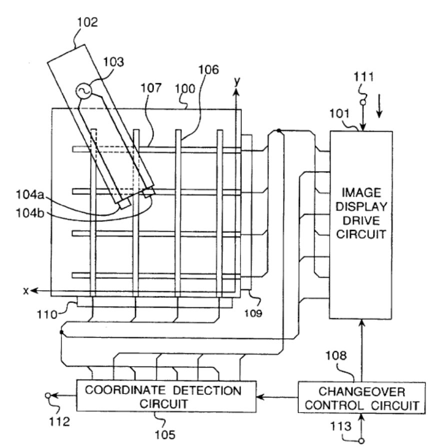
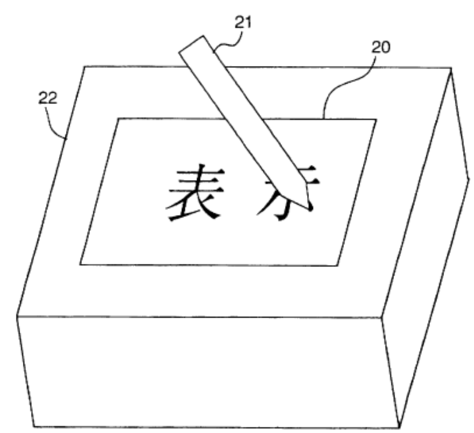
EXHIBIT E-3
YOSHIDA in view of IKEDA and/or WARD
U.S. Patent No. 10,108,277

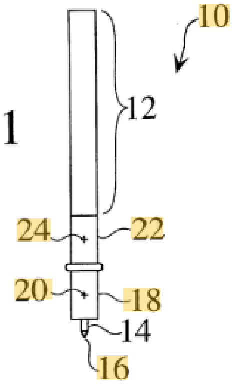
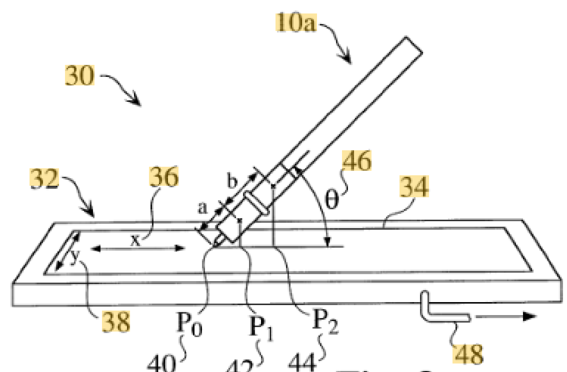
As demonstrated in the claim chart below, asserted claims 1, 2, 5, 8, 14, 15, 18, and 21 of U.S. Patent No. 7,277,277 ("'277 patent") are invalid under 35 U.S.C. § 103 as obvious in view of U.S. Patent No. 5,798,756 to YOSHIDA ("YOSHIDA") [MAXEYE_00001968 - MAXEYE_00002043] combined with the knowledge of a person of ordinary skill in the art ("POSITA") and the secondary references identified in the claim chart below, namely, Japanese Patent No. JPH1011206A to IKEDA ("IKEDA") [MAXEYE_00000987 - MAXEYE_00001009] and U.S. Patent No. 6,184,873 to WARD ("WARD") [MAXEYE_00002077 - MAXEYE_00002084].

One of ordinary skill in the art, as of the effective filing date of the '277 patent claims, would have known to combine the prior art elements disclosed by these references using known methods, and to use these elements according to their established functions in order to achieve a known and predictable result. Because these prior art references are within a common field of endeavor, and/or are directed to a related set of problems, it would have been obvious for one of ordinary skill in the art to look from one of the identified references to another in order to find any missing functionality.

As discussed below, a POSITA would have recognized that combining YOSHIDA (basic capacitive stylus), IKEDA (capacitive-based tilt detection), and WARD (signal production details, multi-output differentiation, and phase-shifted signal detection) provides a well-known and predictable improvement in stylus-based input systems. Given the widespread use of capacitive styluses, a POSITA would have found it obvious to incorporate these elements to enhance detection accuracy, signal differentiation, and tilt compensation.

The chart below is based on Defendant's current understanding of Plaintiff's positions concerning the scope and construction of the claims of the asserted patents, and is not, and should in no way be seen as, adoption or admission of any particular claim scope or construction for any term or limitation. Defendant reserves the right to provide additional theories, disclosures, and analysis, particularly in light of the fact that discovery in this case has just begun, Plaintiff has not completed its document production regarding prior art, and portions of Plaintiff's infringement contentions are vague, imprecise, and otherwise deficient.

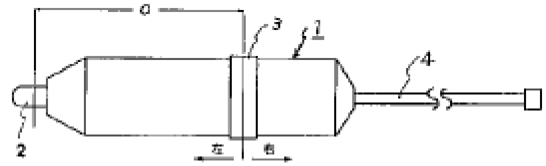
Claim 1	Disclosure
1[pre] A pen-shaped position indicator configured to capacitively couple with a sensor surface, the pen-shaped position indicator comprising:	YOSHIDA discloses a pen-shaped electronic pen 21, which capacitively couples with a sensor surface. YOSHIDA, Figs. 1 and 2, 19:66-67, 20:1 (“the electric field generator 102 shown in FIG. l is incorporated in a pen-shaped electronic pen 21”). YOSHIDA also discloses that “a signal which is generated by an electric field generated from the electrodes of the coordinate pointing device at the electrodes of the panel coupled through an electrostatic capacitive coupling with the coordinate pointing device is detected.” YOSHIDA, 14:62-67. Fig.1  Fig.2  One of ordinary skill could modify YOSHIDA in view of WARD to meet this limitation, as shown below. WARD discloses a pen positioning system with a pen (10) having multiple output elements to determine the location of its pointing tip in relation to an electronic tablet (32): “An improved pen positioning system is provided, in which a pen, having multiple output elements, is adapted to determine the location of the pointing

	tip of the pen accurately, in relation to an electronic tablet." WARD, 1:65-2:1, Figs. 1 (illustrating a side view of the dual output element pen (10)), 3 (depicting the pen in relation to the tablet (32)). Fig. 1  WARD further discloses: "The pointing end (14) of the pen (10) has a pointing tip (16), with which a user points to or draws upon the surface (34) of an electronic tablet (32)." WARD, 2:45-48, Figs. 1, 3.  Fig. 3 A POSITA would have recognized that capacitive styluses commonly employ multiple output elements to interact with a sensor surface and determine position.

3

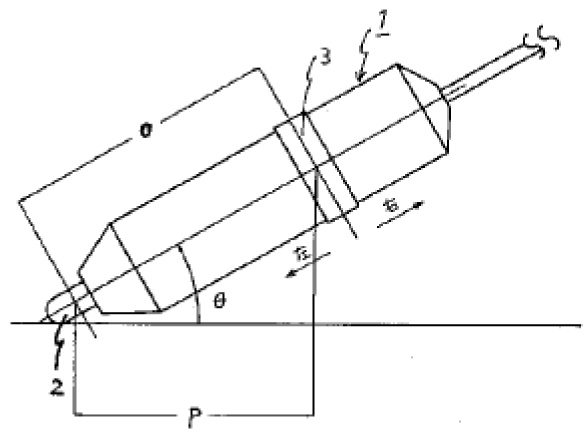
	WARD explicitly discloses a pen positioning system where a pen with multiple output elements determines its location in relation to an electronic tablet, reinforcing that capacitive interaction between a stylus and a sensor surface was a well-known and predictable mechanism for input devices. Given that YOSHIDA discloses a pen-shaped position indicator configured to capacitively couple with a sensor surface, a POSITA would have found it obvious to incorporate WARD's structured dual-output pen positioning system into YOSHIDA's stylus framework to refine signal accuracy and enhance coordinate tracking. This combination follows established design principles in capacitive input technology and represents a routine optimization to improve stylus-based input accuracy. Alternatively, one of ordinary skill could modify YOSHIDA in view of IKEDA and WARD to meet this limitation, as shown below. IKEDA discloses a coordinate detection pen that capacitively couples with a sensor surface. IKEDA, [0005], Figs. 1, 5. Specifically, IKEDA discloses a coordinate input device comprising a coordinate detection pen by capacitance coupling, with a detection unit for detecting a coordinate in a coordinate indicating unit of the pen and a detection unit for detecting an angle in a pen body unit of the pen: "[A] coordinate input device comprising a tablet with multiple electrode lines in the X and Y axis directions and a coordinate detection pen utilizing capacitive coupling with the tablet's electrode lines. The device includes a detection unit for detecting coordinates at the coordinate indicating part of the coordinate detection pen and two detection electrode units: one for detecting coordinates and another for detecting angles at the pen body of the aforementioned coordinate detection pen, enabling the detection of the tilt angle of the aforementioned coordinate detection pen itself and the direction of the pen on the coordinate input device." IKEDA, [0005], Figs. 1, 5).

【図1】



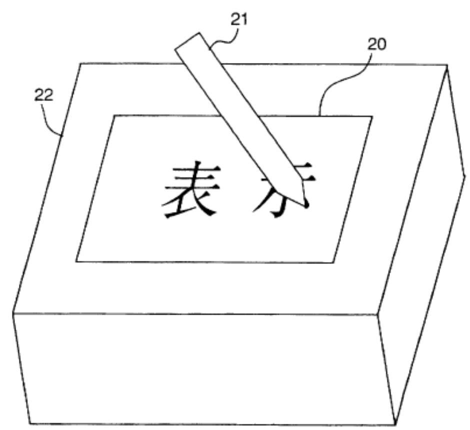
IKEDA Fig. 1

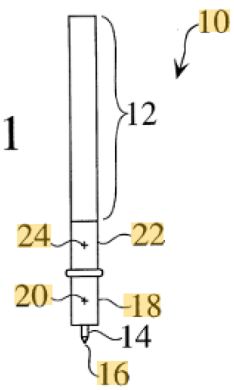
【図5】

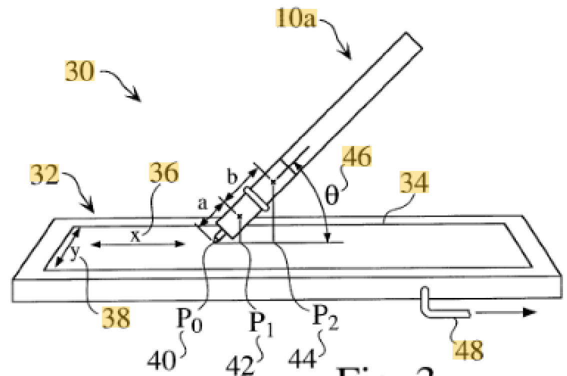


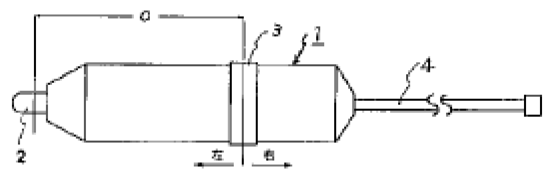
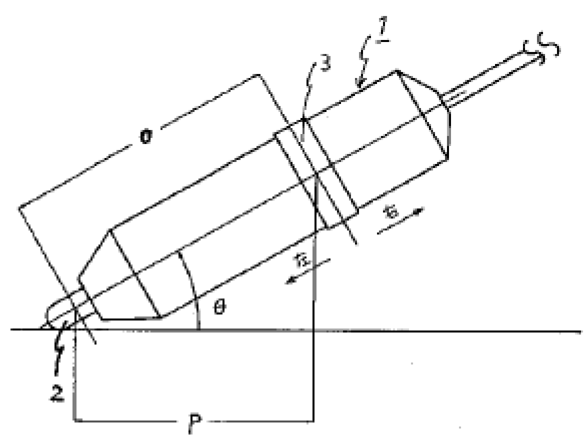
IKEDA Fig. 5 discloses capacitive coupling through multiple detection electrodes.

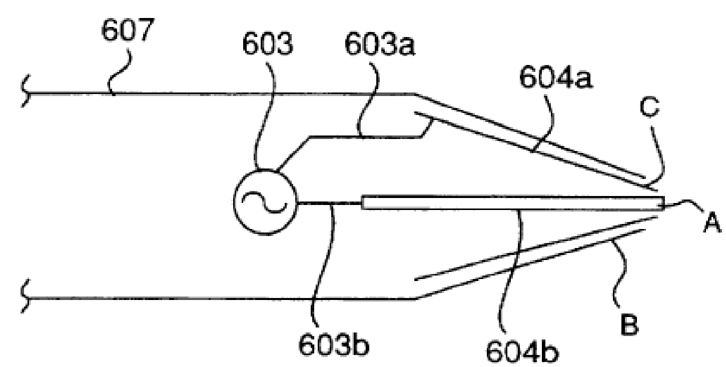
A POSITA would have recognized that capacitive stylus technology inherently benefits from integrating structured detection techniques to improve input precision. YOSHIDA discloses a capacitive stylus, IKEDA reinforces the concept by explicitly describing a coordinate detection pen that capacitively couples with a sensor

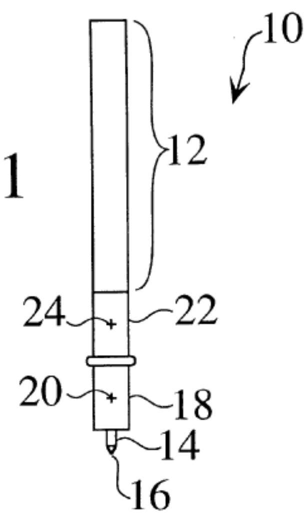
	surface, and WARD confirms the use of multiple output elements to refine positioning accuracy. A POSITA would have understood that incorporating WARD's multiple output elements and IKEDA's structured capacitive detection system into YOSHIDA's stylus framework would be a predictable improvement, enhancing detection accuracy and tilt measurement. The combination of YOSHIDA, IKEDA, and WARD represents a logical progression in capacitive stylus technology by integrating well-established principles of coordinate input refinement, making this modification an expected and routine advancement.
1[a] a pen-shaped body having a pen-tip portion;	YOSHIDA discloses a pen-shaped body with a pen-tip portion. YOSHIDA, Fig.2. *Fig.2*  YOSHIDA's Fig. 2 illustrates a pen-shaped electronic pen 21 featuring a distinct pen-tip portion, which serves as the primary contact point for capacitive coupling. This figure provides a side view of the pen, highlighting its elongated cylindrical body and the tapered tip designed for interaction with a sensor surface. One of ordinary skill could modify YOSHIDA in view of WARD to meet this limitation, as shown below.

	WARD discloses a pen positioning system with a pen (10) having a pointing tip (16) that interacts with an electronic tablet (32): “The pointing end (14) of the pen (10) has a pointing tip (16), with which a user points to or draws upon the surface (34) of an electronic tablet (32).” WARD, 2:45-48, Figs. 1, 3. WARD further discloses: “An improved pen positioning system is provided, in which a pen, having multiple output elements, is adapted to determine the location of the pointing tip of the pen accurately, in relation to an electronic tablet.” WARD, 1:65-67-2:1. Fig. 1 

	 Fig. 3 Figures 1 and 3 of WARD illustrate a pen-like stylus structure configured for interaction with a tablet surface, reinforcing that a pen-shaped body with a defined tip was a well-known form factor in electronic stylus design. A POSITA would have recognized that electronic styluses commonly employ a pen-shaped body with a distinct tip portion to facilitate user interaction with a sensor surface. Given that YOSHIDA already discloses a pen-shaped capacitive stylus with a pen tip portion, a POSITA would have found it obvious to incorporate WARD's explicit pen structure into YOSHIDA's system to confirm that the pen-shaped form factor was a standard and predictable design choice for capacitive input devices. Alternatively, one of ordinary skill could modify YOSHIDA in view of IKEDA and WARD to meet this limitation, as shown below. IKEDA discloses a coordinate detection pen with a pen tip portion ("detection unit 2"): "Fig. 1 is a configuration diagram of the coordinate detection pen of this invention, where an axis-shaped detection unit 2 is positioned at the tip of the coordinate detection pen 1 to read the coordinates of the indicated point, and a ring-shaped detection unit 3 for indicating the angle is positioned on the body of the coordinate detection pen." IKEDA, [0008], Figs. 1 (block diagram of the coordinate

	detection pen showing key components), 5 (shows coordinate detection pen with tilt detection). 【図1】  IKEDA Fig. 1 【図5】  IKEDA Fig. 5 A POSITA would have recognized that capacitive input devices typically utilize a pen-shaped structure with a distinct tip portion to optimize precision in coordinate

	tracking. YOSHIDA provides a capacitive stylus foundation, while IKEDA explicitly reinforces the use of a pen-like input device with a tip portion for positional detection. WARD further confirms that a stylus with a defined tip is an established and expected design in electronic input systems. WARD, 1:65-67-2:1. A POSITA would have understood that integrating IKEDA's capacitive detection pen and WARD's explicit pen positioning disclosures into YOSHIDA's stylus system represents a predictable refinement, ensuring the known benefits of a pen-shaped form factor for accurate user interaction and input detection.
1[b] a first electrode arranged at a first position of the pen-tip portion;	YOSHIDA discloses a rod-shaped inner electrode 604b at the pen-tip portion of the pen-shaped electric field generator 607. YOSHIDA, Fig. 6A. *Fig.6A*  In Figure 6A of YOSHIDA, a rod-shaped inner electrode 604b is depicted at the pen-tip portion. This cross-sectional view shows the internal configuration of the pen tip, where the inner electrode is located along the central axis of the pen, facilitating capacitive coupling with the sensor surface. One of ordinary skill could modify YOSHIDA in view of WARD to meet this limitation, as shown below.

	WARD discloses a stylus with multiple output elements, including a first output element positioned at the pen-tip portion for detecting positional information: "A first output element (18) is located on the pen (10), and has a first point source (20) for a first output signal." WARD, 2:51-53. Additionally, WARD discloses: "The pointing end (14) of the pen (10) has a pointing tip (16), with which a user points to or draws upon the surface (34) of an electronic tablet (32)." WARD, 2:45-48. Figures 1 and 3 of WARD illustrate the pen (10) with an output element positioned at the tip, confirming that the first electrode is arranged at the first position of the pen-tip portion. Fig. 1 

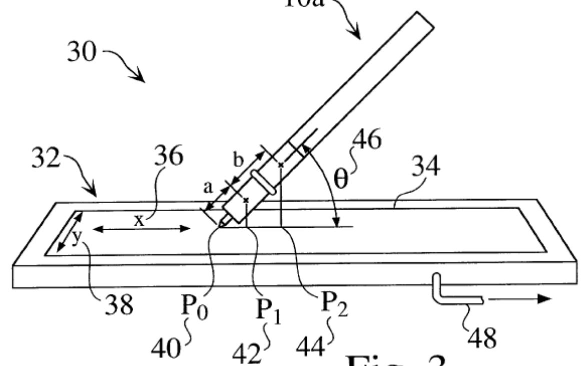


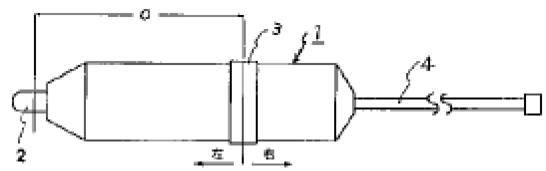
Fig. 3

A POSITA would have recognized that stylus-based input devices commonly include a first electrode at the tip portion to facilitate signal detection and coordinate tracking. WARD explicitly discloses a pen positioning system where a first output element (18) is positioned at the tip of the pen (10) to enable accurate interaction with an electronic tablet. WARD, 2:51-53. Given that YOSHIDA already discloses a rod-shaped inner electrode (604b) arranged at the pen-tip portion for capacitive coupling, a POSITA would have found it obvious to incorporate WARD's explicit positioning of an output element at the pen tip into YOSHIDA's stylus system to reinforce that electrode placement at the tip was a well-known and predictable design choice for optimizing stylus input precision.

