MATTHEW D. POWERS (Bar No. 104795)
matthew.powers@weil.com
JARED BOBROW (Bar No. 133712)
jared.bobrow@weil.com
DOUGLAS E. LUMISH (Bar No. 183863)
douglas.lumish@weil.com
SONAL N. MEHTA (Bar No. 222086)
sonal.mehta@weil.com
DEREK C. WALTER (Bar. No. 246322)
derek.walter@weil.com
NATHAN GREENBLATT (Bar No. 262279)
nathan.greenblatt@weil.com
WEIL, GOTSHAL & MANGES LLP
Silicon Valley Office
201 Redwood Shores Parkway
Redwood Shores, CA 94065
Telephone: (650) 802-3000
Facsimile: (650) 802-3100

Attorneys for Defendant and Counterclaim Plaintiff
Apple Inc.

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

SAN JOSE DIVISION

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| ELAN MICROELECTRONICS CORPORATION,<br><br>Plaintiff and Counterclaim Defendant,<br><br>v.<br><br>APPLE INC.,<br><br>Defendant and Counterclaim Plaintiff. | Case No. C-09-01531 RS<br><br>APPLE INC.'S FIRST SUPPLEMENTAL INVALIDITY CONTENTIONS<br><br>JURY TRIAL DEMANDED<br><br>Hon. Richard Seeborg |

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## INTRODUCTION

Apple provides these supplemental disclosures based on information obtained to date. Apple's discovery and investigation in connection with this lawsuit are continuing, and Apple expects that additional evidence and information will become available through discovery. Apple reserves the right to supplement these invalidity contentions as Apple's investigation and discovery continue and as appropriate as the case progresses.

Elan has asserted Claims 1-2, 4, 7, 10, 12, 14, 16, 18-19, 21, 24, 26, and 30 of U.S. Pat. No. 5,825,352 ("the '352 Patent") and has asserted Claims 1, 3-4, 6-7, 9-10, and 12 of U.S. Pat. No. 7,274,353 ("the '353 Patent"). Apple's First Supplemental Invalidity Contentions are based in whole or in part on its present understanding of the asserted claims and Elan's infringement theories and apparent proposed claim scope, as understood from Elan's Patent Local Rule 3-1 disclosures and contentions served on October 22, 2009 and Elan's supplemental disclosures and contentions served on December 11, 2009. Although Elan's infringement contentions fail to provide Apple adequate notice of Elan's infringement theories and its current basis for such theories, Apple has nevertheless made a good faith effort to provide its First Supplemental Invalidity Contentions based on the information Elan has provided to date. Apple reserves all rights with respect to the inadequacies in Elan's infringement contentions.

The accompanying invalidity claim charts (see Attachment A and Attachment B) list specific examples where prior art references disclose, either expressly, implicitly in the larger context of the passage, or inherently, each limitation of the asserted claims and/or examples of disclosures in view of which a person of ordinary skill in the art would have considered each limitation obvious. Apple endeavored to identify the most relevant portions of the references but the references may contain additional support for particular claim limitations. Likewise, for prior art systems, Apple has endeavored to identify documentation and information that describes the systems, but reserves the right to provide additional details about these prior art systems as that information is identified. Apple may rely on uncited portions of the prior art references, other documents and/or operational systems, and fact and expert testimony to provide context or to aid in understanding the cited portions of the references. Where Apple cites to a particular figure in a

reference, the citation should be understood to encompass the caption and description of the figure and the text relating to and/or describing the figure. Conversely, where Apple cites to particular text referring to a figure, the citation should be understood to include the figure and related figures as well.

## I. U.S. PATENT NO. 5,825,352

### A. Anticipation

Pursuant to P.R. 3-3, Apple identifies the following prior art as anticipating Claims 1-2, 4, 7, 10, 12, 14, 16, 18-19, 21, 24, 26, and 30 of the '352 Patent, either expressly, implicitly, or inherently as understood by a person having ordinary skill in the art. Each of these prior art patents, publications, and systems anticipates the asserted claims. In some instances, Apple treats certain prior art as anticipatory where certain elements are expressly, implicitly, or inherently present based on Elan's theories as presently understood.

The following patents and publications are prior art under at least 35 U.S.C. §§ 102(a), (b), (e), and/or (g).

| PRIOR ART PATENTS AND PATENT APPLICATIONS |
|---|
| 1. U.S. Pat. No. 4,550,221, Mabusth, Oct. 29, 1985 |
| 2. U.S. Pat. No. 5,073,950, Colbert et al., Dec. 17, 1991 |
| 3. U.S. Pat. No. 5,488,204, Mead et al., Jan. 30, 1996 |
| 4. U.S. Pat. No. 5,594,806, Colbert, Jan. 14, 1997 |
| 5. U.S. Pat. No. 5,943,043, Furuhata et al., Aug. 24, 1999 |
| 6. U.S. Pat. No. 6,008,800, Pryor, Dec. 28, 1999 |
| 7. U.S. Pat. No. 5,483,261, Yasutake, Jan. 9, 1996 |

| PRIOR ART PUBLICATIONS |
|---|
| 1. Fearing, Tactile Sensing Mechanisms, The Intl Journal of Robotics Research, vol. 9, no. 3, pp. 3-23 (Jun. 1990) ("Tactile Sensing Mechanisms") |
| 2. Fearing, Tactile Sensing, Perception and Shape Interpretation, pp. 1-151 (Thesis) (Dec. 1987) ("Fearing Thesis") |
| 3. Mehta, A Flexible Human Machine Interface, pp. 1.1-A.5, (Oct 1982) ("Mehta Thesis") |
| 4. The Sensor Frame Graphic Manipulator NASA Phase II Final Report, pp. 1-25 (May 8, 1990) ("Sensor Frame") |
| 5. Stansfield. Haptic Perception With an Articulated, Sensate Robot Hand, (Mar. 1990)("Haptic Perception") |
| 6. Rubine et al., Programmable Finger-tracking Instrument Controllers, Computer Music Journal, Vol. 14, No. 1, Spring 1990 ("Finger-tracking") |
| 7. JP06-161661 (June 10, 1994) |
| 8. BOIE0011-33 (Nov. 18, 1983) ("BOIE0011") |

The following systems are prior art under at least 35 U.S.C. §§ 102(a), (b) and/or (g). Although Apple's investigation continues, information available to date indicates that each system was (1) known or used in this country before the alleged invention of the claimed subject matter of the asserted claims, (2) was in public use and/or on sale in this country more than one year before the filing date of the patent, and/or (3) was invented by another who did not abandon, suppress, or conceal, before the alleged invention of the claimed subject matter of the asserted claims. Upon information and belief, these prior art systems anticipate Claims 1-2, 4, 7, 10, 12, 14, 16, 18-19, 21, 24, 26, and 30 of the '352 Patent. For prior art systems, the respective "associated references" are separately charted, and these charts taken together serve as the prior art system charts.

| | **PRIOR ART SYSTEMS** |
|---|---|
| 1. | The Video Harp System<br>The Video Harp devices were offered for sale, publicly used, and/or known by at least 1988.<br>At least Dean Rubine and Paul McAvinney publicly used the Video Harp devices and/or made the Video Harp devices publicly known.<br>*Associated References*<br>• Rubine et al., The Videoharp, Proceedings of the 14th Intl Computer Music Conf, Cologne, pp. 49-55 (1988) ("Videoharp")<br>• Rubine et al., Programmable Finger-tracking Instrument Controllers, Computer Music Journal, Vol. 14, No. 1, Spring 1990 ("Finger-tracking") |
| 2. | The Boie System<br>The Boie devices were offered for sale, publicly used, and/or known by at least Robert Boie.<br>At least Robert Boie publicly used the Boie devices and/or made the Boie devices publicly known.<br>*Associated References*<br>• U.S. Pat. No. 4,526,043, Boie et al., Jul. 2, 1985<br>• U.S. Pat. No. 5,463,388, Boie et al., Oct. 31, 1995<br>• Image (see Bates No. APEL0009327)<br>• Image (see Bates No. APEL0009328)<br>• BOIE0001-0062 |
| 3. | The Fearing System<br>The Fearing devices were offered for sale, publicly used, and/or known |

| | PRIOR ART SYSTEMS |
|---|---|
| | by at least 1987.<br>At least Ronald Fearing publicly used the Fearing devices and/or made the Fearing devices publicly known.<br>*Associated References*<br>• Fearing, Tactile Sensing Mechanisms, The Intl Journal of Robotics Research, vol. 9, no. 3, pp. 3-23 (Jun. 1990) ("Tactile Sensing Mechanisms")<br>• Fearing, Tactile Sensing, Perception and Shape Interpretation, pp. 1-151 (Thesis) (Dec. 1987) ("Fearing Thesis") |
| 4. | The Mehta System<br>The Mehta devices were offered for sale, publicly used, and/or known by at least 1982.<br>At least Nimish Mehta publicly used the Mehta devices and/or made the Mehta devices publicly known.<br>*Associated References*<br>• Mehta, A Flexible Human Machine Interface, pp. 1.1-A.5, (Oct 1982) ("Mehta Thesis") |
| 5. | The Rubine System<br>The Rubine devices were offered for sale, publicly used, and/or known by at least 1991.<br>At least Dean Rubine publicly used the Rubine devices and/or made the Rubine devices publicly known.<br>*Associated References*<br>• Rubine, Specifying Gestures by Example, ACM SIGGRAPH Computer Graphics, Vol. 25, Issue 4 (July 1991) ("Specifying Gestures")<br>• Rubine, Automatic Recognition of Gestures, Thesis, Carnegie Mellon University (1991) ("Rubine Thesis") |
| 6. | The Sensor Frame System<br>The Sensor Frame device was offered for sale, publicly used, and/or known by at least 1991.<br>At least Dean Rubine publicly used the Sensor Frame device and/or made the Sensor Frame device publicly known.<br>*Associated References*<br>• The Sensor Frame Graphic Manipulator NASA Phase II Final Report, pp. 1-25 (May 8, 1990) ("Sensor Frame")<br>• Rubine, Automatic Recognition of Gestures, Thesis, Carnegie Mellon University (1991) ("Rubine Thesis") |
| 7. | The Siegel System<br>The Siegel devices were offered for sale, publicly used, and/or known |

| | PRIOR ART SYSTEMS |
|---|---|
| | by at least 1987.<br>At least David M. Siegel publicly used the Siegel devices and/or made the Siegel devices publicly known.<br>*Associated References*<br>• Siegal et al., Performance Analysis of a Tactile Sensor, IEEE, pp. 1493-1499 (1987) ("Performance Analysis") |

**B. Obviousness**

Pursuant to P.R. 3-3, Apple contends that Claims 1-2, 4, 7, 10, 12, 14, 16, 18-19, 21, 24, 26, and 30 of the '352 Patent are invalid as obvious under 35 U.S.C. § 103.

**1. Obviousness Combinations**

Apple identifies the following prior art references that either alone or in combination with other prior art renders the asserted claims invalid as obvious under 35 U.S.C. § 103.

| PRIOR ART PATENTS AND PATENT APPLICATIONS |
|---|
| 1. U.S. Pat. No. 4,219,847, Pinkney et al., Aug. 26, 1980 |
| 2. U.S. Pat. No. 4,340,911, Kato et al., Jul. 20, 1982 |
| 3. U.S. Pat. No. 4,526,043, Boie et al., Jul. 2, 1985 |
| 4. U.S. Pat. No. 4,618,989, Tsukune et al., Oct. 21, 1986 |
| 5. U.S. Pat. No. 4,686,332, Greanias et al., Aug. 11, 1987 |
| 6. U.S. Pat. No. 5,113,041, Blonder et al., May 12, 1992 |
| 7. U.S. Pat. No. 5,293,430, Shiau et al., Mar. 8, 1994 |
| 8. U.S. Pat. No. 5,463,388, Boie et al., Oct. 31, 1995 |
| 9. U.S. Pat. No. 5,543,588, Bisset et al., Aug. 6, 1996 |
| 10. U.S. Pat. No. 5,552,787, Schuler et al., Sep. 3, 1996 |
| 11. U.S. Pat. No. 5,638,093, Takahashi et al., Jun. 10, 1997 |
| 12. U.S. Pat. No. 5,734,742, Asaeda, et al., Mar. 31, 1998 |
| 13. U.S. Pat. No. 5,805,144, Scholder et al., Sep. 8, 1998 |
| 14. U.S. Pat. No. 5,809,166, Huang et al., Sep. 15, 1998 |
| 15. U.S. Pat. No. 5,856,822, Du et al., Jan. 5, 1999 |
| 16. U.S. Pat. No. 6,016,355, Dickinson et al., Jan. 18, 2000 |
| 17. U.S. Pat. No. 6,029,214, Dorfman et al., Feb. 22, 2000 |
| 18. U.S. Pat. No. 4,550,221, Mabusth, Oct. 29, 1985 |
| 19. U.S. Pat. No. 5,073,950, Colbert et al., Dec. 17, 1991 |
| 20. U.S. Pat. No. 5,488,204, Mead et al., Jan. 30, 1996 |
| 21. U.S. Pat. No. 5,594,806, Colbert, Jan. 14, 1997 |
| 22. U.S. Pat. No. 5,943,043, Furuhata et al., Aug. 24, 1999 |
| 23. U.S. Pat. No. 6,008,800, Pryor, Dec. 28, 1999 |
| 24. U.S. Pat. No. 5,483,261, Yasutake, Jan. 9, 1996 |

| PRIOR ART PATENTS AND PATENT APPLICATIONS |
|---|
| 25. U.S. Pat. No. 4,914,624, Dunthorn Apr. 3, 1990 |

| PRIOR ART PUBLICATIONS |
|---|
| 1. Davies, Lateral histograms for efficient object location-Speed versus ambiguity, Pattern Recognition Letters, vol. 6, no. 3, pp. 189-198 (1987) ("Lateral Histograms") |
| 2. Davies, Machine Vision Theory Algorithms Practicalities, pp. 1-547 (1990) ("Machine Vision") |
| 3. Kirk, Optimal Control Theory - An Introduction, Numerical Determination of Optimal Trajectories, pp. 331-343 (1970) ("Optimal Control Theory") |
| 4. Lee et al., A Multi-Touch Three Dimensional Touch-Sensitive Tablet, Human Factors in Computing Systems, CHI '85, pp. 21-25 (Apr. 14-18, 1985) ("Touch-Sensitive Tablet") |
| 5. Lee, A Fast Multiple-Touch-Sensitive Input Device, pp. 1-1 – C-8 (Oct. 1984) (Thesis) ("Fast Multiple Touch") |
| 6. Ogawa et al., Preprocessing for Chinese Character Recognition and Global Classification of Handwritten Chinese Characters, Pattern Recognition vol. 11, no. 1, pp. 1-7 (1979) ("Chinese Characters") |
| 7. Rubine, Specifying Gestures by Example, ACM SIGGRAPH Computer Graphics, Vol. 25, Issue 4 (July 1991) ("Specifying Gestures") |
| 8. Rubine et al., The Videoharp, Proceedings of the 14th Intl Computer Music Conf, Cologne, pp. 49-55 (1988) ("Videoharp") |
| 9. Siegal et al., Performance Analysis of a Tactile Sensor, IEEE, pp. 1493-1499 (1987) ("Performance Analysis") |
| 10. Stauffer, Progress in Tactile Sensor Development, Robotics Today, pp. 43-49 (Jun. 1983) ("Tactile Sensor") |
| 11. Sugiyama, Tactile Image Detection Using a 1k-element Silicon Pressure Sensor Array, Sensors and Actuators, vol. A22, nos. 1-3, pp. 397-400 (Mar. 1990) ("Tactile Image") |
| 12. Fearing, Tactile Sensing Mechanisms, The Intl Journal of Robotics Research, vol. 9, no. 3, pp. 3-23 (Jun. 1990) ("Tactile Sensing Mechanisms") |
| 13. Fearing, Tactile Sensing, Perception and Shape Interpretation, pp. 1-151 (Thesis) (Dec. 1987) ("Fearing Thesis") |
| 14. Mehta, A Flexible Human Machine Interface, pp. 1.1-A.5, (Oct 1982) ("Mehta Thesis") |
| 15. The Sensor Frame Graphic Manipulator NASA Phase II Final Report, pp. 1-25 (May 8, 1990) ("Sensor Frame") |
| 16. Stansfield. Haptic Perception With an Articulated, Sensate Robot Hand, (Mar. 1990)("Haptic Perception") |
| 17. Son et al., Comparison of contact sensor localization abilities during manipulation, Robotics and Autonomous System 17 (1996), p. 217-233, ("Contact Sensor Localization") |
| 18. Myron Krueger, Videoplace, Responsive Environment, 1972-1990s, www.youtube.com/watch?v=dmmxVA5xhuo ("Krueger") |
| 19. Rubine et al., Programmable Finger-tracking Instrument Controllers, Computer Music Journal, Vol. 14, No. 1, Spring 1990 ("Finger-tracking") |
| 20. Rubine, Automatic Recognition of Gestures, Thesis, Carnegie Mellon University (1991) ("Rubine Thesis") |
| 21. JP06-161661 (June 10, 1994) |
| 22. BOIE0011-33 (Nov. 18, 1983) ("BOIE0011") |

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| 2. | The Boie System<br>The Boie devices were offered for sale, publicly used, and/or known by at least Robert Boie.<br>At least Robert Boie publicly used the Boie devices and/or made the Boie devices publicly known.<br>*Associated References*<br>• U.S. Pat. No. 4,526,043, Boie et al., Jul. 2, 1985<br>• U.S. Pat. No. 5,463,388, Boie et al., Oct. 31, 1995<br>• Image (see Bates No. APEL0009327)<br>• Image (see Bates No. APEL0009328)<br>• BOIE0001-0062 |
| 3. | The Fearing System<br>The Fearing devices were offered for sale, publicly used, and/or known by at least 1987.<br>At least Ronald Fearing publicly used the Fearing devices and/or made the Fearing devices publicly known.<br>*Associated References*<br>• Fearing, Tactile Sensing Mechanisms, The Intl Journal of Robotics Research, vol. 9, no. 3, pp. 3-23 (Jun. 1990) ("Tactile Sensing Mechanisms")<br>• Fearing, Tactile Sensing, Perception and Shape Interpretation, pp. 1-151 (Thesis) (Dec. 1987) ("Fearing Thesis") |
| 4. | The Mehta System<br>The Mehta devices were offered for sale, publicly used, and/or known by at least 1982.<br>At least Nimish Mehta publicly used the Mehta devices and/or made the Mehta devices publicly known.<br>*Associated References* |

| | PRIOR ART SYSTEMS |
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| 6. | The Sensor Frame System<br>The Sensor Frame device was offered for sale, publicly used, and/or known by at least 1991.<br>At least Dean Rubine publicly used the Sensor Frame device and/or made the Sensor Frame device publicly known.<br>*Associated References*<br>• The Sensor Frame Graphic Manipulator NASA Phase II Final Report, pp. 1-25 (May 8, 1990) ("Sensor Frame")<br>• Rubine, Automatic Recognition of Gestures, Thesis, Carnegie Mellon University (1991) ("Rubine Thesis") |
| 7. | The Siegel System<br>The Siegel devices were offered for sale, publicly used, and/or known by at least 1987.<br>At least David M. Siegel publicly used the Siegel devices and/or made the Siegel devices publicly known.<br>*Associated References*<br>• Siegal et al., Performance Analysis of a Tactile Sensor, IEEE, pp. 1493-1499 (1987) ("Performance Analysis") |

Each prior art reference, either alone or in combination with other prior art, also renders the asserted claims invalid as obvious. In particular, each prior art reference may be combined with (1) information known to persons skilled in the art at the time of the alleged invention, (2) any of the other anticipatory prior art references, and/or (3) any of the additional prior art identified above. Specific combinations of prior art, by way of example, are provided

below. The use of a prior art reference in an obviousness combination, however, does not preclude the use of the reference as an anticipatory reference.

