

EXHIBIT C-1

Yeh alone and in view of Partow and/or Kremin

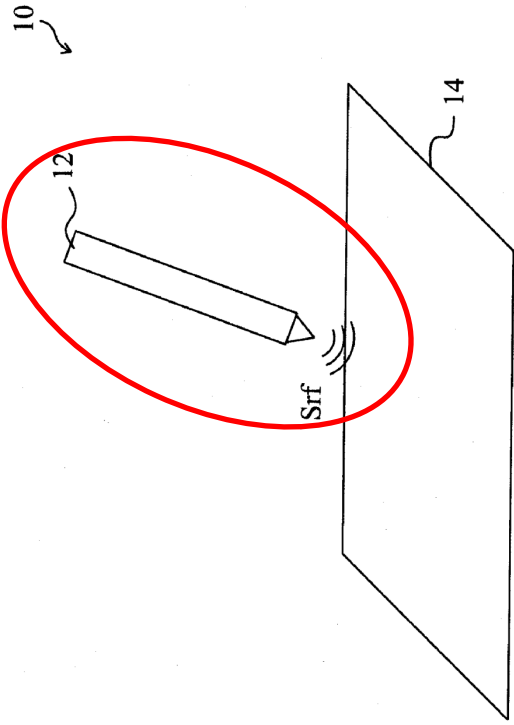
U.S. Patent No. 9,933,866

Upon information and belief, U.S. Patent Publication No. 20100170726 to Yeh et al. (“Yeh”) (published July 8, 2010) either expressly, implicitly, or inherently anticipates the asserted claims of U.S. Patent No. 9,933,866 (“’866 Patent”) under 35 U.S.C. § 102 and/or renders those claims obvious under 35 U.S.C. § 103 alternatively in view of U.S. Patent No. 6,377,248 to Partow et al. (“Partow”) (issued April 23, 2002) and/or U.S. Patent Publication No. 20120105362 to Kremin et al. (“Kremin”) (published May 3, 2012) as set forth in the chart below.

A person of ordinary skill in the art would have been motivated to modify the technology of Yeh based on Partow for the obvious benefit of more easily producing a boosted voltage. See Partow, 2:62-64.

A person of ordinary skill in the art would have been motivated to modify the technology of Yeh based on Kremin for the obvious benefit of faster and more robust detection of the stylus. See Kremin, ¶ [0084].

The following contentions are subject to revision and amendment pursuant to Federal Rule of Civil Procedure 26(e) and the Court Orders in this matter subject to further investigation and discovery regarding the references.

Example Disclosures in Prior Art	
Claim 1	
1[pre] A stylus comprising:	To the extent the preamble is limiting, Yeh discloses an apparatus 10 comprising an electronic stylus 12 and a capacitive touchpad module 14. Yeh, ¶ [0043].  FIG. 1 of Yeh

Claim 1

1[a] one or more electrodes;

The stylus 12 of Yeh includes a tip 30 to emit an excitation signal Srf. Yeh, ¶ [0045]. The tip may be a metal, a flexible conductor, or a metal wrapped by a nonconductor. *Id.* A person of ordinary skill would appreciate that the tip 30 is or comprises an electrode.

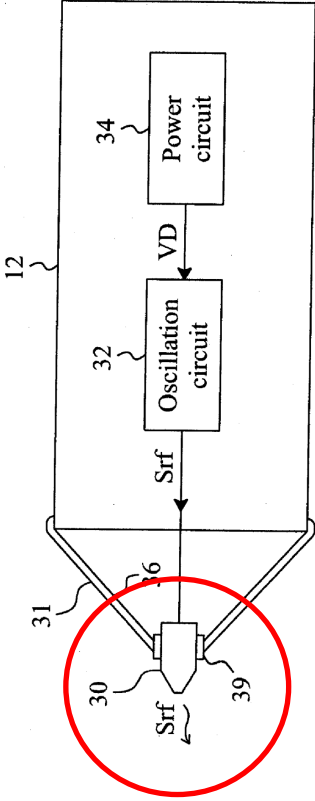


FIG. 4 of Yeh

The stylus 12 of Yeh provides the excitation signal Srf having a frequency equal to an integral multiple of a charging/discharging frequency used to charge/discharge a trace by the capacitive touchpad module 14. Yeh, ¶ [0043]. A person of ordinary skill would appreciate that the excitation signal Srf can be transmitted using logic of one or more computer-readable non-transitory storage media (e.g., memory), and further that the excitation signal is transmitted wirelessly (i.e., without a wired connection) to the capacitive touchpad module 14.

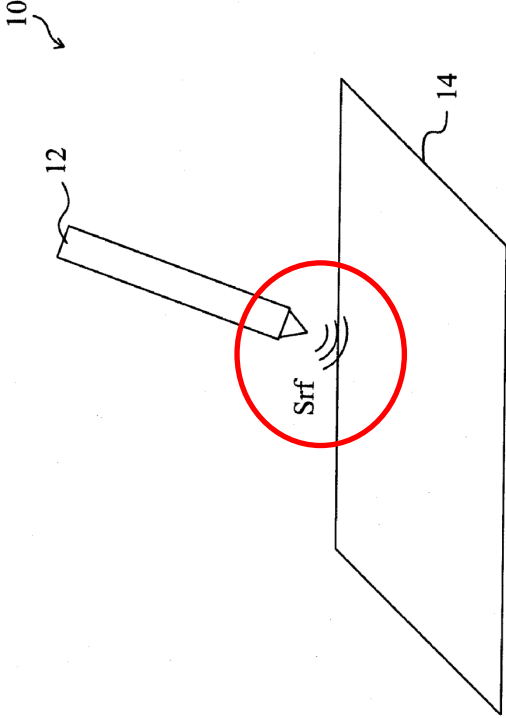


FIG. 1 of Yeh

1[b] one or more computer-readable non-transitory storage media embodying logic for transmitting signals wirelessly to a device through a touch sensor of the device, at least some of the signals comprising high-voltage signals associated with a high voltage comprising a relatively large potential difference compared to a voltage within a voltage range of approximately 1 to approximately 3 volts;