Alternatively, one of ordinary skill could modify YOSHIDA in view of IKEDA and WARD to meet this limitation, as shown below.

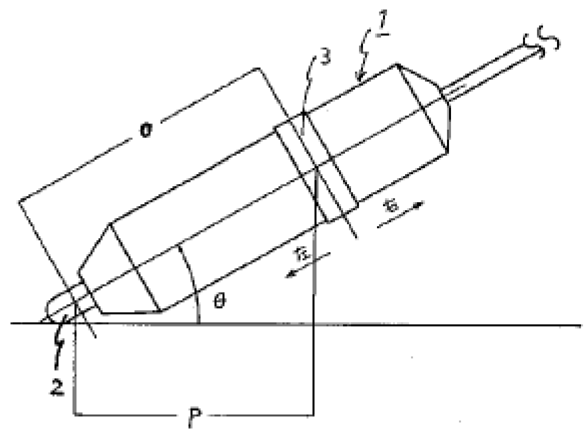
IKEDA discloses a first electrode on a coordinate detection pen tip: "[A] coordinate detection electrode (first detection unit) is positioned at the tip of the coordinate detection pen, and a ring-shaped coordinate detection electrode (second detection unit) for angle reading is placed on the body of the coordinate detection pen." IKEDA, [0006], Figs. 1, 5.

【図1】



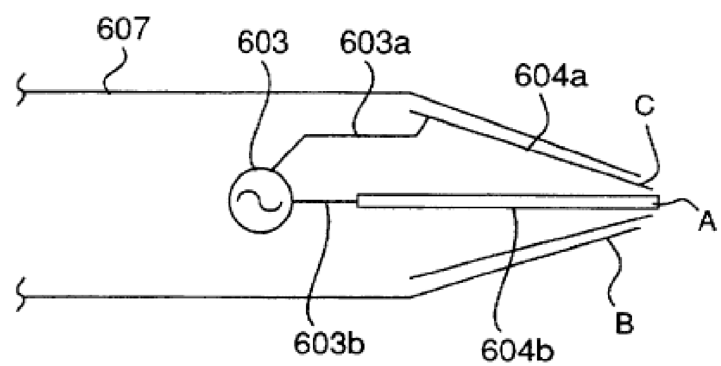
IKEDA Fig. 1

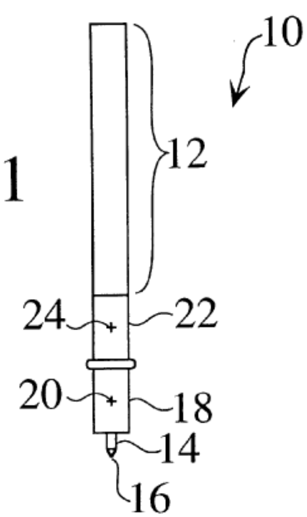
【図5】

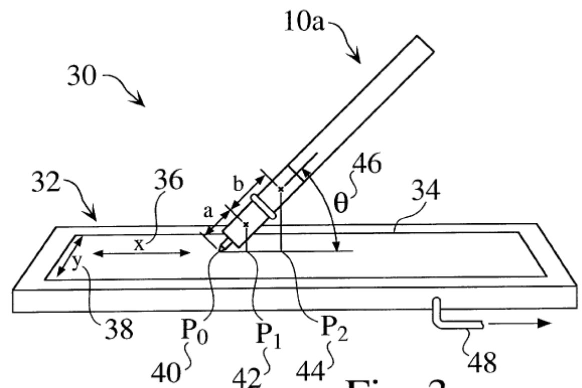


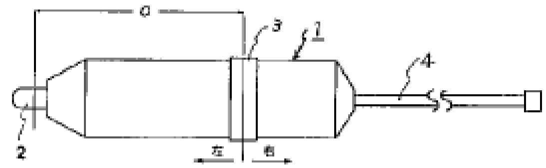
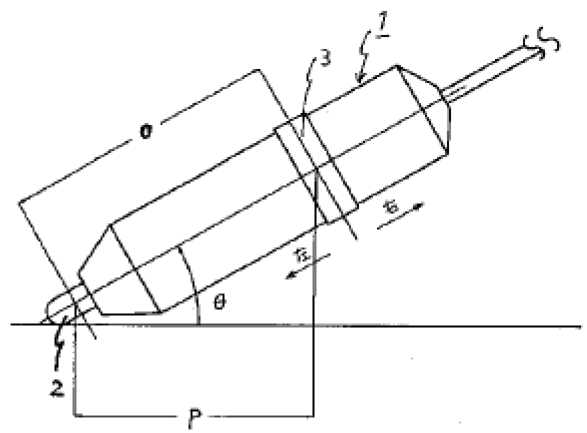
IKEDA Fig. 5

A POSITA would have recognized that capacitive input devices commonly employ a first electrode at the tip for coordinate tracking. YOSHIDA provides a capacitive stylus with a rod-shaped inner electrode at the tip, while IKEDA reinforces this structure by explicitly disclosing a coordinate detection electrode at the pen tip for

	capacitive interaction. WARD further confirms that stylus systems incorporate a tip-positioned output element for improved tracking and signal transmission. Given the well-established role of a first electrode at the pen tip in stylus-based input devices, a POSITA would have found it obvious to integrate IKEDA's structured coordinate detection electrode and WARD's explicit output element positioning into YOSHIDA's capacitive stylus system as a predictable optimization for improving detection accuracy.
1[c] a second electrode arranged at a second position of the pen-tip portion different from the first position, the second position being off an axis of the pen-shaped position indicator;	YOSHIDA discloses a megaphone-shaped outer electrode 604a positioned differently from the first electrode and off-axis. YOSHIDA, Fig.6A. *Fig.6A*  Referring to Fig.6A of YOSHIDA, a megaphone-shaped outer electrode 604a is also arranged at the pen-tip portion of the pen-shaped electric field generator 607, and the second position of the outer electrode 604a is different from the first position of the inner electrode 604b. Fig. 6A also shows that the position of the outer electrode 604a is off an axis of the pen-shaped position indicator. This arrangement is evident in this cross-sectional

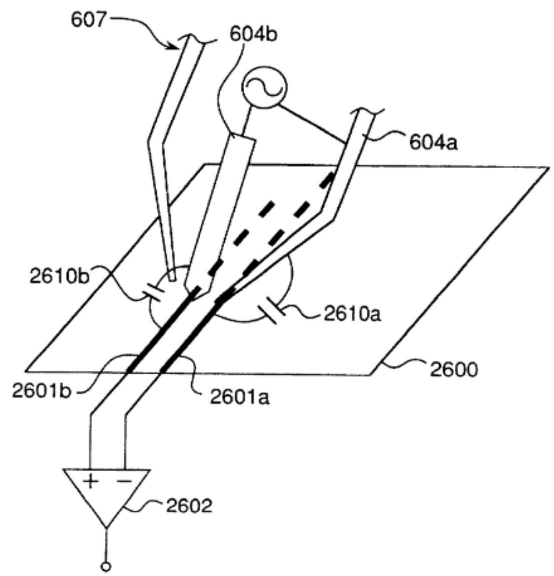
	depiction, where the outer electrode surrounds the inner electrode asymmetrically, contributing to the detection of tilt or angle when interacting with the sensor surface. One of ordinary skill could modify YOSHIDA in view of WARD to meet this limitation, as shown below. WARD discloses a pen positioning system where multiple output elements are spatially separated to enhance position and angle detection. Specifically, WARD states: “The geometric relationship between the output elements and the pointing tip of the pen allows the location of the pointing tip to be determined, independent of the angle which the pen is inclined against the surface of the writing tablet.” WARD, 2:4-8. WARD further describes: “A second output element (22) is located on the pen (10), and has a second point source (24) for a second output signal.” WARD, 2:50-52. Figures 1 and 3 of WARD illustrate a dual-output element pen, confirming that the second output element is positioned separately from the first and contributes to detecting inclination. Fig. 1 

	 Fig. 3 A POSITA would have recognized that stylus-based input devices commonly use multiple electrodes or output elements positioned at different locations to refine signal differentiation and enhance tilt detection. WARD explicitly discloses a second output element (22) located at a different position on the pen than the first output element, reinforcing the concept that multiple spatially separated detection points improve tracking accuracy. WARD, 2:50-52. Given that YOSHIDA already discloses a megaphone-shaped outer electrode (604a) positioned off-axis relative to the first electrode (604b), a POSITA would have found it obvious to integrate WARD's explicit disclosure of spatially separated output elements into YOSHIDA's stylus system as a predictable design enhancement to optimize angular detection and capacitive interaction. Alternatively, one of ordinary skill could modify YOSHIDA in view of IKEDA and WARD to meet this limitation, as shown below. IKEDA discloses a ring-shaped coordinate detection electrode for angle reading positioned differently from the first electrode: "[A] ring-shaped coordinate detection

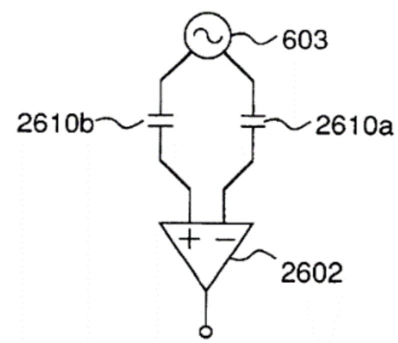
	electrode (second detection unit) for angle reading is placed on the body of the coordinate detection pen." IKEDA, [0006], Figs. 1, 5. 【図1】  IKEDA Fig. 1 【図5】  IKEDA Fig. 5 IKEDA discloses a ring-shaped detection electrode positioned away from the tip electrode, which forms a capacitive relationship at a different position along the

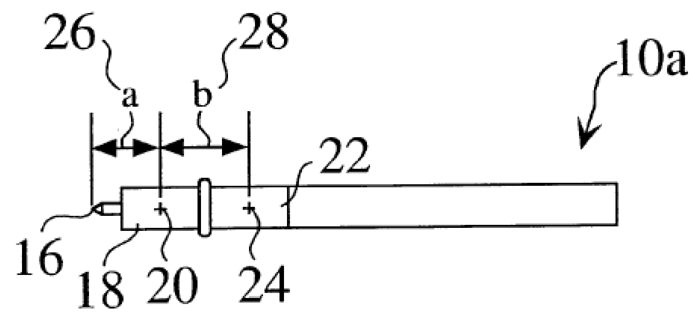
	stylus body. IKEDA, Fig. 5, [0006]. This configuration inherently creates an off-axis capacitive field, which a POSITA would recognize as enabling tilt detection. A POSITA would have recognized that multiple detection electrodes arranged at different locations inherently improve tilt measurement and capacitive signal differentiation. YOSHIDA discloses a megaphone-shaped outer electrode arranged off-axis from the first electrode, IKEDA reinforces the use of spatially separated electrodes for angular tracking, and WARD confirms that multiple output elements contribute to improved position and inclination determination. Given these well-established design principles, a POSITA would have found it obvious to integrate IKEDA's structured ring-shaped detection electrode and WARD's explicit dual-output element positioning into YOSHIDA's capacitive stylus system to enhance tilt tracking and capacitive signal differentiation in a predictable manner.
1[d] a signal production circuit configured to generate first and second signals that are distinguishable from each other; and	YOSHIDA discloses a signal production circuit that generates first and second signals that are distinguishable from each other. Specifically, YOSHIDA discloses "in a manner as shown in FIG.26, when electrodes 2601a and 2601b provided in an LCD panel 2600 are connected to a differential amplifier 2602" and "as shown in FIG, 26. the outer electrode 604a and the inner electrode 604b are coupled most intensely with the electrodes 260la and 2601b via capacitors 2610a and 2610b[, i]n the above place, electric fields applied to the outer electrodes 604a and 604b are opposite in phase to each other." YOSHIDA, Fig. 26, 27:13-25. Thus, the first and second signals generated using electrodes 604a and 604b are distinguishable from each other.

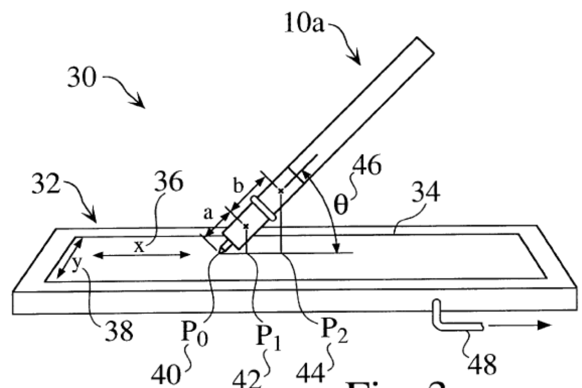
Fig.26



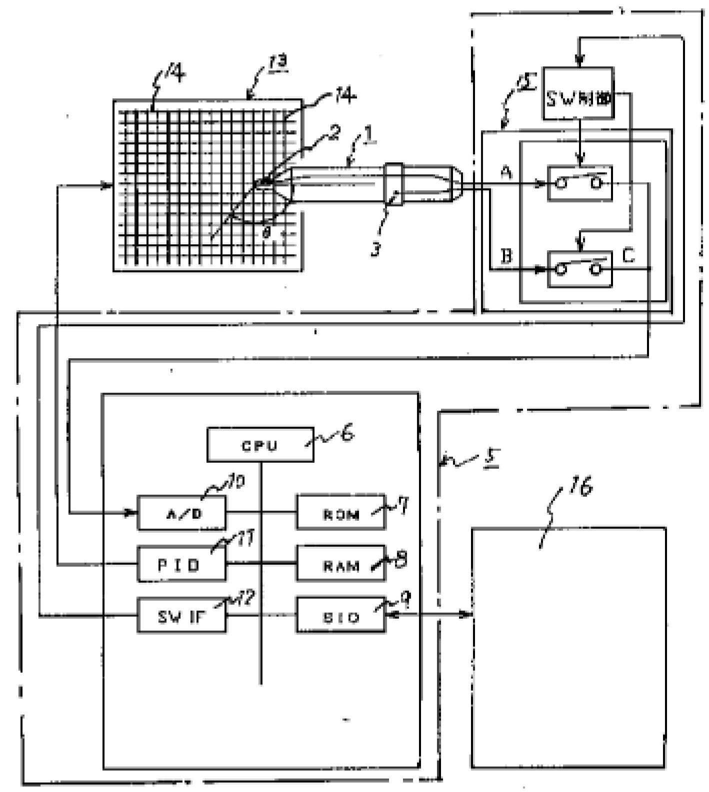
YOSHIDA further discloses in Figure 27 that the AC power source 603 of the electric field generator connects to the differential amplifier 2602 via capacitors 2610a and 2610b, demonstrating how distinguishable signals are applied to the electrodes in a stylus system. YOSHIDA, Fig. 27, 26:31-35. Specifically, YOSHIDA also discloses "[a]n electric equivalent circuit corresponding to the arrangement of FIG. 26 is shown in FIG. 27" and "[a]s shown in FIG.27, the AC power source 603 included in the electric field generator 607 is connected to the differential amplifier 2602 via the capacitors 2610a and 2610b". YOSHIDA, Fig. 27, 26:31-35. These signals interact with the sensor surface in operation, ensuring they are transmitted through conductive pathways and maintaining distinct phase relationships.

	Fig.27  YOSHIDA's Figure 27 presents a schematic diagram of the electronic pen's circuitry, including an AC power source 603 (a signal production circuit) connected to electrodes 604a and 604b as depicted in Fig. 26. The output of the AC power source 603 applied to the outer electrodes 604a and the inner electrode 604b are opposite in phase to each other. The phase of the first signal to the inner electrode 604b is inverted with respect to the phase of the second signal to the outer electrode 604a. The diagram indicates that the power source generates distinguishable signals applied to the electrodes, with annotations suggesting opposite phases or differing frequencies to facilitate signal differentiation. Additionally, YOSHIDA Figure 27 expands on the signal transmission process, illustrating how the signals interact with the sensor surface during operation. One of ordinary skill could modify YOSHIDA in view of WARD to meet this limitation, as shown below. WARD discloses a system where two output elements generate distinct signals that allow for accurate determination of the pen's position and tilt angle. WARD discloses, "The first output element (18) and the second output element (22) of the positioning pen (10a) are preferably ultrasonic transmitters. The first and second output elements (18, 22) transmit output signals of distinct frequencies, which allows the location of the pen tip (16) to be determined accurately . . . ." WARD,

	2:61-65, Figs. 2, 3. WARD further discloses, "A first output element (18) is located on the pen (10), and has a first point source (20) for a first output signal. A second output element (22) is located on the pen (10), and has a second point source (24) for a second output signal." WARD, 2:48-52. Figures 2 and 3 of WARD illustrate a pen system where multiple output elements transmit distinguishable signals, confirming that the system is designed to ensure accurate coordinate tracking.  Fig. 2 Fig. 2: Illustrates the first and second output elements (18, 22) positioned at different locations along the pen.

	 Fig. 3 Fig. 3: Illustrates how the distinct signals interact with the tablet for positional detection. A POSITA would have recognized that stylus-based input devices commonly employ multiple signal sources to improve coordinate tracking and tilt detection. WARD explicitly discloses a dual-output element system where two distinct signals, generated by spatially separated sources, enable precise position determination. WARD, 2:48-52. Given that YOSHIDA already discloses a signal production circuit generating distinguishable signals through phase inversion, a POSITA would have found it obvious to integrate WARD's structured multi-signal generation system into YOSHIDA's capacitive stylus framework to refine signal accuracy and enhance coordinate tracking. The integration of WARD's explicit dual-signal methodology into YOSHIDA's system represents a predictable improvement in signal differentiation techniques within stylus-based input technology. Alternatively, one of ordinary skill could modify YOSHIDA in view of IKEDA and WARD to meet this limitation, as shown below. If further clarification is required regarding signal differentiation beyond phase inversion, IKEDA describes two detection units for coordinate and angle

	determination, indicating that its system produces separate signals for positional tracking and angular displacement. IKDEA, Fig. 3, [0008] ("[C]oordinate detection is performed using the two detection units 2 and 3, and the coordinate data detected via electrostatic capacitance coupling with the tablet's electrodes . . . is applied to the main body 5 of the coordinate input device . . . ."). Additionally, the electrical block diagram (Fig. 3) illustrates how signals are processed: "The main body 5 of the coordinate input device includes a CPU 6 for performing coordinate control, a ROM 7 storing the program for coordinate control, a RAM 8 for storing the detected coordinate data and the reference dimensions O corresponding to the two detection units 2 and 3 of the coordinate detection pen 1 . . . ." IKEDA, [0009], Fig. 3 (electrical block diagram).

