is changed according to the applied pressure so that the voltage between the secure contact points 9 and 10 can be manually and arbitrarily controlled (see abstract). When the elastic rubber of rubber key top 6 is pressed down, the pressure-sensitive variable resistor 1 makes contact with the two secure contact points 9 and 10 and when the contact pressure is low, the pressure-sensitive variable resistor 1 has high resistance; when the rubber key top 6 is further pressed down and the contact pressure is increased, the resistance is reduced (see paragraph 10 of the accompanying translation). Furukawa '217 also discloses that the variable resistor yields changes in resistance corresponding to operational feeling (see paragraph 5 of the accompanying translation). The operational feeling of rubber key top 6 would be felt as a mechanical resistance by the user, who is applying pressing force on the button with a fingertip. The rubber key top 6 of Furukawa '217 would have implicitly provided active tactile feedback to the finger of a user.[18] In addition, patent owner's admission that "most but not all elastomeric injection molded dome caps when depressed produce a soft snap which is a user discernable tactile feedback" at col. 1, lines 58-65 through col. 2, lines 1-15 of U.S. Patent No. 6,135,886 further supports the argument that the rubber key top 6 of Furukawa '217 would have implicitly provided active tactile feedback to the finger of a user. Furthermore, Matsumoto discloses a variable resistance switch where "switching can be easily recognized through the feeling

[18] *Id.*

of pressure on a fingertip and the resistance between two terminals can be changed depending on how much the push button of the switch is depressed" (see Matsumoto at page 1). Matsumoto also discloses a "click action" made by an elastic electro-conductive curved plate 3 within a push button 1 that can easily be recognized by the operator (see pages 7 and 9 of Matsumoto). It would have been obvious for one of ordinary skill in the art to provide the device of Furukawa '217 with the switch of Matsumoto so as to enhance tactile feedback.

This rejection of claims 32-37 of Armstrong '997 based on Furukawa '217 in view of Matsumoto was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #28

The requester submits that claims 32-37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over Furukawa '217 in view of Kramer.

Claims 32-37 of Armstrong '997 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Furukawa '217 in view of Kramer. *In regard to claims 32-37*, Furukawa '217 teaches a switch in a computer keyboard to allow the scroll rate, cursor moving speed and character reaction speed in computer games to be controlled according to the intention of a user (see paragraph 11 of the accompanying translation). Furukawa '217 also teaches a pressure-sensitive variable resistor 1 and abuts secure contact points 9 and 10 where the contact pressure between carbon powder particles is increased by the applied pressure and anisotropic conductivity established between the

secure contact points 9 and 10 and the electroconductive layer 7 (see Figs. 4 and 5). The resistance of the pressure-sensitive variable resistor 1 is changed according to the applied pressure so that the voltage between the secure contact points 9 and 10 can be manually and arbitrarily controlled (see abstract). When the elastic rubber of rubber key top 6 is pressed down, the pressure-sensitive variable resistor 1 makes contact with the two secure contact points 9 and 10 and when the contact pressure is low, the pressure-sensitive variable resistor 1 has high resistance; when the rubber key top 6 is further pressed down and the contact pressure is increased, the resistance is reduced (see paragraph 10 of the accompanying translation). Furukawa '217 also discloses that the variable resistor yields changes in resistance corresponding to operational feeling (see paragraph 5 of the accompanying translation). The operational feeling of rubber key top 6 would be felt as a mechanical resistance by the user, who is applying pressing force on the button with a fingertip. The rubber key top 6 of Furukawa '217 would have implicitly provided active tactile feedback to the finger of a user.[19] In addition, patent owner's admission that "most but not all elastomeric injection molded dome caps when depressed produce a soft snap which is a user discernable tactile feedback" at col. 1, lines 58-65 through col. 2, lines 1-15 of U.S. Patent No. 6,135,886 further supports the argument that the rubber key top 6 of Furukawa '217 would have implicitly provided active tactile feedback to the finger of a user. Furthermore, Kramer discloses a snap-through dome cap for providing tactile feedback to the user which is break-over threshold, namely, "the rubber dome bears against the printed circuit board 10 and,

[19] *Id.*

upon depression of the appropriate pushbutton 22, will first actuate a switching process with a snap effect and subsequently permit pressure-dependent adjustment of a function variable (see col. 5, lines 40-48 of Kramer). Accordingly, it would have been obvious for one of ordinary skill in the art at the time the invention was made to construct the dome-shaped structure disclosed in Furukawa '760 to provide active tactile feedback[20] , in the manner disclosed by Kramer.

This rejection of claims 32-37 of Armstrong '997 based on Furukawa '217 in view of Kramer was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #29

The requester submits that claims 34, 36 and 37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over Furukawa '217 in view of Mitsuhashi.