In addition, Apple incorporates by reference each and every prior art reference of record in the prosecution of the '352 Patent and related applications, including the statements made therein by the applicant, as well as the prior art discussed in the specification.

**2. Obviousness Under *KSR***

The United States Supreme Court has clarified the standard for what types of inventions are patentable. *See KSR International Co. v. Teleflex Inc.*, 127 S. Ct. 1727 (2007). In particular, the Supreme Court has emphasized that inventions arising from ordinary innovation, ordinary skill, or common sense should not be patentable. *See id.* at 1732, 1738, 1742-1743, 1746. In that regard, a patent claim may be obvious if the combination of elements was obvious to try or there existed at the time of the invention a known problem for which there was an obvious solution encompassed by the patent's claims. In addition, when a work is available in one field of endeavor, design incentives and other market forces can prompt variations or combinations, either in the same field or a different one. *See KSR*, 127 S. Ct. at 1742. If a person of ordinary skill can implement a predictable variation or combination, Section 103 likely bars its patentability.

Claims 1, 7, 18, and 21 recite a method for determining the presence of two fingers using a specific method of analyzing a signal to first identify a maximum value, then identify a minimum value, and finally identify a second maximum value. Accordingly, the claims recite a specific object counting method for detecting two-fingers.

Both multi-finger input devices and the specific object counting method recited by the claims were well known in the art before the priority date of the '352 Patent. Prior art reciting multi-finger input devices includes: U.S. Pat. Nos. 4,550,221; 4,686,332; 5,073,950; 5,113,041; 5,483,261; 5,488,204; 5,543,588; 5,594,806 5,856,822; 5,943,043; 6,008,800; 6,029,214; Sensor Frame; Rubine Thesis; Touch-Sensitive Tablet; Fast Multiple Touch; Finger-tracking; Mehta Thesis; Videoharp; Specifying Gestures; Boie System; BOIE0011; and JP06-161661 (the **"Multi-Finger Input Device Art"**).

Prior art reciting the object counting method of claims 1, 7, 18, and 21, either expressly or implicitly, include: 4,550,221; 4,618,989; 5,073,950; 5,113,041; 5,483,261; 5,594,806; 5,638,093; 5,734,742; 5,856,822; 6,008,800; Boie System; Finger-tracking; Fearing Thesis; Tactile Sensing Mechanisms; Optimal Control Theory; Mehta Thesis; Haptic Perception; Tactile Sensor; Tactile Image; Machine Vision; Contact Sensor Localization; BOIE0011; JP06-161661; and Sensor Frame (the **"Counting Art"**).

Under *KSR*, claims 1, 7, 18, and 21 of the '352 Patent are obvious because it would have been obvious to one of ordinary skill in the art to combine Multi-Finger Input Device Art with Counting Art for at least the following reasons. First, one of ordinary skill in the art would have recognized that Multi-Finger Input Device Art must implement some type of object discrimination to differentiate between contacts with the input device and it would have been well within skill of one of ordinary skill in the art to adapt the Multi-Finger Input Device Art to use the methods disclosed in the Counting Art. Such a combination would yield the predictable result of differentiating among a plurality of contacts using methods described in the Counting Art on the input device. U.S. Pat. No. 4,618,989, for example, is an object counting reference for identifying the number of elliptical objects present in the scan field by looking a peak values. A finger touch is generally elliptical and one of ordinary skill in the art would have readily known that the methods described in the '989 patent could be used in a touchpad to differentiate the number of fingers on the touchpad.

Second, one of ordinary skill in the art would have recognized that one of the problems that the '352 Patent purports to address, implementing mouse operations on a touchpad using two fingers, requires a method for distinguishing among contacts on the touchpad to recognize the number and position of the contacts. It would have been well within the conventional knowledge of one of ordinary skill in the art that the Counting Art would provide the solution. For example, U.S. Pat. 5,073,950 discloses a method for counting the number of fingers in a handprint profile by, in part, identifying distinct fingers by the maximums and minimums in the handprint profile. *See,* e.g., U.S. Pat. No. 5,073,950 at 4:35-8. This reference predates the filing date of the '352 Patent by more than 6 years. Similarly, U.S. Pat. No.

5,638,093 uses a "peak detection method" where "[t]he position at which the panel was touched is the point at which the magnitude of attenuation becomes the largest, i.e., using a peak detection method." *See* U.S. Pat. No. 5,638,093 at 2:8-11. One of ordinary skill in the art would have been motivated to use the Counting Art for its intended purpose – differentiating the number, movement, and position of objects.

Third, it would have been well within the conventional wisdom of one of ordinary skill in the art that a maximum, followed by a minimum, followed by another maximum indicates the existence of two objects. *See, e.g.,* Tactile Sensing Mechanisms at Figs. 9 and 16, which show the touch profile of two objects having a maximum, followed by a minimum, followed by another maximum and the touch profile of one object having a single maximum in a touch profile. Accordingly, by common sense, one of ordinary skill in the art would recognize that a maximum-minimum-maximum corresponds to two objects while a single peak corresponds to a single object. This is unambiguously depicted in Figs. 9 and 16 of Tactile Sensing Mechanisms.

By this same reasoning, it would have been common sense to one of ordinary skill in the art to combine the Counting Art with the Multi-Finger Input Device Art to determine the number of fingers in contact with the input device. Indeed U.S. Pat. No. 5,638,093 uses a peak detection method, whereby, "[t]he position at which the panel was touched is the point at which the magnitude of attenuation becomes the largest, i.e. using a peak detection method. Therefore, to accurately determine this position, either the sampling interval can be shortened, or zero-cross can be detected by differentiating the waveform received." 2:9-2:13. One of ordinary skill in the art would have known that common sense dictates that this same method can be adapted to touchpads capable of sensing multiple simultaneous touches.

Dependent claim 6 requires a plurality of lines, where the maxima is the largest local variation in a signal value on one of said lines due to capacitive coupling of the finger. In other words, the finger profile is the projected values of a self capacitance touchpad. Such touchpads were abundant in the prior art before the filing date of the '352 patent. *See* Fearing Thesis, Touch-Sensitive Tablet, Tactile Sensing Mechanisms, Boie System, Contact Sensor Localization, JP06-161661, BOIE0011, and U.S. Pat. Nos. 3,662,105; 4,550,221; 4,686,332;

5,113,041; 5,463,388; 5,488,204; 5,543,588; 5,856,822; and 6,029,214 (the "**Capacitive Art**"). It would have been obvious to one of ordinary skill in the art to adapt the Multi-Finger Input Device Art to include the capacitive touchpad of the Capacitive Art for at least the following reasons.

First, one of ordinary skill in the art would have recognized that such a combination is a simple substitution of elements. The Capacitive Art uses capacitance to detect touch while the Multi-Finger Input Device Art uses a wide variety of sensing technologies (*e.g.*, optical, resistive, capacitive). Regardless of the technology used, a finger profile can be created. Indeed, the '352 Patent itself at 2:18-26 discloses that the type of sensing is irrelevant: "The present invention provides a novel method and apparatus for sensing the proximity of multiple simultaneous fingers or other appropriate objects to a touch sensor. The present invention may be implemented on any conventional touch sensing technology . . . ." Accordingly, one of ordinary skill in the art would have recognized that the Multi-Finger Input Device Art could have been readily adapted to include the sensing technology of the Capacitive Art.

Second, one of ordinary skill in the art would have understood the advantages of employing a capacitance touch sensor. The Multi-Finger Input Device Art discusses a wide variety of touch sensors. *See, e.g.*, U.S. Pat. No. 5,543,588, at 1:25-2:13 (discussing resistive, surface acoustic wave, optical, and capacitance touch sensors); U.S. Pat. No. 6,008,800, at 1:66-3:12 (discussing optical, capacitance, and other conventional touch sensors). Each type of touch sensor has certain well-known advantages and disadvantages. *See id.* Capacitance touch sensors, for example, were seen as great alternatives to resistive touch sensors because capacitance devices consume less power. *See, e.g.*, U.S. Pat. No. 5,543,588 at 1:38-2:13. One of ordinary skill in the art would have understood these advantages associated with using a capacitance touch sensor, and therefore would have known to combine the relevant teachings from the Capacitive Art with the teachings of the Multi-Finger Input Device Art.

Third, the cited references themselves suggest their use in a variety of applications, thus further supporting a finding of obviousness. For example, many of these references are directed to interpreting the signal representing the applied force contacting the touch sensor, regardless of what type of sensing technology generated that signal. *See, e.g.*, Performance

Analysis at p. 1493 ("The most common technologies employed by tactile sensors are based on optics, resistance, magnetics, and capacitance. All sensors, regardless of their underlying transduction principle, must convert an applied force into a measurable electric signal. The approach selected for our sensor is based on measuring the capacitance between two surfaces separated by a compressive material."); *see also* Tactile Sensing Mechanisms at p. 9 (analyzing histogram formed by applied force signal). Accordingly, one of ordinary skill in the art would have been motivated to apply these techniques to the varying types of sensor technologies, including those disclosed in the Multi-Finger Input Device Art.

Dependent claims 2, 4, 12, 14, 19, 26 describe functions that are effectuated in response to the detection of two fingers on the touchpad. Two finger functions are replete in the prior art before the filing date of the '352 Patent. Sensor Frame, Finger-tracking, Rubine Thesis, Mehta Thesis, Touch-Sensitive Tablet, BOIE0011, JP06-161661, and U.S. Pat. No. 5,483,261; 5,488,204; 5,543,588; 5,856,822; 5,943,043; and 6,008,800 (the "**Multi-Finger Function Art**") describe, implicitly or explicitly, functions implemented in response to the detection of two fingers. As just one example, U.S. Pat. No. 5,856,822 discloses at 3:26-30: "Accordingly, if the touch-pad is not presently operating in a drag-lock operating mode, the touch-pad activates a drag-lock operating mode if the touch pad senses a first contact with the active area while concurrently sensing a second contact within a pre-established specific location in the active area."

It was well within the skill of a person of ordinary skill in the art to adapt the Multi-Finger Input Device Art to perform the functions described in the Multi-Finger Function Art in response to the identification of second finger in contact with the touchpad for at least the following reasons. First, one of ordinary skill in the art would have recognized that the combination of the Multi-Finger Input Device Art with the Multi-Finger Function Art is a simple union of well known elements. Both the Multi-Finger Input Device Art and the Multi-Finger Function Art are directed to input devices using two fingers for input. *See* e.g., U.S. Pat. Nos. 6,008,800 and 5,943,043. Accordingly, it would have been well within the knowledge of one of ordinary skill in the art to combine the input devices of the Multi-Finger Input Device Art to

include the functions described in the Multi-Finger Function Art.

Second, the nature of the problem to be solved would have directed persons of ordinary skill in the art to consider the combination of these references to arrive at the claimed invention. The '352 Patent describes the problem as the difficulty of implementing complicated mouse operations like click and drag and selecting a button with a touch sensor that can only sense one finger. '352 Patent at 1:41-2:14. For example, the '352 Patent describes the complications of clicking a button with a single-finger touchpad:

> With a mouse, the cursor is moved into position by moving the mouse, then the click occurs with a down-up motion of the finger to actuate a button or switch. With a touchpad typical of the prior art, the cursor is moved into position with the finger, then the click occurs with a tap of the finger which moved the cursor. This requires an up-down-up-down finger motion to do the same thing as simply the "down-up" motion of the mouse button.

'352 Patent at 1:62-2:3. The '352 Patent goes on to state that there is a need for "a touchpad capable of yielding the same productivity as a mouse." '352 Patent at 2:13-14.

The problem and solution were well known by the time of the filing of the '352 Patent. For example, Lee, et al., *A Multi-Touch Three Dimensional Touch-Sensitive Tablet*, 1985 CHI 21, at 21 (1985), describes the problem of single finger touch pads that are less functional than mice. It states: "One can move a tracking symbol around the screen, for example, but when the finger is over a light button, there is nothing equivalent to the button on a mouse to push in order to make a selection." *Id.* It further states: "And what if we wanted to drag an item being pointed at, or to indicate that we wanted to start inking? Lifting our finger would leave our finger off the table, just when we want it in contact the most." *Id.* Lee, et al.'s proposed solution is an input tablet with multi-finger input. "A prototype of a fast-scanning multiple-touch-sensitive input tablet having both the adaptability and flexibility for a broad range of applications has been designed and implemented. Capacitance measurement of individual sensor(s) which can be uniquely addressed using two diodes per sensor, makes it possible to sense both the positions and intensities of one or more simultaneous touches without ambiguity." *Id. at 24.* Accordingly, one of ordinary skill in the art would have recognized that this problem could be addressed by

combining the Multi-Finger Input Device Art with the functions described in the Multi-Finger Function Art. Such a combination yields no more than what one of ordinary skill in the art would expect – a Multi-Finger Input Device Art reference that performs functions in response to the identification of a second finger in contact with the touch pad. Indeed, several references provide the specific teaching that the identification of a second finger indicates a certain function. *See, e.g.,* U.S. Pat. No. 5,943,043 at Abstract ("A 'double-touch' input method is described that is particularly useful as substitute for a 'double click' input from a mouse or trackball ….. [T]he input method involves contacting a touch panel at a first location … [and] a second finger 'taps' the panel at a second location." or other pointing type input device."). Accordingly, the combination of Multi-Finger Input Device Art with the teachings of the Multi-Finger Function Art would have been obvious to realize these well-known advantages.

Third, it would have been obvious to one of ordinary skill in the art to combine the Multi-Finger Input Device Art with the Multi-Finger Function Art to increase the range of functions allowed in the Multi-Finger Input Device Art. The Multi-Finger Function Art discloses a multitude of functions. *See, e.g.*, U.S. Pat. No. 5,483,261 at 8:38-47 ("Further, graphics application software 630 interprets the movement of the control objects as commands to gestures. This may be to provide commands such as those illustrated in FIGS. 4a-4c. Further, the number of touch points may provide additional command information. For example, one touch point may indicate a cursor movement command. Two touch points might indicate a slide or rotation command of graphics objects. Three touch points might provide a cancel or "UNDO" command. Four touch points may provide an erase screen command."). Accordingly, one of ordinary skill in the art would have been motivated to combine the methods and techniques disclosed in the Multi-Finger Function Art to increase the range of functions provided in the Multi-Finger Input Device Art.

Dependent claims 10 and 24 require detecting the distance between two peaks. Mehta Thesis, Sensor Frame, Tactile Image, Tactile Sensing Mechanisms, Rubine Thesis, Fearing Thesis, Krueger, and U.S. Pat. Nos. 5,073,950; 5,483,261; 5,594,806; 5,809,166; and 5,943,043 disclose, implicitly or explicitly, detecting the distance between two peaks (the "**Peak Distance**

**Art**"). One of ordinary skill in the art would have recognized that detecting the distance between two maximums would be a useful factor in determining whether the two maximums actually represent two fingers. The Mehta Thesis, for example, describes a "Finger Separation Threshold," which is a value against which the distance between two maximums is compared to determine whether the system reports one or two fingers. *See* Mehta Thesis at p. 6.7. One of ordinary skill in the art would have recognized that the teachings of the Mehta Thesis are equally applicable to the Multi-Finger Input Device Art and therefore understood that the Multi-Finger Input Device Art can be combined with the Peak Distance Art to achieve the taught benefit.

Dependent claims 16 and 30 require the calculation of the first and second centroids corresponding to the first and second fingers. Machine Vision, Touch-Sensitive Tablet, Mehta Thesis, Contact Sensor Localization, JP06-161661, BOIE0011, and U.S. Pat. Nos. 4,219,847; 5,463,388; 5,483,261; 5,488,204; 4,550,221; 5,113,041; 5,856,822; and 6,008,800, implicitly or explicitly, disclose the computation of centroids for the respective fingers (the "**Centroid Art**"). One of ordinary skill in the art would have recognized that the Multi-Finger Input Device Art can be combined with the Centroid Art to reach the claimed invention for at least the following reasons. First, determining the centroid of a point of contact was a well-known technique to accurately locate the position of a contact on a touch sensitive surface. *See* U.S. Pat. No. 5,113,041 ("the centroid filter would then accurately locate the position of the stylus to the tablet"). *See also, e.g.,* U.S. Pat. No. 5,488,204 at 12:29-37; Mehta Thesis at pp. 5.4 and 6.6. Accordingly, because calculating centroids was well known in the art, and because the application thereof to the sensing technologies of Multi-Finger Input Device Art was known, the combination of the centroid teachings of the Centroid Art with the teachings of the Multi-Finger Input Device Art would have been obvious to one of ordinary skill in the art.

Second, one of ordinary skill in the art would have understood the advantages of calculating the centroids. For example, calculating the centroid facilitated reducing noise effects on finger position. *See, e.g.,* U.S. Pat. No. 5,488,204 at 12:29-37 ("Because the injected noise is proportional to the finger signal strength across all inputs, it is therefore symmetric around the finger centroid. Because it is symmetric around the finger centroid it does not affect the finger

position."). Also, calculating the centroid allowed the touch sensor to report a single value to represent the contact patch. *See, e.g.*, U.S. Pat. No. 5,543,588 at 4:29-34 (providing centroid coordinates to represent "some measure of the center of this contact area"); *see also* U.S. Pat. No. 5,488,204 at 18:47-19:25 (describing summing and averaging capacitance values on multiple lines to calculate the centroid). In fact, the prior art notes that determining the centroid is one way to map a contact to a particular position. *See, e.g.*, Mehta Thesis at p. 6.6. Accordingly, the combination of the teachings of the Centroid Art with the teachings of the Multi-Finger Input Device Art would have been obvious to realize the well-known advantages of calculating the centroids.

**B. Invalidity Under Sections 101 and 112**

Pursuant to P.R. 3-3(d), Apple lists below the grounds upon which the asserted claims are invalid based on indefiniteness under 35 U.S.C. § 112(2), based on failure to meet the enablement or written description requirements under 35 U.S.C. § 112(1) or based on failure to meet the patentability requirements of 35 U.S.C. § 101.