	【図3】  IKEDA Fig. 3 IKEDA further discloses that signals from the detection units are used for angle determination: "Using the coordinate data from the two detection units 2 and 3 stored in the regions of RAM 8, the dimensional control program converts the dimensions between the detection unit for coordinate detection and the detection unit for angle detection, storing the angle dimension P where the coordinate

	detection pen 1 is located in RAM 8 of the coordinate input device." IKEDA, [0013], Fig. 5. A POSITA would have recognized that incorporating IKEDA's multi-signal detection system into YOSHIDA's stylus framework would enhance coordinate and angular tracking by ensuring that separate detection units generate distinguishable signals for positional and tilt determination. Additionally, WARD explicitly discloses a system where spatially separated output elements generate distinguishable signals, reinforcing that distinct signals from different locations are an inherent feature of accurate pen tracking. WARD, 2:61-65. Given that YOSHIDA already provides a capacitive stylus system generating phase-differentiated signals, incorporating WARD's structured dual-signal transmission system and IKEDA's separate detection units would have been a predictable refinement to improve signal differentiation and input accuracy. The combination of these references follows well-established engineering principles in stylus-based capacitive input technology, making the claimed feature an expected and logical design choice.
1[e] conductive lines extending between the signal production circuit and the first and second electrodes, respectively,	YOSHIDA discloses conductive lines transmitting signals between AC power source 603 and electrodes 604a, 604b. YOSHIDA, Figs. 26, 27. The signal of the AC power source 603 (the "signal production circuit") is applied to the outer electrodes 604a and the inner electrode 604b (the "first and second electrodes") through conductive lines.

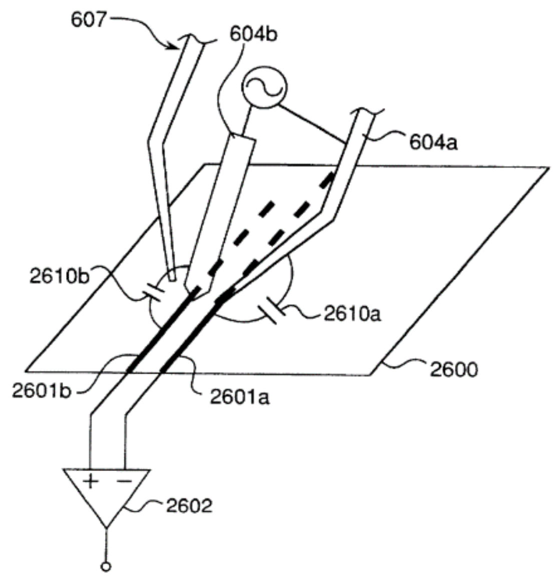
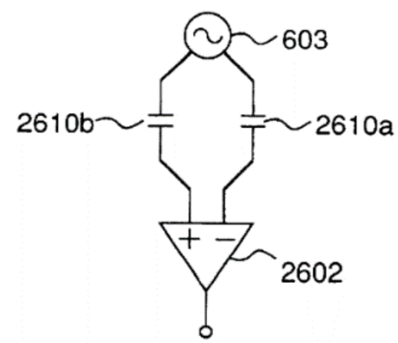
	Fig.26  YOSHIDA’s Figure 26 illustrates the internal circuit of the pen, where conductive lines extend between the AC power source 603 and the first and second electrodes (604a, 604b). These conductive lines serve as the transmission medium for signals from the power source to the electrodes, ensuring proper operation of the capacitive coupling mechanism. *See also* Fig. 27:

	Fig.27  One of ordinary skill could modify YOSHIDA in view of WARD to meet this limitation, as shown below. WARD discloses a pen system with multiple output elements that transmit signals to an external system for processing. Specifically, WARD discloses: “A first output element (18) is located on the pen (10), and has a first point source (20) for a first output signal. A second output element (22) is located on the pen (10), and has a second point source (24) for a second output signal” (WARD, 2:48-52) and “[t]he first and second output elements transmit output signals of distinct frequencies, which allows the location of the pen tip (16) to be determined accurately.” WARD, 2:63-65. Figures 2 and 3 of WARD illustrate a structured signal transmission system, confirming that conductive pathways connect signal-producing components to external processing units.

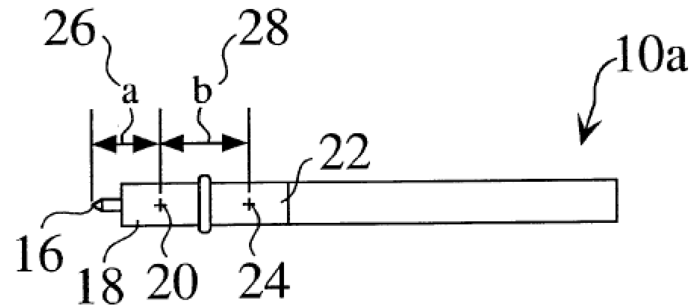


Fig. 2

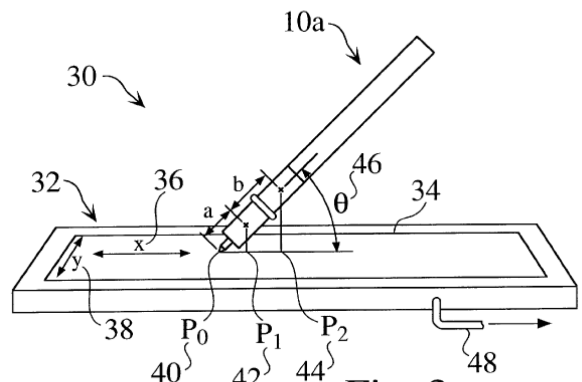
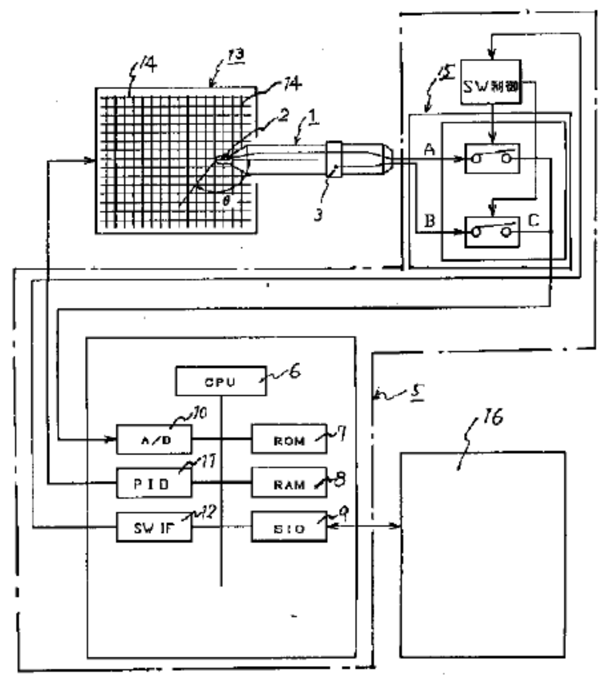


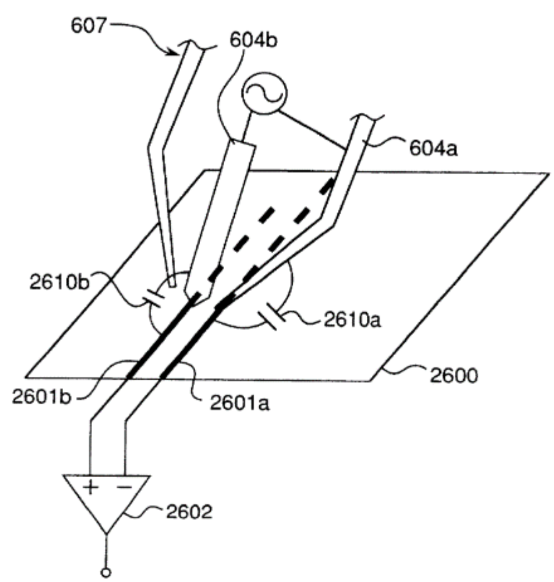
Fig. 3

WARD's disclosure of signal transmission circuits reinforces that conductive lines are essential components in stylus-based systems for accurate data processing and positional tracking.

A POSITA would have recognized that stylus-based input systems inherently require conductive pathways to transmit signals between a signal production circuit and detection electrodes. WARD explicitly discloses signal transmission circuits

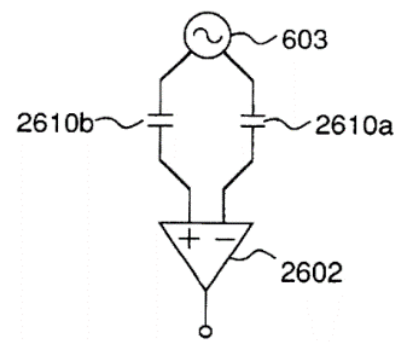
	that couple multiple output elements to an external processing system, reinforcing that structured conductive pathways were a well-known feature in pen-based input devices. Specifically, WARD discloses: “A first output element (18) is located on the pen (10), and has a first point source (20) for a first output signal. A second output element (22) is located on the pen (10), and has a second point source (24) for a second output signal” (WARD, 2:48-52) and “[t]he first and second output elements transmit output signals of distinct frequencies, which allows the location of the pen tip (16) to be determined accurately.” WARD, 2:63-65. Given that YOSHIDA already teaches a capacitive stylus with electrodes connected to a signal production circuit, a POSITA would have found it obvious to incorporate WARD’s explicit signal transmission structure into YOSHIDA’s system to enhance signal reliability and processing efficiency. Since WARD’s system is designed to ensure accurate transmission of detection signals from stylus components to external electronics, integrating its structured signal transmission circuits into YOSHIDA’s capacitive stylus would have been a routine and predictable optimization in the field of electronic input devices. Alternatively, one of ordinary skill could modify YOSHIDA in view of IKEDA and WARD to meet this limitation, as shown below. IKEDA discloses capacitive stylus systems where conductive pathways connect signal production circuits to electrodes. Specifically, IKEDA discloses: “[C]oordinate detection is performed using the two detection units 2 and 3, and the coordinate data detected via electrostatic capacitance coupling with the tablet's electrodes . . . is applied to the main body 5 of the coordinate input device through a cable 4 connected to the coordinate detection pen 1.” IKEDA, [0008], Fig. 3. Further, IKEDA discloses, “The main body 5 of the coordinate input device includes a CPU 6 for performing coordinate control, a ROM 7 storing the program for coordinate control, a RAM 8 for storing the detected coordinate data and the reference dimensions O corresponding to the two detection units 2 and 3 of the coordinate detection pen 1 . . . .” IKEDA, [0009], Fig. 3. This confirms that IKEDA

	discloses a signal transmission structure using conductive connections from a detection unit to an external system. Additionally, IKEDA Figure 3 discloses an electrical block diagram showing the signal paths and interconnections of the stylus system, reinforcing that conductive pathways are used to transfer signals from the detection pen to processing electronics. IKEDA, Fig. 3. 【図3】  By incorporating both WARD’s explicit disclosure of structured signal transmission circuits and IKEDA’s capacitive stylus design that relies on conductive pathways, a POSITA would have found it obvious to integrate these elements into YOSHIDA’s system to ensure accurate and efficient signal transmission. Conductive lines

<table>
<tr><td></td><td>extending between a signal production circuit and detection electrodes were a well-known and predictable implementation in stylus-based input devices. The integration of WARD and IKEDA confirms that reliable signal transmission via structured conductive pathways was an expected and necessary feature of such systems.</td></tr>
<tr><td>1[f] wherein the first and second signals generated by the signal production circuit, in operation, are transmitted to the first and second electrodes via the conductive lines;</td><td>YOSHIDA discloses capacitive coupling between electrodes 604a, 604b and the LCD panel electrodes 2601a, 2601b. YOSHIDA, Fig.26, 27:5-7. The outer electrodes 604a and the inner electrode 604b are coupled with the electrodes 260la and 2601b of the of the LCD panel 2600 via capacitors 2610a and 2610b.
Fig.26


See also Fig. 27:</td></tr>
</table>

Fig.27



YOSHIDA also discloses "[i]n the experiment shown in FIG. 7, a potential difference across a pair of adjoining segment electrodes 202 was detected…a y-coordinate value of the electrodes 604a and 604b of the electric field generator 607 can be obtained". YOSHIDA, 27:5-7 and 14-16. YOSHIDA also discloses "by performing two times similar detection operations from the segment electrode side and from the common electrode side so as to detect and decide the coordinates of the bottom portion of each double-humped output obtained, the coordinates of the bottom portion correspond to the coordinates of the position in which the electrodes 604a and 604b are located[, t]herefore[,] the coordinates (x, y) of the position in which the electrodes 604a and 604b of the electric field generator 607 are located can be specified". YOSHIDA, 27:17-25. YOSHIDA further discloses that the electrodes 202 of LCD panel 200 can detect the coordinates (x, y) of the position in which the electrodes 604a and 604b are located.

One of ordinary skill could modify YOSHIDA in view of WARD to meet this limitation, as shown below.

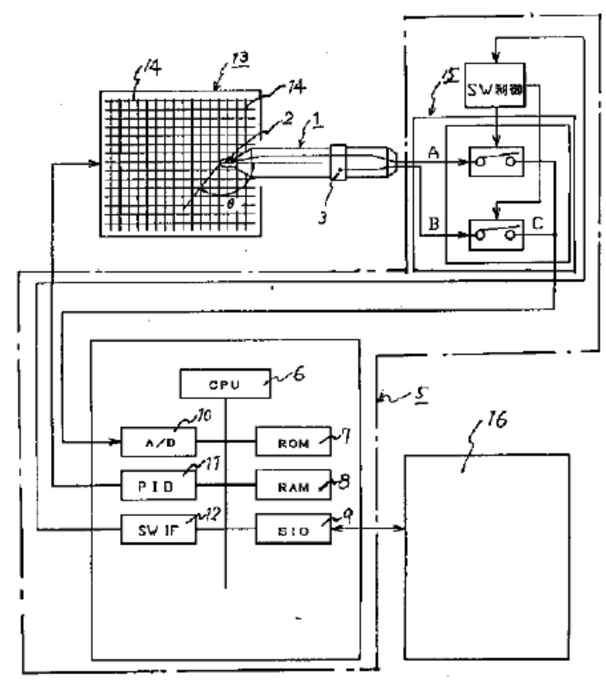
WARD discloses a system in which multiple output elements transmit signals to an external processing system. Specifically, WARD discloses: "A first output element (18) is located on the pen (10), and has a first point source (20) for a first output signal. A second output element (22) is located on the pen (10), and has a second point source (24) for a second output signal" (WARD, 2:48-52) and "[t]he first and

	second output elements transmit output signals of distinct frequencies, which allows the location of the pen tip (16) to be determined accurately.” WARD, 2:63-65. This disclosure confirms that structured signal transmission mechanisms were a well-known feature in electronic input devices, ensuring that generated signals are properly routed through designated conductive pathways for processing. A POSITA would have recognized that stylus-based input systems inherently rely on conductive pathways to transmit signals between a signal production circuit and detection electrodes. WARD explicitly describes a system in which signals from multiple output elements are transmitted through structured signal transmission circuits, reinforcing that such pathways were a well-established feature in electronic input technology. Given that YOSHIDA already discloses a capacitive stylus where signals are transmitted to electrodes, a POSITA would have found it obvious to incorporate WARD’s structured signal transmission system into YOSHIDA’s capacitive stylus to enhance reliability and ensure accurate signal propagation. Since WARD’s system is designed to facilitate precise communication between output elements and an external processing unit, integrating its structured transmission circuits into YOSHIDA’s system would have been a routine and predictable optimization to improve signal transmission and processing efficiency in stylus-based input technology. Alternatively, one of ordinary skill could modify YOSHIDA in view of IKEDA and WARD to meet this limitation, as shown below. IKEDA describes a coordinate detection pen where signals are transmitted to multiple detection electrodes via circuit pathways. Specifically, IKEDA discloses: “[C]oordinate detection is performed using the two detection units 2 and 3, and the coordinate data detected via electrostatic capacitance coupling with the tablet's electrodes . . . is applied to the main body 5 of the coordinate input device through a cable 4 connected to the coordinate detection pen 1.” IKEDA, [0008], Fig. 3. Further, IKEDA describes a structure where coordinate detection is performed by multiple detection units, connected to circuit pathways that process and transmit signals: “The main body 5 of the coordinate input device includes a CPU 6 for

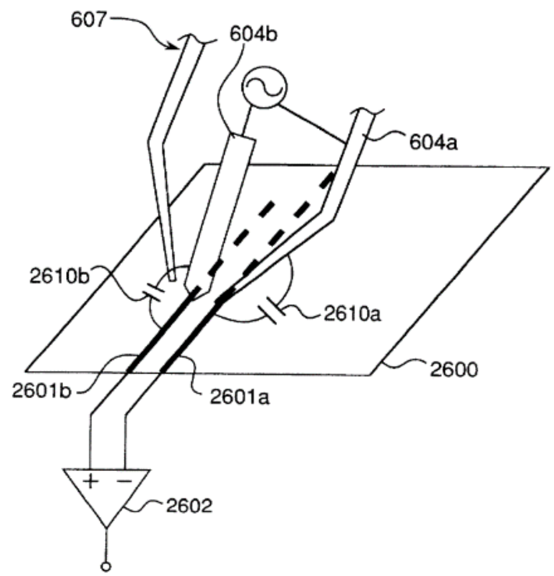
performing coordinate control, a ROM 7 storing the program for coordinate control, a RAM 8 for storing the detected coordinate data and the reference dimensions O corresponding to the two detection units 2 and 3 of the coordinate detection pen 1 . . . .” IKEDA, [0009], Fig. 3. This indicates an organized system of conductive pathways that allow for the transmission of capacitive detection signals.