Claim 1

Example Disclosures in Prior Art

Defendant contends that the terms “high voltage” and “relatively large potential difference” are indefinite and this claim is therefore invalid. To the extent these terms are not indefinite, Yeh discloses a “high-voltage signal” that has a “relatively large potential difference” from the range of 1-3 volts. The stylus 12 of Yeh includes a boost circuit 3204 coupled to a battery 3402 by a switch SW, such that a supply voltage VD is provided to a boost circuit to generate a boosted voltage Vboost, which is used to drive a quartz oscillator 3202 to generate the excitation signal Srf. Yeh, ¶ [0046]. Accordingly, the excitation signal Srf of Yeh is a “high-voltage signal” associated with a “high voltage” (i.e., Vboost). The voltage Vboost is a high voltage relative to the supply voltage VD.

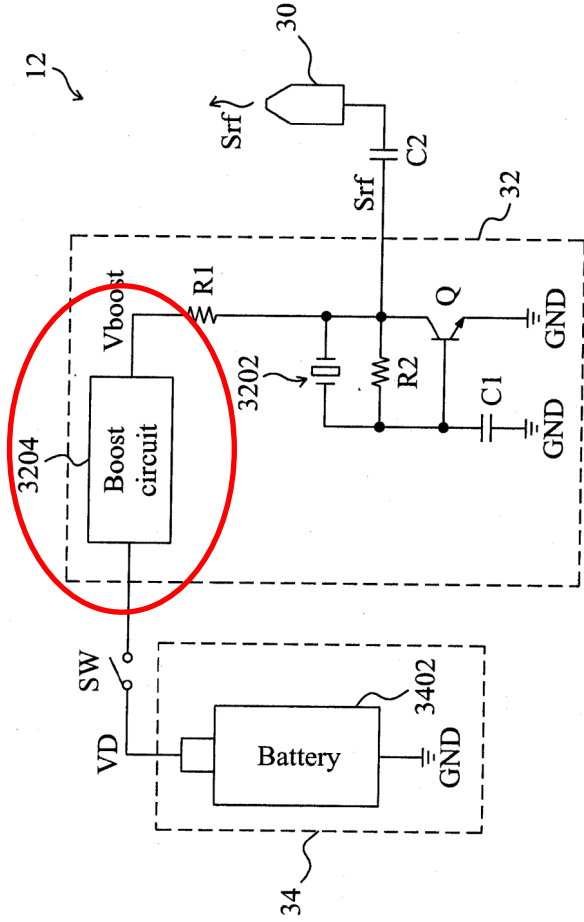
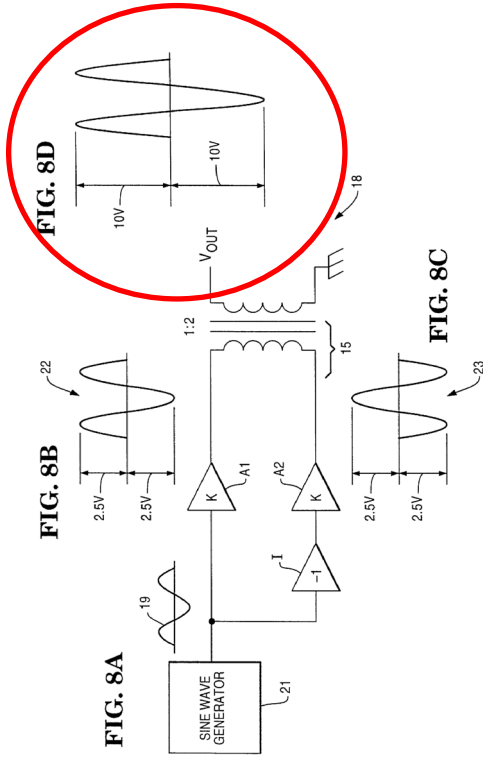


FIG. 5 of Yeh

To the extent Plaintiff contends that Yeh does not expressly, implicitly, or inherently disclose limitation 1[b], a person of ordinary skill would understand how to modify Yeh to meet this limitation based on such person’s knowledge and Yeh. Alternatively, a person of ordinary skill could modify Yeh in view of Partow to meet this limitation.

Partow discloses “an improved stylus for a portable digitizing pad, which produces a large position signal.” Partow, 1:65-67. The technology of Partow uses a transformer to output a signal that is “about 20 volts, peak-to-peak.” Partow, 2:51-62. While the term “high-voltage” is indefinite, the ’866 Patent specifically states that a voltage in the range of 10-20V would be “high-voltage.” See ’866 Patent at 11:51-54 & claim 3. Further, Partow specifically discloses an embodiment with “a power supply voltage of 3.0 volts” that is fed into a transformer, and the “output of the transformer is 60 volts, zero-to-peak, or 120 volts, peak-to-peak,” Partow at 3:37-46, well in excess of the “high voltage” range discussed on the ’866 Patent.