**1. Indefiniteness**

Based on the information available to date and as Apple best understands Elan's contentions at this time, the asserted claims are indefinite under 35 U.S.C. § 112(2) for at least the following reasons.

Claim 19 fails to satisfy the requirements of 35 U.S.C. § 112(2) because the limitation "means for selecting an appropriate control function" is indefinite.

Claim 24 fails to satisfy the requirements of 35 U.S.C. § 112(2) because the limitation "means for detecting a distance between said first and second maxima" is indefinite.

Claim 26 fails to satisfy the requirements of 35 U.S.C. § 112(2) because the limitation "means for providing a click function in response to the removal and reappearance of said second maxima within a predetermined period of time" is indefinite.

Claim 30 fails to satisfy the requirements of 35 U.S.C. § 112(2) because the limitation "means for calculating first and second centroids corresponding to said first and second fingers" is indefinite.

**2. Lack of Enablement**

Based on the information available to date and as Apple best understands Elan's contentions at this time, the asserted claims are invalid under 35 U.S.C. § 112(1) for at least the following reasons.

Claim 1 fails to satisfy the requirements of 35 U.S.C. § 112(1) because the specification fails to provide an enabling disclosure of "identify a first maxima in a signal corresponding to a first finger."

Claim 1 fails to satisfy the requirements of 35 U.S.C. § 112(1) because the specification fails to provide an enabling disclosure of "identify a minima following the first maxima."

Claim 1 fails to satisfy the requirements of 35 U.S.C. § 112(1) because the specification fails to provide an enabling disclosure of "identify a second maxima in a signal corresponding to a second finger following said minima."

Claims 7 and 21 fail to satisfy the requirements of 35 U.S.C. § 112(1) because the specification fails to provide an enabling disclosure of "wherein said maxima are peaks."

**3. Lack of Written Description**

Based on the information available to date and as Apple best understands Elan's contentions at this time, the asserted claims are invalid under 35 U.S.C. § 112(1) for at least the following reasons.

Claim 1 fails to satisfy the requirements of 35 U.S.C. § 112(1) because the specification fails to provide an adequate written description of "identify a first maxima in a signal corresponding to a first finger."

Claim 1 fails to satisfy the requirements of 35 U.S.C. § 112(1) because the specification fails to provide an adequate written description of "identify a minima following the first maxima."

Claim 1 fails to satisfy the requirements of 35 U.S.C. § 112(1) because the specification fails to provide an adequate written description of "identify a second maxima in a signal corresponding to a second finger following said minima."

Claims 7 and 21 fail to satisfy the requirements of 35 U.S.C. § 112(1) because the specification fails to provide an adequate written description of "wherein said maxima are peaks."

**4. 35 U.S.C. § 101**

Based on the information available to date and as Apple best understands Elan's contentions at this time, the asserted claims are invalid under 35 U.S.C. § 101 for at least the following reasons. Claims 1, 2, 4, 7, 10, 12, 14, and 16 are invalid because the claims are not patent eligible under 35 U.S.C. § 101. The claims are not tied to a particular machine or apparatus, nor do they transform a particular article into a different state or thing.

**5. 35 U.S.C. § 112(6): Failure to Disclose Corresponding Structure or Acts**

Based on the information available to date and as Apple best understands Elan's contentions at this time, should the Court deem these limitations to be governed by 35 U.S.C. § 112(6), the specification fails to disclose the corresponding structure or act as required by 35 U.S.C. § 112(6) for the following limitations:

Claim 19 fails to satisfy the requirements of 35 U.S.C. § 112(6) because the specification lacks a corresponding structure, act, or algorithm for "means for selecting an appropriate control function."

Claim 24 fails to satisfy the requirements of 35 U.S.C. § 112(6) because the specification lacks a corresponding structure, act, or algorithm for "means for detecting a distance between said first and second maxima."

Claim 26 fails to satisfy the requirements of 35 U.S.C. § 112(6) because the specification lacks a corresponding structure, act, or algorithm for "means for providing a click function in response to the removal and reappearance of said second maxima within a predetermined period of time."

Claim 30 fails to satisfy the requirements of 35 U.S.C. § 112(6) because the specification lacks a corresponding structure, act, or algorithm for "means for calculating first and second centroids corresponding to said first and second fingers."

## II. U.S. PATENT NO. 7,274,353

### A. Anticipation

Pursuant to P.R. 3-3, Apple identifies the following prior art now known to anticipate Claims 1, 3-4, 6-7, 9-10, and 12 of the '353 Patent, either expressly, implicitly, or inherently as understood by a person having ordinary skill in the art. Each of these prior art patents, publications, and systems anticipates the asserted claims. In some instances, Apple treats certain prior art as anticipatory where certain elements are expressly, implicitly, or inherently present based on Elan's theories as presently understood.

The following patents and publications are prior art under at least 35 U.S.C. §§ 102(a), (b), (e), and/or (g).

| PRIOR ART PATENTS AND PATENT APPLICATIONS |
|---|
| 1. U.S. Pat. No. 4,763,356, Day, Jr. et al., Aug. 9, 1988 |
| 2. U.S. Pat. No. 5,267,327, Hirayama, Nov. 30, 1993 |
| 3. U.S. Pat. No. 5,491,495, Ward et al., Feb. 13, 1996 |
| 4. U.S. Pat. No. 5,603,053, Gough et al., Feb. 11, 1997 |
| 5. U.S. Pat. No. 5,666,438, Beernink et al., Sep. 9, 1997 |
| 6. U.S. Pat. No. 5,838,302, Kuriyama et al.,Nov. 17, 1998 |
| 7. U.S. Pat. No. 5,898,434, Small et al., Apr. 27, 1999 |
| 8. U.S. Pat. No. 6,262,717, Donohue et al., Jul. 17, 2001 |
| 9. U.S. Pat. No. 6,311,162, Reichwein et al., Oct. 30, 2001 |
| 10. U.S. Pat. No. 6,552,719, Lui et al., Apr. 22, 2003 |
| 11. U.S. Pat. No. 6,664,982, Bi, Dec. 16, 2003 |
| 12. U.S. Pat. No. 6,788,815, Lui et al., Sep. 7, 2004 |
| 13. U.S. Pat. No. 6,924,790, Bi, Aug. 2, 2005 |
| 14. U.S. Pat. No. 7,283,126, Leung, Oct. 16, 2007 |
| 15. U.S. Pat. No. 7,339,580, Westerman et al., Mar. 4, 2008 |
| 16. U.S. Pat. No. Re 34,476, Norwood, Dec. 14, 1993 |
| 17. U.S. Pub. No. 2002/0191029, Gillespie et al., Dec. 19, 2002 |
| 18. U.S. App. No. 08/923,677, Glad et al., Sep. 4, 1997 |
| 19. U.S. Pat. No. 5,468,947, Danielson, Nov. 21, 1995 |

| PRIOR ART PUBLICATIONS |
|---|
| 1. GB 2,327,558, Charlier, Jan. 27, 1999 |

The following systems are prior art under at least 35 U.S.C. §§ 102(a), (b) and/or

(g). Although Apple's investigation continues, information available to date indicates that each system was (1) known or used in this country before the alleged invention of the claimed subject matter of the asserted claims, (2) was in public use and/or on sale in this country more than one year before the filing date of the patent, and/or (3) was invented by another who did not abandon, suppress, or conceal, before the alleged invention of the claimed subject matter of the asserted claims. Upon information and belief, these prior art systems anticipate Claims 1, 3-4, 6-7, 9-10, and 12 of the '353 Patent. For prior art systems, the respective "associated references" are separately charted, and these charts taken together serve as the prior art system charts.

| | **PRIOR ART SYSTEMS** |
|---|---|
| 1. | Palm Pilot<br>Palm Pilot devices were offered for sale, publicly used, and/or known by at least 1999.<br>At least David Pogue publicly used the Palm Pilot devices and/or made the Palm Pilot devices publicly known.<br>*Associated References*<br>• Pogue, Palm Pilot, the Ultimate Guide, O'reilly, pp. 1-597 (Jun. 1999) ("Pogue") |
| 2. | Newton MessagePad<br>Newton MessagePad devices were offered for sale, publicly used, and/or known by at least Mar. 1997.<br>At least personnel at Apple publicly used the Newton MessagePad devices and/or made the Newton MessagePad devices publicly known.<br>*Associated References*<br>• Newton MessagePad 2000 User's Manual, pp. 1-278 (1997) ("Newton") |
| 3. | Scriptel Touch Products<br>Scriptel Touch Product devices were offered for sale, publicly used, and/or known by at least Apr. 2, 2003.<br>At least personnel at Scriptel publicly used Scriptel Touch Product devices and/or made Scriptel Touch Product devices publicly known.<br>*Associated References*<br>• U.S. Pat. No. 4,678,869<br>• U.S. Pat. No. 5,367,453<br>• U.S. Pat. No. 5,491,495<br>• U.S. Pat. No. 5,666,438 |

## B. Obviousness

Pursuant to P.R. 3-3, Apple contends that Claims 1, 3-4, 6-7, 9-10, and 12 of the '353 Patent are invalid as obvious under 35 U.S.C. § 103.

### 1. Obviousness Combinations

Apple identifies the following prior art references that either alone or in combination with other prior art renders the asserted claims invalid as obvious under 35 U.S.C. § 103.

| PRIOR ART PATENTS AND PATENT APPLICATIONS |
|---|
| 1. U.S. Pat. No..4,290,052, Eichelberger et al., Sep. 15, 1981 |
| 2. U.S. Pat. No. 4,526,043, Boie et al., Jul. 2, 1985 |
| 3. U.S. Pat. No. 4,678,869, Kable, Jul. 7, 1987 |
| 4. U.S. Pat. No. 4,686,332, Greanias et al., Aug. 11, 1987 |
| 5. U.S. Pat. No. 4,806,709, Evans, Feb. 21, 1989 |
| 6. U.S. Pat. No. 5,113,041, Blonder et al., May 12, 1992 |
| 7. U.S. Pat. No. 5,276,794, Lamb, Jan. 4, 1994 |
| 8. U.S. Pat. No. 5,367,453, Capps et al., Nov. 22, 1994 |
| 9. U.S. Pat. No. 5,386,219, Greanias et al., Jan. 31, 1995 |
| 10. U.S. Pat. No. 5,543,591, Gillespie et al., Aug. 6, 1996 |
| 11. U.S. Pat. No. 5,583,543, Takahashi et al., Dec. 10, 1996 |
| 12. U.S. Pat. No. 6,029,214, Dorfman et al., Feb. 22, 2000 |
| 13. U.S. Pat. No. 6,121,960, Carroll et al., Sep. 19, 2000 |
| 14. U.S. Pat. No. 6,169,538, Nowlan et al., Jan. 2, 2001 |
| 15. U.S. Pat. No. 6,727,891, Moriya et al., Apr. 27, 2004 |
| 16. U.S. Pat. No. 7,030,862, Nozaki, Apr. 18, 2006 |
| 17. U.S. Pub. No. 2004/0119700, Ichikawa, Jun. 24, 2004 |
| 18. U.S. Pat. No. 5,233,547, Kapp, Aug. 3, 1993 |
| 19. U.S. Pat. No. 4,763,356, Day, Jr. et al., Aug. 9, 1988 |
| 20. U.S. Pat. No. 5,267,327, Hirayama, Nov. 30, 1993 |
| 21. U.S. Pat. No. 5,491,495, Ward et al., Feb. 13, 1996 |
| 22. U.S. Pat. No. 5,603,053, Gough et al., Feb. 11, 1997 |
| 23. U.S. Pat. No. 5,666,438, Beernink et al., Sep. 9, 1997 |
| 24. U.S. Pat. No. 5,838,302, Kuriyama et al., Nov. 17, 1998 |
| 25. U.S. Pat. No. 5,898,434, Small et al., Apr. 27, 1999 |
| 26. U.S. Pat. No. 6,262,717, Donohue et al., Jul. 17, 2001 |
| 27. U.S. Pat. No. 6,311,162, Reichwein et al., Oct. 30, 2001 |
| 28. U.S. Pat. No. 6,552,719, Lui et al., Apr. 22, 2003 |
| 29. U.S. Pat. No. 6,664,982, Bi, Dec. 16, 2003 |
| 30. U.S. Pat. No. 6,788,815, Lui et al., Sep. 7, 2004 |
| 31. U.S. Pat. No. 6,924,790, Bi, Aug. 2, 2005 |
| 32. U.S. Pat. No. 7,283,126, Leung, Oct. 16, 2007 |
| 33. U.S. Pat. No. 7,339,580, Westerman et al., Mar. 4, 2008 |
| 34. U.S. Pat. No. Re 34,476, Norwood, Dec. 14, 1993 |
| 35. U.S. Pub. No. 2002/0191029, Gillespie et al., Dec. 19, 2002 |
| 36. U.S. App. No. 08/923,677, Glad et al., Sep. 4, 1997 |
| 37. U.S. Pat. No. 5,468,947, Danielson, Nov. 21, 1995 |

| PRIOR ART PUBLICATIONS |
|---|
| 1. GB 2,327,558, Charlier, Jan. 27, 1999 |
| 2. Pogue, Palm Pilot, the Ultimate Guide, O'reilly, pp. 1-597 (Jun. 1999) ("Pogue") |
| 3. Newton MessagePad 2000 User's Manual, pp. 1-278 (1997) ("Newton") |
| 4. Wacom Intuos User's Manual for Windows, May 22, 2000 ("Wacom") |

| | PRIOR ART SYSTEMS |
|---|---|
| 1. | Palm Pilot<br>Palm Pilot devices were offered for sale, publicly used, and/or known by at least 1999.<br>At least David Pogue publicly used the Palm Pilot devices and/or made the Palm Pilot devices publicly known.<br>*Associated References*<br>• Pogue, Palm Pilot, the Ultimate Guide, O'reilly, pp. 1-597 (Jun. 1999) ("Pogue") |
| 2. | Newton MessagePad<br>Newton MessagePad devices were offered for sale, publicly used, and/or known by at least Mar. 1997.<br>At least personnel at Apple publicly used the Newton MessagePad devices and/or made the Newton MessagePad devices publicly known.<br>*Associated References*<br>• Newton MessagePad 2000 User's Manual, pp. 1-278 (1997) ("Newton") |
| 4. | Wacom Touch Products<br>Wacom Touch Products were offered for sale, publicly used, and/or known by at least May 22. 2000.<br>At least personnel at Wacom publicly used the Wacom Touchpad Products and/or made the Wacom Touchpad Products publicly known.<br>*Associated References*<br>• Wacom Intuos User's Manual for Windows, May 22, 2000 ("Wacom") |
| 5. | Scriptel Touch Products<br>Scriptel Touch Product devices were offered for sale, publicly used, and/or known by at least Apr. 2, 2003.<br>At least personnel at Scriptel publicly used Scriptel Touch Product devices and/or made Scriptel Touch Product devices publicly known.<br>*Associated References* |

| | PRIOR ART SYSTEMS |
|---|---|
| | • U.S. Pat. No. 4,678,869<br>• U.S. Pat. No. 5,367,453<br>• U.S. Pat. No. 5,491,495<br>• U.S. Pat. No. 5,666,438 |

Each prior art reference, either alone or in combination with other prior art, also renders the asserted claims invalid as obvious. In particular, each prior art reference may be combined with (1) information known to persons skilled in the art at the time of the alleged invention, (2) any of the other anticipatory prior art references, and/or (3) any of the additional prior art identified above. Specific combinations of prior art, by way of example, are provided below. The use of a prior art reference in an obviousness combination, however, does not preclude the use of the reference as an anticipatory reference.

In addition, Apple incorporates by reference each and every prior art reference of record in the prosecution of the '353 Patent and related applications, including the statements made therein by the applicant, as well as the prior art discussed in the specification.

**2. Obviousness Under *KSR***

The United States Supreme Court has clarified the standard for what types of inventions are patentable. *See KSR International Co. v. Teleflex Inc.*, 127 S. Ct. 1727 (2007). In particular, the Supreme Court has emphasized that inventions arising from ordinary innovation, ordinary skill, or common sense should not be patentable. *See id.* at 1732, 1738, 1742-1743, 1746. In that regard, a patent claim may be obvious if the combination of elements was obvious to try or there existed at the time of the invention a known problem for which there was an obvious solution encompassed by the patent's claims. In addition, when a work is available in one field of endeavor, design incentives and other market forces can prompt variations or combinations, either in the same field or a different one. *See KSR*, 127 S. Ct. at 1742. If a person of ordinary skill can implement a predictable variation or combination, Section 103 likely bars its patentability.

The '353 Patent provides a description of the prior art touchpads and the purported

deficiencies with certain touch technologies:

> There are three types of touchpads, i.e., resistive, electromagnetic and capacitive. The capacitive touchpad was applied for touching mode monitors such as those in public Internet phones and guiding systems. However, the capacitive touchpad lacks of handwriting function. The resistive touchpad has been used for touching mode monitors such as the applications in personal digital assistants (PDA) and electronic dictionaries. Unfortunately, the resistive touchpad cannot be inputted by light touching of users' fingers. Currently, the modules available for handwriting recognitions and keypads on tablet PCs and electronic books are all implemented with resistive or electromagnetic touchpads. The resistive touchpad is operated only by focused-point pressing on its panel, and the electromagnetic touchpad is operated by a battered [*sic* battery powered] input pen.

'353 Patent at 1:31-45. In other words, the patent asserts that resistive and electromagnetic touchpads have handwriting and keypad entry while capacitive touchpads are limited to keypad entry. The apparent "novelty" of the '353 Patent is bringing the handwriting capability of the resistive and electromagnetic touchpads to the capacitive touchpad.

By the priority date of the '353 Patent, however, capacitive touchpads with handwriting capability were well known to those of ordinary skill in the art. *See*, e.g., U.S. App. Pub. 2002/0191029, U.S. Pat. App. 08/923,677, GB 2,327,558, and U.S. Pat. Nos. 6,029,214; 5,267,327; 7,339,580; and 7,283,126. Furthermore, it was well known to those of ordinary skill in the art that the software capabilities available to resistive, electromagnetic and capacitive touchpads were largely hardware independent. *See*, e.g., U.S. App. Pub. 2002/0191029 at par. 37 ("For example, touch sensor 202 can be an active sensor employing capacitive, resistive, inductive, or other methods, or it can be a passive surface on which touch sensing is accomplished by optical, acoustic, or other methods.")