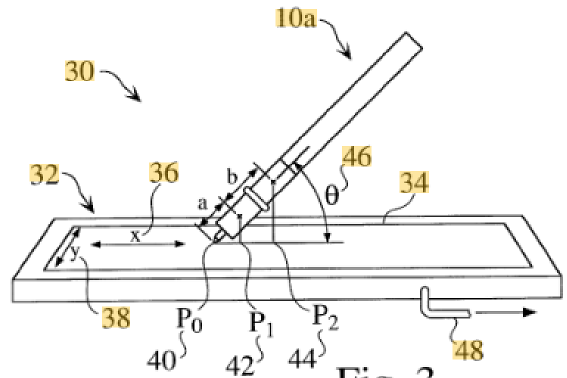
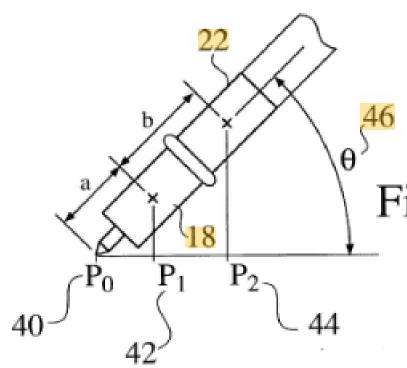
Additionally, IKEDA Figure 3 presents an electrical block diagram detailing the connections of signal paths between the capacitive detection units and signal processing circuits, reinforcing that conductive pathways transmit signals between the signal production circuit and detection electrodes. IKEDA, Fig. 3.

【図3】



	A POSITA would have recognized that electronic input devices commonly employ structured signal transmission pathways to ensure accurate detection and processing of positional and angular data. IKEDA explicitly describes a coordinate detection pen where signals are transmitted via conductive pathways to multiple detection electrodes and then processed by a control unit, confirming that organized signal transmission structures were a standard feature in capacitive stylus technology. Additionally, WARD reinforces this concept by explicitly disclosing a system where signals from multiple output elements are transmitted through structured circuits to an external processing system for precise location determination. Given that YOSHIDA already provides a capacitive stylus with structured signal transmission to electrodes, integrating the structured transmission mechanisms of both IKEDA and WARD into YOSHIDA's system would have been a logical and predictable enhancement. A POSITA would have understood that applying IKEDA's organized signal pathways and WARD's structured signal transmission circuits to YOSHIDA's stylus framework would improve signal integrity, enable more precise signal differentiation, and enhance the efficiency of capacitive signal transmission in stylus-based input devices.
1[g] wherein the first and second electrodes are configured to form first and second capacitive relationships with the sensor surface, respectively, to generate detection signals in the sensor surface based on which angle information of the pen-shaped position indicator is obtainable.	YOSHIDA discloses a capacitive stylus system where multiple electrodes 604a, 604b interact with a sensor surface to generate detection signals. Specifically, YOSHIDA explains that an electric field is generated from the stylus electrodes and capacitively coupled with the sensor surface to provide positional data. YOSHIDA, Fig. 26, 27:13-25.

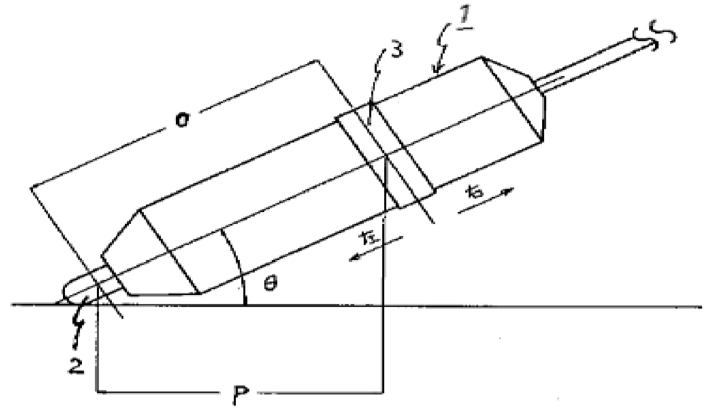
	Fig.26  One of ordinary skill could modify YOSHIDA in view of WARD to meet this limitation, as shown below. WARD discloses a pen positioning system (10) with multiple output elements (18, 22) that are used to determine the location and orientation of the pen tip relative to an electronic tablet (32). WARD, Figs. 3, 4.

	Fig. 3 Fig. 3: Shows the pen (10a) positioned at an inclined angle (46) relative to the electronic tablet (32), indicating angle detection. Fig. 4 Fig. 4: Depicts how the geometric relationships between the pointing tip (16) and output elements (18, 22) provide angular information. The system depicted in Figs. 3, 4 *supra* accounts for the angular displacement (θ) of the pen to accurately determine its position. Specifically, WARD discloses: "An

	improved pen positioning system is provided, in which a pen, having multiple output elements, is adapted to determine the location of the pointing tip of the pen accurately, in relation to an electronic tablet." WARD, 1:65-2:1. WARD further discloses: "The geometric relationship between the output elements and the pointing tip of the pen allows the location of the pointing tip to be determined, independent of the angle which the pen is inclined against the surface of the writing tablet." WARD, 2:4-8. WARD also explains, "FIG. 3 is a perspective view of the positioning pen system (30), in which a dual output element pen (10a) is shown at an inclined angle (46) in relation to an electronic tablet (32), indicated as θ." WARD, 3:1-4. A POSITA would have recognized that stylus-based input systems commonly utilize multiple detection elements to form distinct capacitive relationships with a sensor surface, ensuring precise positional and angular tracking. WARD explicitly discloses a dual-output system where multiple output elements allow for determining a stylus's tilt angle and position independent of its inclination relative to the surface, confirming that angular detection based on multiple interaction points was a well-established principle in stylus input technology. Given that YOSHIDA already describes a capacitive stylus system where multiple electrodes interact with a sensor surface to generate detection signals, a POSITA would have found it obvious to incorporate WARD's geometric tracking system into YOSHIDA's capacitive stylus framework to enhance accuracy in angle detection. Since WARD demonstrates how multiple output elements form structured positional relationships, integrating its approach into YOSHIDA's system would have been a predictable improvement to ensure more precise capacitive tracking of tilt and angular displacement. This combination follows well-known engineering principles in stylus-based input devices and represents a routine optimization to improve signal reliability and responsiveness. Alternatively, one of ordinary skill could modify YOSHIDA in view of IKEDA and WARD to meet this limitation, as shown below. IKEDA discloses a capacitive stylus that detects tilt angle using multiple electrodes positioned along the stylus body. Specifically, IKEDA states: "A coordinate

	detection electrode (first detection unit) is positioned at the tip of the coordinate detection pen, and a ring-shaped coordinate detection electrode (second detection unit) for angle reading is placed on the body of the coordinate detection pen." IKEDA, [0006], Fig. 5 (illustrating angle detection using capacitive coupling). Additionally, IKEDA discloses how these electrodes form capacitive relationships that allow tilt detection: "Using the coordinate data from the two detection units 2 and 3 stored in the regions of RAM 8, the dimensional control program converts the dimensions between the detection unit for coordinate detection and the detection unit for angle detection, storing the angle dimension P where the coordinate detection pen 1 is located in RAM 8 of the coordinate input device." IKEDA, [0013], Fig. 5. Further, IKEDA confirms that capacitive stylus systems inherently generate multiple capacitive relationships for tilt detection: "By detecting each coordinate using the detection unit 2 for coordinate detection and the detection unit 3 for angle detection of the coordinate detection pen 1, control over the angle of the coordinate detection pen 1 can be achieved." IKEDA, [0015], Fig. 5.

【図5】

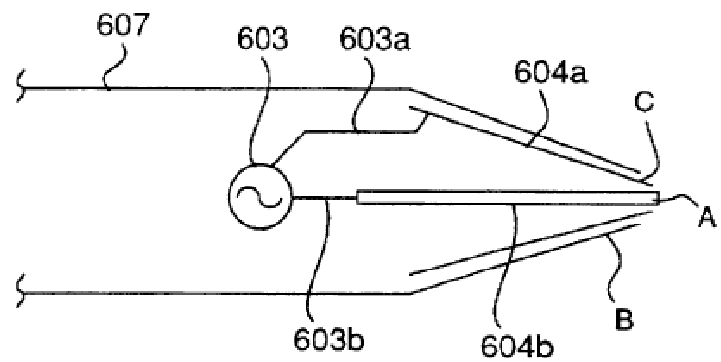


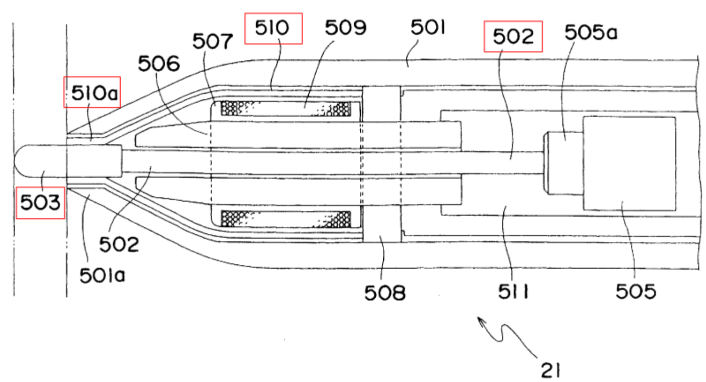
IKEDA Fig. 5

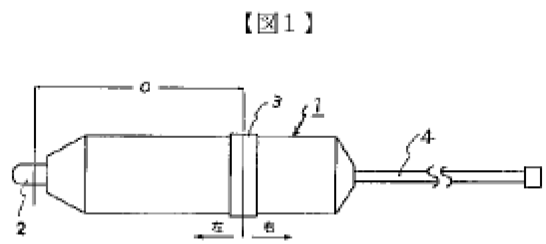
Figure 5 of IKEDA discloses how the first detection unit is positioned at the pen tip, and the second detection unit is ring-shaped and positioned along the pen body, allowing the system to measure tilt by analyzing changes in capacitive coupling at different locations along the pen axis.

A POSITA would have recognized that precise stylus tracking requires both capacitive sensing for detecting surface interactions and a reliable method for determining angular displacement. While YOSHIDA provides the necessary capacitive framework and IKEDA explicitly teaches capacitive tilt detection, WARD's method of tracking a pen's angle and positioning using multiple output elements offers a natural enhancement to the YOSHIDA-IKEDA combination. By integrating WARD's geometric approach, a POSITA would have improved the accuracy of angular detection by correlating capacitive tilt data with spatial positioning, ensuring more reliable and responsive stylus tracking in interactive input systems. Given that stylus-based input technology at the time was actively

	evolving toward better tilt compensation and precision, this combination would have been a logical and predictable advancement.

Claim 2	Disclosure
The pen-shaped position indicator according to claim 1, wherein the first and second electrodes are arranged at the first and second positions that are different along the axis of the pen-shaped position indicator.	*See supra* regarding Claim 1. YOSHIDA discloses a megaphone-shaped outer electrode 604a positioned differently from the first electrode and off-axis. YOSHIDA, Fig.6A. Fig.6A  Referring to Fig.6A of YOSHIDA, a megaphone-shaped outer electrode 604a is also arranged at the pen-tip portion of the pen-shaped electric field generator 607, and the second position of the outer electrode 604a is different from the first position of the inner electrode 604b. Fig. 6A also shows that the position of the outer electrode 604a is off an axis of the pen-shaped position indicator. This arrangement is evident in this cross-sectional depiction, where the outer electrode surrounds the inner electrode

	asymmetrically, contributing to the detection of tilt or angle when interacting with the sensor surface. YOSHIDA also discloses rod-shaped inner electrode 502 and outer electrode 510 are arranged at the first and second positions that are different along the axis of the pen 21. YOSHIDA, Fig.29. Fig. 29  YOSHIDA's Figure 29 provides a detailed view of the pen's internal structure, showing inner electrode 502 and outer electrode 510 positioned at different locations along the pen's longitudinal axis. This longitudinal section highlights the spatial separation between the electrodes, which is crucial for detecting different capacitive interactions along the pen's length. To the extent Plaintiff contends YOSHIDA does not expressly, implicitly, or inherently disclose that the first and second electrodes are positioned at different locations along the axis of the pen-shaped position indicator, one of ordinary skill in the art would, based on one's knowledge and the disclosure of YOSHIDA, understand how to modify YOSHIDA to meet this limitation. Alternatively, one of ordinary skill could modify YOSHIDA in view of IKEDA to meet this limitation, as shown below.

	IKEDA discloses that the first electrode (on the pen tip) and the second electrode (on the pen body) are at different positions along the axis of the coordinate detection pen: “In this invention, the operator can control coordinate detection without considering the angle of the coordinate detection pen. To achieve this, a coordinate detection electrode (first detection unit) is positioned at the tip of the coordinate detection pen, and a ring-shaped coordinate detection electrode (second detection unit) for angle reading is placed on the body of the coordinate detection pen.” IKEDA, [0006], Figs. 1, 5.  IKEDA Fig. 1

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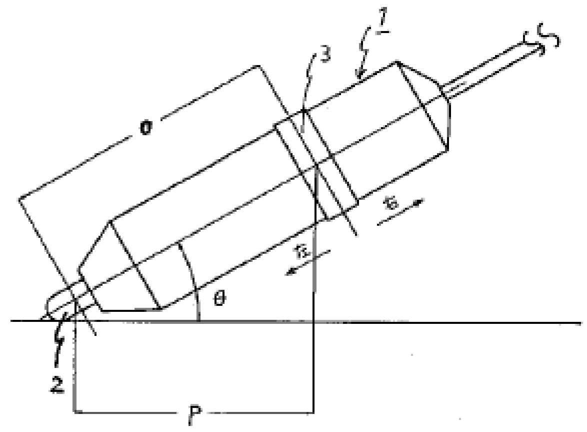

IKEDA Fig. 5

Figures 1 and 5 of IKEDA disclose a coordinate detection pen with multiple detection electrodes positioned at different locations along the stylus axis, confirming a design where electrodes are spaced along the longitudinal direction of the pen body.

A POSITA would have found it obvious to integrate IKEDA's disclosure of longitudinally separated electrodes with YOSHIDA's capacitive stylus system because multi-electrode capacitive input devices commonly employ this configuration for enhanced position detection and angular tracking.
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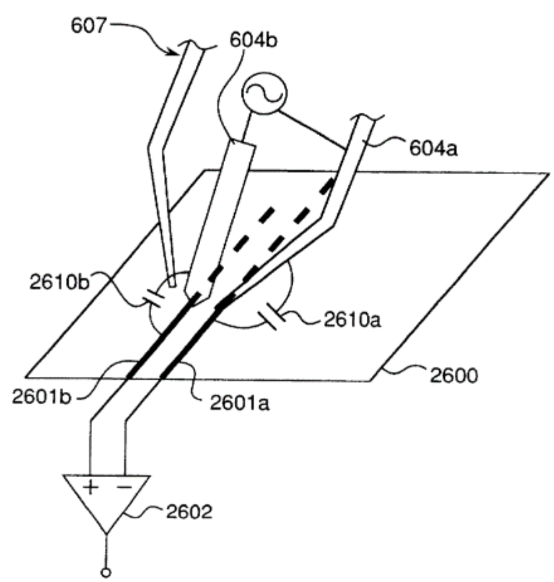
<table>
<tr><th>Claim 5</th><th>Disclosure</th></tr>
<tr><td>The pen-shaped position indicator according to claim 1, wherein the angle information is a tilt angle of the pen-shaped position indicator relative to the sensor surface.</td><td>

See supra regarding Claim 1.

YOSHIDA discloses a capacitive stylus system where multiple electrodes interact with a sensor surface to generate detection signals. YOSHIDA, Fig. 26, 27:13-25.

Fig.26



One of ordinary skill could modify YOSHIDA in view of WARD to meet this limitation, as shown below.

WARD further refines tilt detection by disclosing a pen positioning system that compensates for angular displacement using multiple output elements: “An improved pen positioning system is provided, in which a pen, having multiple output elements, is adapted to determine the location of the pointing tip of the pen accurately, in relation to an electronic tablet” (WARD, 1:65-2:1) and “[t]he geometric relationship between the output elements and the pointing tip of the pen

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allows the location of the pointing tip to be determined, independent of the angle which the pen is inclined against the surface of the writing tablet." WARD, 2:4-8. This confirms that WARD's system inherently accounts for angular displacement and compensates for changes in inclination.

Additionally, WARD describes the use of spatially separated output elements to track tilt: "A second output element (22) is located on the pen (10), and has a second point source (24) for a second output signal." WARD, 2:50-52. This disclosure reinforces that multiple interaction points provide structured signal differentiation, ensuring accurate tracking of angular displacement.

WARD also discloses a dual-output element stylus, where the spacing between two output elements enables determination of tilt. WARD, Figs. 3, 4.

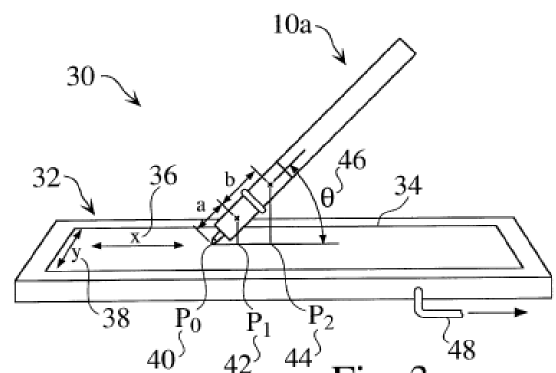

Fig. 3

Fig. 3: Depicts the stylus at an inclined angle 46, demonstrating tilt detection.

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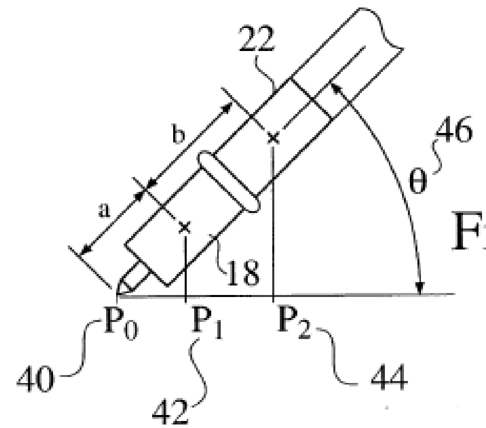

Fig. 4

Fig. 4: Illustrates how spatial relationships between output elements 18, 22 determine angular displacement.

A POSITA would have recognized that accurately detecting stylus inclination requires both capacitive sensing and structured tracking of angular displacement. WARD explicitly discloses a multi-output element positioning system where geometric relationships between output elements allow for angular detection independent of stylus inclination. This confirms that tilt determination using spatially separated elements was a well-known principle in input technology. Given that YOSHIDA already describes a capacitive stylus system where multiple electrodes interact with a sensor surface to generate detection signals, a POSITA would have found it obvious to integrate WARD’s structured tilt compensation system into YOSHIDA’s capacitive stylus framework. This modification would have been a predictable enhancement to improve tilt tracking by ensuring that capacitive signals were correlated with structured positional adjustments. As stylus-based input devices were evolving toward better angle compensation, this integration represents a routine and logical design choice to refine tilt measurement accuracy.
</td>
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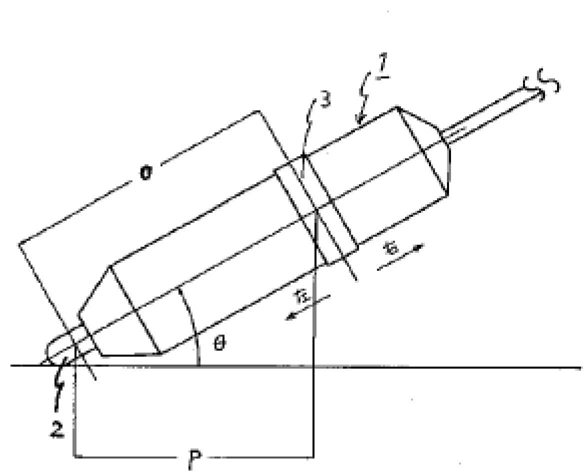
Alternatively, one of ordinary skill could modify YOSHIDA in view of IKEDA and WARD to meet this limitation, as shown below.