Accordingly, Partow also discloses “high-voltage signals associated with a high voltage comprising a relatively large potential difference compared to a voltage within a voltage range of approximately 1 to approximately 3 volts” because the output of the technology of Partow (as shown in FIG. 8D) is a high voltage signal, as claimed.



FIGS. 8A-8D of Partow

It would have been obvious to a person of ordinary skill in the art to modify the stylus of Yeh to implement the particular way of producing a high-voltage signal disclosed in Partow, and a person of ordinary skill in the art would have been motivated to so modify the stylus of Yeh for the obvious benefit of more easily producing a boosted voltage. See Partow, 2:62-64. In addition, Partow specifically discloses that the ranges of power can and should be modified as the circumstances require. It contains an entire section titled “Important Considerations” that discusses several examples with different voltage levels. See *Partow* at 1:35-4, cols. 3-6.

To the extent Plaintiff contends that Yeh and Partow do not expressly, implicitly, or inherently disclose limitation 1[b], a person of ordinary skill would understand how to modify Yeh to meet this limitation based on such person’s knowledge and Yeh.

Alternatively, a person of ordinary skill could modify Yeh in view of Kremin to meet this limitation. Kremin discloses that disclosed embodiments of the systems and methods can be implemented using instructions stored on a computer-readable medium. Kremin, ¶ [0140]. Additionally, Kremin discloses a booster 870 to boost a battery voltage (e.g., of 1.5 volts) to allow a tip driver 890 to amplify a TX signal 835 of a host device 805 to a higher voltage (e.g., 10 to 20 volts). Kremin, ¶ [0084]. The high-voltage signal of Kremin allows the stylus to be detected while “hovering” (i.e., without a wired connection and therefore “wirelessly”). *Id.*

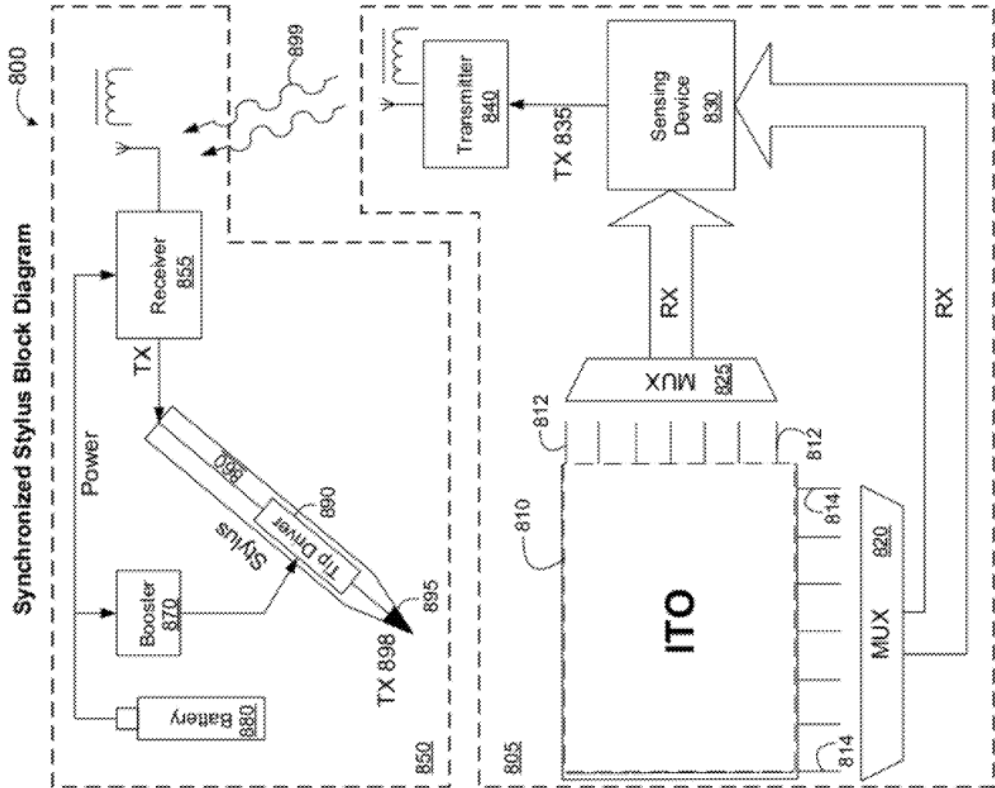


Fig. 8

FIG. 8 of Kremin

A person of ordinary skill in the art would have been motivated to modify the technology of Yeh based on Kremin for the obvious benefit of faster and more robust detection of the stylus. See Kremin, ¶ [0084].