Accordingly, it would have been obvious to one of ordinary skill in the art to combine capacitive touchpad art with the handwriting, key, and mouse mode functions disclosed in analogous touch sensing art to achieve the claimed invention of claims 1, 4, 7, and 10. Capacitive touchpad art includes, U.S. Pat. App. Pub. 2002/0191029 and 2004/0119700, GB 2,327,558, U.S. Pat. App. 08/923,677, and U.S. Pat. Nos. 4,526,043; 4,686,332; 5,113,041; 5,267,327; 5,386,219; 5,603,053; 5,666,438; 6,029,214; 6,169,538; 6,262,717; 6,311,162;

6,788,815; 7,283,126; and 7,339,580 (the "**Capacitive Touchpad Art**"). Handwriting, key, and mouse mode art includes U.S. Pat. App. Pub. 2002/0191029, U.S. Pat. App. 08/923,677, GB 2,327,558; Newton, Pogue, Wacom, and U.S. Pat. Nos. 4,763,356; 5,233,547; 5,267,327; 5,276,794; 5,367,453; 5468947; 5491495; 5,583,543; 5,603,053; 5,666,438; 5,838,302; 5,898,434; 6,121,960; 6,169,538; 6,262,717; 6,311,162; 6,552,719; 6,664,982; 6,727,891; 6,788,815; 6,924,790; and 7,283,126 ("**Software Mode Art**").

One of ordinary skill in the art would have known that the Capacitive Touchpad Art can be combined with the Software Mode Art for at least the following reasons. First, in the context of this invention, the type of touch sensor employed is a routine design choice and one sensing technology can be substituted for the other (i.e., touch sensing technology is interchangeable). *See* U.S. Pub. No. 2002/0191029, ¶ 37 ("[A]ny touch screen technology would serve for the present invention."). Indeed, even the Capacitive Touchpad Art suggests that their respective inventions can be implemented on any of these well-known touch screen technologies. *See, e.g.*, U.S. Pat. No. 7,283,126, at 6:34-47 (noting that its invention is applicable to "any touch system that includes a touch panel," including capacitance, optical, and electromagnetic touch sensors). Accordingly, one of ordinary skill in the art would have recognized that the sensing technology of the Software Mode Art could be readily replaced by the sensing technology of the Capacitive Touchpad Art.

Second, one of ordinary skill in the art would have understood the advantages of employing a capacitance touch sensor. Each type of touch sensor has certain well-known advantages in certain situations. *See* U.S. Pat. No. 5,543,588, at 1:25-2:13 (discussing resistive, surface acoustic wave, optical, and capacitance touch sensors); U.S. Pat. No. 6,008,800, at 1:66-3:12 (discussing optical, capacitance, and other conventional touch sensors). Capacitance touch sensors, for example, had known advantages of low power consumption, high resolution and low cost. *See, e.g.*, U.S. Pub. No. 2002/0191029, ¶ 37 ("Capacitive touch sensors are ideally suited for use in the present invention due to their sensitivity, low cost, ruggedness, and suitability to small sensing areas."); *see also* U.S. App. No. 08/923,677, Glad et al., Sep. 4, 1997, at p. 9 (discussing the advantages of its capacitance technology in that it senses the capacitance of the

finger); U.S. Pat. No. 5,543,588, at 1:38-2:13 (noting that capacitance touch sensors consume less power than comparable devices). Accordingly, one of ordinary skill in the art would have recognized that, in certain situations, a capacitive touchpad would be advantageous and would therefore have motivated to integrate the Capacitive Touchpad Art with the Software Mode Art.

Claim 4 recites, in the preamble, a mobile telephone that includes a touchpad. By the priority date of the '353 Patent, mobile phones with touchpads were well known in the prior art. *See*, e.g., U.S. Pat. App. Pub. 2004/0119700, U.S. Pat. App. 08/923,677, GB 2,327,558, and U.S. Pat. Nos. 5,113,041; 5,267,327; 5,666,438; 6,169,538; 6,727,891; and 7,283,126 ("**Touchpad Mobile Telephone Art**").

It would have been obvious to combine the Touchpad Mobile Telephone Art with the Software Mode Art for several reasons. First, the industry was moving in the direction of providing mobile telephones the capabilities of computers and the Software Mode Art is one such capability. *See, e.g.*, U.S. Pat. No. 7,283,126, at 6:24-28 ("The gesture suggestion and writing recognition routine can be used in any touch system that includes a touch panel on which a computer image is presented. Such touch systems include pen-tablet computers, mobile computers, mobile phones."); U.S. App. No. 08/923,677, at p. 3 (noting that its touch sensor device "is particularly adapted for use on a portable communication device."); U.S. Pat. No. 6,552,719, at 24-29 ("the invention will be described in the general context of computer-executable instructions, such as program modules, being executed by a hand-held computing device such as a mobile device."). Accordingly, one of ordinary skill in the art would have recognized the Software Mode Art is platform independent and could easily be implemented on a mobile telephone.

Second, one of ordinary skill in the art would have understood the advantages of providing different touch input modes on a mobile phone. *See*, e.g., U.S. Pat. App. 08/032,677 ("The embodiments of the present intention (*sic* – invention) simplify the user interface with point and tap selection, simplify data entry with advanced character recognition, and simplify design and assembly.") Namely, the different modes simplify data entry. One of ordinary skill in the art would have recognized the advantages of different modes and therefore known to

combine the Touchpad Mobile Telephone Art with the Software Mode Art. Such a combination is a combination of well known elements that would yield the predictable result of bringing easy input to mobile telephones.

Claims 1, 4, 7, and 10 include specific hardware limitations for the capacitive touchpad. Namely, a substrate, conductor wiring on the substrate, and an insulator on the conductor wiring. One of ordinary skill in the art would have recognized that this hardware is typical for a capacitive touchpad. Indeed U.S. Pat. App. 08/923,677 and U.S. Pat. Nos. 4,290,052; 4,526,043; 4,678,869; 4,686,332; 4,763,356; 4,806,709; 5,113,041; 5,386,219; 5,468,947; 5,543,591; 5,666,438; and 7,339,580 ("**Hardware Art**") disclose such hardware for capacitive touchpads. Indeed, the hardware of a capacitive touch screen is so ubiquitious that the '353 Patent itself dismisses the hardware as "not the feature of the present invention." *See* '353 Patent at 2:55-59.

It would have been obvious to one of ordinary skill in the art to combine the Capacitive Touchpad Art with the Hardware Art for several reasons. First, the capacitance sensor structure required by the claims is a routine design choice. *See, e.g.*, U.S. Pat. No. 4,806,709, at 1:37-46 ("Such capacitive screen sensors usually require a single surface, such as glass, cloth or plastic, with a uniform resistive material coated or fused to one face of the surface, with the finger or a stylus establishing capacitive sensing when applied to the surface. Multiple electrodes are attached to the resistive material to render the screen electrically operative."); U.S. Pat. No. 4,763,356, at 11:67-12:37 (disclosing touch sensor with a transparent plate substrate, conductor wiring, and an insulator thereon); U.S. Pat. No. 4,526,043, at 3:13-29, 8:14-29, 9:5-9, and 10:6-14 (disclosing substrate, wiring, and insulator of a capacitance touchpad); U.S. Pat. No. 4,290,052, at 2:1-27, 3:6-28, 4:35-40, and 5:23-28 (same).

Second, one of ordinary skill in the art understood the advantages and disadvantages of various capacitance structures, and thus would have known to combine the various teachings of the Hardware Art with the Capacitive Touchpad Art to identify the preferred structure for particular applications. Certain capacitance structures are geared to particular uses or applications. *See, e.g.*, U.S. Pat. No. 4,806,709, at 1:64-66 (discussing a technique to prevent

components from reducing the viewing clarity for underlying display screens); U.S. Pat. No. Pat. No. 5,838,302, at 1:7-11 (noting that its invention is directed to a transparent inputting device). One of ordinary skill in the art would have looked to the teachings of the Hardware Art to identify a suitable capacitance structure for the particular application.

### C. Invalidity Under Section 112

Pursuant to P.R. 3-3(d), Apple lists below the grounds upon which the asserted claims are invalid based on indefiniteness under 35 U.S.C. § 112(2) or based on failure to meet the enablement or written description requirements under 35 U.S.C. § 112(1).

#### 1. Lack of Enablement

Based on the information available to date and as Apple best understands Elan's contentions at this time, the asserted claims are invalid under 35 U.S.C. § 112(1) for at least the following reasons.

Claim 1 fails to satisfy the requirements of 35 U.S.C. § 112(1) because the specification fails to provide an enabling disclosure of "[a] capacitive touchpad integrated with key and handwriting functions."

Claim 1 fails to satisfy the requirements of 35 U.S.C. § 112(1) because the specification fails to provide an enabling disclosure of "a first pattern on said panel for representing a mode switch to switch said touchpad between a key mode and a handwriting mode."

Claim 1 fails to satisfy the requirements of 35 U.S.C. § 112(1) because the specification fails to provide an enabling disclosure of "a plurality of second patterns on said plurality of regions for operation in said key and handwriting modes."

Claims 3, 6, 9, and 12 fail to satisfy the requirements of 35 U.S.C. § 112(1) because the specification fails to provide an enabling disclosure of "wherein said insulator is transparent."

Claim 4 fails to satisfy the requirements of 35 U.S.C. § 112(1) because the specification fails to provide an enabling disclosure of "first pattern on said panel for representing a mode switch to switch said touchpad between a key mode and a handwriting mode."

Claim 4 fails to satisfy the requirements of 35 U.S.C. § 112(1) because the specification fails to provide an enabling disclosure of "a plurality of second patterns on said plurality of regions for operation in said key and handwriting modes."

Claim 4 fails to satisfy the requirements of 35 U.S.C. § 112(1) because the specification fails to provide an enabling disclosure of "capacitive touchpad comprising … a mode switch to switch said touchpad between a key mode and a handwriting mode."

Claim 7 fails to satisfy the requirements of 35 U.S.C. § 112(1) because the specification fails to provide an enabling disclosure of "[a] capacitive touchpad integrated with key and mouse functions."

Claim 7 fails to satisfy the requirements of 35 U.S.C. § 112(1) because the specification fails to provide an enabling disclosure of "a first pattern on said panel for representing a mode switch to switch said touchpad between a key mode and a mouse mode."

Claim 7 fails to satisfy the requirements of 35 U.S.C. § 112(1) because the specification fails to provide an enabling disclosure of "a plurality of second patterns on said plurality of regions for operation in said key and mouse modes."

Claim 10 fails to satisfy the requirements of 35 U.S.C. § 112(1) because the specification fails to provide an enabling disclosure of "[a] capacitive touchpad integrated with mouse and handwriting functions."

Claim 10 fails to satisfy the requirements of 35 U.S.C. § 112(1) because the specification fails to provide an enabling disclosure of "a first pattern on said panel for representing a mode switch to switch said touchpad between a mouse mode and a handwriting mode."

Claim 10 fails to satisfy the requirements of 35 U.S.C. § 112(1) because the specification fails to provide an enabling disclosure of "a plurality of second patterns on said plurality of regions for operation in said mouse and handwriting modes."

**2. Lack of Written Description**

Based on the information available to date and as Apple best understands Elan's contentions at this time, the asserted claims are invalid under 35 U.S.C. § 112(1) for at least the following reasons.

Claim 1 fails to satisfy the requirements of 35 U.S.C. § 112(1) because the specification fails to provide an adequate written description of "[a] capacitive touchpad integrated with key and handwriting functions."

Claim 1 fails to satisfy the requirements of 35 U.S.C. § 112(1) because the specification fails to provide an adequate written description of "a first pattern on said panel for representing a mode switch to switch said touchpad between a key mode and a handwriting mode."

Claim 1 fails to satisfy the requirements of 35 U.S.C. § 112(1) because the specification fails to provide an adequate written description of "a plurality of second patterns on said plurality of regions for operation in said key and handwriting modes."

Claims 3, 6, 9, and 12 fail to satisfy the requirements of 35 U.S.C. § 112(1) because the specification fails to provide an adequate written description of "wherein said insulator is transparent."

Claim 4 fails to satisfy the requirements of 35 U.S.C. § 112(1) because the specification fails to provide an adequate written description of "first pattern on said panel for representing a mode switch to switch said touchpad between a key mode and a handwriting mode."

Claim 4 fails to satisfy the requirements of 35 U.S.C. § 112(1) because the specification fails to provide an adequate written description of "a plurality of second patterns on said plurality of regions for operation in said key and handwriting modes."

Claim 7 fails to satisfy the requirements of 35 U.S.C. § 112(1) because the specification fails to provide an adequate written description of "[a] capacitive touchpad integrated with key and mouse functions."

Claim 7 fails to satisfy the requirements of 35 U.S.C. § 112(1) because the

specification fails to provide an adequate written description of "first pattern on said panel for representing a mode switch to switch said touchpad between a key mode and a mouse mode."

Claim 7 fails to satisfy the requirements of 35 U.S.C. § 112(1) because the specification fails to provide an adequate written description of "a plurality of second patterns on said plurality of regions for operation in said key and mouse modes."

Claim 10 fails to satisfy the requirements of 35 U.S.C. § 112(1) because the specification fails to provide an adequate written description of "[a] capacitive touchpad integrated with mouse and handwriting functions."

Claim 10 fails to satisfy the requirements of 35 U.S.C. § 112(1) because the specification fails to provide an adequate written description of "first pattern on said panel for representing a mode switch to switch said touchpad between a mouse mode and a handwriting mode."

Claim 10 fails to satisfy the requirements of 35 U.S.C. § 112(1) because the specification fails to provide an adequate written description of "a plurality of second patterns on said plurality of regions for operation in said mouse and handwriting modes."

## III. ACCOMPANYING DOCUMENT PRODUCTION

Pursuant to P.R. 3-4(b), Apple has produced and made available for inspection prior art references and corroborating evidence concerning prior art systems that do not appear in the file histories of the patents at issue. *See* Bates Nos. APEL0006497-9337 and APEL0056975 - APEL0058578. These prior art references and corroborating evidence are cited in and support the accompanying invalidity charts. Apple's search for prior art references, additional documentation, and/or corroborating evidence concerning prior art systems is ongoing. Accordingly, Apple reserves the right to continue to supplement their production as Apple obtains additional prior art references, documentation, and/or corroborating evidence concerning invalidity during the course of discovery.

As to P.R. 3-4(a), Elan has access to publicly-available information, on the internet and elsewhere, about Apple's accused instrumentalities. Apple has also produced extensive documentation concerning the structure, function, or operation of the relevant functionalities of

the accused Apple instrumentalities.

Dated: June 22, 2010

WEIL, GOTSHAL & MANGES LLP

By: */s/ Sonal N. Mehta*
Sonal N. Mehta
Attorneys for Defendant and
Counterclaim Plaintiff Apple Inc.

**CERTIFICATE OF SERVICE**

I declare that I am employed with the law firm of Weil, Gotshal & Manges LLP, whose address is 201 Redwood Shores Parkway, Redwood Shores, California 94065-1175. I am not a party to the within cause, and I am over the age of eighteen years. I further declare that on June 22, 2010, I served a copy of:

**APPLE INC.'S FIRST SUPPLEMENTAL INVALIDITY CONTENTIONS**

**BY U.S. MAIL** by placing a true copy thereof enclosed in a sealed envelope with postage thereon fully prepaid, addressed as follows, for collection and mailing in accordance with the firm's ordinary business practices. I am readily familiar with the practice for collection and processing of mail, and know that in the ordinary course of business practice that the document(s) described above will be deposited with the U.S. Postal Service on the same date as sworn to below.

☒ **BY ELECTRONIC SERVICE** by electronically mailing a true and correct copy through the electronic mail system to the email address(es) set forth in the service list below.

**BY OVERNIGHT DELIVERY** by placing a true copy thereof enclosed in a sealed envelope with overnight delivery fees provided for, addressed as follows, for collection by Federal Express in accordance with ordinary business practices. I am readily familiar with the practice for collection and processing of correspondence for overnight delivery and know that in the ordinary course of business practice the document(s) described above will be deposited by an employee or agent in a box or other facility regularly maintained by Federal Express for collection on the same day that the document(s) are deposited.

**BY PERSONAL SERVICE** by placing a true copy thereof enclosed in a sealed envelope to be delivered by messenger to the offices of the addressee(s) (and left with an employee or person in charge of addressee's office), as stated below, during ordinary business hours.

Sean P. DeBruine (sean.debruine@alston.com)
Alston + Bird LLP
Two Palo Alto Square
3000 El Camino Real, Suite 400
Palo Alto, CA 94306
Telephone: 650-838-2000; Facsimile: 650-838-2001

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct. Executed on June 22, 2010, at Redwood Shores, California.