IKEDA discloses a coordinate detection pen that measures the inclination angle relative to the sensor surface: “By detecting each coordinate using the detection unit 2 for coordinate detection and the detection unit 3 for angle detection of the coordinate detection pen 1, control over the angle of the coordinate detection pen 1 can be achieved.” IKEDA, [0015], Fig. 5 (shows pen angle detection).

【図5】



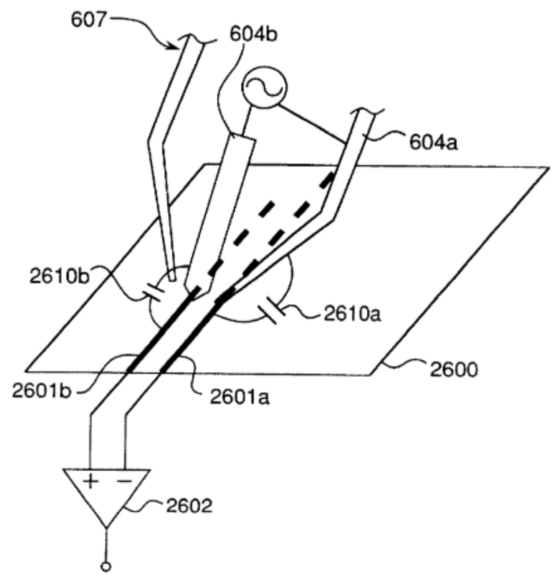
IKEDA Fig. 5

IKEDA’s system includes a first detection unit at the pen tip and a second, ring-shaped detection unit on the pen body, allowing capacitive measurements at different positions to determine the pen’s tilt angle relative to the surface.

Thus, WARD complements IKEDA’s capacitive tilt detection by introducing a structured geometric tracking method, reinforcing the ability to measure angular displacement.

	A POSITA would have been motivated to combine YOSHIDA's capacitive stylus system with IKEDA's explicit tilt detection method, as both rely on capacitive coupling to track positional changes. Given the known challenge of accurately detecting pen tilt in digitizing tablets, integrating WARD's geometric-based tilt measurement system would have been a logical and predictable enhancement. This combination renders Claim 5 obvious, as it collectively discloses a capacitive stylus system where angular displacement (tilt angle) is determined using: (1) YOSHIDA's capacitive coupling framework; (2) IKEDA's inclination-based detection system, and (3) WARD's spatial tracking system for angle compensation.

Claim 8	**Disclosure**
The pen-shaped position indicator according to claim 1, wherein the first and second signals are of the same type but have a time difference from each other.	*See supra* regarding Claim 1. YOSHIDA discloses a capacitive pen system in which multiple electrodes interact with a sensor surface to generate distinct signals. YOSHIDA, Fig. 26, 27:13-25. The AC power source in YOSHIDA supplies different phase signals to separate electrodes.

	Fig.26  One of ordinary skill could modify YOSHIDA in view of WARD to meet this limitation, as shown below. WARD further supports the concept of time-differentiated signals by disclosing a system where multiple output elements generate signals that differ based on spatial and temporal separation. WARD discloses: “The first and second output elements transmit output signals of distinct frequencies, which allows the location of the pen tip to be determined accurately.” WARD, 2:63-65. WARD also discloses: “A second output element (22) is located on the pen (10), and has a second point source (24) for a second output signal.” WARD, 2:50-52. This disclosure confirms that signal differentiation—whether by frequency or timing—is a fundamental mechanism used to determine pen position and angular displacement.

Figures 3 and 4 of WARD further illustrate how the dual-output element stylus transmits signals that exhibit a measurable time offset, reinforcing the principle of signal differentiation through phase or timing shifts.

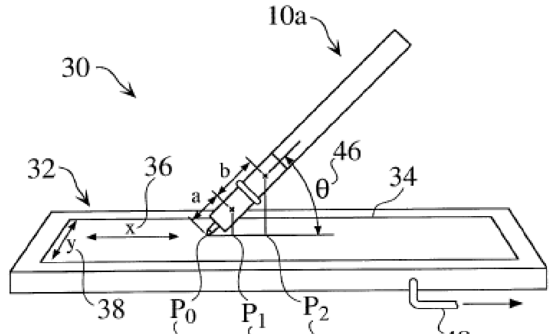


Fig. 3

Fig. 3: Illustrates the stylus positioned at an inclined angle 46, demonstrating tilt detection.

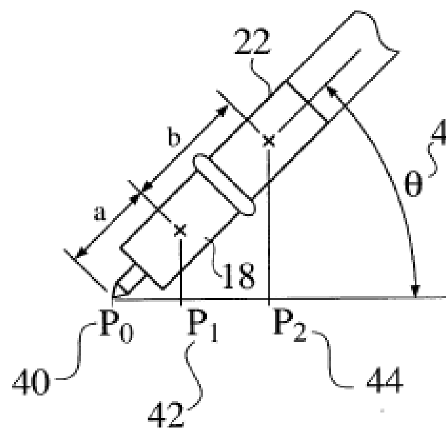
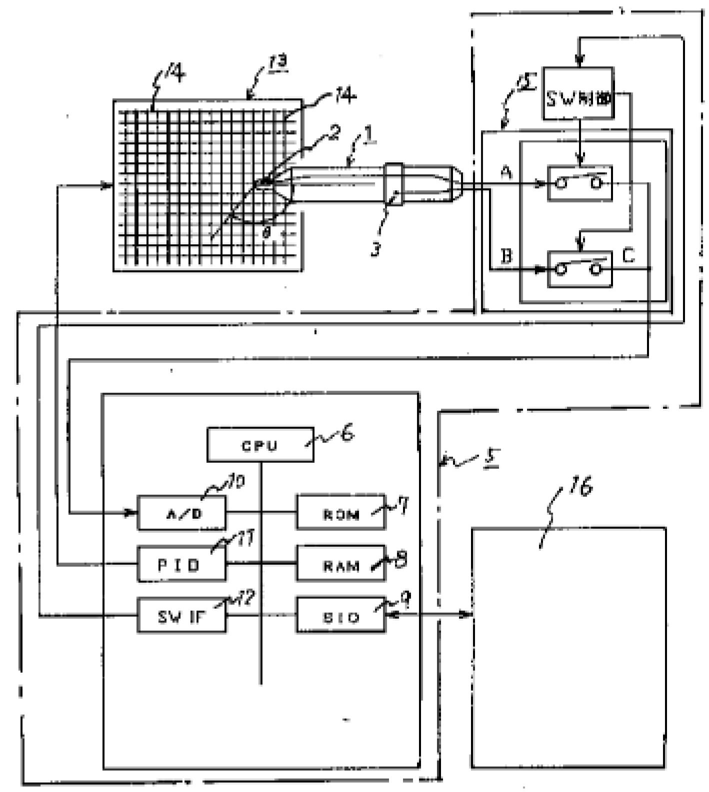


Fig. 4

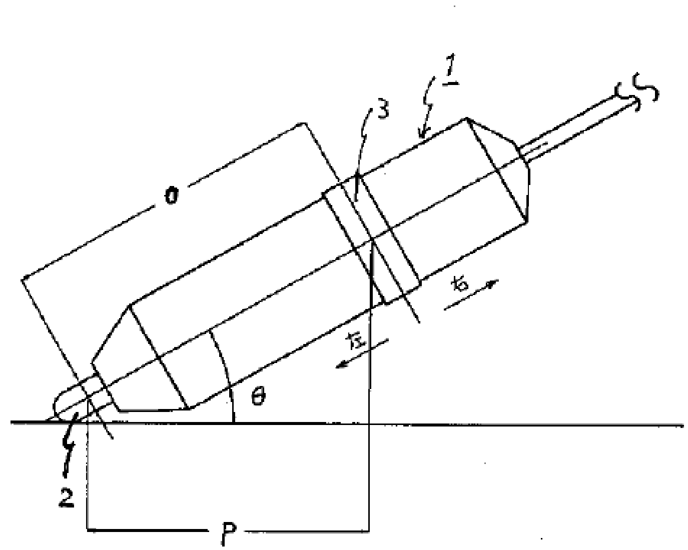
	Fig. 4: Depicts the spatial relationships between output elements (18, 22), showing how timing differences between signal emissions enable angular computation. Alternatively, one of ordinary skill could modify YOSHIDA in view of IKEDA and WARD to meet this limitation, as shown below. IKEDA further supports the concept of multiple capacitive detection units transmitting independent signals that vary based on position and tilt. Specifically, IKEDA states: ""The coordinate detection is performed using the two detection units 2 and 3, and the coordinate data detected via electrostatic capacitance coupling with the tablet's electrodes . . . is applied to the main body 5 of the coordinate input device through a cable 4 connected to the coordinate detection pen 1." IKEDA, [0008], Fig. 3. This disclosure reinforces that capacitive signal processing inherently involves timing differences. The signals from these detection units also inherently vary due to differences in their capacitive coupling relationships with the sensor surface. IKEDA further confirms that these signals are processed separately to determine position and tilt: "The main body 5 of the coordinate input device includes a CPU 6 for performing coordinate control, a ROM 7 storing the program for coordinate control, a RAM 8 for storing the detected coordinate data and the reference dimensions O corresponding to the two detection units 2 and 3 of the coordinate detection pen 1 . . . ." IKEDA, [0009], Fig. 3.

【図3】



IKEDA, Fig. 3.

IKEDA also discloses how the system calculates tilt using the independent signals from both detection units: "Using the coordinate data from the two detection units 2 and 3 stored in the regions of RAM 8, the dimensional control program converts the dimensions between the detection unit for coordinate detection and the detection unit for angle detection, storing the angle dimension P where the

	coordinate detection pen 1 is located in RAM 8 of the coordinate input device.” IKEDA, [0013], Fig. 5.
	【図5】
	
	IKEDA, Fig. 5.
	IKEDA discloses a dual-electrode capacitive detection pen, where a first detection unit at the tip and a second ring-shaped electrode along the pen body generate independent signals. These signals interact with the sensor surface differently depending on the pen’s angle, which inherently leads to time-shifted signal responses due to the varying capacitive relationships.
	WARD’s approach to tilt measurement using multiple output elements inherently involves a time offset between signals, aligning with IKEDA’s capacitive coupling-based tilt detection and reinforcing YOSHIDA’s signal phase differentiation.

	A POSITA would have recognized that time-differentiated signals are a natural consequence of capacitive interactions between stylus electrodes and a sensor surface. WARD explicitly discloses a dual-output element system that generates distinct signals at separate locations on the pen body, inherently introducing a measurable time offset. Given that YOSHIDA already describes a capacitive stylus system generating signals through electrode interactions, a POSITA would have found it obvious to incorporate WARD's structured signal differentiation method to refine angular tracking. The predictability of phase shifts and time delays in capacitive sensing—reinforced by WARD's dual-output system—makes this integration a routine and expected enhancement. Since stylus-based input devices were evolving toward greater precision in detecting angular displacement, integrating WARD's time-based differentiation into YOSHIDA's capacitive framework would have been a logical and advantageous improvement.

Claim 14	**Disclosure**
14[pre] A method of detecting angle information of a pen-shaped position indicator, the method comprising:	YOSHIDA discloses a pen-shaped electronic pen 21, which interacts with a sensor surface through electrostatic capacitive coupling. YOSHIDA, Figs. 1 and 2, 19:66-67, 20:1 ("the electric field generator 102 shown in FIG. l is incorporated in a pen-shaped electronic pen 21"). YOSHIDA also discloses that "a signal which is generated by an electric field generated from the electrodes of the coordinate pointing device at the electrodes of the panel coupled through an electrostatic capacitive coupling with the coordinate pointing device is detected." YOSHIDA, 14:62-67.

Fig.1

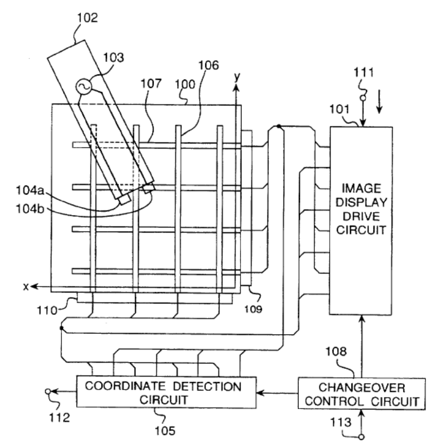
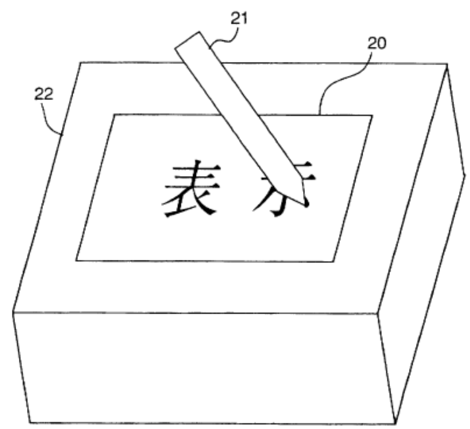
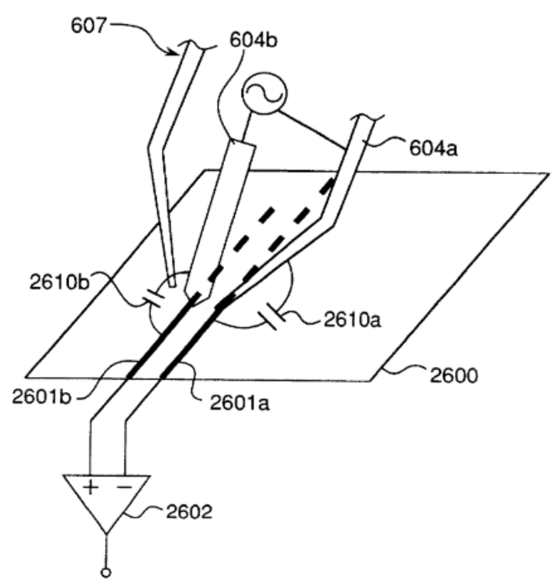


Fig.2



YOSHIDA further describes detecting angular information by analyzing capacitive interactions between the stylus electrodes and the sensor surface.

	YOSHIDA, Fig. 26. Specifically, capacitive variations corresponding to different pen orientations enable the system to determine tilt angles. *Fig.26*  Fig. 26 discloses a method where capacitive relationships between electrodes and a sensor surface allow for detecting angular information of the stylus. One of ordinary skill could modify YOSHIDA in view of WARD to meet this limitation, as shown below. WARD discloses a pen positioning system 10 with multiple output elements 18, 22 that are used to determine the location and orientation of the pen tip relative to an electronic tablet 32. WARD, Figs. 3, 4.

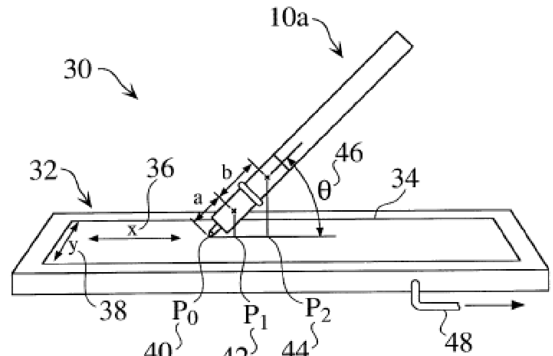


Fig. 3

Fig. 3: Shows the pen 10a positioned at an inclined angle 46 relative to the electronic tablet 32, indicating angle detection.

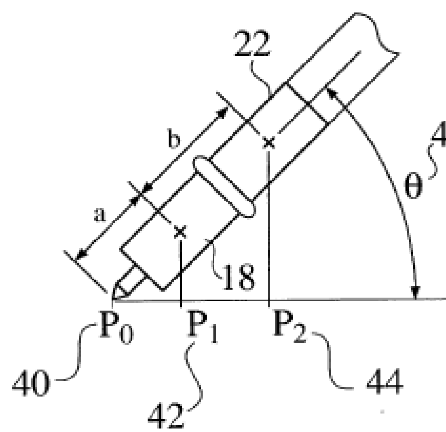
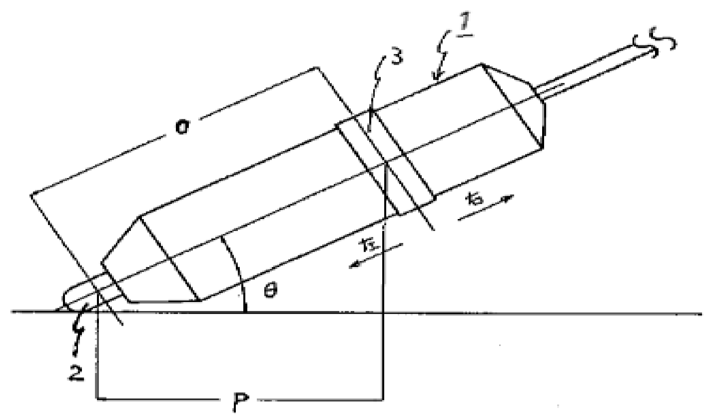


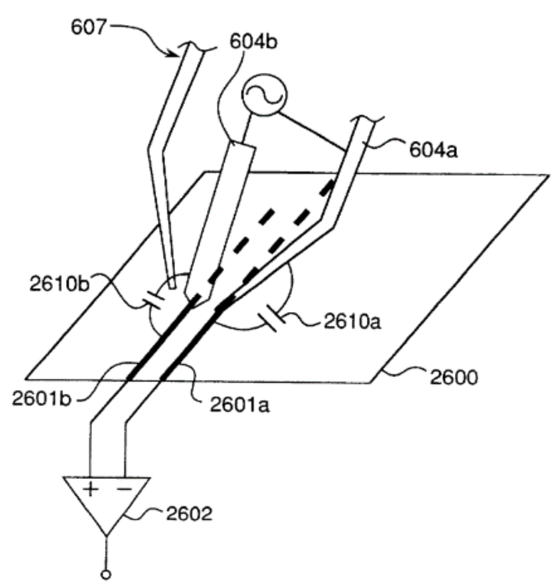
Fig. 4

Fig. 4: Depicts how the geometric relationships between the pointing tip 16 and output elements 18, 22 provide angular information.