Claim 1

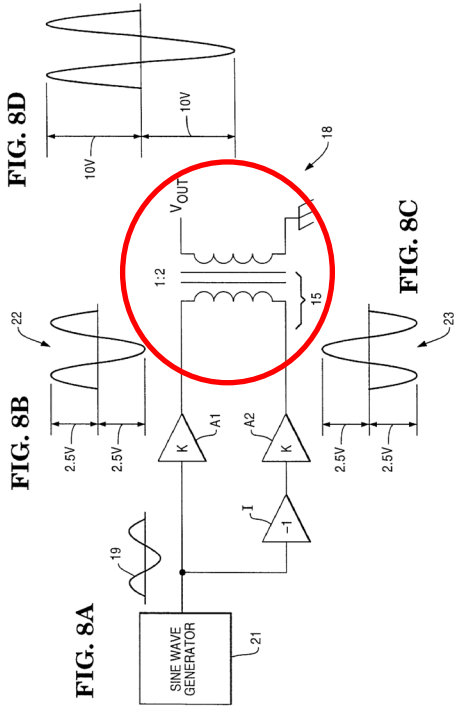
1[c] a component operable to convert the voltage of approximately 1 to 3 volts to the high voltage; and

Example Disclosures in Prior Art

As discussed above, the stylus 12 of Yeh includes a boost circuit 3204 by a switch SW, such that a boosted voltage Vboost is generated to drive a quartz oscillator 3202 to generate the excitation signal Srf. Yeh, ¶ [0046]. The boost circuit of Yeh is a component operable to convert the voltage to the high voltage.

To the extent Plaintiff contends that Yeh does not expressly, implicitly, or inherently disclose limitation 1[c], a person of ordinary skill would understand how to modify Yeh to meet this limitation based on such person’s knowledge and Yeh. Alternatively, a person of ordinary skill could modify Yeh in view of Partow to meet this limitation.

As discussed above, the technology of Partow produces “a large position signal” (i.e., a high-voltage signal). Partow, 1:65-67. The technology includes a transformer 18 that receives sine waves that are 5 volts peak-to-peak (or 2.5 volts zero-to-peak) and outputs a signal that is 20 volts peak-to-peak (or 10 volts zero-to-peak). Partow, 2:53-62 & 6:20-22.¹

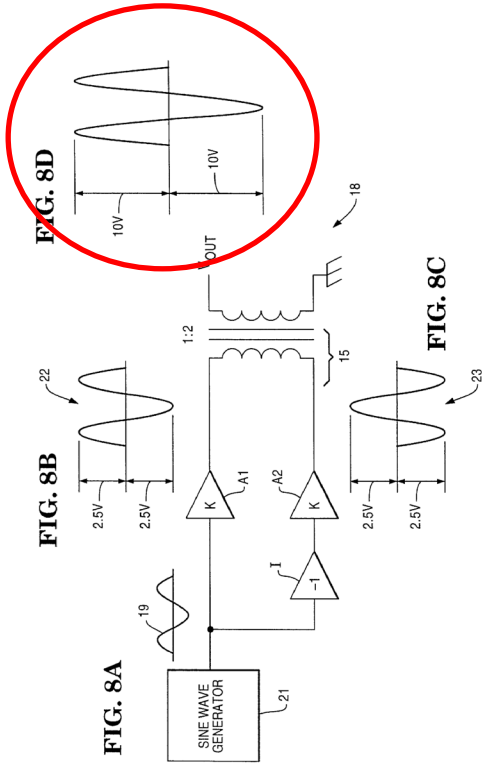


FIGs. 8A-8D of Partow

Further, Partow specifically discloses an embodiment with “a power supply voltage of 3.0 volts” that is fed into a transformer, and the “output of the transformer is 60 volts, zero-to-peak, or 120 volts, peak-to-peak,” Partow at 3:37-46, well in excess of the “high voltage” range discussed on the ’866 Patent. In addition, Partnow specifically discloses that the ranges of power can and should be modified as the circumstances require. It contains an entire section titled “Important Considerations” that discusses several examples with different voltage levels. See *Partow* at 1:35-4, cols. 3-6.

Alternatively, a person of ordinary skill could modify Yeh in view of Kremin to meet this limitation. Kremin discloses a booster 870 to boost a battery voltage (e.g., of 1.5 volts) to allow a tip driver 890 to amplify a TX signal 835 of a host device 805 to a higher voltage (e.g., 10 to 20 volts). Kremin, ¶ [0084].

Alternatively, a person of ordinary skill could modify Yeh in view of Partow to meet this limitation. As discussed above, the technology of Partow produces “a large position signal” (i.e., a high-voltage signal). Partow, 1:65-67. In a disclosed embodiment, the technology includes a transformer 18 that receives sine waves that are 5 volts peak-to-peak (or 2.5 volts zero-to-peak) and outputs a signal that is 20 volts peak-to-peak (or 10 volts zero-to-peak). Partow, 2:53-62 & 6:20-22. Accordingly, the voltage of the signal produced by the technology of Partow is within the voltage range of approximately 10 to approximately 20 volts, whether measured from peak-to-peak or from zero-to-peak.



FIGS. 8A-8D of Partow

It would have been obvious to a person of ordinary skill in the art to modify the stylus of Yeh to implement the particular way of producing a high-voltage signal disclosed in Partow, and a person of ordinary skill in the art would have been motivated to so modify the stylus of Yeh for the obvious benefit of more easily producing a boosted voltage. See Partow, 2:62-64. In addition, Partow specifically discloses that the ranges of power can and should be modified as the circumstances require. It contains an entire section titled “Important Considerations” that discusses several examples with different voltage levels. See Partow at 1:35-4, cols. 3-6.

To the extent Plaintiff contends that Yeh and Partow do not expressly, implicitly, or inherently disclose claim 3, a person of ordinary skill would understand how to modify Yeh to meet this limitation based on such person’s knowledge and Yeh.