*/s/ Sonal N. Mehta*
Sonal N. Mehta

# Invalidity of U.S. Pat. No. 5,825,352

# by U.S. Pat. No. 5,483,261

Based upon the claim interpretations Plaintiff appears to be asserting and the applications of those interpretations to Defendant's products in Plaintiff's Supplemental Infringement Contentions, U.S. Pat. No. 5,483,261 anticipates and/or renders obvious, alone or in combination with other prior art identified in Defendant's Supplemental Invalidity Contentions, the asserted claims as described in part below. These invalidity contentions are not an admission by Defendant that the accused products, including any current or past versions of these products, are covered by, or infringe these claims, particularly when they are properly construed. Nothing in these contentions should be interpreted as an acquiescence to or assertion of a particular claim construction by Defendant.[1]

| Claim Language | Disclosure |
|---|---|
| 1. A method for detecting the operative coupling of multiple fingers to a touch sensor involving the steps of | See, e.g., 5,483,261 at Abstract; 2:17-39. |
| scanning the touch sensor to (a) identify a first maxima in a signal corresponding to a first finger, (b) identify a minima following the first maxima, (c) identify a second maxima in a signal corresponding to a second finger following said minima, and | See, e.g., 5,483,261 at 6:31-6:67, 7:19-49; Figs. 18(a)-(j). |
| providing an indication of the simultaneous presence of two fingers in response to identification of said first and second maxima. | See, e.g., 5,483,261 at Abstract; 1:14-19, 5:42-58, 7:19-49; Figs. 18(a)-(j). |
| | |
| 2. The method of claim 1 further including the step of causing a pointing device click function to occur in response to the detection of at least a second maxima. | See, e.g., 5,483,261 at 4:4-23, 6:6-19, 8:38-47. |
| | |
| 4. The method of claim 1 further including the step of enabling a "select" function in response to the detection of at least a second maxima. | See, e.g., 5,483,261 at 4:4-23, 6:6-19, 8:38-47. |
| | |

[1] To the extent U.S. Pat. No. 5,483,261 is argued by Plaintiff or found by the Court not to explicitly teach certain limitations in the asserted claims, such limitations would have been inherent and/or obvious as described in Defendant's Supplemental Invalidity Contentions.

| Claim Language | Disclosure |
|---|---|
| 6. The method of claim 1 wherein said touch sensor includes a plurality of lines, said maxima being a largest local variation in a signal value on one of said lines due to capacitive coupling of a finger. | See, e.g., 5,483,261 at 2:35-39, 9:37-50. |
| | |
| 7. The method of claim 6 wherein said maxima are peaks. | See, e.g., 5,483,261 at 6:31-6:67, 7:19-49; Figs. 18(a)-(j). |
| | |
| 10. The method of claim 1 further comprising the step of: detecting a distance between said first and second maxima. | See, e.g., 5,483,261 at 6:6-19, 7:1-18, 8:38-47. |
| | |
| 12. The method of claim 1 further comprising the step of: providing a click function in response to the removal and reappearance of said second maxima within a predetermined period of time. | See, e.g., 5,483,261 at 4:4-23, 6:6-19, 8:38-47. |
| | |
| 14. The method of claim 1 further comprising the step of: selecting an appropriate control function based on a combination of a number of fingers detected, an amount of time said fingers are detected, and any movement of said fingers. | See, e.g., 5,483,261 at 4:4-23, 6:6-19, 8:38-47. |
| | |
| 16. The method of claim 1 further comprising the step of calculating first and second centroids corresponding to said first and second fingers. | See, e.g., 5,483,261 at 6:31-67, 7:50-67. |
| | |
| 18. A touch sensor for detecting the operative coupling of multiple fingers comprising: | See, e.g., 5,483,261 at Abstract; 2:17-39. |
| scanning the touch sensor to (a) identify a first maxima in a signal corresponding to a first finger, (b) identify a minima following the first maxima, (c) identify a second maxima in a signal corresponding to a second finger following said minima, and | See, e.g., 5,483,261 at 6:31-6:67, 7:19-49; Figs. 18(a)-(j). |
| means for providing an indication of the | See, e.g., 5,483,261 at Abstract; 1:14-19, 5:42- |

| Claim Language | Disclosure |
|---|---|
| simultaneous presence of two fingers in response to identification of said first and second maxima. | 58, 7:19-49; Figs. 18(a)-(j). |
| | |
| 19. The touch sensor of claim 18 further comprising: means for selecting an appropriate control function based on a combination of a number of fingers detected, an amount of time said fingers are detected, and any movement of said fingers. | See, e.g., 5,483,261 at 4:4-23, 6:6-19, 8:38-47. |
| | |
| 21. The touch sensor of claim 18 wherein said maxima are peaks. | See, e.g., 5,483,261 at 6:31-6:67, 7:19-49; Figs. 18(a)-(j). |
| | |
| 24. The touch sensor of claim 18 further comprising: means for detecting a distance between said first and second maxima. | See, e.g., 5,483,261 at 6:6-19, 7:1-18, 8:38-47. |
| | |
| 26. The touch sensor of claim 18 further comprising: means for providing a click function in response to the removal and reappearance of said second maxima within a predetermined period of time. | See, e.g., 5,483,261 at 4:4-23, 6:6-19, 8:38-47. |
| | |
| 30. The sensor of claim 18 further comprising means for calculating first and second centroids corresponding to said first and second fingers. | See, e.g., 5,483,261 at 6:31-67, 7:50-67. |

# Invalidity of U.S. Pat. No. 5,825,352

## by Stansfield, Haptic Perception With an Articulated, Sensate Robot Hand (Mar. 1990) ("Haptic Perception")

Based upon the claim interpretations Plaintiff appears to be asserting and the applications of those interpretations to Defendant's products in Plaintiff's Supplemental Infringement Contentions, Haptic Perception anticipates and/or renders obvious, alone or in combination with other prior art identified in Defendant's Supplemental Invalidity Contentions, the asserted claims as described in part below. These invalidity contentions are not an admission by Defendant that the accused products, including any current or past versions of these products, are covered by, or infringe these claims, particularly when they are properly construed. Nothing in these contentions should be interpreted as an acquiescence to or assertion of a particular claim construction by Defendant.[1]

| Claim Language | Disclosure |
|---|---|
| 1. A method for detecting the operative coupling of multiple fingers to a touch sensor involving the steps of | See, e.g., Haptic Perception at pp. 4, 10-11. |
| scanning the touch sensor to (a) identify a first maxima in a signal corresponding to a first finger, (b) identify a minima following the first maxima, (c) identify a second maxima in a signal corresponding to a second finger following said minima, and | See, e.g., Haptic Perception at pp. 11-13, 25-26; Figs. 3b, 4b. |
| providing an indication of the simultaneous presence of two fingers in response to identification of said first and second maxima. | See, e.g., Haptic Perception at pp. 4, 10-13; Figs. 3b, 4b. |
| | |
| 2. The method of claim 1 further including the step of causing a pointing device click function to occur in response to the detection of at least a second maxima. | See, e.g., Haptic Perception at pp. 17, 20, 23. |
| | |
| 4. The method of claim 1 further including the step of enabling a "select" function in response to the detection of at least a second maxima. | See, e.g., Haptic Perception at pp. 17, 20, 23. |

[1] To the extent Haptic Perception is argued by Plaintiff or found by the Court not to explicitly teach certain limitations in the asserted claims, such limitations would have been inherent and/or obvious as described in Defendant's Supplemental Invalidity Contentions.

| Claim Language | Disclosure |
|---|---|
| | |
| 6. The method of claim 1 wherein said touch sensor includes a plurality of lines, said maxima being a largest local variation in a signal value on one of said lines due to capacitive coupling of a finger. | See, e.g., Haptic Perception at pp. 11-13. |
| | |
| 7. The method of claim 6 wherein said maxima are peaks. | See, e.g., Haptic Perception at pp. 11-13, 25-26; Figs. 3b, 4b. |
| | |
| 10. The method of claim 1 further comprising the step of: detecting a distance between said first and second maxima. | See, e.g., Haptic Perception at pp. 10-13; Figs. 3b, 4b. |
| | |
| 12. The method of claim 1 further comprising the step of: providing a click function in response to the removal and reappearance of said second maxima within a predetermined period of time. | See, e.g., Haptic Perception at pp. 17, 20, 23. |
| | |
| 14. The method of claim 1 further comprising the step of: selecting an appropriate control function based on a combination of a number of fingers detected, an amount of time said fingers are detected, and any movement of said fingers. | See, e.g., Haptic Perception at pp. 17, 20, 23. |
| | |
| 16. The method of claim 1 further comprising the step of calculating first and second centroids corresponding to said first and second fingers. | |
| | |
| 18. A touch sensor for detecting the operative coupling of multiple fingers comprising: | See, e.g., Haptic Perception at pp. 4, 10-11. |
| scanning the touch sensor to (a) identify a first maxima in a signal corresponding to a first finger, (b) identify a minima following the first maxima, (c) identify a second maxima in a signal corresponding to a second finger following said minima, and | See, e.g., Haptic Perception at pp. 11-13, 25-26; Figs. 3b, 4b. |

| Claim Language | Disclosure |
|---|---|
| means for providing an indication of the simultaneous presence of two fingers in response to identification of said first and second maxima. | See, e.g., Haptic Perception at pp. 4, 10-13; Figs. 3b, 4b. |
| | |
| 19. The touch sensor of claim 18 further comprising: means for selecting an appropriate control function based on a combination of a number of fingers detected, an amount of time said fingers are detected, and any movement of said fingers. | See, e.g., Haptic Perception at pp. 17, 20, 23. |
| | |
| 21. The touch sensor of claim 18 wherein said maxima are peaks. | See, e.g., Haptic Perception at pp. 11-13, 25-26; Figs. 3b, 4b. |
| | |
| 24. The touch sensor of claim 18 further comprising: means for detecting a distance between said first and second maxima. | See, e.g., Haptic Perception at pp. 10-13; Figs. 3b, 4b. |
| | |
| 26. The touch sensor of claim 18 further comprising: means for providing a click function in response to the removal and reappearance of said second maxima within a predetermined period of time. | See, e.g., Haptic Perception at pp. 17, 20, 23. |
| | |
| 30. The sensor of claim 18 further comprising means for calculating first and second centroids corresponding to said first and second fingers. | |

# Invalidity of U.S. Pat. No. 5,825,352

## by Rubine, Programmable Finger-tracking Instrument Controllers, Computer Music Journal, Vol. 14, No. 1, Spring 1990 ("Finger-tracking")

Based upon the claim interpretations Plaintiff appears to be asserting and the applications of those interpretations to Defendant's products in Plaintiff's Supplemental Infringement Contentions, Finger-tracking anticipates and/or renders obvious, alone or in combination with other prior art identified in Defendant's Supplemental Invalidity Contentions, the asserted claims as described in part below. These invalidity contentions are not an admission by Defendant that the accused products, including any current or past versions of these products, are covered by, or infringe these claims, particularly when they are properly construed. Nothing in these contentions should be interpreted as an acquiescence to or assertion of a particular claim construction by Defendant.[1]

| Claim Language | Disclosure |
|---|---|
| 1. A method for detecting the operative coupling of multiple fingers to a touch sensor involving the steps of | See, e.g., Finger-tracking at p. 32. |
| scanning the touch sensor to (a) identify a first maxima in a signal corresponding to a first finger, (b) identify a minima following the first maxima, (c) identify a second maxima in a signal corresponding to a second finger following said minima, and | See, e.g., Finger-tracking at pp. 32, 33, 35; Fig. 5. |
| providing an indication of the simultaneous presence of two fingers in response to identification of said first and second maxima. | See, e.g., Finger-tracking at pp. 32, 33, 35; Fig. 5. |
| | |
| 2. The method of claim 1 further including the step of causing a pointing device click function to occur in response to the detection of at least a second maxima. | See, e.g., Finger-tracking at p. 36. |
| | |
| 4. The method of claim 1 further including the step of enabling a "select" function in response to the detection of at least a second maxima. | See, e.g., Finger-tracking at p. 36. |

[1] To the extent Finger-tracking is argued by Plaintiff or found by the Court not to explicitly teach certain limitations in the asserted claims, such limitations would have been inherent and/or obvious as described in Defendant's Supplemental Invalidity Contentions.

| Claim Language | Disclosure |
|---|---|
| | |
| 6. The method of claim 1 wherein said touch sensor includes a plurality of lines, said maxima being a largest local variation in a signal value on one of said lines due to capacitive coupling of a finger. | |
| | |
| 7. The method of claim 6 wherein said maxima are peaks. | See, e.g., Finger-tracking at pp. 32, 33, 35; Fig. 5. |
| | |
| 10. The method of claim 1 further comprising the step of: detecting a distance between said first and second maxima. | |
| | |
| 12. The method of claim 1 further comprising the step of: providing a click function in response to the removal and reappearance of said second maxima within a predetermined period of time. | See, e.g., Finger-tracking at p. 36. |
| | |
| 14. The method of claim 1 further comprising the step of: selecting an appropriate control function based on a combination of a number of fingers detected, an amount of time said fingers are detected, and any movement of said fingers. | See, e.g., Finger-tracking at p. 36. |
| | |
| 16. The method of claim 1 further comprising the step of calculating first and second centroids corresponding to said first and second fingers. | |
| | |
| 18. A touch sensor for detecting the operative coupling of multiple fingers comprising: | See, e.g., Finger-tracking at p. 32. |
| scanning the touch sensor to (a) identify a first maxima in a signal corresponding to a first finger, (b) identify a minima following the first maxima, (c) identify a second maxima in a signal corresponding to a second finger following said minima, and | See, e.g., Finger-tracking at pp. 32, 33, 35; Fig. 5. |

| Claim Language | Disclosure |
|---|---|
| means for providing an indication of the simultaneous presence of two fingers in response to identification of said first and second maxima. | See, e.g., Finger-tracking at pp. 32, 33, 35; Fig. 5. |
| | |
| 19. The touch sensor of claim 18 further comprising: means for selecting an appropriate control function based on a combination of a number of fingers detected, an amount of time said fingers are detected, and any movement of said fingers. | See, e.g., Finger-tracking at p. 36. |
| | |
| 21. The touch sensor of claim 18 wherein said maxima are peaks. | See, e.g., Finger-tracking at pp. 32, 33, 35; Fig. 5. |
| | |
| 24. The touch sensor of claim 18 further comprising: means for detecting a distance between said first and second maxima. | |
| | |
| 26. The touch sensor of claim 18 further comprising: means for providing a click function in response to the removal and reappearance of said second maxima within a predetermined period of time. | See, e.g., Finger-tracking at p. 36. |
| | |
| 30. The sensor of claim 18 further comprising means for calculating first and second centroids corresponding to said first and second fingers. | |

# Invalidity of U.S. Pat. No. 5,825,352

# by JP06-161661

Based upon the claim interpretations Plaintiff appears to be asserting and the applications of those interpretations to Defendant's products in Plaintiff's Supplemental Infringement Contentions, JP06-161661 anticipates and/or renders obvious, alone or in combination with other prior art identified in Defendant's Supplemental Invalidity Contentions, the asserted claims as described in part below. These invalidity contentions are not an admission by Defendant that the accused products, including any current or past versions of these products, are covered by, or infringe these claims, particularly when they are properly construed. Nothing in these contentions should be interpreted as an acquiescence to or assertion of a particular claim construction by Defendant.[1]

| Claim Language | Disclosure |
|---|---|
| 1. A method for detecting the operative coupling of multiple fingers to a touch sensor involving the steps of | See, e.g., JP06-161661 (Jun. 10, 1994) at Paras. 1, 2, 3; Fig. 5. |
| scanning the touch sensor to (a) identify a first maxima in a signal corresponding to a first finger, (b) identify a minima following the first maxima, (c) identify a second maxima in a signal corresponding to a second finger following said minima, and | See, e.g., JP06-161661 (Jun. 10, 1994) at Paras. 14-15; Figs. 2, 3, 5. |
| providing an indication of the simultaneous presence of two fingers in response to identification of said first and second maxima. | See, e.g., JP06-161661 (Jun. 10, 1994) at Para. 19. |
| | |
| 2. The method of claim 1 further including the step of causing a pointing device click function to occur in response to the detection of at least a second maxima. | See, e.g., JP06-161661 (Jun. 10, 1994) at Paras. 4-6. |
| | |
| 4. The method of claim 1 further including the step of enabling a "select" function in response to the detection of at least a second maxima. | See, e.g., JP06-161661 (Jun. 10, 1994) at Paras. 4-6. |
| | |

[1] To the extent JP06-161661 is argued by Plaintiff or found by the Court not to explicitly teach certain limitations in the asserted claims, such limitations would have been inherent and/or obvious as described in Defendant's Supplemental Invalidity Contentions.

| Claim Language | Disclosure |
|---|---|
| 6. The method of claim 1 wherein said touch sensor includes a plurality of lines, said maxima being a largest local variation in a signal value on one of said lines due to capacitive coupling of a finger. | See, e.g., JP06-161661 (Jun. 10, 1994) at Figs. 1, 5. |
| | |
| 7. The method of claim 6 wherein said maxima are peaks. | See, e.g., JP06-161661 (Jun. 10, 1994) at Paras. 14-15; Figs. 2, 3, 5. |
| | |
| 10. The method of claim 1 further comprising the step of: detecting a distance between said first and second maxima. | |
| | |
| 12. The method of claim 1 further comprising the step of: providing a click function in response to the removal and reappearance of said second maxima within a predetermined period of time. | See, e.g., JP06-161661 (Jun. 10, 1994) at Paras. 4-6. |
| | |
| 14. The method of claim 1 further comprising the step of: selecting an appropriate control function based on a combination of a number of fingers detected, an amount of time said fingers are detected, and any movement of said fingers. | See, e.g., JP06-161661 (Jun. 10, 1994) at Paras. 4-6. |
| | |
| 16. The method of claim 1 further comprising the step of calculating first and second centroids corresponding to said first and second fingers. | See, e.g., JP06-161661 (Jun. 10, 1994) at Paras. 16, 18; Fig. 3. |
| | |
| 18. A touch sensor for detecting the operative coupling of multiple fingers comprising: | See, e.g., JP06-161661 (Jun. 10, 1994) at Paras. 1, 2, 3; Fig. 5. |
| scanning the touch sensor to (a) identify a first maxima in a signal corresponding to a first finger, (b) identify a minima following the first maxima, (c) identify a second maxima in a signal corresponding to a second finger following said minima, and | See, e.g., JP06-161661 (Jun. 10, 1994) at Paras. 14-15; Figs. 2, 3, 5. |
| means for providing an indication of the | See, e.g., JP06-161661 (Jun. 10, 1994) at Para. |

| Claim Language | Disclosure |
|---|---|
| simultaneous presence of two fingers in response to identification of said first and second maxima. | 19. |
| | |
| 19. The touch sensor of claim 18 further comprising: means for selecting an appropriate control function based on a combination of a number of fingers detected, an amount of time said fingers are detected, and any movement of said fingers. | See, e.g., JP06-161661 (Jun. 10, 1994) at Paras. 4-6. |
| | |
| 21. The touch sensor of claim 18 wherein said maxima are peaks. | See, e.g., JP06-161661 (Jun. 10, 1994) at Paras. 14-15; Figs. 2, 3, 5. |
| | |
| 24. The touch sensor of claim 18 further comprising: means for detecting a distance between said first and second maxima. | |
| | |
| 26. The touch sensor of claim 18 further comprising: means for providing a click function in response to the removal and reappearance of said second maxima within a predetermined period of time. | See, e.g., JP06-161661 (Jun. 10, 1994) at Paras. 4-6. |
| | |
| 30. The sensor of claim 18 further comprising means for calculating first and second centroids corresponding to said first and second fingers. | See, e.g., JP06-161661 (Jun. 10, 1994) at Paras. 16, 18; Fig. 3. |

# Invalidity of U.S. Pat. No. 5,825,352

# by BOIE0011

Based upon the claim interpretations Plaintiff appears to be asserting and the applications of those interpretations to Defendant's products in Plaintiff's Supplemental Infringement Contentions, BOIE0011 anticipates and/or renders obvious, alone or in combination with other prior art identified in Defendant's Supplemental Invalidity Contentions, the asserted claims as described in part below. These invalidity contentions are not an admission by Defendant that the accused products, including any current or past versions of these products, are covered by, or infringe these claims, particularly when they are properly construed. Nothing in these contentions should be interpreted as an acquiescence to or assertion of a particular claim construction by Defendant.[1]

| Claim Language | Disclosure |
|---|---|
| 1. A method for detecting the operative coupling of multiple fingers to a touch sensor involving the steps of | See, e.g., BOIE0011 at pp. 1-2. |
| scanning the touch sensor to (a) identify a first maxima in a signal corresponding to a first finger, (b) identify a minima following the first maxima, (c) identify a second maxima in a signal corresponding to a second finger following said minima, and | See, e.g., BOIE0011 at pp. 2-3; Appxs. 1-2. |
| providing an indication of the simultaneous presence of two fingers in response to identification of said first and second maxima. | See, e.g., BOIE0011 at pp. 2-4; Fig. 5; Appxs. 1-2. |
| | |
| 2. The method of claim 1 further including the step of causing a pointing device click function to occur in response to the detection of at least a second maxima. | See, e.g., BOIE0011 at pp. 1-2, 5-6. |
| | |
| 4. The method of claim 1 further including the step of enabling a "select" function in response to the detection of at least a second maxima. | See, e.g., BOIE0011 at pp. 1-2, 5-6. |
| | |