The system depicted in Figs. 3, 4 *supra* accounts for the angular displacement (θ) of the pen to accurately determine its position. Specifically, WARD discloses:

	"An improved pen positioning system is provided, in which a pen, having multiple output elements, is adapted to determine the location of the pointing tip of the pen accurately, in relation to an electronic tablet." WARD, 1:65-2:1. WARD further discloses: "The geometric relationship between the output elements and the pointing tip of the pen allows the location of the pointing tip to be determined, independent of the angle which the pen is inclined against the surface of the writing tablet." WARD, 2:4-8. WARD also explains, "FIG. 3 is a perspective view of the positioning pen system (30), in which a dual output element pen (10a) is shown at an inclined angle (46) in relation to an electronic tablet (32), indicated as θ." WARD, 3:1-4. A POSITA would have recognized that detecting angular information in a stylus system requires a combination of capacitive sensing and a structured approach to tracking tilt and position. YOSHIDA discloses a capacitive stylus system that interacts with a sensor surface, while WARD explicitly describes a pen positioning system that determines the tip's location and angle using multiple output elements. WARD, Figs. 3, 4. Given that capacitive stylus systems and multi-output positioning methods were well established in input technology, a POSITA would have found it obvious to integrate WARD's geometric tracking approach into YOSHIDA's capacitive stylus system. The combination would enhance the stylus's ability to detect angular displacement by correlating capacitive signal variations with spatial positioning data. Given the ongoing advancements in stylus-based input devices at the time, incorporating WARD's structured output method into YOSHIDA's system would have been a predictable and logical design improvement. Alternatively, one of ordinary skill could modify YOSHIDA in view of IKEDA and WARD to meet this limitation, as shown below. IKEDA discloses a coordinate detection pen that detects angle information through capacitive coupling: "A coordinate detection electrode (first detection unit) is positioned at the tip of the coordinate detection pen, and a ring-shaped

	coordinate detection electrode (second detection unit) for angle reading is placed on the body of the coordinate detection pen." IKEDA, [0006], Fig. 5. 【図5】  IKEDA, Fig. 5 A POSITA would have recognized that combining capacitive stylus detection (YOSHIDA), capacitive tilt measurement (IKEDA), and multi-output signal differentiation for positional accuracy (WARD) represents a well-known and predictable advancement in stylus-based input systems. YOSHIDA establishes the capacitive framework, IKEDA explicitly discloses a coordinate detection pen with a capacitive tilt detection system, and WARD introduces a method for determining tilt and positional accuracy using multiple output elements. WARD, Figs. 3, 4. A POSITA would have found it obvious to integrate WARD's structured approach to tracking angular displacement into the YOSHIDA-IKEDA capacitive stylus framework to refine tilt measurement and enhance signal accuracy. Because stylus-based input technology was evolving toward improved tilt compensation and precision tracking, incorporating WARD's geometric

	method into YOSHIDA and IKEDA's capacitive system would have been a routine and predictable enhancement to improve real-time angular detection.
14[a] forming a first capacitive relationship between a sensor surface and first electrode, which is arranged at a first position of a pen-tip portion of the pen-shaped position indicator and is supplied with a first signal generated by a signal production circuit and transmitted via a first conductive line in the pen-shaped position indicator;	YOSHIDA discloses capacitive coupling between a first electrode and a sensor surface. YOSHIDA, Fig. 26. *Fig.26*  Figure 26 of YOSHIDA illustrates the capacitive interaction between the pen's first electrode 604b and the LCD panel electrode 2601b (at the sensor surface), demonstrating the fundamental capacitive relationship necessary for signal transmission. YOSHIDA's Figure 27 presents a schematic diagram of the electronic pen's circuitry, including an AC power source 603 (a signal production circuit) connected to electrodes 604a and 604b as depicted in Fig. 26. One of ordinary skill could modify YOSHIDA in view of WARD to meet this limitation, as shown below.

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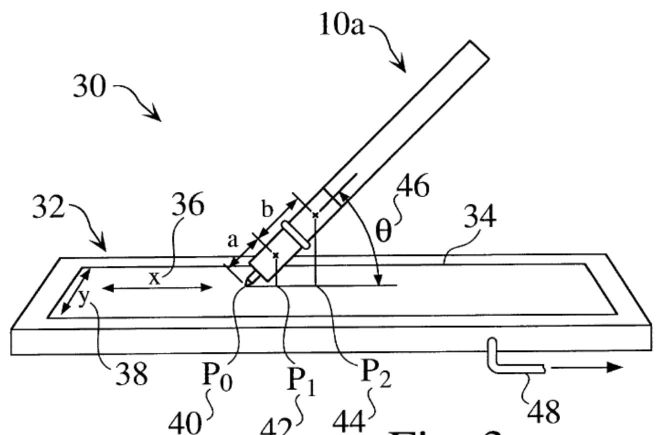
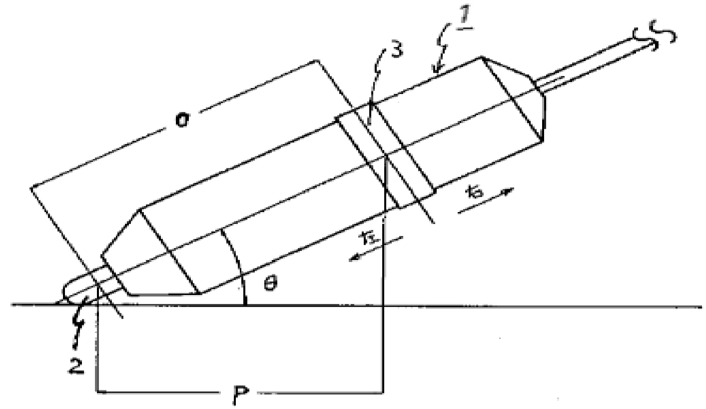
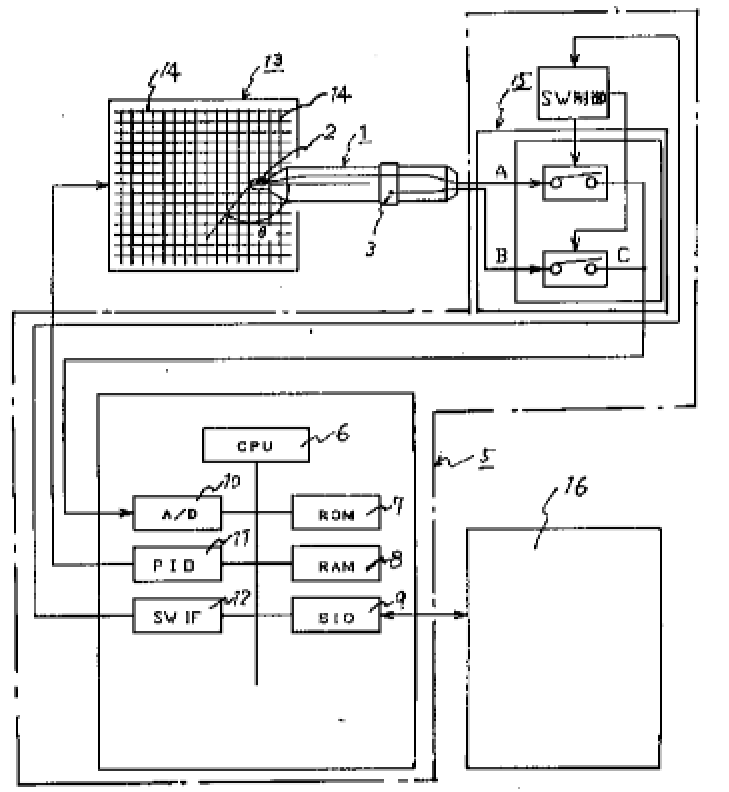
	WARD discloses a pen positioning system that incorporates multiple output elements to determine the location of a pen relative to a sensor surface, reinforcing the concept of forming an interactive relationship between a stylus and an input surface. WARD discloses: “An improved pen positioning system is provided, in which a pen, having multiple output elements, is adapted to determine the location of the pointing tip of the pen accurately, in relation to an electronic tablet.” WARD, 1:65-2:1. Additionally, WARD discloses: “A first output element (18) is located on the pen (10), and has a first point source (20) for a first output signal.” WARD, 2:48-50; *see also* Figs. 3 (illustrates the first output element (18) at a distinct position on the pen for signal generation), 4 (demonstrates how the emitted signals interact with a sensor surface for positional detection).  Fig. 3 These disclosures confirm that WARD describes a system where a pen generates signals at a defined point on the tip and transmits those signals for processing, reinforcing that capacitive or electromagnetic interactions between a stylus and sensor surface were a well-known means of positional tracking.

	A POSITA would have recognized that stylus-based input devices commonly establish a defined relationship between an electrode at the tip and a sensor surface to facilitate positional tracking. YOSHIDA discloses a capacitive stylus system in which an electrode at the tip interacts with a sensor surface, and WARD reinforces this concept by describing a pen positioning system with a first output element positioned at the tip, generating and transmitting signals for location determination. WARD, 2:48-50. Given the widespread use of signal transmission in stylus-based input devices, a POSITA would have found it obvious to incorporate WARD's structured signal emission method into YOSHIDA's capacitive stylus framework to enhance capacitive signal transmission and improve touch accuracy. This combination represents a routine optimization to refine stylus tracking through a known design choice. Alternatively, one of ordinary skill could modify YOSHIDA in view of IKEDA and WARD to meet this limitation, as shown below. IKEDA discloses forming a first capacitive relationship between a sensor surface and a first electrode, which is positioned at the pen tip and supplied with a signal from a signal production circuit via a conductive line: "[A]n axis-shaped detection unit 2 is positioned at the tip of the coordinate detection pen 1 to read the coordinates of the indicated point, and a ring-shaped detection unit 3 for indicating the angle is positioned on the body of the coordinate detection pen." IKEDA, [0008], Fig. 5.

	【図5】  IKEDA, Fig. 5 Additionally, IKEDA discloses that the first electrode is part of a capacitive system that transmits signals via a conductive pathway: "The coordinate detection is performed using the two detection units 2 and 3, and the coordinate data detected via electrostatic capacitance coupling with the tablet's electrodes is applied to the main body 5 of the coordinate input device through a cable 4 connected to the coordinate detection pen 1." IKEDA, [0008], Fig. 3.

	【図3】  Further, IKEDA discloses how the signal is transmitted and processed in the main body via a signal production circuit: "The main body 5 of the coordinate input device includes a CPU 6 for performing coordinate control, a ROM 7 storing the program for coordinate control, a RAM 8 for storing the detected coordinate data and the reference dimensions O corresponding to the two detection units 2 and 3 of the coordinate detection pen 1 . . . ." IKEDA, [0009], Fig. 3

	Finally, IKEDA discloses how the signals are transmitted via conductive lines from the detection pen to the processing circuit: "The selection control of the switching switch 15 is set so that the detection unit 2 for coordinate detection of the coordinate detection pen 1 is selected (connecting A-C through the switching switch 15). The electrode lines 14, 14, 14, ... in the X and Y axis directions of the tablet 13 are driven by applying PIO 11 pulses, and the coordinate signal is sent to the connected A/D converter 10 through electrostatic capacitance coupling between each electrode line 14, 14, 14, ... and the detection unit 2 for coordinate detection." IKEDA, [0011], Fig. 3. A POSITA would have recognized that integrating structured signal generation (WARD), capacitive electrode placement for tilt detection (IKEDA), and capacitive interaction with a sensor surface (YOSHIDA) would provide an obvious enhancement to stylus-based input systems. YOSHIDA establishes the capacitive stylus framework, IKEDA explicitly describes a first electrode at the pen tip forming a capacitive relationship with a sensor surface, and WARD reinforces the structured use of a tip-located output element to generate signals for tracking purposes. Given that capacitive styluses routinely employ tip-positioned electrodes to optimize signal transmission, a POSITA would have found it obvious to integrate WARD's explicit signal placement and transmission method with YOSHIDA and IKEDA's capacitive detection structures. This combination enhances detection accuracy, ensures reliable signal transmission, and follows predictable design principles for capacitive input technology.
14[b] forming a second capacitive relationship between the sensor surface and a second electrode, which is arranged at a second position of the pen-tip portion different from the first position and off an axis of the pen-shaped position indicator and is supplied with a second signal generated by the signal production circuit and transmitted via a second conductive line in the pen-shaped position indicator, wherein the second	YOSHIDA discloses a multi-electrode stylus system with capacitive coupling. YOSHIDA, Fig. 6. Specifically, Figure 6A of YOSHIDA illustrates an inner electrode (604b) and an outer megaphone-shaped electrode (604a), which is positioned at a different location from the inner electrode and extends outward, demonstrating an off-axis configuration.

<table>
<tr>
<td>signal is distinguishable from the first signal; and</td>
<td>

Fig.6A

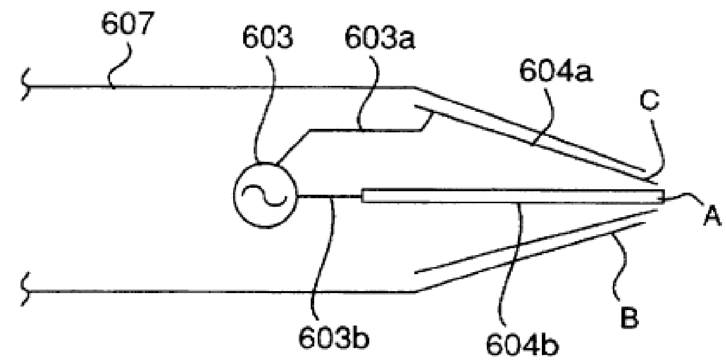


Figure 26 of YOSHIDA illustrates the capacitive interaction between the pen’s first electrode 604a and the LCD panel electrode 2601a (at the sensor surface), demonstrating the fundamental capacitive relationship necessary for signal transmission. YOSHIDA’s Figure 27 presents a schematic diagram of the electronic pen’s circuitry, including an AC power source 603 (a signal production circuit) connected to electrodes 604a and 604b as depicted in Fig. 26.

YOSHIDA explains that these electrodes create capacitive relationships with the sensor surface and that signals applied to them are phase-differentiated and thus distinguishable from each other: “Electric fields applied to the outer electrodes 604a and 604b are opposite in phase to each other.” YOSHIDA, 27:13-25.

One of ordinary skill could modify YOSHIDA in view of WARD to meet this limitation, as shown below.

WARD discloses a pen positioning system with multiple output elements used for determining location and angular displacement. Specifically, WARD states: “A second output element (22) is located on the pen (10), and has a second point

</td>
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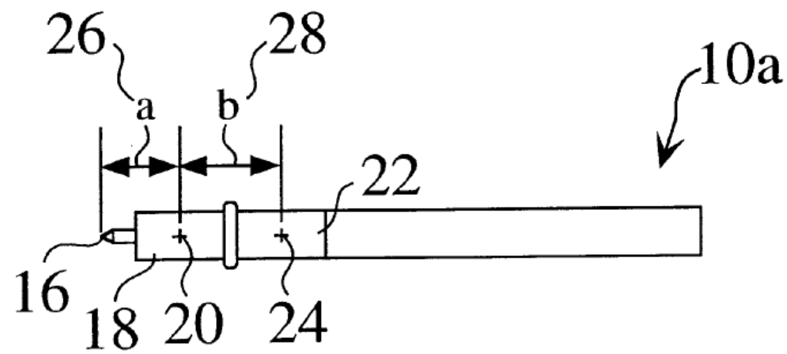
	source (24) for a second output signal." WARD, 2:50-52. As shown in Figs. 2 and 3, this second output element is positioned at a location different from the first output element and is used to determine the tilt and orientation of the pen tip relative to the electronic tablet.  Fig. 2 Fig. 2: Illustrates the second output element (22) at a different position on the pen.

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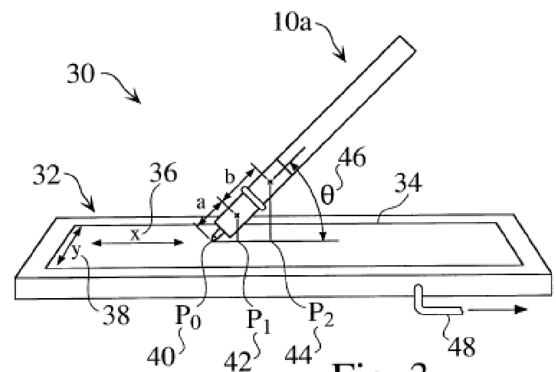
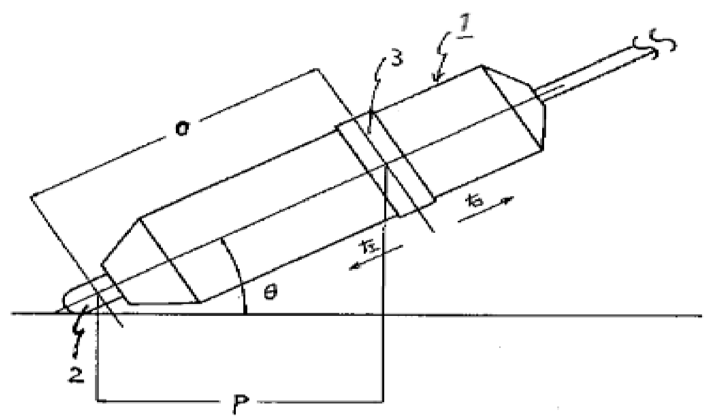
	 Fig. 3 Fig. 3: Demonstrates how the spatial relationship between the first and second output elements contributes to angular detection. A POSITA would have recognized that capacitive stylus systems often employ multiple electrodes arranged at different positions to improve signal differentiation and enhance positional accuracy. YOSHIDA discloses a multi-electrode capacitive stylus where the outer electrode is positioned off-axis relative to the inner electrode to create phase-differentiated signals. WARD reinforces this concept by explicitly disclosing a second output element positioned at a different location on the pen to generate a separate signal for tracking the pen's orientation and movement. Given the well-known advantages of using multiple detection points to refine coordinate and angle tracking, a POSITA would have found it obvious to incorporate WARD's structured dual-output system into YOSHIDA's capacitive stylus framework to further enhance signal distinction and angular detection. This combination follows well-established engineering principles in capacitive input devices and represents a routine improvement. Alternatively, one of ordinary skill could modify YOSHIDA in view of IKEDA and WARD to meet this limitation, as shown below.

IKEDA discloses forming a second capacitive relationship between the sensor surface and a second electrode, which is arranged at a second position different from the first and off an axis of the pen-shaped position indicator: “A coordinate detection electrode (first detection unit) is positioned at the tip of the coordinate detection pen, and a ring-shaped coordinate detection electrode (second detection unit) for angle reading is placed on the body of the coordinate detection pen.” IKEDA, [0006], Fig. 5.