Claims 34, 36 and 37 of Armstrong '997 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Furukawa '217 in view of Mitsuhashi. *In regard to claims 34, 36 and 37*, Furukawa '217 teaches a switch in a computer keyboard to allow the scroll rate, cursor moving speed and character reaction speed in computer games to be controlled according to the intention of a user (see paragraph 11 of the accompanying translation). Furukawa '217 also teaches a pressure-sensitive variable resistor 1 and abuts secure contact points 9 and 10 where the contact pressure between carbon

[20] *Id.*

powder particles is increased by the applied pressure and anisotropic conductivity established between the secure contact points 9 and 10 and the electroconductive layer 7 (see Figs. 4 and 5). The resistance of the pressure-sensitive variable resistor 1 is changed according to the applied pressure so that the voltage between the secure contact points 9 and 10 can be manually and arbitrarily controlled (see abstract). When the elastic rubber of rubber key top 6 is pressed down, the pressure-sensitive variable resistor 1 makes contact with the two secure contact points 9 and 10 and when the contact pressure is low, the pressure-sensitive variable resistor 1 has high resistance; when the rubber key top 6 is further pressed down and the contact pressure is increased, the resistance is reduced (see paragraph 10 of the accompanying translation). Furukawa '217 also discloses that the variable resistor yields changes in resistance corresponding to operational feeling (see paragraph 5 of the accompanying translation). The operational feeling of rubber key top 6 would be felt as a mechanical resistance by the user, who is applying pressing force on the button with a fingertip. The rubber key top 6 of Furukawa '217 would have implicitly provided active tactile feedback to the finger of a user.[21] Furthermore, Mitsuhashi discloses the use of a metallic dome cap structure to provide a high click ratio and "active tactile feedback" by providing a "considerably good touch of clicking with a click ratio as high as 46.7% (see col. 1, lines 48-58 of Mitsuhashi). Mitsuhashi also teaches that "when the surface panel sheet 21 is depressed with a finger tip at a position just above the pushing head 22, the curvature of the diaphragm 25 is clickingly reversed to give a considerably high click

ratio even with a low pushing stroke (see Figs. 7 and 8 and col. 2, lines 54-66 of Mitsuhashi). It would have been obvious for one of ordinary skill in the art at the time the invention was made to replace the rubber key top 6 of Furukawa '217 with the metallic dome cap of Mitsuhashi to improve tactile feedback.

This rejection of claims 34, 36 and 37 of Armstrong '997 based on Furukawa '217 in view of Mitsuhashi was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #30

The requester submits that claims 34, 36 and 37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over Furukawa '217 in view of Padula.

Claims 34, 36 and 37 of Armstrong '997 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Furukawa '217 in view of Padula. *In regard to claims 34, 36 and 37*, Furukawa '217 teaches a switch in a computer keyboard to allow the scroll rate, cursor moving speed and character reaction speed in computer games to be controlled according to the intention of a user (see paragraph 11 of the accompanying translation). Furukawa '217 also teaches a pressure-sensitive variable resistor 1 and abuts secure contact points 9 and 10 where the contact pressure between carbon powder particles is increased by the applied pressure and anisotropic conductivity established between the secure contact points 9 and 10 and the electroconductive layer 7 (see Figs. 4 and 5).

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[21] *Id.*

The resistance of the pressure-sensitive variable resistor 1 is changed according to the applied pressure so that the voltage between the secure contact points 9 and 10 can be manually and arbitrarily controlled (see abstract). When the elastic rubber of rubber key top 6 is pressed down, the pressure-sensitive variable resistor 1 makes contact with the two secure contact points 9 and 10 and when the contact pressure is low, the pressure-sensitive variable resistor 1 has high resistance; when the rubber key top 6 is further pressed down and the contact pressure is increased, the resistance is reduced (see paragraph 10 of the accompanying translation). Furukawa '217 also discloses that the variable resistor yields changes in resistance corresponding to operational feeling (see paragraph 5 of the accompanying translation). The operational feeling of rubber key top 6 would be felt as a mechanical resistance by the user, who is applying pressing force on the button with a fingertip. The rubber key top 6 of Furukawa '217 would have implicitly provided active tactile feedback to the finger of a user.[22] Furthermore, Padula discloses a metallic dome cap wherein "The snap action during collapse of the dome can be sensed by the stylus user, providing a definite tactile feedback to the user, thereby providing active tactile feedback (see Fig 12 and col. 9, lines 12-13 of Padula). It would have been obvious for one of ordinary skill in the art at the time the invention was made to replace the rubber key top 6 of Furukawa '217 with the metallic dome cap of Padula to improve tactile feedback.

[22] *Id.*

This rejection of claims 34, 36 and 37 of Armstrong '997 based on Furukawa '217 in view of Padula was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #31

The requester submits that claims 34, 36 and 37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over Furukawa '217 in view of Himoto.

Claims 34, 36 and 37 of Armstrong '997 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Furukawa '217 in view of Himoto. *In regard to claims 34, 36 and 37*, Furukawa '217 teaches a switch in a computer keyboard to allow the scroll rate, cursor moving speed and character reaction speed in computer games to be controlled according to the intention of a user (see paragraph 11 of the accompanying translation). Furukawa '217 also teaches a pressure-sensitive variable resistor 1 and abuts secure contact points 9 and 10 where the contact pressure between carbon powder particles is increased by the applied pressure and anisotropic conductivity established between the secure contact points 9 and 10 and the electroconductive layer 7 (see Figs. 4 and 5). The resistance of the pressure-sensitive variable resistor 1 is changed according to the applied pressure so that the voltage between the secure contact points 9 and 10 can be manually and arbitrarily controlled (see abstract). When the elastic rubber of rubber key top 6 is pressed down, the pressure-sensitive variable resistor 1 makes contact with the two secure contact points 9 and 10 and when the contact pressure is low, the pressure-

sensitive variable resistor 1 has high resistance; when the rubber key top 6 is further pressed down and the contact pressure is increased, the resistance is reduced (see paragraph 10 of the accompanying translation). Furukawa '217 also discloses that the variable resistor yields changes in resistance corresponding to operational feeling (see paragraph 5 of the accompanying translation). The operational feeling of rubber key top 6 would be felt as a mechanical resistance by the user, who is applying pressing force on the button with a fingertip. The rubber key top 6 of Furukawa '217 would have implicitly provided active tactile feedback to the finger of a user.[23] Furthermore, Himoto teaches an expansion unit 70 with a vibration unit 75 that is actuated in response to a command signal from the game apparatus body 200 or the controller body 10 and gives vibrations to the controller body 10, thereby providing active tactile feedback (see Figs. 12 and 15 and col. 16, lines 38-58 of Himoto). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the rubber key top 6 of Furukawa '217 with the vibration unit of Himoto to improve tactile feedback.