[1] To the extent BOIE0011 is argued by Plaintiff or found by the Court not to explicitly teach certain limitations in the asserted claims, such limitations would have been inherent and/or obvious as described in Defendant's Supplemental Invalidity Contentions.

| Claim Language | Disclosure |
|---|---|
| 6. The method of claim 1 wherein said touch sensor includes a plurality of lines, said maxima being a largest local variation in a signal value on one of said lines due to capacitive coupling of a finger. | See, e.g., BOIE0011 at pp. 2-3; Fig. 1; Appxs. 1-2. |
| | |
| 7. The method of claim 6 wherein said maxima are peaks. | See, e.g., BOIE0011 at pp. 2-3; Appxs. 1-2. |
| | |
| 10. The method of claim 1 further comprising the step of: detecting a distance between said first and second maxima. | See, e.g., BOIE0011 at pp. 2-5; Fig. 5; Appxs. 1-2. |
| | |
| 12. The method of claim 1 further comprising the step of: providing a click function in response to the removal and reappearance of said second maxima within a predetermined period of time. | See, e.g., BOIE0011 at pp. 1-2, 5-6. |
| | |
| 14. The method of claim 1 further comprising the step of: selecting an appropriate control function based on a combination of a number of fingers detected, an amount of time said fingers are detected, and any movement of said fingers. | See, e.g., BOIE0011 at pp. 1-2, 5-6. |
| | |
| 16. The method of claim 1 further comprising the step of calculating first and second centroids corresponding to said first and second fingers. | See, e.g., BOIE0011 at pp. 2-5; Appxs. 1-2. |
| | |
| 18. A touch sensor for detecting the operative coupling of multiple fingers comprising: | See, e.g., BOIE0011 at pp. 1-2. |
| scanning the touch sensor to (a) identify a first maxima in a signal corresponding to a first finger, (b) identify a minima following the first maxima, (c) identify a second maxima in a signal corresponding to a second finger following said minima, and | See, e.g., BOIE0011 at pp. 2-4; Fig. 5; Appxs. 1-2. |
| means for providing an indication of the simultaneous presence of two fingers in | See, e.g., BOIE0011 at pp. 2-4; Fig. 5; Appxs. |

| Claim Language | Disclosure |
|---|---|
| response to identification of said first and second maxima. | 1-2. |
| | |
| 19. The touch sensor of claim 18 further comprising: means for selecting an appropriate control function based on a combination of a number of fingers detected, an amount of time said fingers are detected, and any movement of said fingers. | See, e.g., BOIE0011 at pp. 1-2, 5-6. |
| | |
| 21. The touch sensor of claim 18 wherein said maxima are peaks. | See, e.g., BOIE0011 at pp. 2-4; Fig. 5; Appxs. 1-2. |
| | |
| 24. The touch sensor of claim 18 further comprising: means for detecting a distance between said first and second maxima. | See, e.g., BOIE0011 at pp. 2-5; Fig. 5; Appxs. 1-2. |
| | |
| 26. The touch sensor of claim 18 further comprising: means for providing a click function in response to the removal and reappearance of said second maxima within a predetermined period of time. | See, e.g., BOIE0011 at pp. 1-2, 5-6. |
| | |
| 30. The sensor of claim 18 further comprising means for calculating first and second centroids corresponding to said first and second fingers. | See, e.g., BOIE0011 at pp. 2-5; Appxs. 1-2. |

# Invalidity of U.S. Pat. No. 5,825,352

## by Rubine, Automatic Recognition of Gestures, Thesis , Carnegie Mellon University (1991) ("Rubine Thesis")

Based upon the claim interpretations Plaintiff appears to be asserting and the applications of those interpretations to Defendant's products in Plaintiff's Supplemental Infringement Contentions, Rubine Thesis anticipates and/or renders obvious, alone or in combination with other prior art identified in Defendant's Supplemental Invalidity Contentions, the asserted claims as described in part below. These invalidity contentions are not an admission by Defendant that the accused products, including any current or past versions of these products, are covered by, or infringe these claims, particularly when they are properly construed. Nothing in these contentions should be interpreted as an acquiescence to or assertion of a particular claim construction by Defendant.[1]

| Claim Language | Disclosure |
|---|---|
| 1. A method for detecting the operative coupling of multiple fingers to a touch sensor involving the steps of | See, e.g., Rubine Thesis at p. 2.1. |
| scanning the touch sensor to (a) identify a first maxima in a signal corresponding to a first finger, (b) identify a minima following the first maxima, (c) identify a second maxima in a signal corresponding to a second finger following said minima, and | See, e.g., Rubine Thesis at pp. 2.1, 5.1. |
| providing an indication of the simultaneous presence of two fingers in response to identification of said first and second maxima. | See, e.g., Rubine Thesis at pp. 2.1, 5.1. |
| | |
| 2. The method of claim 1 further including the step of causing a pointing device click function to occur in response to the detection of at least a second maxima. | See, e.g., Rubine Thesis at pp. 5.5, 8.3.2; Fig. 8.8. |
| | |
| 4. The method of claim 1 further including the step of enabling a "select" function in response to the detection of at least a second maxima. | See, e.g., Rubine Thesis at pp. 5.5, 8.3.2; Fig. 8.8. |

[1] To the extent Rubine Thesis is argued by Plaintiff or found by the Court not to explicitly teach certain limitations in the asserted claims, such limitations would have been inherent and/or obvious as described in Defendant's Supplemental Invalidity Contentions.

| Claim Language | Disclosure |
|---|---|
| | |
| 6. The method of claim 1 wherein said touch sensor includes a plurality of lines, said maxima being a largest local variation in a signal value on one of said lines due to capacitive coupling of a finger. | |
| | |
| 7. The method of claim 6 wherein said maxima are peaks. | See, e.g., Rubine Thesis at pp. 2.1, 5.1. |
| | |
| 10. The method of claim 1 further comprising the step of: detecting a distance between said first and second maxima. | See, e.g., Rubine Thesis at pp. 5.2, 5.5, 8.3.2; Figs. 5.1, 8.8. |
| | |
| 12. The method of claim 1 further comprising the step of: providing a click function in response to the removal and reappearance of said second maxima within a predetermined period of time. | See, e.g., Rubine Thesis at pp. 5.5, 8.3.2; Fig. 8.8. |
| | |
| 14. The method of claim 1 further comprising the step of: selecting an appropriate control function based on a combination of a number of fingers detected, an amount of time said fingers are detected, and any movement of said fingers. | See, e.g., Rubine Thesis at pp. 5.5, 8.3; Fig. 8.8. |
| | |
| 16. The method of claim 1 further comprising the step of calculating first and second centroids corresponding to said first and second fingers. | |
| | |
| 18. A touch sensor for detecting the operative coupling of multiple fingers comprising: | See, e.g., Rubine Thesis at p. 2.1. |
| scanning the touch sensor to (a) identify a first maxima in a signal corresponding to a first finger, (b) identify a minima following the first maxima, (c) identify a second maxima in a signal corresponding to a second finger following said minima, and | See, e.g., Rubine Thesis at pp. 2.1, 5.1. |

| Claim Language | Disclosure |
|---|---|
| means for providing an indication of the simultaneous presence of two fingers in response to identification of said first and second maxima. | See, e.g., Rubine Thesis at pp. 2.1, 5.1. |
| | |
| 19. The touch sensor of claim 18 further comprising: means for selecting an appropriate control function based on a combination of a number of fingers detected, an amount of time said fingers are detected, and any movement of said fingers. | See, e.g., Rubine Thesis at pp. 5.5, 8.3; Fig. 8.8. |
| | |
| 21. The touch sensor of claim 18 wherein said maxima are peaks. | See, e.g., Rubine Thesis at pp. 2.1, 5.1. |
| | |
| 24. The touch sensor of claim 18 further comprising: means for detecting a distance between said first and second maxima. | See, e.g., Rubine Thesis at pp. 5.2, 5.5, 8.3.2; Figs. 5.1, 8.8. |
| | |
| 26. The touch sensor of claim 18 further comprising: means for providing a click function in response to the removal and reappearance of said second maxima within a predetermined period of time. | See, e.g., Rubine Thesis at pp. 5.5, 8.3.2; Fig. 8.8. |
| | |
| 30. The sensor of claim 18 further comprising means for calculating first and second centroids corresponding to said first and second fingers. | |

# Invalidity of U.S. Pat. No. 5,825,352

## by Son et al., Comparison of contact sensor localization abilities during manipulation, Robotics and Autonomous Systems, pp. 217-233 (1996) ("Contact Sensor Localization")

Based upon the claim interpretations Plaintiff appears to be asserting and the applications of those interpretations to Defendant's products in Plaintiff's Supplemental Infringement Contentions, Contact Sensor Localization anticipates and/or renders obvious, alone or in combination with other prior art identified in Defendant's Supplemental Invalidity Contentions, the asserted claims as described in part below. These invalidity contentions are not an admission by Defendant that the accused products, including any current or past versions of these products, are covered by, or infringe these claims, particularly when they are properly construed. Nothing in these contentions should be interpreted as an acquiescence to or assertion of a particular claim construction by Defendant.[1]

| Claim Language | Disclosure |
|---|---|
| 1. A method for detecting the operative coupling of multiple fingers to a touch sensor involving the steps of | See, e.g., Contact Sensor Localization at p. 224. |
| scanning the touch sensor to (a) identify a first maxima in a signal corresponding to a first finger, (b) identify a minima following the first maxima, (c) identify a second maxima in a signal corresponding to a second finger following said minima, and | See, e.g., Contact Sensor Localization at pp. 218, 219, 230; Figs. 2a, 7c, 8c, 9a. |
| providing an indication of the simultaneous presence of two fingers in response to identification of said first and second maxima. | |
| | |
| 2. The method of claim 1 further including the step of causing a pointing device click function to occur in response to the detection of at least a second maxima. | |
| | |
| 4. The method of claim 1 further including the step of enabling a "select" function in response | |

[1] To the extent Contact Sensor Localization is argued by Plaintiff or found by the Court not to explicitly teach certain limitations in the asserted claims, such limitations would have been inherent and/or obvious as described in Defendant's Supplemental Invalidity Contentions.

| Claim Language | Disclosure |
|---|---|
| to the detection of at least a second maxima. | |
| | |
| 6. The method of claim 1 wherein said touch sensor includes a plurality of lines, said maxima being a largest local variation in a signal value on one of said lines due to capacitive coupling of a finger. | See, e.g., Contact Sensor Localization at pp. 218, 219, 230; Figs. 2a, 7c, 8c, 9a. |
| | |
| 7. The method of claim 6 wherein said maxima are peaks. | See, e.g., Contact Sensor Localization at pp. 218, 219, 230; Figs. 2a, 7c, 8c, 9a. |
| | |
| 10. The method of claim 1 further comprising the step of: detecting a distance between said first and second maxima. | |
| | |
| 12. The method of claim 1 further comprising the step of: providing a click function in response to the removal and reappearance of said second maxima within a predetermined period of time. | |
| | |
| 14. The method of claim 1 further comprising the step of: selecting an appropriate control function based on a combination of a number of fingers detected, an amount of time said fingers are detected, and any movement of said fingers. | |
| | |
| 16. The method of claim 1 further comprising the step of calculating first and second centroids corresponding to said first and second fingers. | See, e.g., Contact Sensor Localization at p. 219. |
| | |
| 18. A touch sensor for detecting the operative coupling of multiple fingers comprising: | See, e.g., Contact Sensor Localization at p. 224. |
| scanning the touch sensor to (a) identify a first maxima in a signal corresponding to a first finger, (b) identify a minima following the first maxima, (c) identify a second maxima in a | See, e.g., Contact Sensor Localization at pp. 218, 219, 219-220, 230; Figs. 2a, 5, 7c, 8c, 9a. |

| Claim Language | Disclosure |
|---|---|
| signal corresponding to a second finger following said minima, and | |
| means for providing an indication of the simultaneous presence of two fingers in response to identification of said first and second maxima. | |
| | |
| 19. The touch sensor of claim 18 further comprising: means for selecting an appropriate control function based on a combination of a number of fingers detected, an amount of time said fingers are detected, and any movement of said fingers. | |
| | |
| 21. The touch sensor of claim 18 wherein said maxima are peaks. | See, e.g., Contact Sensor Localization at pp. 218, 219, 219-220, 230; Figs. 2a, 5, 7c, 8c, 9a. |
| | |
| 24. The touch sensor of claim 18 further comprising: means for detecting a distance between said first and second maxima. | |
| | |
| 26. The touch sensor of claim 18 further comprising: means for providing a click function in response to the removal and reappearance of said second maxima within a predetermined period of time. | |
| | |
| 30. The sensor of claim 18 further comprising means for calculating first and second centroids corresponding to said first and second fingers. | See, e.g., Contact Sensor Localization at pp. 219-220. |

# Invalidity of U.S. Pat. No. 5,825,352

## by Myron Krueger Videoplace, Responsive Environment, 1972-1990s, www.youtube.com/watch?v=dmmxVA5xhuo ("Krueger")

Based upon the claim interpretations Plaintiff appears to be asserting and the applications of those interpretations to Defendant's products in Plaintiff's Supplemental Infringement Contentions, Krueger anticipates and/or renders obvious, alone or in combination with other prior art identified in Defendant's Supplemental Invalidity Contentions, the asserted claims as described in part below. These invalidity contentions are not an admission by Defendant that the accused products, including any current or past versions of these products, are covered by, or infringe these claims, particularly when they are properly construed. Nothing in these contentions should be interpreted as an acquiescence to or assertion of a particular claim construction by Defendant.[1]

| Claim Language | Disclosure |
|---|---|
| 1. A method for detecting the operative coupling of multiple fingers to a touch sensor involving the steps of | |
| scanning the touch sensor to (a) identify a first maxima in a signal corresponding to a first finger, (b) identify a minima following the first maxima, (c) identify a second maxima in a signal corresponding to a second finger following said minima, and | |
| providing an indication of the simultaneous presence of two fingers in response to identification of said first and second maxima. | |
| | |
| 2. The method of claim 1 further including the step of causing a pointing device click function to occur in response to the detection of at least a second maxima. | |
| | |
| 4. The method of claim 1 further including the step of enabling a "select" function in response to the detection of at least a second maxima. | |

[1] To the extent Krueger is argued by Plaintiff or found by the Court not to explicitly teach certain limitations in the asserted claims, such limitations would have been inherent and/or obvious as described in Defendant's Supplemental Invalidity Contentions.

| Claim Language | Disclosure |
|---|---|
| | |
| 6. The method of claim 1 wherein said touch sensor includes a plurality of lines, said maxima being a largest local variation in a signal value on one of said lines due to capacitive coupling of a finger. | |
| | |
| 7. The method of claim 6 wherein said maxima are peaks. | |
| | |
| 10. The method of claim 1 further comprising the step of: detecting a distance between said first and second maxima. | See, e.g., Krueger at mins. 3:50-5:50. |
| | |
| 12. The method of claim 1 further comprising the step of: providing a click function in response to the removal and reappearance of said second maxima within a predetermined period of time. | |
| | |
| 14. The method of claim 1 further comprising the step of: selecting an appropriate control function based on a combination of a number of fingers detected, an amount of time said fingers are detected, and any movement of said fingers. | |
| | |
| 16. The method of claim 1 further comprising the step of calculating first and second centroids corresponding to said first and second fingers. | |
| | |
| 18. A touch sensor for detecting the operative coupling of multiple fingers comprising: | |
| scanning the touch sensor to (a) identify a first maxima in a signal corresponding to a first finger, (b) identify a minima following the first maxima, (c) identify a second maxima in a signal corresponding to a second finger following said minima, and | |

| Claim Language | Disclosure |
|---|---|
| means for providing an indication of the simultaneous presence of two fingers in response to identification of said first and second maxima. | |
| | |
| 19. The touch sensor of claim 18 further comprising: means for selecting an appropriate control function based on a combination of a number of fingers detected, an amount of time said fingers are detected, and any movement of said fingers. | |
| | |
| 21. The touch sensor of claim 18 wherein said maxima are peaks. | |
| | |
| 24. The touch sensor of claim 18 further comprising: means for detecting a distance between said first and second maxima. | See, e.g., Krueger at mins. 3:50-5:50. |
| | |
| 26. The touch sensor of claim 18 further comprising: means for providing a click function in response to the removal and reappearance of said second maxima within a predetermined period of time. | |
| | |
| 30. The sensor of claim 18 further comprising means for calculating first and second centroids corresponding to said first and second fingers. | |

# Invalidity of U.S. Pat. No. 5,825,352

# by U.S. Pat. No. 4,914,624

Based upon the claim interpretations Plaintiff appears to be asserting and the applications of those interpretations to Defendant's products in Plaintiff's Supplemental Infringement Contentions, 4914624 anticipates and/or renders obvious, alone or in combination with other prior art identified in Defendant's Supplemental Invalidity Contentions, the asserted claims as described in part below. These invalidity contentions are not an admission by Defendant that the accused products, including any current or past versions of these products, are covered by, or infringe these claims, particularly when they are properly construed. Nothing in these contentions should be interpreted as an acquiescence to or assertion of a particular claim construction by Defendant.[1]

| Claim Language | Disclosure |
|---|---|
| 1. A method for detecting the operative coupling of multiple fingers to a touch sensor involving the steps of | See, e.g., Abstract; Fig. 1. |
| scanning the touch sensor to (a) identify a first maxima in a signal corresponding to a first finger, (b) identify a minima following the first maxima, (c) identify a second maxima in a signal corresponding to a second finger following said minima, and | See, e.g., 1:36-43, 6:34-47, 8:5-15. |
| providing an indication of the simultaneous presence of two fingers in response to identification of said first and second maxima. | |
| | |
| 2. The method of claim 1 further including the step of causing a pointing device click function to occur in response to the detection of at least a second maxima. | See, e.g., 3:8-11; 5:35-47, 6:48-55. |
| | |
| 4. The method of claim 1 further including the step of enabling a "select" function in response to the detection of at least a second maxima. | See, e.g., 3:8-11; 5:35-47, 6:48-55. |
| | |

[1] To the extent 4914624 is argued by Plaintiff or found by the Court not to explicitly teach certain limitations in the asserted claims, such limitations would have been inherent and/or obvious as described in Defendant's Supplemental Invalidity Contentions.