Alternatively, a person of ordinary skill could modify Yeh in view of Kremin to meet this limitation. Kremin discloses a booster 870 to boost a battery voltage (e.g., of 1.5 volts) to allow a tip driver 890 to amplify a TX signal 835 of a host device 805 to a higher voltage (e.g., 10 to 20 volts). Kremin, ¶ [0084]. The high-voltage signal of Kremin allows the stylus to be detected while “hovering” (i.e., without a wired connection and therefore “wirelessly”). *Id.*

Claim 4 4. The stylus of claim 1, wherein the high-voltage signals identify a location of the stylus relative to the touch sensor of the device.	Example Disclosures in Prior Art Yeh discloses that that the excitation signal Srf (i.e., the high-voltage signal) is emitted to change the charging/discharging waveform in a trace of the capacitive touchpad module 14 to obtain an effect similar to the touch of a finger, so that the touchpad module 14 may “sense the touch point according to the variation of the charging/discharging waveform of the trace.” Yeh, ¶ [0043]. Accordingly, Yeh discloses that the high-voltage signals identify a location of the stylus relative to the touch sensor of the device.
Claim 5 5. The stylus of claim 1, wherein, when the stylus is in contact with or in the proximity of the touch sensor of the device, the high-voltage signals are used to simulate or distinguish: contact by an object other than the stylus with the device; or a presence of the object near the touch sensor of the device.	Example Disclosures in Prior Art As discussed above, the excitation signal Srf of Yeh (i.e., the high-voltage signal) is emitted to change the charging/discharging waveform in a trace of the capacitive touchpad module 14 to obtain an effect similar to the touch of a finger, so that the touchpad module 14 may “sense the touch point according to the variation of the charging/discharging waveform of the trace.” Yeh, ¶ [0043]. Accordingly, when the stylus is in contact with and/or in proximity of the device, the high-voltage signals simulate contact by an object and/or presence of the object (i.e., a user’s finger). Additionally, Yeh further describes implementations in which the high-voltage signals are used to <i>distinguish</i> contact by an object and/or presence of the object (i.e., a user’s finger). Yeh describes aligning a rising edge of the excitation signal 146 to an increasing ramp of a waveform 142 (i.e., representing a condition wherein no object is touching the capacitive touchpad module), and aligning a falling edge of the excitation signal 146 to a decreasing ramp of the waveform 142, such that the capacitive touchpad module can “identify whether a touching object is a finger or an electronic stylus...” Yeh, ¶ [0058]. Accordingly, when the stylus is in contact with and/or in proximity of the touch sensor of the device, the high-voltage signals are used to distinguish contact by an object and/or present of the object (i.e., a user’s finger).

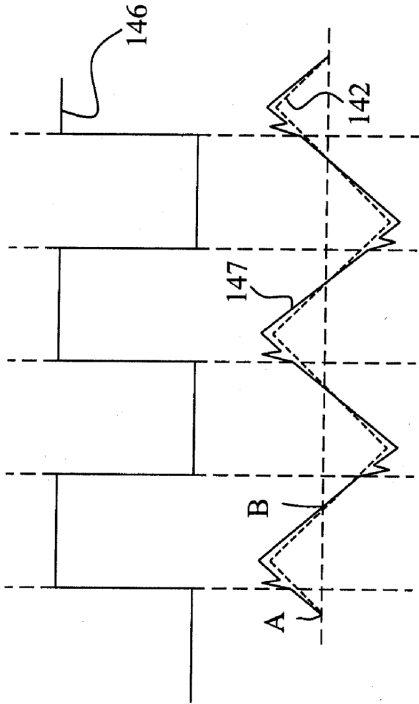


FIG. 16c of Yeh

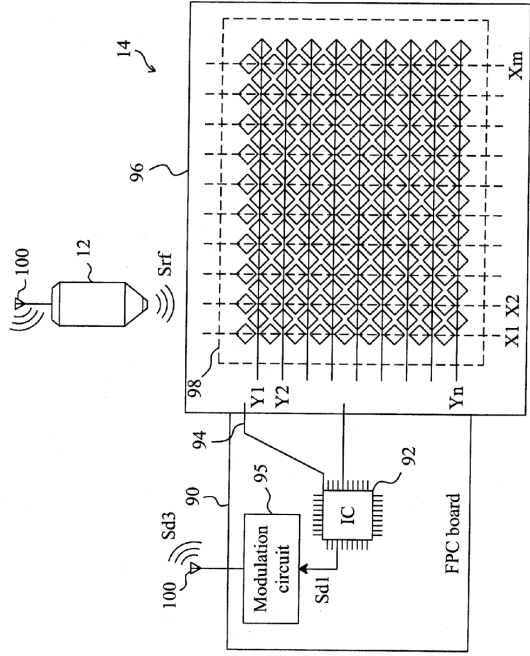


FIG. 12 of Yeh

To the extent Plaintiff contends that Yeh and Partow do not expressly, implicitly, or inherently disclose limitation claim 7, a person of ordinary skill would understand how to modify Yeh to meet this limitation based on such person’s knowledge and Yeh.

Alternatively, a person of ordinary skill could modify Yeh in view of Kremin to meet this limitation. For example, FIG. 8 illustrates that the sensing device 830 of the host device 805 generates the transmit signal 835, which is sent to the stylus receiver 855 and is amplified to a higher voltage signal 890 by the tip driver 890 via the voltage booster 870. Kremin ¶¶ [0082]-[0085]. The high voltage signal is then capacitively coupled with the sensing device through the tip 895. *Id.* ¶ [0085]. The TX signal 835 may be the same signal as the TX signal generated and applied to the ITO 810 on the TX lines 812 (or 814) during finger position tracking. Kremin, ¶ [0083].