This rejection of claims 34, 36 and 37 of Armstrong '997 based on Furukawa '217 in view of Himoto was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

[23] *Id.*

Proposed Third Party Requester Rejection: Ground #32

The requester submits that claims 34, 36 and 37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over Furukawa '217 in view of Thorner.

Claims 34, 36 and 37 of Armstrong '997 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Furukawa '217 in view of Thorner. *In regard to claims 34, 36 and 37*, Furukawa '217 teaches a switch in a computer keyboard to allow the scroll rate, cursor moving speed and character reaction speed in computer games to be controlled according to the intention of a user (see paragraph 11 of the accompanying translation). Furukawa '217 also teaches a pressure-sensitive variable resistor 1 and abuts secure contact points 9 and 10 where the contact pressure between carbon powder particles is increased by the applied pressure and anisotropic conductivity established between the secure contact points 9 and 10 and the electroconductive layer 7 (see Figs. 4 and 5). The resistance of the pressure-sensitive variable resistor 1 is changed according to the applied pressure so that the voltage between the secure contact points 9 and 10 can be manually and arbitrarily controlled (see abstract). When the elastic rubber of rubber key top 6 is pressed down, the pressure-sensitive variable resistor 1 makes contact with the two secure contact points 9 and 10 and when the contact pressure is low, the pressure-sensitive variable resistor 1 has high resistance; when the rubber key top 6 is further pressed down and the contact pressure is increased, the resistance is reduced (see paragraph 10 of the accompanying translation). Furukawa '217 also discloses that the variable resistor yields changes in resistance corresponding to operational feeling (see

paragraph 5 of the accompanying translation). The operational feeling of rubber key top 6 would be felt as a mechanical resistance by the user, who is applying pressing force on the button with a fingertip. The rubber key top 6 of Furukawa '217 would have implicitly provided active tactile feedback to the finger of a user.[24] Furthermore, Thorner teaches a video game player where "each actuator or group of actuators interacts with the player and is individually activated to produce a localized tactile sensation, e.g., and impact or vibration, corresponding to the action portrayed by the video game as it occurs (see Thorner, abstract). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the rubber key top 6 of Furukawa '217 with the vibration of Thorner to improve tactile feedback.

This rejection of claims 34, 36 and 37 of Armstrong '997 based on Furukawa '217 in view of Thorner was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #33

The requester submits that claims 34, 36 and 37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over Furukawa '217 in view of CyberMan.

Claims 34, 36 and 37 of Armstrong '997 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Furukawa '217 in view of CyberMan. *In regard to claims 34, 36 and 37*, Furukawa '217 teaches a switch in a computer keyboard to allow the scroll

[24] *Id.*

rate, cursor moving speed and character reaction speed in computer games to be controlled according to the intention of a user (see paragraph 11 of the accompanying translation). Furukawa '217 also teaches a pressure-sensitive variable resistor 1 and abuts secure contact points 9 and 10 where the contact pressure between carbon powder particles is increased by the applied pressure and anisotropic conductivity established between the secure contact points 9 and 10 and the electroconductive layer 7 (see Figs. 4 and 5). The resistance of the pressure-sensitive variable resistor 1 is changed according to the applied pressure so that the voltage between the secure contact points 9 and 10 can be manually and arbitrarily controlled (see abstract). When the elastic rubber of rubber key top 6 is pressed down, the pressure-sensitive variable resistor 1 makes contact with the two secure contact points 9 and 10 and when the contact pressure is low, the pressure-sensitive variable resistor 1 has high resistance; when the rubber key top 6 is further pressed down and the contact pressure is increased, the resistance is reduced (see paragraph 10 of the accompanying translation). Furukawa '217 also discloses that the variable resistor yields changes in resistance corresponding to operational feeling (see paragraph 5 of the accompanying translation). The operational feeling of rubber key top 6 would be felt as a mechanical resistance by the user, who is applying pressing force on the button with a fingertip. The rubber key top 6 of Furukawa '217 would have implicitly provided active tactile feedback to the finger of a user.[25] Furthermore, CyberMan teaches a "pulsating tactile feedback feature" which creates active tactile feedback felt through the hand of a user

[25] *Id.*

(see page 1 of CyberMan). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the rubber key top 6 of Furukawa '217 with the pulsating tactile feedback of CyberMan to improve tactile feedback.

This rejection of claims 34, 36 and 37 of Armstrong '997 based on Furukawa '217 in view of CyberMan was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #34

The requester submits that claims 34, 36 and 37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over Furukawa '217 in view of CyberMan and further in view of Switch Engineering Handbook.