| Claim Language | Disclosure |
|---|---|
| 6. The method of claim 1 wherein said touch sensor includes a plurality of lines, said maxima being a largest local variation in a signal value on one of said lines due to capacitive coupling of a finger. | |
| | |
| 7. The method of claim 6 wherein said maxima are peaks. | See, e.g., 1:36-43, 6:34-47, 8:5-15. |
| | |
| 10. The method of claim 1 further comprising the step of: detecting a distance between said first and second maxima. | See, e.g., 3:18-23. |
| | |
| 12. The method of claim 1 further comprising the step of: providing a click function in response to the removal and reappearance of said second maxima within a predetermined period of time. | See, e.g., 5:13-34. |
| | |
| 14. The method of claim 1 further comprising the step of: selecting an appropriate control function based on a combination of a number of fingers detected, an amount of time said fingers are detected, and any movement of said fingers. | See, e.g., 3:12-17; 5:35-47. |
| | |
| 16. The method of claim 1 further comprising the step of calculating first and second centroids corresponding to said first and second fingers. | See, e.g., 4:4-24. |
| | |
| 18. A touch sensor for detecting the operative coupling of multiple fingers comprising: | See, e.g., Abstract; Fig. 1. |
| scanning the touch sensor to (a) identify a first maxima in a signal corresponding to a first finger, (b) identify a minima following the first maxima, (c) identify a second maxima in a signal corresponding to a second finger following said minima, and | See, e.g., 1:36-43, 6:34-47, 8:5-15. |
| means for providing an indication of the simultaneous presence of two fingers in | |

| Claim Language | Disclosure |
|---|---|
| response to identification of said first and second maxima. | |
| | |
| 19. The touch sensor of claim 18 further comprising: means for selecting an appropriate control function based on a combination of a number of fingers detected, an amount of time said fingers are detected, and any movement of said fingers. | See, e.g., 3:12-17; 5:35-47. |
| | |
| 21. The touch sensor of claim 18 wherein said maxima are peaks. | See, e.g., 1:36-43, 6:34-47, 8:5-15. |
| | |
| 24. The touch sensor of claim 18 further comprising: means for detecting a distance between said first and second maxima. | See, e.g., 3:18-23. |
| | |
| 26. The touch sensor of claim 18 further comprising: means for providing a click function in response to the removal and reappearance of said second maxima within a predetermined period of time. | See, e.g., 5:13-34. |
| | |
| 30. The sensor of claim 18 further comprising means for calculating first and second centroids corresponding to said first and second fingers. | See, e.g., 4:4-24. |

# Invalidity of U.S. Pat. No. 7,274,353

# by U.S. Pat. No. 5,233,547

Based upon the claim interpretations Plaintiff appears to be asserting and the applications of those interpretations to Defendant's products in Plaintiff's Supplemental Infringement Contentions, U.S. Pat. No. 5,233,547 anticipates and/or renders obvious, alone or in combination with other prior art identified in Defendant's Supplemental Invalidity Contentions, the asserted claims as described in part below. These invalidity contentions are not an admission by Defendant that the accused products, including any current or past versions of these products, are covered by, or infringe these claims, particularly when they are properly construed. Nothing in these contentions should be interpreted as an acquiescence to or assertion of a particular claim construction by Defendant.[1]

| Claim Language | Disclosure |
|---|---|
| 1. A capacitive touchpad integrated with key and handwriting functions, comprising: | See, e.g., 5,233,547 at Abstract; 1:44-48, 4:20-27, 4:67-5:4. |
| a panel for touch inputting; | See, e.g., 5,233,547 at 1:44-48, 4:20-27. |
| a first pattern on said panel for representing a mode switch to switch said touchpad between a key mode and a handwriting mode; | See, e.g., 5,233,547 at 5:35-40, 7:6-27; Figs. 2-3. |
| a plurality of regions defined on said panel; and | See, e.g., 5,233,547 at 5:5-40; Figs. 2-3. |
| a plurality of second patterns on said plurality of regions for operation in said key and handwriting modes; | See, e.g., 5,233,547 at 5:5-40; Figs. 2-3. |
| wherein said panel comprises: a substrate selected from the group consisting of PCB, membrane and transparent plate; a conductor wiring on said substrate; and an insulator covered on said conductor wiring. | See, e.g., 5,233,547 at 3:63-4:27, 4:67-5:4. |
| | |
| 3. A capacitive touchpad of claim 1, wherein said insulator is transparent. | See, e.g., 5,233,547 at 3:63-4:27, 4:67-5:4. |
| | |
| 4. A mobile telephone characterized in a | See, e.g., 5,233,547 at Abstract; 1:44-48, 4:20- |

[1] To the extent U.S. Pat. No. 5,233,547 is argued by Plaintiff or found by the Court not to explicitly teach certain limitations in the asserted claims, such limitations would have been inherent and/or obvious as described in Defendant's Supplemental Invalidity Contentions.

| Claim Language | Disclosure |
|---|---|
| capacitive touchpad included thereon, said capacitive touchpad comprising: | 27, 4:67-5:4. |
| a panel for touch inputting; | See, e.g., 5,233,547 at 1:44-48, 4:20-27. |
| a first pattern on said panel for representing a mode switch to switch said touchpad between a key mode and a handwriting mode; | See, e.g., 5,233,547 at 5:35-40, 7:6-27; Figs. 2-3. |
| a plurality of regions defined on said panel; and | See, e.g., 5,233,547 at 5:5-40; Figs. 2-3. |
| a plurality of second patterns on said plurality of regions for operation in said key and handwriting modes; | See, e.g., 5,233,547 at 5:5-40; Figs. 2-3. |
| wherein said panel comprises: a substrate selected from the group consisting of PCB, membrane and transparent plate; a conductor wiring on said substrate; and an insulator covered on said conductor wiring. | See, e.g., 5,233,547 at 3:63-4:27, 4:67-5:4. |
| | |
| 6. A mobile telephone of claim 4, wherein said insulator is transparent. | See, e.g., 5,233,547 at 3:63-4:27, 4:67-5:4. |
| | |
| 7. A capacitive touchpad integrated with key and mouse functions, comprising: | See, e.g., 5,233,547 at Abstract; 1:44-48, 4:20-27, 4:67-5:4. |
| a panel for touch inputting; | See, e.g., 5,233,547 at 1:44-48, 4:20-27. |
| a first pattern on said panel for representing a mode switch to switch said touchpad between a key mode and a mouse mode; | See, e.g., 5,233,547 at 5:35-40, 7:6-27; Figs. 2-3. |
| a plurality of regions defined on said panel; and | See, e.g., 5,233,547 at 5:5-40; Figs. 2-3. |
| a plurality of second patterns on said plurality of regions for operation in said key and mouse modes; | See, e.g., 5,233,547 at 5:5-40; Figs. 2-3. |
| wherein said panel comprises: a substrate selected from the group consisting of PCB, membrane and transparent plate; a conductor wiring on said substrate; and an insulator covered on said conductor wiring. | See, e.g., 5,233,547 at 3:63-4:27, 4:67-5:4. |
| | |
| 9. A capacitive touchpad of claim 7, wherein said insulator is transparent. | See, e.g., 5,233,547 at 3:63-4:27, 4:67-5:4. |
| | |

| Claim Language | Disclosure |
|---|---|
| 10. A capacitive touchpad integrated with mouse and handwriting functions, comprising: *[Note: Based on infringement contentions, mouse can be finger movement or key mode]* | See, e.g., 5,233,547 at Abstract; 1:44-48, 4:20-27, 4:67-5:4. |
| a panel for touch inputting; | See, e.g., 5,233,547 at 1:44-48, 4:20-27. |
| a first pattern on said panel for representing a mode switch to switch said touchpad between a mouse mode and a handwriting mode; *[Note: Based on infringement contentions, mouse can be finger movement or key mode]* | See, e.g., 5,233,547 at 5:35-40, 7:6-27; Figs. 2-3. |
| a plurality of regions defined on said panel; and | See, e.g., 5,233,547 at 5:5-40; Figs. 2-3. |
| a plurality of second patterns on said plurality of regions for operation in said mouse and handwriting modes; *[Note: Based on infringement contentions, mouse can be finger movement or key mode]* | See, e.g., 5,233,547 at 5:5-40; Figs. 2-3. |
| wherein said panel comprises: a substrate selected from the group consisting of PCB, membrane and transparent plate; a conductor wiring on said substrate; and an insulator covered on said conductor wiring. | See, e.g., 5,233,547 at 3:63-4:27, 4:67-5:4. |
| | |
| 12. A capacitive touchpad of claim 10, wherein said insulator is transparent. | See, e.g., 5,233,547 at 3:63-4:27, 4:67-5:4. |

# Invalidity of U.S. Pat. No. 7,274,353

# by U.S. Pat. No. 5,468,947

Based upon the claim interpretations Plaintiff appears to be asserting and the applications of those interpretations to Defendant's products in Plaintiff's Supplemental Infringement Contentions, U.S. Pat. No. 5,468,947 anticipates and/or renders obvious, alone or in combination with other prior art identified in Defendant's Supplemental Invalidity Contentions, the asserted claims as described in part below. These invalidity contentions are not an admission by Defendant that the accused products, including any current or past versions of these products, are covered by, or infringe these claims, particularly when they are properly construed. Nothing in these contentions should be interpreted as an acquiescence to or assertion of a particular claim construction by Defendant.[1]

| Claim Language | Disclosure |
|---|---|
| 1. A capacitive touchpad integrated with key and handwriting functions, comprising: | See, e.g., 5,468,947 at 2:29-32, 5:53-61, 7:62-8:53, 27:54-59. |
| a panel for touch inputting; | See, e.g., 5,468,947 at 5:53-61, 7:62-8:53. |
| a first pattern on said panel for representing a mode switch to switch said touchpad between a key mode and a handwriting mode; | See, e.g., 5,468,947 at 2:44-61, 3:4-8, 9:44-10:6, 13:23-25, 31:22-30; Figs. 2, 9, 30. |
| a plurality of regions defined on said panel; and | See, e.g., 5,468,947 at 13:23-25, 14:51-60; Figs. 2, 9, 30-31. |
| a plurality of second patterns on said plurality of regions for operation in said key and handwriting modes; | See, e.g., 5,468,947 at 13:23-25, 14:51-60; Figs. 2, 9, 30-31. |
| wherein said panel comprises: a substrate selected from the group consisting of PCB, membrane and transparent plate; a conductor wiring on said substrate; and an insulator covered on said conductor wiring. | See, e.g., 5,468,947 at 5:53-61, 7:62-8:53, 14:28-60. |
| | |
| 3. A capacitive touchpad of claim 1, wherein said insulator is transparent. | See, e.g., 5,468,947 at 2:62-3:8, 5:53-61, 7:62-8:53, 14:28-60. |
| | |

[1] To the extent U.S. Pat. No. 5,468,947 is argued by Plaintiff or found by the Court not to explicitly teach certain limitations in the asserted claims, such limitations would have been inherent and/or obvious as described in Defendant's Supplemental Invalidity Contentions.

| Claim Language | Disclosure |
|---|---|
| 4. A mobile telephone characterized in a capacitive touchpad included thereon, said capacitive touchpad comprising: | See, e.g., 5,468,947 at 2:29-32, 5:53-61, 7:62-8:53, 27:54-59. |
| a panel for touch inputting; | See, e.g., 5,468,947 at 5:53-61, 7:62-8:53. |
| a first pattern on said panel for representing a mode switch to switch said touchpad between a key mode and a handwriting mode; | See, e.g., 5,468,947 at 2:44-61, 3:4-8, 9:44-10:6, 13:23-25, 31:22-30; Figs. 2, 9, 30. |
| a plurality of regions defined on said panel; and | See, e.g., 5,468,947 at 13:23-25, 14:51-60; Figs. 2, 9, 30-31. |
| a plurality of second patterns on said plurality of regions for operation in said key and handwriting modes; | See, e.g., 5,468,947 at 13:23-25, 14:51-60; Figs. 2, 9, 30-31. |
| wherein said panel comprises: a substrate selected from the group consisting of PCB, membrane and transparent plate; a conductor wiring on said substrate; and an insulator covered on said conductor wiring. | See, e.g., 5,468,947 at 5:53-61, 7:62-8:53, 14:28-60. |
| | |
| 6. A mobile telephone of claim 4, wherein said insulator is transparent. | See, e.g., 5,468,947 at 2:62-3:8, 5:53-61, 7:62-8:53, 14:28-60. |
| | |
| 7. A capacitive touchpad integrated with key and mouse functions, comprising: | See, e.g., 5,468,947 at 2:29-32, 5:53-61, 7:62-8:53, 27:54-59. |
| a panel for touch inputting; | See, e.g., 5,468,947 at 5:53-61, 7:62-8:53. |
| a first pattern on said panel for representing a mode switch to switch said touchpad between a key mode and a mouse mode; | See, e.g., 5,468,947 at 2:44-61, 3:4-8, 9:44-10:6, 13:23-25, 31:22-30; Figs. 2, 9, 30. |
| a plurality of regions defined on said panel; and | See, e.g., 5,468,947 at 13:23-25, 14:51-60; Figs. 2, 9, 30-31. |
| a plurality of second patterns on said plurality of regions for operation in said key and mouse modes; | See, e.g., 5,468,947 at 13:23-25, 14:51-60; Figs. 2, 9, 30-31. |
| wherein said panel comprises: a substrate selected from the group consisting of PCB, membrane and transparent plate; a conductor wiring on said substrate; and an insulator covered on said conductor wiring. | See, e.g., 5,468,947 at 5:53-61, 7:62-8:53, 14:28-60. |
| | |
| 9. A capacitive touchpad of claim 7, wherein | See, e.g., 5,468,947 at 2:62-3:8, 5:53-61, 7:62- |

| Claim Language | Disclosure |
|---|---|
| said insulator is transparent. | 8:53, 14:28-60. |
| | |
| 10. A capacitive touchpad integrated with mouse and handwriting functions, comprising: *[Note: Based on infringement contentions, mouse can be finger movement or key mode]* | See, e.g., 5,468,947 at 2:29-32, 5:53-61, 7:62-8:53, 27:54-59. |
| a panel for touch inputting; | See, e.g., 5,468,947 at 5:53-61, 7:62-8:53. |
| a first pattern on said panel for representing a mode switch to switch said touchpad between a mouse mode and a handwriting mode; *[Note: Based on infringement contentions, mouse can be finger movement or key mode]* | See, e.g., 5,468,947 at 2:44-61, 3:4-8, 9:44-10:6, 13:23-25, 31:22-30; Figs. 2, 9, 30. |
| a plurality of regions defined on said panel; and | See, e.g., 5,468,947 at 13:23-25, 14:51-60; Figs. 2, 9, 30-31. |
| a plurality of second patterns on said plurality of regions for operation in said mouse and handwriting modes; *[Note: Based on infringement contentions, mouse can be finger movement or key mode]* | See, e.g., 5,468,947 at 13:23-25, 14:51-60; Figs. 2, 9, 30-31. |
| wherein said panel comprises: a substrate selected from the group consisting of PCB, membrane and transparent plate; a conductor wiring on said substrate; and an insulator covered on said conductor wiring. | See, e.g., 5,468,947 at 5:53-61, 7:62-8:53, 14:28-60. |
| | |
| 12. A capacitive touchpad of claim 10, wherein said insulator is transparent. | See, e.g., 5,468,947 at 2:62-3:8, 5:53-61, 7:62-8:53, 14:28-60. |

# Invalidity of U.S. Pat. No. 7,274,353

# by GB 2,327,558

Based upon the claim interpretations Plaintiff appears to be asserting and the applications of those interpretations to Defendant's products in Plaintiff's Supplemental Infringement Contentions, GB 2,327,558 anticipates and/or renders obvious, alone or in combination with other prior art identified in Defendant's Supplemental Invalidity Contentions, the asserted claims as described in part below. These invalidity contentions are not an admission by Defendant that the accused products, including any current or past versions of these products, are covered by, or infringe these claims, particularly when they are properly construed. Nothing in these contentions should be interpreted as an acquiescence to or assertion of a particular claim construction by Defendant.[1]

| Claim Language | Disclosure |
|---|---|
| 1. A capacitive touchpad integrated with key and handwriting functions, comprising: | See, e.g., GB 2,327,558 at 3:4-15, 9:15-27, 12:14-27, 13:3-15, 13:25-28. |
| a panel for touch inputting; | See, e.g., GB 2,327,558 at 3:4-15; Figs. 2-6. |
| a first pattern on said panel for representing a mode switch to switch said touchpad between a key mode and a handwriting mode; | See, e.g., GB 2,327,558 at 8:21-9:2, 9:9-14, 10:31-11:9, 12:14-27, 13:3-15, 13:25-28. |
| a plurality of regions defined on said panel; and | See, e.g., GB 2,327,558 at 5:9-26, 10:10-25; Figs. 2-6. |
| a plurality of second patterns on said plurality of regions for operation in said key and handwriting modes; | See, e.g., GB 2,327,558 at 5:9-26, 10:10-25; Figs. 2-6. |
| wherein said panel comprises: a substrate selected from the group consisting of PCB, membrane and transparent plate; a conductor wiring on said substrate; and an insulator covered on said conductor wiring. | See, e.g., GB 2,327,558 at 3:4-15; Figs. 2-6. |
| | |
| 3. A capacitive touchpad of claim 1, wherein said insulator is transparent. | See, e.g., GB 2,327,558 at 3:4-15, 5:26-35; Figs. 2-6. |
| | |

[1] To the extent GB 2,327,558 is argued by Plaintiff or found by the Court not to explicitly teach certain limitations in the asserted claims, such limitations would have been inherent and/or obvious as described in Defendant's Supplemental Invalidity Contentions.