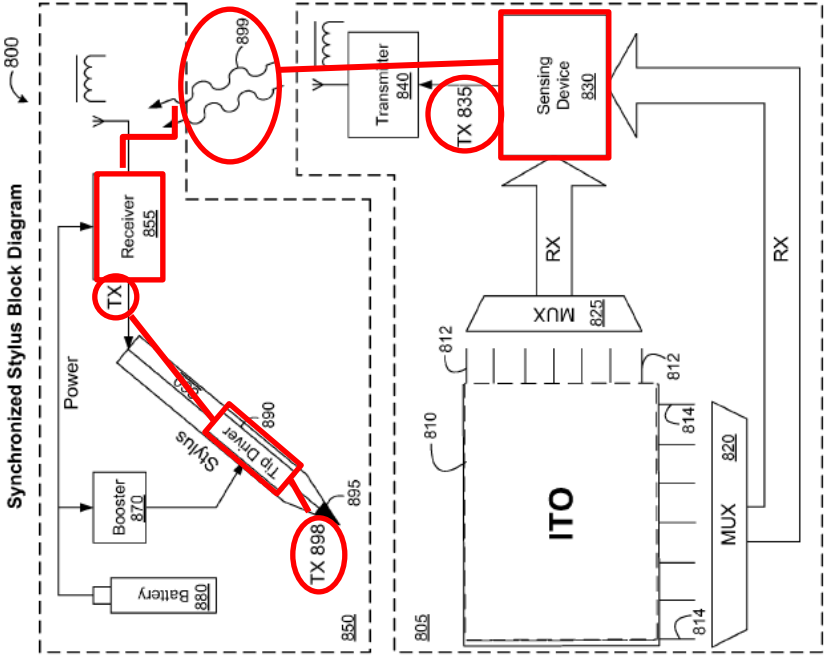


FIG. 8 of Kremin

Claim 15 15[pre] One or more non-transitory computer-readable storage media embodying logic that is operable when executed to:	Example Disclosures in Prior Art To the extent the preamble is limiting, the stylus 12 of Yeh provides the excitation signal Srf having a frequency equal to an integral multiple of a charging/discharging frequency used to charge/discharge a trace by the capacitive touchpad module 14. Yeh, ¶ [0043]. A person of ordinary skill would appreciate that the excitation signal Srf can be transmitted using logic of one or more computer-readable non-transitory storage media (e.g., memory). To the extent Plaintiff contends that Yeh does not expressly, implicitly, or inherently disclose limitation 15[pre], a person of ordinary skill would understand how to modify Yeh to meet this limitation based on such person’s knowledge and Yeh. Alternatively, a person of ordinary skill could modify Yeh in view of Kremin to meet this limitation. For example, Kremin discloses that disclosed embodiments of the systems and methods can be implemented using instructions stored on a computer-readable medium. Kremin, ¶ [0140]. A person of ordinary skill in the art would have been motivated to modify the technology of Yeh based on Kremin for the obvious benefit of faster and more robust detection of the stylus. <i>See</i> Kremin, ¶ [0084]. Defendant contends that the terms “high voltage” and “relatively large potential difference” are indefinite and this claim is therefore invalid. To the extent these terms are not indefinite, Yeh discloses a “high-voltage signal” that has a “relatively large potential difference” from the range of 1-3 volts. The stylus 12 of Yeh includes a boost circuit 3204 coupled to a battery 3402 by a switch SW, such that a supply voltage VD is provided to a boost circuit to generate a boosted voltage Vboost, which is used to drive a quartz oscillator 3202 to generate the excitation signal Srf. Yeh, ¶ [0046]. Accordingly, the excitation signal Srf of Yeh is a high-voltage signal associated with a high voltage (i.e., Vboost), and a person of ordinary skill in the art would appreciate that the excitation signal is an electromagnetic signal. The specific range of approximately 1 to approximately 3 volts is merely a design choice, and it would be well within the knowledge of a person of ordinary skill in the art to use a high-voltage signal, relative to this specific range.
15[a] transmit electromagnetic signals from a stylus to a device through a touch sensor of the device, at least some of the electromagnetic signals comprising high-voltage signals associated with a high voltage comprising a relatively large potential difference compared to a voltage within a voltage range of approximately 1 to approximately 3 volts, the stylus comprising:	