Claims 34, 36 and 37 of Armstrong '997 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Furukawa '217 in view of CyberMan and further in view of Switch Engineering Handbook. *In regard to claims 34, 36 and 37*, Furukawa '217 teaches a switch in a computer keyboard to allow the scroll rate, cursor moving speed and character reaction speed in computer games to be controlled according to the intention of a user (see paragraph 11 of the accompanying translation). Furukawa '217 also teaches a pressure-sensitive variable resistor 1 and abuts secure contact points 9 and 10 where the contact pressure between carbon powder particles is increased by the applied pressure and anisotropic conductivity established between the secure contact points 9 and 10 and the electroconductive layer 7 (see Figs. 4 and 5). The resistance of the pressure-sensitive variable resistor 1 is changed according to the applied pressure

so that the voltage between the secure contact points 9 and 10 can be manually and arbitrarily controlled (see abstract). When the elastic rubber of rubber key top 6 is pressed down, the pressure-sensitive variable resistor 1 makes contact with the two secure contact points 9 and 10 and when the contact pressure is low, the pressure-sensitive variable resistor 1 has high resistance; when the rubber key top 6 is further pressed down and the contact pressure is increased, the resistance is reduced (see paragraph 10 of the accompanying translation). Furukawa '217 also discloses that the variable resistor yields changes in resistance corresponding to operational feeling (see paragraph 5 of the accompanying translation). The operational feeling of rubber key top 6 would be felt as a mechanical resistance by the user, who is applying pressing force on the button with a fingertip. The rubber key top 6 of Furukawa '217 would have implicitly provided active tactile feedback to the finger of a user.[26] Furthermore, CyberMan teaches a "pulsating tactile feedback feature" which creates active tactile feedback felt through the hand of a user (see page 1 of CyberMan). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the rubber key top 6 of Furukawa '217 with the pulsating tactile feedback of CyberMan to improve tactile feedback. However, Switch Engineering Handbook teaches rubber domes shaped similarly to the dome of Furukawa '760 that produce snap-through tactile feedback (see Fig. 11.5 of Switch Engineering Handbook). Accordingly, it would have been obvious for one of ordinary skill in the art at the time the invention was made to

[26] *Id.*

construct the dome-shaped structure disclosed in Furukawa '217 to provide active tactile feedback[27] , in the manner disclosed by Switch Engineering Handbook.

This rejection of claims 34, 36 and 37 of Armstrong '997 based on Furukawa '217 in view of CyberMan and further in view of Switch Engineering Handbook was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #35

The requester submits that claims 35-37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over Furukawa '217 in view of Matsumoto and further in view of Kramer.

Claims 35-37 of Armstrong '997 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Furukawa '217 in view of Matsumoto and further in view of Kramer. *In regard to claims 35-37*, Furukawa '217 teaches a switch in a computer keyboard to allow the scroll rate, cursor moving speed and character reaction speed in computer games to be controlled according to the intention of a user (see paragraph 11 of the accompanying translation). Furukawa '217 also teaches a pressure-sensitive variable resistor 1 and abuts secure contact points 9 and 10 where the contact pressure between carbon powder particles is increased by the applied pressure and anisotropic conductivity established between the secure contact points 9 and 10 and the electroconductive layer 7 (see Figs. 4 and 5). The resistance of the pressure-sensitive

[27] *Id.*

variable resistor 1 is changed according to the applied pressure so that the voltage between the secure contact points 9 and 10 can be manually and arbitrarily controlled (see abstract). When the elastic rubber of rubber key top 6 is pressed down, the pressure-sensitive variable resistor 1 makes contact with the two secure contact points 9 and 10 and when the contact pressure is low, the pressure-sensitive variable resistor 1 has high resistance; when the rubber key top 6 is further pressed down and the contact pressure is increased, the resistance is reduced (see paragraph 10 of the accompanying translation). Furukawa '217 also discloses that the variable resistor yields changes in resistance corresponding to operational feeling (see paragraph 5 of the accompanying translation). The operational feeling of rubber key top 6 would be felt as a mechanical resistance by the user, who is applying pressing force on the button with a fingertip. The rubber key top 6 of Furukawa '217 would have implicitly provided active tactile feedback to the finger of a user.[28] In addition, patent owner's admission that "most but not all elastomeric injection molded dome caps when depressed produce a soft snap which is a user discernable tactile feedback" at col. 1, lines 58-65 through col. 2, lines 1-15 of U.S. Patent No. 6,135,886 further supports the argument that the rubber key top 6 of Furukawa '217 would have implicitly provided active tactile feedback to the finger of a user. Furthermore, Matsumoto discloses a variable resistance switch where "switching can be easily recognized through the feeling of pressure on a fingertip and the resistance between two terminals can be changed depending on how much the push button of the switch is depressed" (see Matsumoto at page 1). Matsumoto also

[28] *Id.*

discloses a "click action" made by an elastic electro-conductive curved plate 3 within a push button 1 that can easily be recognized by the operator (see pages 7 and 9 of Matsumoto). It would have been obvious for one of ordinary skill in the art to provide the device of Furukawa '217 with the switch of Matsumoto so as to enhance tactile feedback. Furthermore, Kramer discloses a snap-through dome cap for providing tactile feedback to the user which is break-over threshold, namely, "the rubber dome bears against the printed circuit board 10 and, upon depression of the appropriate pushbutton 22, will first actuate a switching process with a snap effect and subsequently permit pressure-dependent adjustment of a function variable (see col. 5, lines 40-48 of Kramer). Accordingly, it would have been obvious for one of ordinary skill in the art at the time the invention was made to construct the dome-shaped structure disclosed in Furukawa '217 to provide active tactile feedback[29] , in the manner disclosed by Kramer.

This rejection of claims 35-37 of Armstrong '997 based on Furukawa '217 in view of Matsumoto and further in view of Kramer was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #36

The requester submits that claims 32-37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over Kawashima in view of Furukawa '760.