| Claim Language | Disclosure |
|---|---|
| 4. A mobile telephone characterized in a capacitive touchpad included thereon, said capacitive touchpad comprising: | See, e.g., GB 2,327,558 at 1:11-22, 3:4-15, 4:6-12, 9:15-27, 12:14-27, 13:3-15, 13:25-28. |
| a panel for touch inputting; | See, e.g., GB 2,327,558 at 3:4-15; Figs. 2-6. |
| a first pattern on said panel for representing a mode switch to switch said touchpad between a key mode and a handwriting mode; | See, e.g., GB 2,327,558 at 8:21-9:2, 9:9-14, 10:31-11:9, 12:14-27, 13:3-15, 13:25-28. |
| a plurality of regions defined on said panel; and | See, e.g., GB 2,327,558 at 5:9-26, 10:10-25; Figs. 2-6. |
| a plurality of second patterns on said plurality of regions for operation in said key and handwriting modes; | See, e.g., GB 2,327,558 at 5:9-26, 10:10-25; Figs. 2-6. |
| wherein said panel comprises: a substrate selected from the group consisting of PCB, membrane and transparent plate; a conductor wiring on said substrate; and an insulator covered on said conductor wiring. | See, e.g., GB 2,327,558 at 3:4-15; Figs. 2-6. |
| | |
| 6. A mobile telephone of claim 4, wherein said insulator is transparent. | See, e.g., GB 2,327,558 at 3:4-15, 5:26-35; Figs. 2-6. |
| | |
| 7. A capacitive touchpad integrated with key and mouse functions, comprising: | See, e.g., GB 2,327,558 at 3:4-15, 9:15-27, 10:31-11:9, 12:14-27, 13:3-15, 13:25-28. |
| a panel for touch inputting; | See, e.g., GB 2,327,558 at 3:4-15; Figs. 2-6. |
| a first pattern on said panel for representing a mode switch to switch said touchpad between a key mode and a mouse mode; | See, e.g., GB 2,327,558 at 8:21-9:2, 9:9-14, 10:31-11:9, 12:14-27, 13:3-15, 13:25-28. |
| a plurality of regions defined on said panel; and | See, e.g., GB 2,327,558 at 5:9-26, 10:10-25; Figs. 2-6. |
| a plurality of second patterns on said plurality of regions for operation in said key and mouse modes; | See, e.g., GB 2,327,558 at 5:9-26, 10:10-25; Figs. 2-6. |
| wherein said panel comprises: a substrate selected from the group consisting of PCB, membrane and transparent plate; a conductor wiring on said substrate; and an insulator covered on said conductor wiring. | See, e.g., GB 2,327,558 at 3:4-15; Figs. 2-6. |
| | |
| 9. A capacitive touchpad of claim 7, wherein | See, e.g., GB 2,327,558 at 3:4-15, 5:26-35; |

| Claim Language | Disclosure |
|---|---|
| said insulator is transparent. | Figs. 2-6. |
| | |
| 10. A capacitive touchpad integrated with mouse and handwriting functions, comprising: *[Note: Based on infringement contentions, mouse can be finger movement or key mode]* | See, e.g., GB 2,327,558 at 3:4-15, 9:15-27, 10:31-11:9, 12:14-27, 13:3-15, 13:25-28. |
| a panel for touch inputting; | See, e.g., GB 2,327,558 at 3:4-15; Figs. 2-6. |
| a first pattern on said panel for representing a mode switch to switch said touchpad between a mouse mode and a handwriting mode; *[Note: Based on infringement contentions, mouse can be finger movement or key mode]* | See, e.g., GB 2,327,558 at 8:21-9:2, 9:9-14, 10:31-11:9, 12:14-27, 13:3-15, 13:25-28. |
| a plurality of regions defined on said panel; and | See, e.g., GB 2,327,558 at 5:9-26, 10:10-25; Figs. 2-6. |
| a plurality of second patterns on said plurality of regions for operation in said mouse and handwriting modes; *[Note: Based on infringement contentions, mouse can be finger movement or key mode]* | See, e.g., GB 2,327,558 at 5:9-26, 10:10-25; Figs. 2-6. |
| wherein said panel comprises: a substrate selected from the group consisting of PCB, membrane and transparent plate; a conductor wiring on said substrate; and an insulator covered on said conductor wiring. | See, e.g., GB 2,327,558 at 3:4-15; Figs. 2-6. |
| | |
| 12. A capacitive touchpad of claim 10, wherein said insulator is transparent. | See, e.g., GB 2,327,558 at 3:4-15, 5:26-35; Figs. 2-6. |

# Invalidity of U.S. Pat. No. 7,274,353

## by Pogue, Palm Pilot, The Ultimate Guide, O'Reilly, pp. 1-597 (Jun. 1999) ("Pogue")

Based upon the claim interpretations Plaintiff appears to be asserting and the applications of those interpretations to Defendant's products in Plaintiff's Supplemental Infringement Contentions, Pogue anticipates and/or renders obvious, alone or in combination with other prior art identified in Defendant's Supplemental Invalidity Contentions, the asserted claims as described in part below. These invalidity contentions are not an admission by Defendant that the accused products, including any current or past versions of these products, are covered by, or infringe these claims, particularly when they are properly construed. Nothing in these contentions should be interpreted as an acquiescence to or assertion of a particular claim construction by Defendant.[1]

| Claim Language | Disclosure |
|---|---|
| 1. A capacitive touchpad integrated with key and handwriting functions, comprising: | See, e.g., Pogue at pp. 3-5, 37-45. |
| a panel for touch inputting; | See, e.g., Pogue at pp. 3-5, 491-503. |
| a first pattern on said panel for representing a mode switch to switch said touchpad between a key mode and a handwriting mode; | See, e.g., Pogue at pp. 43-44, 77. |
| a plurality of regions defined on said panel; and | See, e.g., Pogue at pp. 4-8, 44, 78, 96-97. |
| a plurality of second patterns on said plurality of regions for operation in said key and handwriting modes; | See, e.g., Pogue at pp. 4-8, 44, 78, 96-97. |
| wherein said panel comprises: a substrate selected from the group consisting of PCB, membrane and transparent plate; a conductor wiring on said substrate; and an insulator covered on said conductor wiring. | See, e.g., Pogue at pp. 3-5, 491-503. |
| | |
| 3. A capacitive touchpad of claim 1, wherein said insulator is transparent. | See, e.g., Pogue at pp. 3-5, 491-503. |
| | |

[1] To the extent Pogue is argued by Plaintiff or found by the Court not to explicitly teach certain limitations in the asserted claims, such limitations would have been inherent and/or obvious as described in Defendant's Supplemental Invalidity Contentions.

| Claim Language | Disclosure |
|---|---|
| 4. A mobile telephone characterized in a capacitive touchpad included thereon, said capacitive touchpad comprising: | See, e.g., Pogue at pp. 3-5, 37-45. |
| a panel for touch inputting; | See, e.g., Pogue at pp. 3-5, 491-503. |
| a first pattern on said panel for representing a mode switch to switch said touchpad between a key mode and a handwriting mode; | See, e.g., Pogue at pp. 43-44, 77. |
| a plurality of regions defined on said panel; and | See, e.g., Pogue at pp. 4-8, 44, 78, 96-97. |
| a plurality of second patterns on said plurality of regions for operation in said key and handwriting modes; | See, e.g., Pogue at pp. 4-8, 44, 78, 96-97. |
| wherein said panel comprises: a substrate selected from the group consisting of PCB, membrane and transparent plate; a conductor wiring on said substrate; and an insulator covered on said conductor wiring. | See, e.g., Pogue at pp. 3-5, 491-503. |
| | |
| 6. A mobile telephone of claim 4, wherein said insulator is transparent. | See, e.g., Pogue at pp. 3-5, 491-503. |
| | |
| 7. A capacitive touchpad integrated with key and mouse functions, comprising: | See, e.g., Pogue at pp. 3-5, 43-45, 77, 96. |
| a panel for touch inputting; | See, e.g., Pogue at pp. 3-5, 491-503. |
| a first pattern on said panel for representing a mode switch to switch said touchpad between a key mode and a mouse mode; | See, e.g., Pogue at pp. 77, 96. |
| a plurality of regions defined on said panel; and | See, e.g., Pogue at pp. 4-8, 44, 78, 96-97. |
| a plurality of second patterns on said plurality of regions for operation in said key and mouse modes; | See, e.g., Pogue at pp. 4-8, 44, 78, 96-97. |
| wherein said panel comprises: a substrate selected from the group consisting of PCB, membrane and transparent plate; a conductor wiring on said substrate; and an insulator covered on said conductor wiring. | See, e.g., Pogue at pp. 3-5, 491-503. |
| | |
| 9. A capacitive touchpad of claim 7, wherein said insulator is transparent. | See, e.g., Pogue at pp. 3-5, 491-503. |
| | |

| Claim Language | Disclosure |
|---|---|
| 10. A capacitive touchpad integrated with mouse and handwriting functions, comprising: *[Note: Based on infringement contentions, mouse can be finger movement or key mode]* | See, e.g., Pogue at pp. 3-5, 43-45, 77, 96. |
| a panel for touch inputting; | See, e.g., Pogue at pp. 3-5, 491-503. |
| a first pattern on said panel for representing a mode switch to switch said touchpad between a mouse mode and a handwriting mode; *[Note: Based on infringement contentions, mouse can be finger movement or key mode]* | See, e.g., Pogue at pp. 43-44, 77, 96. |
| a plurality of regions defined on said panel; and | See, e.g., Pogue at pp. 4-8, 44, 78, 96-97. |
| a plurality of second patterns on said plurality of regions for operation in said mouse and handwriting modes; *[Note: Based on infringement contentions, mouse can be finger movement or key mode]* | See, e.g., Pogue at pp. 4-8, 44, 78, 96-97. |
| wherein said panel comprises: a substrate selected from the group consisting of PCB, membrane and transparent plate; a conductor wiring on said substrate; and an insulator covered on said conductor wiring. | See, e.g., Pogue at pp. 3-5, 491-503. |
| | |
| 12. A capacitive touchpad of claim 10, wherein said insulator is transparent. | See, e.g., Pogue at pp. 3-5, 491-503. |

# Invalidity of U.S. Pat. No. 7,274,353

## by Newton MessagePad 2000 User's Manual, pp. 1-278 (1997) ("Newton")

Based upon the claim interpretations Plaintiff appears to be asserting and the applications of those interpretations to Defendant's products in Plaintiff's Supplemental Infringement Contentions, Newton anticipates and/or renders obvious, alone or in combination with other prior art identified in Defendant's Supplemental Invalidity Contentions, the asserted claims as described in part below. These invalidity contentions are not an admission by Defendant that the accused products, including any current or past versions of these products, are covered by, or infringe these claims, particularly when they are properly construed. Nothing in these contentions should be interpreted as an acquiescence to or assertion of a particular claim construction by Defendant.[1]

| Claim Language | Disclosure |
|---|---|
| 1. A capacitive touchpad integrated with key and handwriting functions, comprising: | See, e.g., Newton at pp. 1-2, 14-15, 19, 25, 36-37. |
| a panel for touch inputting; | See, e.g., Newton at p. 259. |
| a first pattern on said panel for representing a mode switch to switch said touchpad between a key mode and a handwriting mode; | See, e.g., Newton at pp. 13-14, 25, 36, 50-51, 97-98, 117. |
| a plurality of regions defined on said panel; and | See, e.g., Newton at pp. 22, 25, 35-45, 49-52, 70-73. |
| a plurality of second patterns on said plurality of regions for operation in said key and handwriting modes; | See, e.g., Newton at pp. 22, 25, 35-45, 49-52, 70-73. |
| wherein said panel comprises: a substrate selected from the group consisting of PCB, membrane and transparent plate; a conductor wiring on said substrate; and an insulator covered on said conductor wiring. | See, e.g., Newton at p. 259. |
| | |
| 3. A capacitive touchpad of claim 1, wherein said insulator is transparent. | See, e.g., Newton at p. 259. |
| | |

[1] To the extent Newton is argued by Plaintiff or found by the Court not to explicitly teach certain limitations in the asserted claims, such limitations would have been inherent and/or obvious as described in Defendant's Supplemental Invalidity Contentions.

| Claim Language | Disclosure |
|---|---|
| 4. A mobile telephone characterized in a capacitive touchpad included thereon, said capacitive touchpad comprising: | See, e.g., Newton at pp. 1-2, 14-15, 19, 25, 36-37. |
| a panel for touch inputting; | See, e.g., Newton at p. 259. |
| a first pattern on said panel for representing a mode switch to switch said touchpad between a key mode and a handwriting mode; | See, e.g., Newton at pp. 13-14, 25, 36, 50-51, 97-98, 117. |
| a plurality of regions defined on said panel; and | See, e.g., Newton at pp. 22, 25, 35-45, 49-52, 70-73. |
| a plurality of second patterns on said plurality of regions for operation in said key and handwriting modes; | See, e.g., Newton at pp. 22, 25, 35-45, 49-52, 70-73. |
| wherein said panel comprises: a substrate selected from the group consisting of PCB, membrane and transparent plate; a conductor wiring on said substrate; and an insulator covered on said conductor wiring. | See, e.g., Newton at p. 259. |
| | |
| 6. A mobile telephone of claim 4, wherein said insulator is transparent. | See, e.g., Newton at p. 259. |
| | |
| 7. A capacitive touchpad integrated with key and mouse functions, comprising: | See, e.g., Newton at pp. 14-15, 25, 55, 85, 87, 91. |
| a panel for touch inputting; | See, e.g., Newton at p. 259. |
| a first pattern on said panel for representing a mode switch to switch said touchpad between a key mode and a mouse mode; | See, e.g., Newton at pp. 14, 55, 85, 87, 91. |
| a plurality of regions defined on said panel; and | See, e.g., Newton at pp. 22, 25, 35-45, 49-52, 70-73. |
| a plurality of second patterns on said plurality of regions for operation in said key and mouse modes; | See, e.g., Newton at pp. 22, 25, 35-45, 49-52, 55, 70-73, 85, 87, 91. |
| wherein said panel comprises: a substrate selected from the group consisting of PCB, membrane and transparent plate; a conductor wiring on said substrate; and an insulator covered on said conductor wiring. | See, e.g., Newton at p. 259. |
| | |
| 9. A capacitive touchpad of claim 7, wherein | See, e.g., Newton at p. 259. |

| Claim Language | Disclosure |
|---|---|
| said insulator is transparent. | |
| | |
| 10. A capacitive touchpad integrated with mouse and handwriting functions, comprising: *[Note: Based on infringement contentions, mouse can be finger movement or key mode]* | See, e.g., Newton at pp. 1-2, 19, 36-37, 85, 87, 91. |
| a panel for touch inputting; | See, e.g., Newton at p. 259. |
| a first pattern on said panel for representing a mode switch to switch said touchpad between a mouse mode and a handwriting mode; *[Note: Based on infringement contentions, mouse can be finger movement or key mode]* | See, e.g., Newton at pp. 1-2, 14-15, 19, 25, 55, 85, 87, 91. |
| a plurality of regions defined on said panel; and | See, e.g., Newton at pp. 22, 25, 35-45, 49-52, 70-73. |
| a plurality of second patterns on said plurality of regions for operation in said mouse and handwriting modes; *[Note: Based on infringement contentions, mouse can be finger movement or key mode]* | See, e.g., Newton at pp. 22, 25, 35-45, 49-52, 55, 70-73, 85, 87, 91. |
| wherein said panel comprises: a substrate selected from the group consisting of PCB, membrane and transparent plate; a conductor wiring on said substrate; and an insulator covered on said conductor wiring. | See, e.g., Newton at p. 259. |
| | |
| 12. A capacitive touchpad of claim 10, wherein said insulator is transparent. | See, e.g., Newton at p. 259. |

# Invalidity of U.S. Pat. No. 7,274,353

## by Wacom Intuos User's Manual for Windows, May 22, 2000 ("Wacom")

Based upon the claim interpretations Plaintiff appears to be asserting and the applications of those interpretations to Defendant's products in Plaintiff's Supplemental Infringement Contentions, Wacom anticipates and/or renders obvious, alone or in combination with other prior art identified in Defendant's Supplemental Invalidity Contentions, the asserted claims as described in part below. These invalidity contentions are not an admission by Defendant that the accused products, including any current or past versions of these products, are covered by, or infringe these claims, particularly when they are properly construed. Nothing in these contentions should be interpreted as an acquiescence to or assertion of a particular claim construction by Defendant.[1]

| Claim Language | Disclosure |
|---|---|
| 1. A capacitive touchpad integrated with key and handwriting functions, comprising: | See, e.g., Wacom at pp. 30, 31, 33, 41, 66, 70, 77. |
| a panel for touch inputting; | See, e.g., Wacom at p. 30. |
| a first pattern on said panel for representing a mode switch to switch said touchpad between a key mode and a handwriting mode; | See, e.g., Wacom at pp. 30, 31, 33, 41, 66, 70, 77. |
| a plurality of regions defined on said panel; and | See, e.g., Wacom at p. 30. |
| a plurality of second patterns on said plurality of regions for operation in said key and handwriting modes; | See, e.g., Wacom at p. 30. |
| wherein said panel comprises: a substrate selected from the group consisting of PCB, membrane and transparent plate; a conductor wiring on said substrate; and an insulator covered on said conductor wiring. | |
| | |
| 3. A capacitive touchpad of claim 1, wherein said insulator is transparent. | |
| | |
| 4. A mobile telephone characterized in a | See, e.g., Wacom at pp. 30, 31, 33, 41, 66, 70, |

[1] To the extent Wacom is argued by Plaintiff or found by the Court not to explicitly teach certain limitations in the asserted claims, such limitations would have been inherent and/or obvious as described in Defendant's Supplemental Invalidity Contentions.

| Claim Language | Disclosure |
|---|---|
| capacitive touchpad included thereon, said capacitive touchpad comprising: | 77. |
| a panel for touch inputting; | See, e.g., Wacom at p. 30. |
| a first pattern on said panel for representing a mode switch to switch said touchpad between a key mode and a handwriting mode; | See, e.g., Wacom at pp. 30, 31, 33, 41, 66, 70, 77. |
| a plurality of regions defined on said panel; and | See, e.g., Wacom at p. 30. |
| a plurality of second patterns on said plurality of regions for operation in said key and handwriting modes; | See, e.g., Wacom at p. 30. |
| wherein said panel comprises: a substrate selected from the group consisting of PCB, membrane and transparent plate; a conductor wiring on said substrate; and an insulator covered on said conductor wiring. | |
| | |
| 6. A mobile telephone of claim 4, wherein said insulator is transparent. | |
| | |
| 7. A capacitive touchpad integrated with key and mouse functions, comprising: | See, e.g., Wacom at pp. 30, 31, 33, 41, 66, 70, 77. |
| a panel for touch inputting; | See, e.g., Wacom at p. 30. |
| a first pattern on said panel for representing a mode switch to switch said touchpad between a key mode and a mouse mode; | See, e.g., Wacom at pp. 30, 31, 33, 41, 66, 70, 77. |
| a plurality of regions defined on said panel; and | See, e.g., Wacom at p. 30. |
| a plurality of second patterns on said plurality of regions for operation in said key and mouse modes; | See, e.g., Wacom at p. 30. |
| wherein said panel comprises: a substrate selected from the group consisting of PCB, membrane and transparent plate; a conductor wiring on said substrate; and an insulator covered on said conductor wiring. | |
| | |
| 9. A capacitive touchpad of claim 7, wherein said insulator is transparent. | |
| | |

| Claim Language | Disclosure |
|---|---|
| 10. A capacitive touchpad integrated with mouse and handwriting functions, comprising: *[Note: Based on infringement contentions, mouse can be finger movement or key mode]* | See, e.g., Wacom at pp. 30, 31, 33, 41, 66, 70, 77. |
| a panel for touch inputting; | See, e.g., Wacom at p. 30. |
| a first pattern on said panel for representing a mode switch to switch said touchpad between a mouse mode and a handwriting mode; *[Note: Based on infringement contentions, mouse can be finger movement or key mode]* | See, e.g., Wacom at pp. 30, 31, 33, 41, 66, 70, 77. |
| a plurality of regions defined on said panel; and | See, e.g., Wacom at p. 30. |
| a plurality of second patterns on said plurality of regions for operation in said mouse and handwriting modes; *[Note: Based on infringement contentions, mouse can be finger movement or key mode]* | See, e.g., Wacom at p. 30. |
| wherein said panel comprises: a substrate selected from the group consisting of PCB, membrane and transparent plate; a conductor wiring on said substrate; and an insulator covered on said conductor wiring. | |
| | |
| 12. A capacitive touchpad of claim 10, wherein said insulator is transparent. | |