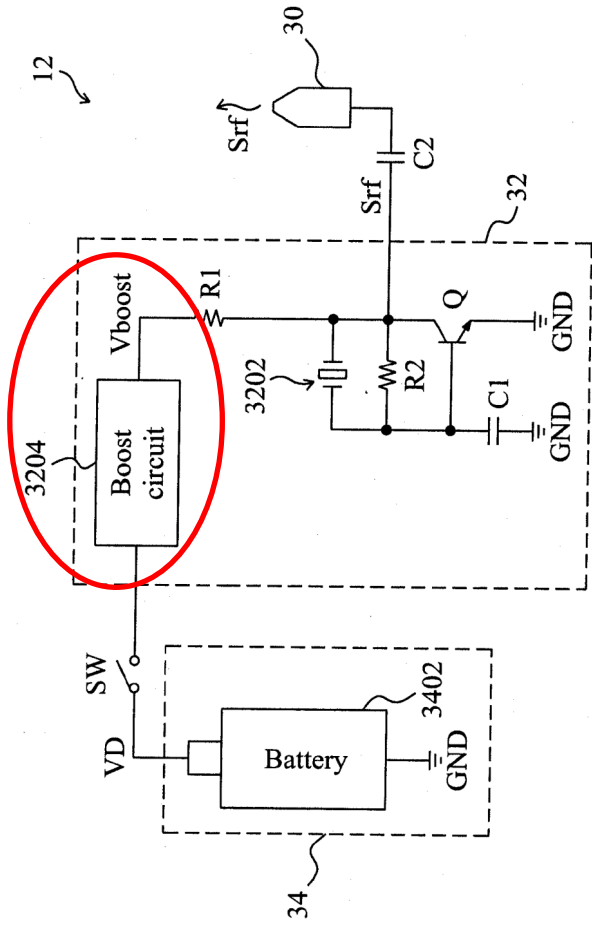
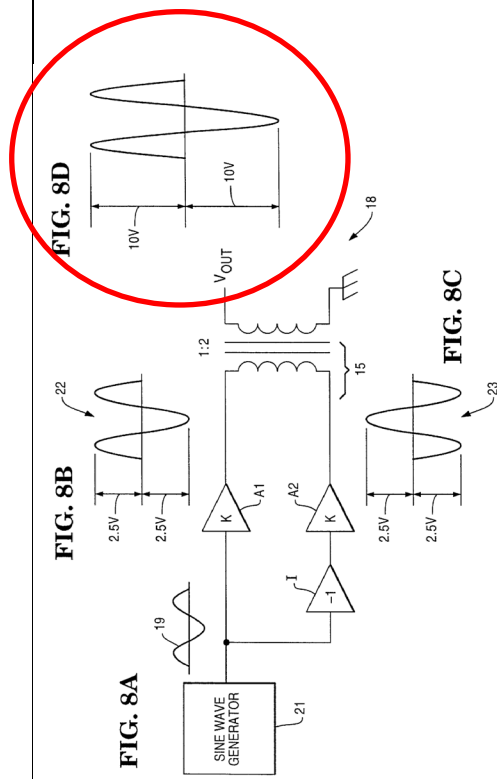


FIG. 5 of Yeh

To the extent Plaintiff contends that Yeh does not expressly, implicitly, or inherently disclose limitation 15[a], a person of ordinary skill would understand how to modify Yeh to meet this limitation based on such person’s knowledge and Yeh. Alternatively, a person of ordinary skill could modify Yeh in view of Partow to meet this limitation.

Partow discloses “an improved stylus for a portable digitizing pad, which produces a large position signal.” Partow, 1:65-67. Specifically, the technology of Partow uses a transformer to output a signal that is “about 20 volts, peak-to-peak.” Partow, 2:51-62. While the term “high-voltage” is indefinite, the ’866 Patent specifically states that a voltage in the range of 10-20V would be “high-voltage.” See ’866 Patent at 11:51-54 & claim 3. Further, Partow specifically discloses an embodiment with “a power supply voltage of 3.0 volts” that is fed into a transformer, and the “output of the transformer is 60 volts, zero-to-peak, or 120 volts, peak-to-peak,” Partow at 3:37-46, well in excess of the “high voltage” range discussed on the ’866 Patent. Accordingly, Partow also discloses “high-voltage signals associated with a high voltage comprising a relatively large potential difference compared to a voltage within a voltage range of approximately 1 to approximately 3 volts” because the output of the technology of Partow (as shown in FIG. 8D) is a high voltage signal, as claimed. Additionally, a person of ordinary skill in the art would appreciate that the signals output by the transformer are electromagnetic signals.



FIGs. 8A-8D of Partow

To the extent Plaintiff contends that Yeh does not expressly, implicitly, or inherently disclose limitation **15[a]**, a person of ordinary skill would understand how to modify Yeh to meet this limitation based on such person's knowledge and Yeh. Alternatively, a person of ordinary skill could modify Yeh in view of Kremin to meet this limitation.

Kremin discloses a booster 870 to boost a battery voltage (e.g., of 1.5 volts) to allow a tip driver 890 to amplify a TX signal 835 of a host device 805 to a higher voltage (e.g., 10 to 20 volts). Kremin, ¶ [0084].