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[29] *Id.*

Claims 32-37 of Armstrong '997 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kawashima in view of Furukawa '760. *In regard to claims 32-37*, Kawashima teaches a game control device for a personal computer comprised of a push button formed from a pressure-sensitive rubber whose resistance value changes with the pressing force on the switch (see col. 1 of Kawashima). Kawashima teaches that the oscillation frequency of a variable frequency oscillation circuit 10 is determined by the resistance value of a pressure-sensitive conductive rubber switch 3 and the capacity of a capacitor 2 (see col. 2 of Kawashima). Furukawa '760 teaches a device for controlling video game imagery comprised of a controller 10 that is connected to a video game machine via a cable 11 and includes a cross shaped key 12 for vertically and horizontally moving characters on the screen (see Fig. 1 and paragraph 8 of the accompanying translation). A rubber contact point 29 on the cross shaped key 12 is formed from elastic rubber material and a moving part 30 is disposed onto the center of each cross shaped key 12 (see Fig. 2 and paragraph 9 of the accompanying translation). Moving contact 32 is formed of conductive rubber and is disposed on the bottom end of each moving part 30, and conductive part 33, whose resistance varies with pressure, is attached to the bottom end surface of moving contact 32 (see Fig. 2 and paragraph 9 of the accompanying translation). By performing the depressing operation, moving part 30 is lowered while being resisted by the elastic bias of elastic let part 31 so that it is electrically connected to fixed contacts 7 and 7 on a wiring pattern disposed on substrate 5 (see Fig. 2 and paragraph 9 of the accompanying translation).

The pressing force applied by the fingertip on each contact point 29 on the cross shaped key 12 changes the electrical resistance through conductive part 33 and thus, the operation of a character in a video game can be freely controlled by the pressing force applied by the fingertip of the operator (see Fig. 2 and paragraph 10 of the accompanying translation). Rubber contact point 29 is dome-shaped, and includes elastic leg parts 31 where moving part 30 is lowered while being resisted by the elastic bias of elastic leg part 31 (see Fig. 2 and paragraph 9 of the accompanying translation). This elastic bias would be felt as a mechanical resistance by the user, who is applying pressing force on the button with a fingertip (see paragraph 10 of the accompanying translation. It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the device of Kawashima with the dome-shaped cap of Furukawa '760 as an alternate pressure-sensitive variable resistance switch. Furukawa '760 also discloses placing analog sensors below each of the four directional sections of a cross key in a game controller, each of which is attached to the output circuit to control movement of a game character in one direction, allowing for a user to vertically and horizontally move characters on a screen (see paragraph 8 of the accompanying translation). Furukawa '760 also states that additional sensors may be used in other locations on the controller, other than in the cross keys (see paragraph 9 of the accompanying translation).

This rejection of claims 32-37 of Armstrong '997 based on Kawashima in view of Furukawa '760 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #37

The requester submits that claims 32-36 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over Kawashima in view of Matsumoto. Claims 32-36 of Armstrong '997 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kawashima in view of Matsumoto. *In regard to claims 32-36*, Kawashima teaches a game control device for a personal computer comprised of a push button formed from a pressure-sensitive rubber whose resistance value changes with the pressing force on the switch (see col. 1 of Kawashima). Kawashima teaches that the oscillation frequency of a variable frequency oscillation circuit 10 is determined by the resistance value of a pressure-sensitive conductive rubber switch 3 and the capacity of a capacitor 2 (see col. 2 of Kawashima). Matsumoto discloses a variable resistance switch where "switching can be easily recognized through the feeling of pressure on a fingertip and the resistance between two terminals can be changed depending on how much the push button of the switch is depressed" (see Matsumoto at page 1). Matsumoto also discloses a "click action" made by an elastic electro-conductive curved plate 3 within a push button 1 that can easily be recognized by the operator (see pages 7 and 9 of Matsumoto). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the device of Kawashima with the switch of Matsumoto as an alternate pressure-sensitive variable resistance switch.

This rejection of claims 32-36 of Armstrong '997 based on Kawashima in view of Matsumoto was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #38

The requester submits that claims 32-36 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over Kawashima in view of Kramer.

Claims 32-36 of Armstrong '997 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kawashima in view of Kramer. *In regard to claims 32-36*, Kawashima teaches a game control device for a personal computer comprised of a push button formed from a pressure-sensitive rubber whose resistance value changes with the pressing force on the switch (see col. 1 of Kawashima). Kawashima teaches that the oscillation frequency of a variable frequency oscillation circuit 10 is determined by the resistance value of a pressure-sensitive conductive rubber switch 3 and the capacity of a capacitor 2 (see col. 2 of Kawashima). Kramer discloses a snap-through dome cap for providing tactile feedback to the user which is break-over threshold, namely, "the rubber dome bears against the printed circuit board 10 and, upon depression of the appropriate pushbutton 22, will first actuate a switching process with a snap effect and subsequently permit pressure-dependent adjustment of a function variable (see col. 5, lines 40-48 of Kramer). Accordingly, it would have been obvious for

one of ordinary skill in the art at the time the invention was made to construct the switch in Kawashima to provide active tactile feedback[30] , in the manner disclosed by Kramer.

This rejection of claims 32-36 of Armstrong '997 based on Kawashima in view of Kramer was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #39

The requester submits that claim 34 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over Kawashima in view of Kramer.