【図5】

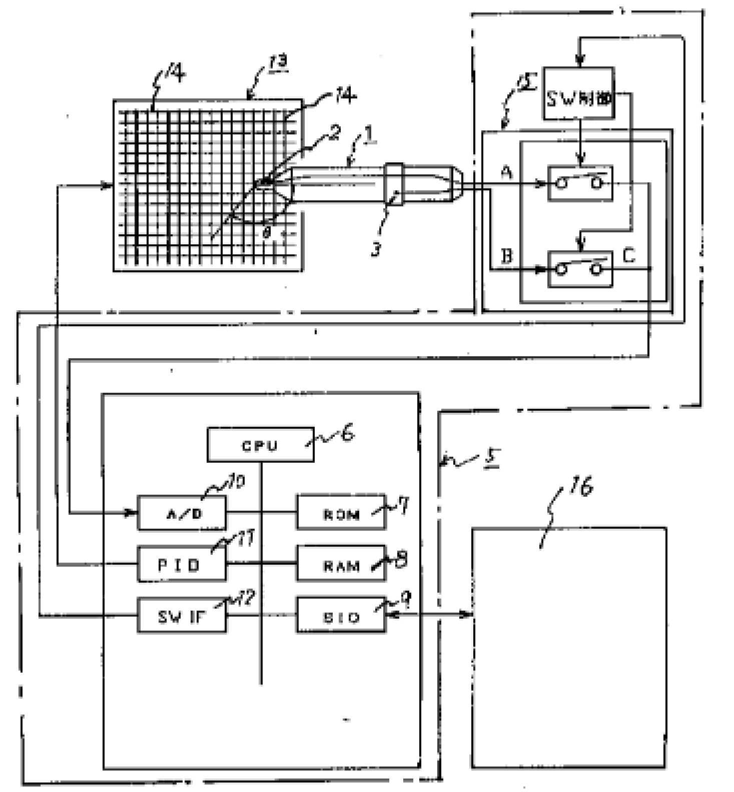


IKEDA, Fig. 5.

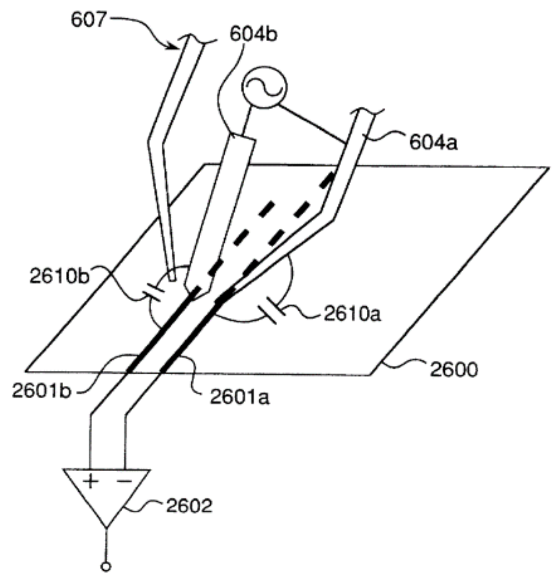
This further supports 14[b] by reinforcing that multiple electrodes positioned at different locations along the pen’s body can generate distinct capacitive signals.

Additionally, IKEDA confirms that the second electrode is part of a signal transmission structure, connected via a conductive line to a signal production circuit: “The main body 5 of the coordinate input device includes a CPU 6 for performing coordinate control, a ROM 7 storing the program for coordinate control, a RAM 8 for storing the detected coordinate data and the reference

	dimensions O corresponding to the two detection units 2 and 3 of the coordinate detection pen 1 . . . .” IKEDA, [0009], Fig. 3. Further, IKEDA describes how the signals from the first and second electrodes are distinguishable and processed separately: “The selection control of the switching switch 15 is set so that the detection unit 2 for coordinate detection of the coordinate detection pen 1 is selected (connecting A-C through the switching switch 15). The electrode lines 14, 14, 14, ... in the X and Y axis directions of the tablet 13 are driven by applying PIO 11 pulses, and the coordinate signal is sent to the connected A/D converter 10 through electrostatic capacitance coupling between each electrode line 14, 14, 14, ... and the detection unit 2 for coordinate detection.” IKEDA, [0011], Fig. 3.

	【図3】  IKEDA, Fig. 3. A POSITA would have recognized that capacitive stylus technology inherently benefits from multiple electrodes positioned at different locations to improve detection accuracy and enable angular measurement. YOSHIDA discloses a capacitive stylus with an off-axis second electrode, while IKEDA explicitly reinforces this design by describing a ring-shaped coordinate detection electrode positioned along the pen body to form a second capacitive relationship. WARD

	further supports this combination by disclosing a structured dual-output element system where a second output element, positioned differently from the first, generates a separate signal used to track the pen's tilt and location. Integrating WARD's dual-output structure with YOSHIDA and IKEDA's capacitive electrode arrangement would have been an obvious enhancement, ensuring improved detection precision through spatially distinct capacitive interactions. Given that capacitive stylus-based input systems commonly utilize multiple detection points for positional and angular tracking, a POSITA would have found this combination predictable and advantageous.
14[c] detecting angular information of the pen-shaped position indicator based on the first and second capacitive relationships.	YOSHIDA discloses a capacitive stylus system with multiple electrodes that interact with a sensor surface to determine positional information. YOSHIDA, Fig. 26, 14:62-67; *see also* Claim 1[b] and 1[c] and Claim 14[b] *supra* regarding the arrangement of multiple electrodes for capacitive coupling. Specifically, Figure 26 of YOSHIDA illustrates how capacitive coupling between electrodes 604a, 604b and a sensor surface generates detection signals, which allow the system to determine the pen's location.

	Fig.26  YOSHIDA explains that the interaction between these capacitive elements and the sensor surface allows for precise input detection: "A signal which is generated by an electric field from the electrodes of the coordinate pointing device at the electrodes of the panel coupled through an electrostatic capacitive coupling with the coordinate pointing device is detected." YOSHIDA, 14:62-67. One of ordinary skill could modify YOSHIDA in view of WARD to meet this limitation, as shown below. WARD discloses a pen positioning system 10 with multiple output elements 18, 22 used to determine both the location and the tilt of the pen tip relative to an electronic tablet 32. WARD, Figs. 3, 4.

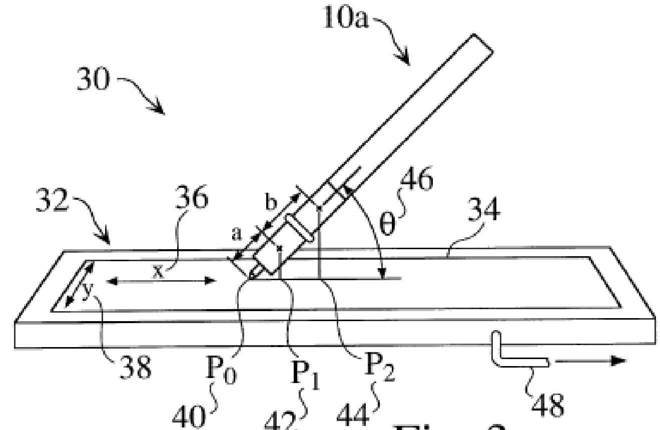


Fig. 3

Figure 3 of WARD shows the pen 10a positioned at an inclined angle 46 relative to the electronic tablet 32, demonstrating angle detection.

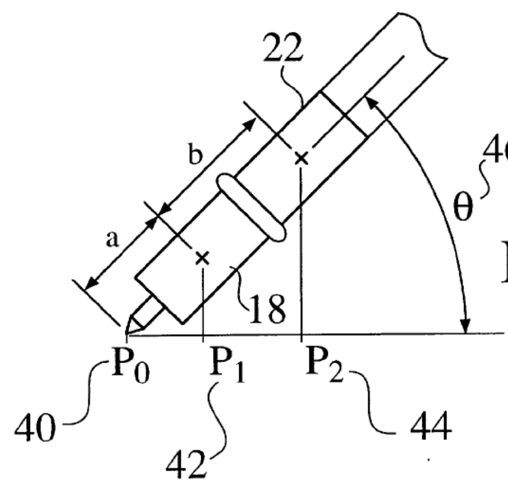


Fig. 4

	Figure 4 of WARD illustrates how the geometric relationships between the pointing tip (16) and output elements (18, 22) provide angular information. WARD further states: “An improved pen positioning system is provided, in which a pen, having multiple output elements, is adapted to determine the location of the pointing tip of the pen accurately, in relation to an electronic tablet.” WARD, 1:65-2:1. WARD also discloses: “The geometric relationship between the output elements and the pointing tip of the pen allows the location of the pointing tip to be determined, independent of the angle which the pen is inclined against the surface of the writing tablet.” WARD, 2:4-8. A POSITA would have recognized that capacitive stylus systems rely on detecting changes in capacitance to determine positional and angular information. YOSHIDA discloses a capacitive stylus system with multiple electrodes for detecting input interactions with a sensor surface, while WARD explicitly discloses a dual-output element system designed to track both location and tilt of a pen relative to a tablet. WARD, Figs. 3, 4. Given that WARD describes using spatially separated output elements to determine inclination, a POSITA would have found it obvious to incorporate WARD’s geometric tracking method into YOSHIDA’s capacitive stylus system to enhance angle detection accuracy. This combination represents a predictable improvement in stylus-based input systems by refining angular measurements through capacitive and spatial differentiation, ensuring enhanced precision in determining tilt and positional data. Alternatively, one of ordinary skill could modify YOSHIDA in view of IKEDA and WARD to meet this limitation, as shown below. IKEDA discloses detecting angular information of the pen-shaped position indicator based on first and second capacitive relationships: “[A] coordinate detection electrode (first detection unit) is positioned at the tip of the coordinate detection pen, and a ring-shaped coordinate detection electrode (second detection unit) for angle reading is placed on the body of the coordinate detection pen.” IKEDA, [0006], Fig. 5.

Additionally, IKEDA describes how the system uses these two capacitive relationships to calculate angular information: "Using the coordinate data from the two detection units 2 and 3 stored in the regions of RAM 8, the dimensional control program converts the dimensions between the detection unit for coordinate detection and the detection unit for angle detection, storing the angle dimension P where the coordinate detection pen 1 is located in RAM 8 of the coordinate input device." IKEDA, [0013], Fig. 5.

Further, IKEDA confirms that the device detects the inclination angle using these capacitive relationships: "By detecting each coordinate using the detection unit 2 for coordinate detection and the detection unit 3 for angle detection of the coordinate detection pen 1, control over the angle of the coordinate detection pen 1 can be achieved . . . ." IKEDA, [0015], Fig. 5.

【図5】

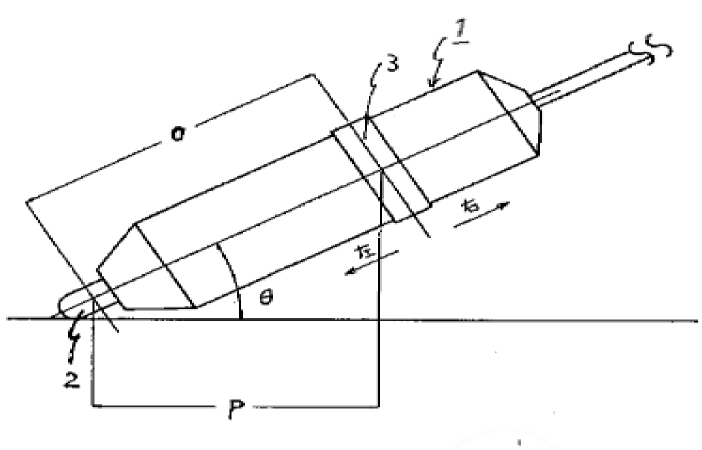
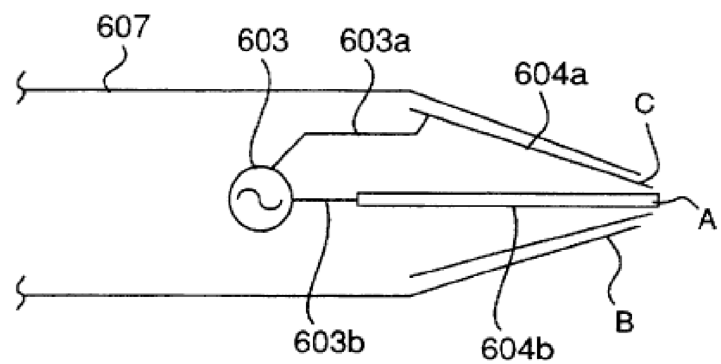
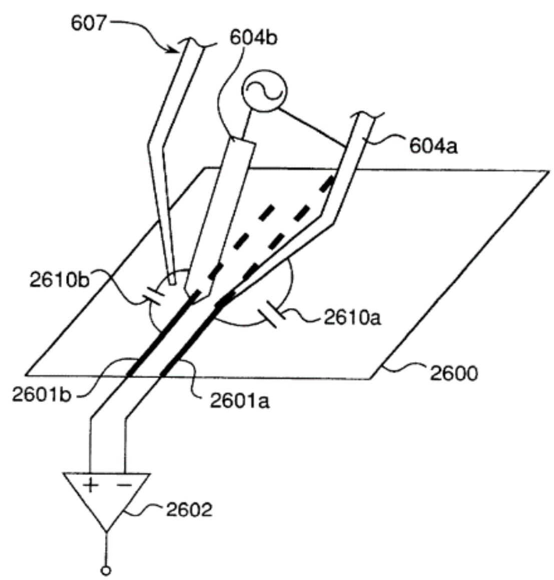


Figure 5 of IKEDA illustrates a ring-shaped coordinate detection electrode positioned along the pen body, forming a second capacitive interaction. This

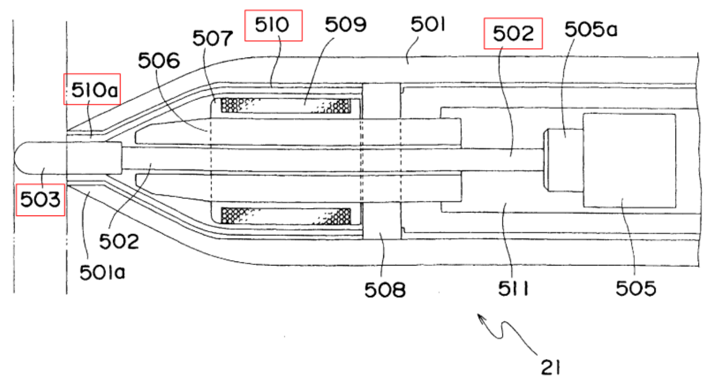
	confirms that capacitive stylus systems inherently generate multiple capacitive relationships that allow for tilt detection. YOSHIDA and IKEDA establish capacitive interactions and the presence of tilt-sensitive electrodes. WARD supplements this combination by disclosing how a multi-output element system provides precise angular measurement. By integrating WARD's dual-output element tracking system, the YOSHIDA-IKEDA system would be further enhanced to improve angular measurement accuracy. A POSITA would recognize that capacitive stylus systems inherently establish multiple capacitive relationships with a sensor surface, resulting in signal variations that enable angular detection. YOSHIDA discloses the fundamental multi-electrode capacitive sensing framework, demonstrating how capacitive interactions between the stylus and sensor surface generate positional data. IKEDA explicitly teaches a system in which a second capacitive electrode is used to detect tilt, confirming that angular displacement can be derived from capacitive variations at different electrode positions along the pen body. WARD further supplements this by disclosing a dual-output element approach, which leverages spatially distinct detection points to enhance tilt measurement accuracy, independent of the pen's inclination angle. By integrating WARD's tracking system into YOSHIDA and IKEDA's capacitive stylus framework, a POSITA would have found it obvious to improve angular detection accuracy by correlating capacitive tilt data with geometric spatial positioning. This follows well-established engineering principles in stylus-based input devices, which routinely use multiple electrodes and spatially separated detection points to refine positional and angular tracking. Because detecting angular displacement was a known challenge in capacitive styluses, a POSITA would have understood that combining WARD's dual-output element tracking with YOSHIDA and IKEDA's capacitive system was a logical, routine, and predictable enhancement to improve real-time tilt measurement accuracy.

Claim 15	Disclosure
The method according to claim 14, wherein the first and second electrodes are arranged at the first and second positions that are different along the axis of the pen-shaped position indicator.	*See supra* regarding Claim 14; *see also* Claim 2. YOSHIDA discloses a megaphone-shaped outer electrode 604a positioned differently from the first electrode and off-axis. YOSHIDA, Fig.6A. Fig.6A  Referring to Fig.6A of YOSHIDA, a megaphone-shaped outer electrode 604a is also arranged at the pen-tip portion of the pen-shaped electric field generator 607, and the second position of the outer electrode 604a is different from the first position of the inner electrode 604b. Fig. 6A also shows that the position of the outer electrode 604a is off an axis of the pen-shaped position indicator. This arrangement is evident in this cross-sectional depiction, where the outer electrode surrounds the inner electrode asymmetrically, contributing to the detection of tilt or angle when interacting with the sensor surface. Fig. 6a discloses a multi-electrode stylus system with capacitive coupling. Specifically, Figure 6A of YOSHIDA illustrates an inner electrode 604b and an outer megaphone-shaped electrode 604a, which is positioned at a different

	location from the inner electrode and extends outward, demonstrating an off-axis configuration. Figure 26 of YOSHIDA illustrates the capacitive interaction between the pen's first electrode 604a and the LCD panel electrode 2601a (at the sensor surface), demonstrating the fundamental capacitive relationship necessary for signal transmission. YOSHIDA's Figure 27 presents a schematic diagram of the electronic pen's circuitry, including an AC power source 603 (a signal production circuit) connected to electrodes 604a and 604b as depicted in Fig. 26. Fig.26  YOSHIDA explains that these electrodes create capacitive relationships with the sensor surface and that signals applied to them are phase-differentiated and thus distinguishable from each other: "Electric fields applied to the outer electrodes 604a and 604b are opposite in phase to each other." YOSHIDA, 26:23-26.

YOSHIDA also discloses electrodes 502 and 510 at different positions along the axis. YOSHIDA, Fig.29.

Fig. 29



YOSHIDA's Figure 29 provides a longitudinal section of the pen, detailing the placement of inner electrode 502 and outer electrode 510 at distinct positions along the pen's axis. This configuration is designed to capture varying capacitive interactions along the length of the pen. The figure confirms that electrodes are placed at separate positions along the pen's longitudinal axis, allowing for varied capacitive interactions.

Capacitive stylus technology was well known at the time, and a POSITA would have recognized that placing electrodes at different positions along the pen's axis allows for more accurate signal differentiation and tilt detection. A POSITA would have understood that capacitive input systems commonly use multiple electrodes positioned at various locations along the pen axis to improve spatial resolution and enhance detection accuracy.