Claim 34 of Armstrong '997 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Kawashima in view of Himoto. Kawashima teaches a game control device for a personal computer comprised of a push button formed from a pressure-sensitive rubber whose resistance value changes with the pressing force on the switch (see col. 1 of Kawashima). Kawashima teaches that the oscillation frequency of a variable frequency oscillation circuit 10 is determined by the resistance value of a pressure-sensitive conductive rubber switch 3 and the capacity of a capacitor 2 (see col. 2 of Kawashima). Himoto teaches an expansion unit 70 with a vibration unit 75 that is actuated in response to a command signal from the game apparatus body 200 or the controller body 10 and gives vibrations to the controller body 10, thereby providing active tactile feedback (see Figs. 12 and 15 and col. 16, lines 38-58 of Himoto). It would have been obvious for one of ordinary skill in the art at the time the invention was

[30] *Id.*

made to provide the device of Kawashima with the vibration unit of Himoto to improve tactile feedback.

This rejection of claim 34 of Armstrong '997 based on Kawashima in view of Himoto was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #40

The requester submits that claim 34 of Armstrong '997 is unpatentable under 35 U.S.C. § 103(a) as being unpatentable over Kawashima in view of Thorner.

Claim 34 of Armstrong '997 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Kawashima in view of Thorner. Kawashima teaches a game control device for a personal computer comprised of a push button formed from a pressure-sensitive rubber whose resistance value changes with the pressing force on the switch (see col. 1 of Kawashima). Kawashima teaches that the oscillation frequency of a variable frequency oscillation circuit 10 is determined by the resistance value of a pressure-sensitive conductive rubber switch 3 and the capacity of a capacitor 2 (see col. 2 of Kawashima). However, Thorner teaches a video game player where "each actuator or group of actuators interacts with the player and is individually activated to produce a localized tactile sensation, e.g., and impact or vibration, corresponding to the action portrayed by the video game as it occurs (see Thorner, abstract). It would have been obvious for one of ordinary skill in the art at the time the invention was made to

provide the device of Kawashima with the vibration of Thorner to improve tactile feedback.

This rejection of claim 34 of Armstrong '997 based on Kawashima in view of Thorner was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #41

The requester submits that claim 34 of Armstrong '997 is unpatentable under 35 U.S.C. § 103(a) as being unpatentable over Kawashima in view of CyberMan.

Claim 34 of Armstrong '997 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Kawashima in view of CyberMan. Kawashima teaches a game control device for a personal computer comprised of a push button formed from a pressure-sensitive rubber whose resistance value changes with the pressing force on the switch (see col. 1 of Kawashima). Kawashima teaches that the oscillation frequency of a variable frequency oscillation circuit 10 is determined by the resistance value of a pressure-sensitive conductive rubber switch 3 and the capacity of a capacitor 2 (see col. 2 of Kawashima). However, CyberMan teaches a "pulsating tactile feedback feature" which creates active tactile feedback felt through the hand of a user (see page 1 of CyberMan). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the device of Kawashima with the pulsating tactile feedback of CyberMan to improve tactile feedback.

This rejection of claim 34 of Armstrong '997 based on Kawashima in view of CyberMan was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #42

The requester submits that claims 34 and 36 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over Kawashima in view of Matsumoto and further in view of Padula.

Claims 34 and 36 of Armstrong '997 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kawashima in view of Matsumoto and further in view of Padula. *In regard to claims 34 and 36*, Kawashima teaches a game control device for a personal computer comprised of a push button formed from a pressure-sensitive rubber whose resistance value changes with the pressing force on the switch (see col. 1 of Kawashima). Kawashima teaches that the oscillation frequency of a variable frequency oscillation circuit 10 is determined by the resistance value of a pressure-sensitive conductive rubber switch 3 and the capacity of a capacitor 2 (see col. 2 of Kawashima). Matsumoto discloses a variable resistance switch where "switching can be easily recognized through the feeling of pressure on a fingertip and the resistance between two terminals can be changed depending on how much the push button of the switch is depressed" (see Matsumoto at page 1). Matsumoto also discloses a "click action" made by an elastic electro-conductive curved plate 3 within a push button 1 that can easily be recognized by the operator (see pages 7 and 9 of Matsumoto). It would

have been obvious for one of ordinary skill in the art at the time the invention was made to provide the device of Kawashima with the switch of Matsumoto as an alternate pressure-sensitive variable resistance switch. Furthermore, Padula discloses a metallic dome cap wherein "The snap action during collapse of the dome can be sensed by the stylus user, providing a definite tactile feedback to the user, thereby providing active tactile feedback (see Fig 12 and col. 9, lines 12-13 of Padula). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the device of Kawashima with the metallic dome cap of Padula to improve tactile feedback.

This rejection of claims 34 and 36 of Armstrong '997 based on Kawashima in view of Matsumoto and further in view of Padula was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #43

The requester submits that claims 34 and 36 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over Kawashima in view of Furukawa '760 and further in view of Mitsuhashi.

Claims 34 and 36 of Armstrong '997 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kawashima in view of Furukawa '760 and further in view of Mitsuhashi. *In regard to claims 34 and 36*, Kawashima teaches a game control device for a personal computer comprised of a push button formed from a pressure-sensitive

rubber whose resistance value changes with the pressing force on the switch (see col. 1 of Kawashima). Kawashima teaches that the oscillation frequency of a variable frequency oscillation circuit 10 is determined by the resistance value of a pressure-sensitive conductive rubber switch 3 and the capacity of a capacitor 2 (see col. 2 of Kawashima). Furukawa '760 teaches a device for controlling video game imagery comprised of a controller 10 that is connected to a video game machine via a cable 11 and includes a cross shaped key 12 for vertically and horizontally moving characters on the screen (see Fig. 1 and paragraph 8 of the accompanying translation). A rubber contact point 29 on the cross shaped key 12 is formed from elastic rubber material and a moving part 30 is disposed onto the center of each cross shaped key 12 (see Fig. 2 and paragraph 9 of the accompanying translation). Moving contact 32 is formed of conductive rubber and is disposed on the bottom end of each moving part 30, and conductive part 33, whose resistance varies with pressure, is attached to the bottom end surface of moving contact 32 (see Fig. 2 and paragraph 9 of the accompanying translation). By performing the depressing operation, moving part 30 is lowered while being resisted by the elastic bias of elastic let part 31 so that it is electrically connected to fixed contacts 7 and 7 on a wiring pattern disposed on substrate 5 (see Fig. 2 and paragraph 9 of the accompanying translation). The pressing force applied by the fingertip on each contact point 29 on the cross shaped key 12 changes the electrical resistance through conductive part 33 and thus, the operation of a character in a video game can be freely controlled by the pressing force applied by the fingertip of the operator (see Fig. 2 and paragraph 10 of the accompanying translation). Rubber

contact point 29 is dome-shaped, and includes elastic leg parts 31 where moving part 30 is lowered while being resisted by the elastic bias of elastic leg part 31 (see Fig. 2 and paragraph 9 of the accompanying translation). This elastic bias would be felt as a mechanical resistance by the user, who is applying pressing force on the button with a fingertip (see paragraph 10 of the accompanying translation. It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the device of Kawashima with the dome-shaped cap of Furukawa '760 as an alternate pressure-sensitive variable resistance switch. Furthermore, Mitsuhashi discloses the use of a metallic dome cap structure to provide a high click ratio and "active tactile feedback" by providing a "considerably good touch of clicking with a click ratio as high as 46.7% (see col. 1, lines 48-58 of Mitsuhashi). Mitsuhashi also teaches that "when the surface panel sheet 21 is depressed with a finger tip at a position just above the pushing head 22, the curvature of the diaphragm 25 is clickingly reversed to give a considerably high click ratio even with a low pushing stroke (see Figs. 7 and 8 and col. 2, lines 54-66 of Mitsuhashi). It would have been obvious for one of ordinary skill in the art at the time the invention was made to replace the rubber key top 6 of Kawashima with the metallic dome cap of Mitsuhashi to improve tactile feedback. Furukawa '760 also discloses placing analog sensors below each of the four directional sections of a cross key in a game controller, each of which is attached to the output circuit to control movement of a game character in one direction, allowing for a user to vertically and horizontally move characters on a screen (see paragraph 8 of the accompanying translation). Furukawa '760 also states that additional sensors may be used in other

locations on the controller, other than in the cross keys (see paragraph 9 of the accompanying translation).

This rejection of claims 34 and 36 of Armstrong '997 based on Kawashima in view of Furukawa '760 and further in view of Mitsuhashi was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Proposed Third Party Requester Rejection: Ground #44

The requester submits that claims 32-37 of Armstrong '997 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over Kawashima in view of Matsumoto and further in view of Furukawa '760.

Claims 34 and 36 of Armstrong '997 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kawashima in view of Matsumoto and further in view of Furukawa '760. *In regard to claims 34 and 36*, Kawashima teaches a game control device for a personal computer comprised of a push button formed from a pressure-sensitive rubber whose resistance value changes with the pressing force on the switch (see col. 1 of Kawashima). Kawashima teaches that the oscillation frequency of a variable frequency oscillation circuit 10 is determined by the resistance value of a pressure-sensitive conductive rubber switch 3 and the capacity of a capacitor 2 (see col. 2 of Kawashima). Matsumoto discloses a variable resistance switch where "switching can be easily recognized through the feeling of pressure on a fingertip and the resistance between two terminals can be changed depending on how much the push

button of the switch is depressed" (see Matsumoto at page 1). Matsumoto also discloses a "click action" made by an elastic electro-conductive curved plate 3 within a push button 1 that can easily be recognized by the operator (see pages 7 and 9 of Matsumoto). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the device of Kawashima with the switch of Matsumoto as an alternate pressure-sensitive variable resistance switch. Furthermore, Furukawa '760 teaches a device for controlling video game imagery comprised of a controller 10 that is connected to a video game machine via a cable 11 and includes a cross shaped key 12 for vertically and horizontally moving characters on the screen (see Fig. 1 and paragraph 8 of the accompanying translation). A rubber contact point 29 on the cross shaped key 12 is formed from elastic rubber material and a moving part 30 is disposed onto the center of each cross shaped key 12 (see Fig. 2 and paragraph 9 of the accompanying translation). Moving contact 32 is formed of conductive rubber and is disposed on the bottom end of each moving part 30, and conductive part 33, whose resistance varies with pressure, is attached to the bottom end surface of moving contact 32 (see Fig. 2 and paragraph 9 of the accompanying translation). By performing the depressing operation, moving part 30 is lowered while being resisted by the elastic bias of elastic let part 31 so that it is electrically connected to fixed contacts 7 and 7 on a wiring pattern disposed on substrate 5 (see Fig. 2 and paragraph 9 of the accompanying translation). The pressing force applied by the fingertip on each contact point 29 on the cross shaped key 12 changes the electrical resistance through conductive part 33 and thus, the operation of a character in a video game can be freely

controlled by the pressing force applied by the fingertip of the operator (see Fig. 2 and paragraph 10 of the accompanying translation). Rubber contact point 29 is dome-shaped, and includes elastic leg parts 31 where moving part 30 is lowered while being resisted by the elastic bias of elastic leg part 31 (see Fig. 2 and paragraph 9 of the accompanying translation). This elastic bias would be felt as a mechanical resistance by the user, who is applying pressing force on the button with a fingertip (see paragraph 10 of the accompanying translation. It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the device of Kawashima with the dome-shaped cap of Furukawa '760 as an alternate pressure-sensitive variable resistance switch.