To the extent Plaintiff contends YOSHIDA does not expressly, implicitly, or inherently disclose that the first and second electrodes are arranged at first and second positions that are different along the axis of the pen-shaped position indicator, one of ordinary skill in the art would, based on one's knowledge and

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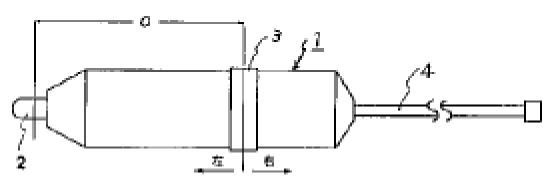
the disclosure of YOSHIDA, understand how to modify YOSHIDA to meet this limitation.

Alternatively, one of ordinary skill could modify YOSHIDA in view of IKEDA to meet this limitation, as shown below.

IKEDA discloses that the first electrode (on the pen tip) and the second electrode (on the pen body) are positioned at different locations along the pen’s axis: “[A] coordinate detection electrode (first detection unit) is positioned at the tip of the coordinate detection pen, and a ring-shaped coordinate detection electrode (second detection unit) for angle reading is placed on the body of the coordinate detection pen.” IKEDA, [0006], Figs. 1, 5 (shows electrode positioning).

【図1】


IKEDA Fig. 1: Illustrates electrode positioning along different axial locations of the pen.
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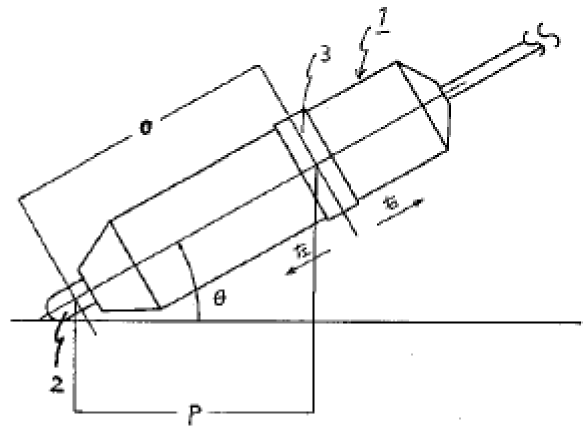
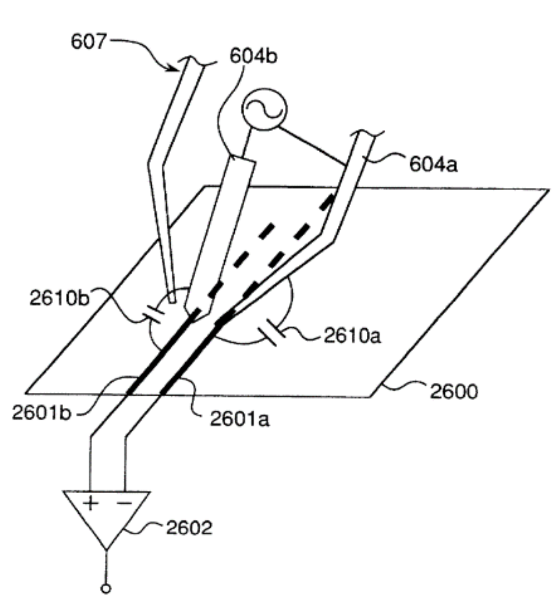
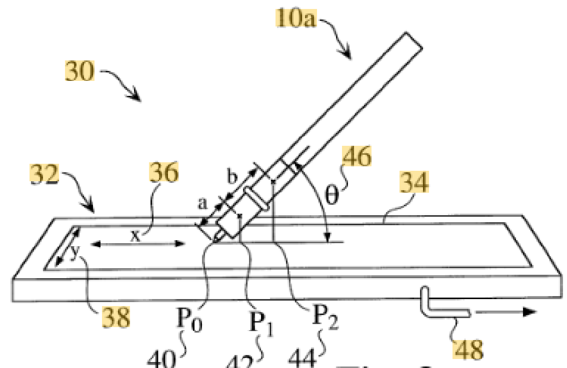
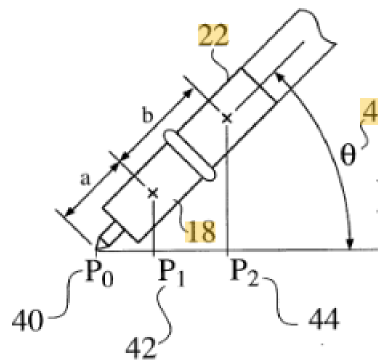
	【図5】  IKEDA Fig. 5: Depicts detection of pen inclination and tilt angle, reinforcing that the electrodes are arranged along the axis of the pen. Further, IKEDA discloses that coordinate detection is performed using these two spatially separated detection units: “Fig. 1 is a configuration diagram of the coordinate detection pen of this invention, where an axis-shaped detection unit 2 is positioned at the tip of the coordinate detection pen 1 to read the coordinates of the indicated point, and a ring-shaped detection unit 3 for indicating the angle is positioned on the body of the coordinate detection pen.” IKEDA, [0008], Fig. 5. Additionally, IKEDA discloses how the system processes signals separately from the two detection units, confirming their distinct locations: “Using the coordinate data from the two detection units 2 and 3 stored in the regions of RAM 8, the dimensional control program converts the dimensions between the detection unit for coordinate detection and the detection unit for angle detection, storing the angle dimension P where the coordinate detection pen 1 is located in RAM 8 of the coordinate input device.” IKEDA, [0013], Fig. 5.

	A POSITA would have recognized that placing capacitive electrodes at different positions along the pen axis was a well-known technique for improving detection fidelity. Given that YOSHIDA already provides a system where electrodes are positioned at separate locations along the pen, incorporating IKEDA's explicit teaching of spatially separated electrodes would have been a routine design choice to enhance detection capabilities.

Claim 18	**Disclosure**
The method according to claim 14, wherein the angle information is a tilt angle of the pen-shaped position indicator relative to the sensor surface.	*See supra* regarding Claim 14. YOSHIDA discloses a capacitive stylus system where multiple electrodes interact with a sensor surface to generate detection signals. YOSHIDA, Fig. 26, 27:13-25. Fig.26 

	One of ordinary skill could modify YOSHIDA in view of WARD to meet this limitation, as shown below. WARD discloses a multi-output pen positioning system that accounts for angular displacement. Specifically, WARD explains how the geometric relationship between multiple detection points allows the system to determine the pen's tilt angle relative to a tablet surface: “The geometric relationship between the output elements and the pointing tip of the pen allows the location of the pointing tip to be determined, independent of the angle which the pen is inclined against the surface of the writing tablet.” WARD, 2:4-8. Additionally, WARD discloses how angular displacement (tilt) is measured using spatially separated output elements that track inclination relative to a writing surface. Figures 3 and 4 depict a dual-output element pen positioned at an inclined angle 46 with respect to an electronic tablet 32, reinforcing how the pen’s orientation is factored into positional calculations. Specifically, WARD discloses, “An improved pen positioning system is provided, in which a pen, having multiple output elements, is adapted to determine the location of the pointing tip of the pen accurately, in relation to an electronic tablet” (WARD, 1:65-2:1) and “FIG. 3 is a perspective view of the positioning pen system (30), in which a dual output element pen (10a) is shown at an inclined angle (46) in relation to an electronic tablet (32), indicated as θ.” WARD, 3:1-4.

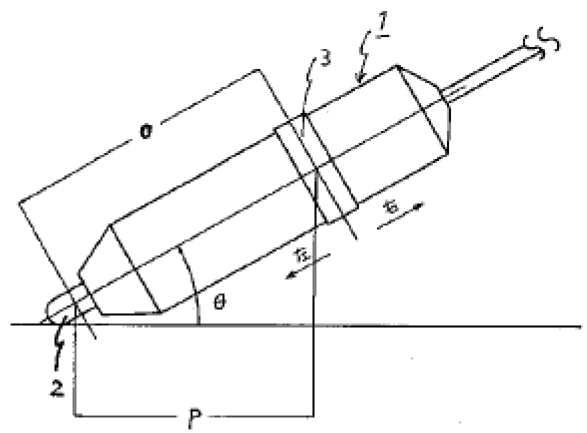
	 Fig. 3  Fig. 4 A POSITA would have recognized that detecting tilt angle using capacitive input devices was a well-known and predictable design choice. YOSHIDA discloses a capacitive stylus system where multiple electrodes interact with a sensor surface to generate detection signals, while WARD explicitly teaches a system where spatially separated output elements determine the inclination of a pen relative to a writing surface. WARD, Fig. 3, Fig. 4. Given that YOSHIDA's capacitive stylus system already generates positionally variant capacitive signals, incorporating

WARD's methodology of tracking angular displacement using multiple output elements would have been an obvious and expected improvement to enhance tilt detection. The combination of these references aligns with established engineering principles in input devices, where the use of spatially distinct detection points to refine angular measurement was routine and well-understood in the field.

Alternatively, one of ordinary skill could modify YOSHIDA in view of IKEDA and WARD to meet this limitation, as shown below.

IKEDA discloses detecting the tilt angle of the pen-shaped position indicator relative to the sensor surface: "[A] coordinate detection electrode (first detection unit) is positioned at the tip of the coordinate detection pen, and a ring-shaped coordinate detection electrode (second detection unit) for angle reading is placed on the body of the coordinate detection pen." IKEDA, [0006], Fig. 5 (illustrating tilt angle detection).

【図5】

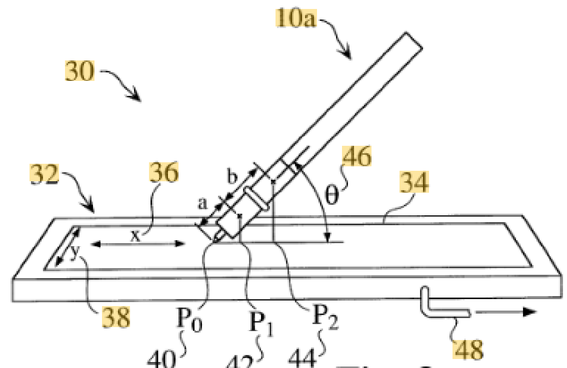
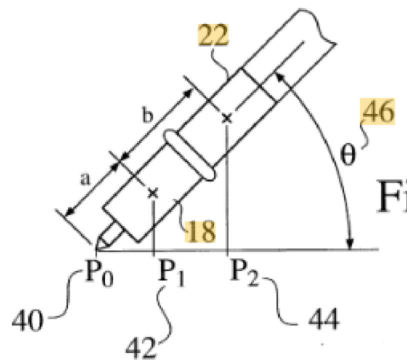


IKEDA Fig. 5 - Illustrates pen inclination detection, showing the tilt angle measurement process.

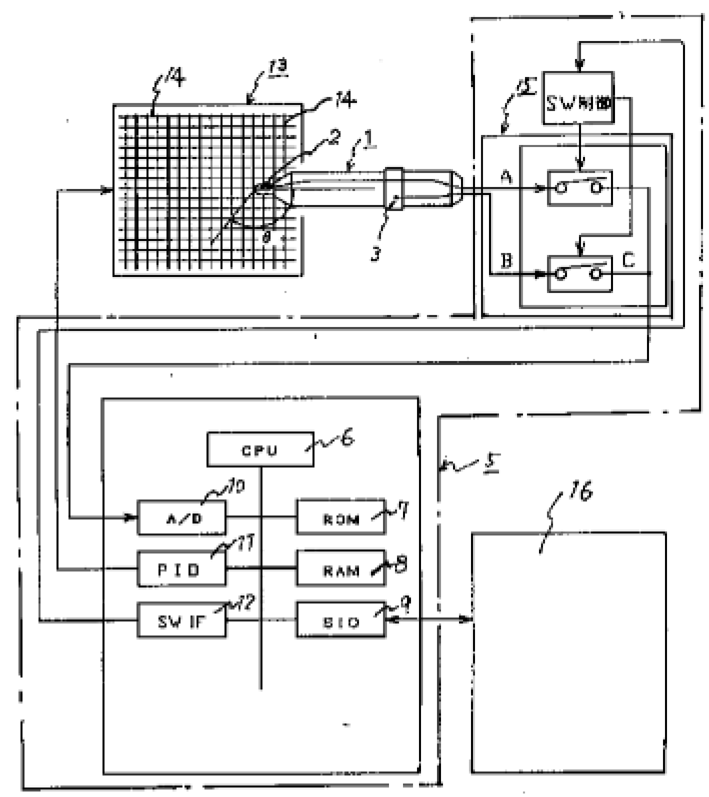
	Additionally, IKEDA discloses how these two capacitive relationships allow for tilt measurement: "Using the coordinate data from the two detection units 2 and 3 stored in the regions of RAM 8, the dimensional control program converts the dimensions between the detection unit for coordinate detection and the detection unit for angle detection, storing the angle dimension P where the coordinate detection pen 1 is located in RAM 8 of the coordinate input device." IKEDA, [0013], Fig. 5. Further, IKEDA discloses that the system detects the inclination (tilt) angle relative to the sensor surface: 'By detecting each coordinate using the detection unit 2 for coordinate detection and the detection unit 3 for angle detection of the coordinate detection pen 1, control over the angle of the coordinate detection pen 1 can be achieved . . . ." IKEDA, [0015], Fig. 5. A POSITA would have found it obvious to combine YOSHIDA's capacitive stylus system, IKEDA's explicit capacitive-based tilt detection, and WARD's spatially separated multi-output tracking approach to enhance angular measurement. YOSHIDA provides the foundational capacitive input system, IKEDA introduces dedicated capacitive electrodes configured for inclination detection, and WARD discloses a structured multi-output element system that determines tilt angle based on geometric relationships. WARD, 2:4-8; Fig. 3, Fig. 4. Given that accurate tilt detection was a known challenge in stylus-based input systems, a POSITA would have understood that integrating WARD's spatially separated detection elements into YOSHIDA and IKEDA's capacitive framework would improve angular measurement precision in a logical and predictable manner. The combination of these references reflects a well-known engineering principle of improving input accuracy through multi-point detection, making the claimed limitation an expected and routine enhancement.

Claim 21	**Disclosure**
The method according to claim 14, wherein the first and second signals are of the same	*See supra* regarding Claim 14; *see also* Claim 8.

type but have a time difference from each other.	YOSHIDA discloses a capacitive stylus system where multiple electrodes interact with a sensor surface to generate distinct signals. Specifically, YOSHIDA discloses how electrodes 604a and 604b interact with capacitive elements on a sensor panel to generate detection signals: "A signal which is generated by an electric field from the electrodes of the coordinate pointing device at the electrodes of the panel coupled through an electrostatic capacitive coupling with the coordinate pointing device is detected." YOSHIDA, 14:62-67. One of ordinary skill could modify YOSHIDA in view of WARD to meet this limitation, as shown below. WARD provides further support by disclosing a multi-output element pen system where signals from different output elements exhibit a measurable time difference. Specifically, WARD describes a dual-output pen system in which spatially separated output elements transmit signals that are processed independently, introducing an inherent time difference in their reception: "The geometric relationship between the output elements and the pointing tip of the pen allows the location of the pointing tip to be determined, independent of the angle which the pen is inclined against the surface of the writing tablet." WARD, 2:4-8. Figures 3 and 4 of WARD illustrate how the two output elements (18, 22) on the pen generate separate signals that are detected at different times, depending on the pen's orientation and spatial positioning. This supports the concept that signals of the same type (e.g., ultrasonic or capacitive signals) can exhibit a time difference due to their transmission and reception at different locations relative to the sensor surface.

	 Fig. 3  Fig. 4 WARD discloses, "FIG. 3 is a perspective view of the positioning pen system (30), in which a dual output element pen (10a) is shown at an inclined angle (46) in relation to an electronic tablet (32), indicated as θ." WARD, 3:1-4. WARD further explains, "A first output element 18 is located on the pen 10, and has a first point source 20 for a first output signal. A second output element 22 is located on

	the pen 10, and has a second point source 24 for a second output signal." WARD, 2:48-52. A POSITA would have recognized that capacitive stylus systems commonly generate signals that vary in phase and timing due to differences in capacitive coupling strength across the stylus body. YOSHIDA discloses a system in which multiple electrodes interact with a sensor surface to generate distinct capacitive signals, while WARD explicitly teaches a dual-output element system where spatially separated elements transmit independent signals with a measurable time difference. WARD, 2:4-8, Figs. 3, 4. Given that capacitive and other stylus-based input systems frequently rely on signal timing differences to determine position and angular displacement, a POSITA would have found it obvious to apply WARD's method of tracking signal timing differences between detection points to YOSHIDA's capacitive stylus framework. This integration would have been a predictable design choice to improve tilt detection accuracy by leveraging the well-known principle of using signal timing offsets for spatial resolution. Alternatively, one of ordinary skill could modify YOSHIDA in view of IKEDA and WARD to meet this limitation, as shown below. IKEDA reinforces this concept by describing a coordinate detection pen that utilizes multiple capacitive detection units to measure angular displacement and positional changes. Specifically, IKEDA states: "[A] coordinate detection electrode (first detection unit) is positioned at the tip of the coordinate detection pen, and a ring-shaped coordinate detection electrode (second detection unit) for angle reading is placed on the body of the coordinate detection pen." IKEDA, [0006], Fig. 3.

	【図3】  IKEDA, Fig. 3. Additionally, IKEDA discloses that these two capacitive detection units work together to determine tilt and positional changes: "The coordinate detection is performed using the two detection units 2 and 3, and the coordinate data detected via electrostatic capacitance coupling with the tablet's electrodes, as described

	later, is applied to the main body 5 of the coordinate input device through a cable 4 connected to the coordinate detection pen 1.” IKEDA, [0008], Fig. 3. Further, IKEDA discloses how these signals are processed to measure angular displacement: “Using the coordinate data from the two detection units 2 and 3 stored in the regions of RAM 8, the dimensional control program converts the dimensions between the detection unit for coordinate detection and the detection unit for angle detection, storing the angle dimension P where the coordinate detection pen 1 is located in RAM 8 of the coordinate input device.” IKEDA, [0013], Fig. 3. IKEDA discloses a system where two separate capacitive detection electrodes generate distinct signals, which vary based on position and tilt. A POSITA would have found it obvious to combine YOSHIDA’s capacitive stylus system, IKEDA’s explicit capacitive-based tilt detection, and WARD’s dual-output signal differentiation method to improve angular tracking and position detection. YOSHIDA provides a capacitive stylus system generating distinct signals, IKEDA describes a system where multiple capacitive detection units produce independent signals that vary based on position and tilt, and WARD explicitly teaches a method of utilizing spatially separated detection points to generate signals with a measurable time delay. WARD, 2:4-8; 2:48-52; Figs. 3, 4. Given that capacitive stylus technology frequently relies on signal phase and timing differentiation to refine position and angular detection, a POSITA would have understood that integrating WARD’s independent signal timing approach into the YOSHIDA-IKEDA framework would have been a routine and predictable improvement. The combination of these references follows well-established engineering principles for enhancing signal differentiation in input devices, making this limitation an expected optimization.