This rejection of claims 32-37 of Armstrong '997 based on Kawashima in view of Matsumoto and further in view of Furukawa '760 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Scope of Reexamination

Since requester did not request reexamination of claims 1-31 and 38-51and did not assert the existence of a substantial new question of patentability (SNQP) for such claims (see 35 U.S.C. § 311(b)(2); see also 37 CFR 1.915b and 1.923), such claims were not be reexamined. This matter was squarely addressed in *Sony Computer Entertainment America Inc., et al. v. Jon W. Dudas*, Civil Action No. 1:05CV1447 (E.D.Va. May 22, 2006), Slip Copy, 2006 WL 1472462. (Not Reported in F.Supp.2d.)

The District Court upheld the Office's discretion to not reexamine claims in an *inter partes* reexamination proceeding other than those claims for which reexamination had specifically been requested. The Court stated:

> To be sure, a party may seek, and the PTO may grant, *inter partes* review of each and every claim of a patent. Moreover, while the PTO in its discretion may review claims for which *inter partes* review was not requested, nothing in the statute compels it to do so. To ensure that the PTO considers a claim for *inter partes* review, § 311(b)(2) requires that the party seeking reexamination demonstrate why the PTO should reexamine each and every claim for which it seeks review. Here, it is undisputed that Sony did not seek review of every claim under the '213 and '333 patents. Accordingly, Sony cannot now claim that the PTO wrongly failed to reexamine claims for which Sony never requested review, and its argument that AIPA compels a contrary result is unpersuasive.

(Slip copy at page 9.)

The *Sony* decision's reasoning and statutory interpretation apply analogously to *ex parte* reexamination, as the same relevant statutory language applies to both *inter partes* and *ex parte* reexamination. 35 U.S.C. § 302 provides that the *ex parte* reexamination "request must set forth the pertinency and manner of applying cited prior art to every claim for which reexamination is requested" (emphasis added), and 35 U.S.C. § 303 provides that "the Director will determine whether a substantial new question of patentability affecting any claim of the patent concerned is raised by the request..." (Emphasis added). These provisions are analogous to the language of 35 U.S.C. § 311(b)(2) and 35 U.S.C. § 312 applied and construed in *Sony*, and would be construed in the same manner. As the Director can decline to reexamine non-requested claims in an *inter partes* reexamination proceeding, the Director can likewise

do so in *ex parte* reexamination proceeding. See *Notice of Clarification of Office Policy To Exercise Discretion in Reexamining Fewer Than All the Patent Claims* (signed Oct. 5, 2006) 1311 OG 197 (Oct. 31, 2006). See also MPEP § 2240, Rev. 5, Aug. 2006.

Therefore, claims 1-31 and 38-51 were not reexamined in this *inter partes* reexamination proceeding.

NOTICE RE PATENT OWNER'S CORRESPONDENCE ADDRESS

Effective May 16, 2007, 37 CFR 1.33(c) has been revised to provide that:

The patent owner's correspondence address for all communications in an *ex parte* reexamination or an *inter partes* reexamination is designated as the correspondence address of the patent.

> *Revisions and Technical Corrections Affecting Requirements for Ex Parte and Inter Partes Reexamination*, 72 FR 18892 (April 16, 2007)(Final Rule)

The correspondence address for any pending reexamination proceeding not having the same correspondence address as that of the patent is, by way of this revision to 37 CFR 1.33(c), automatically changed to that of the patent file as of the effective date.

This change is effective for any reexamination proceeding which is pending before the Office as of May 16, 2007, including the present reexamination proceeding, and to any reexamination proceeding which is filed after that date.

Parties are to take this change into account when filing papers, and direct communications accordingly.

In the event the patent owner's correspondence address listed in the papers (record) for the present proceeding is different from the correspondence address of the patent, it is strongly encouraged that the patent owner affirmatively file a Notification of Change of Correspondence Address in the reexamination proceeding and/or the patent (depending on which address patent owner desires), to conform the address of the proceeding with that of the patent and to clarify the record as to which address should be used for correspondence.

Telephone Numbers for reexamination inquiries:

Reexamination and Amendment Practice	(571) 272-7703
Central Reexam Unit (CRU)	(571) 272-7705
Reexamination Facsimile Transmission No.	(571) 273-9900

Conclusion

Please mail any communications to:

Attn: Mail Stop "Ex Parte Reexam"
Central Reexamination Unit
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Please FAX any communications to:

(571) 273-9900
Central Reexamination Unit

Please hand-deliver any communications to:

Customer Service Window
Attn: Central Reexamination Unit
Randolph Building, Lobby Level
401 Dulaney Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the Examiner, or as to the status of this proceeding, should be directed to the Central Reexamination Unit at telephone number (571) 272-7705.

Signed:

/Beverly M. Flanagan/

Beverly M. Flanagan
CRU Examiner
GAU 3993
(571) 272-4766

Conferee _____

Conferee _____