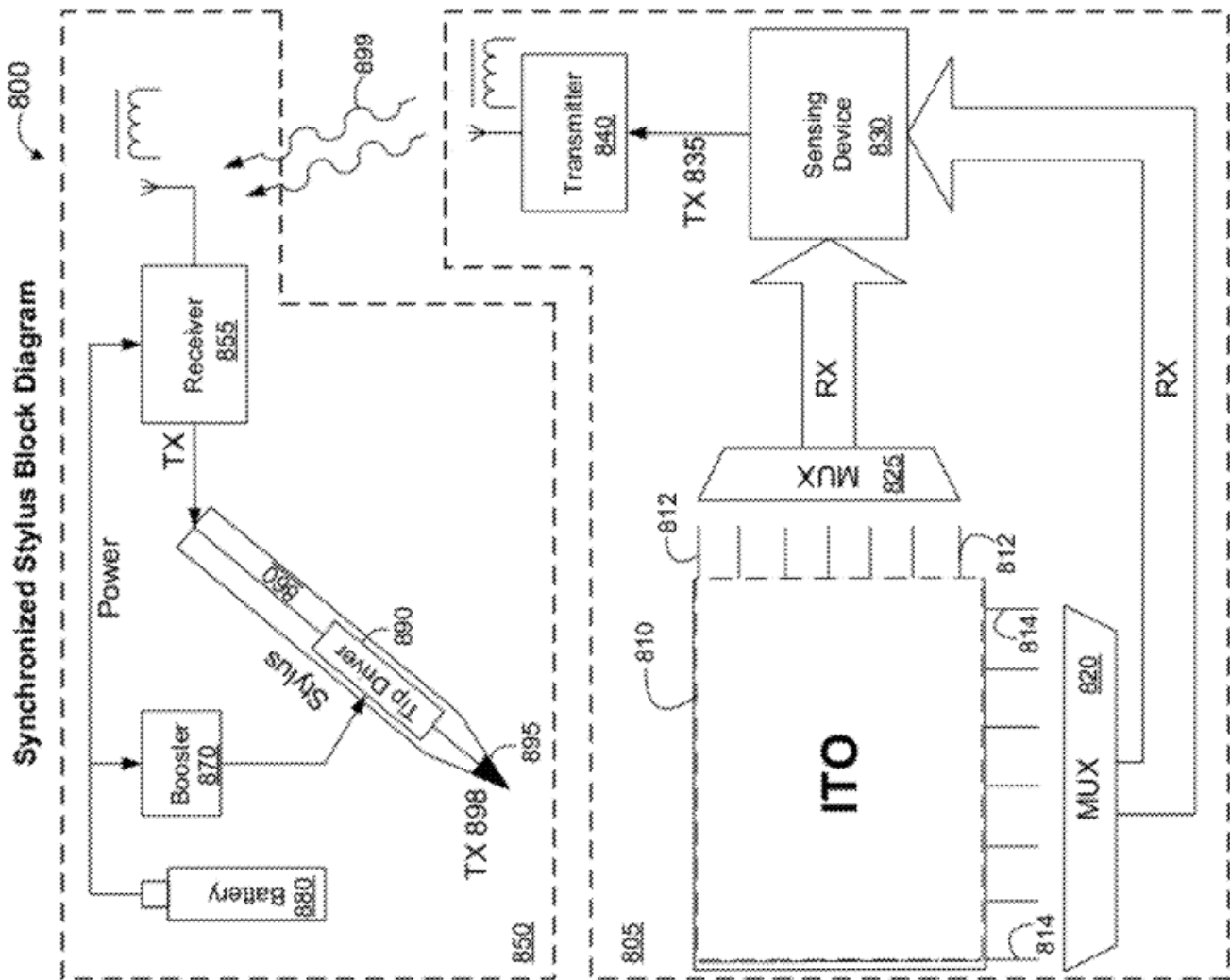


Fig. 8

FIG. 8 of Kremin

A person of ordinary skill in the art would have been motivated to modify the technology of Yeh based on Kremin for the obvious benefit of faster and more robust detection of the stylus. See Kremin, ¶ [0084].

15[a1] one or more electrodes for wirelessly transmitting the signals to the device;

The stylus 12 of Yeh includes a tip 30 to emit an excitation signal Srf. Yeh, ¶ [0045]. The tip may be a metal, a flexible conductor, or a metal wrapped by a nonconductor. *Id.* A person of ordinary skill in the art would appreciate that the tip 30 is or comprises an electrode for wirelessly transmitting signals from the stylus to a device.

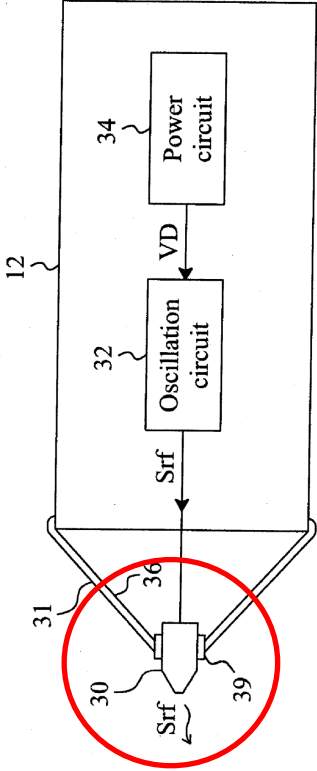


FIG. 4 of Yeh

To the extent Plaintiff contends that Yeh does not expressly, implicitly, or inherently disclose limitation 15[a1], a person of ordinary skill would understand how to modify Yeh to meet this limitation based on such person’s knowledge and Yeh. Alternatively, a person of ordinary skill could modify Yeh in view of Kremin to meet this limitation.

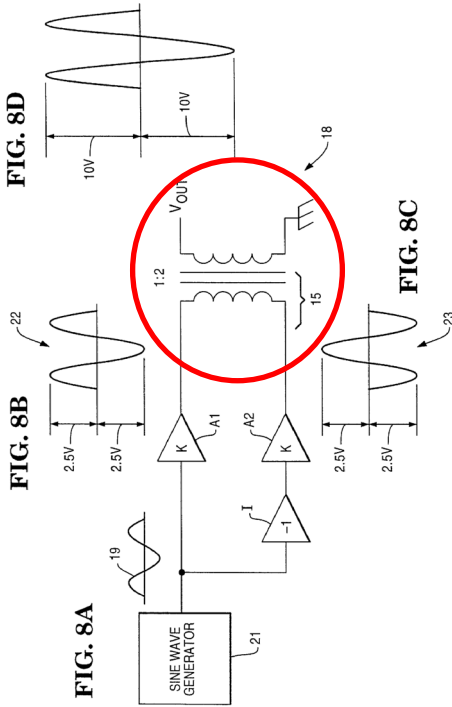
The high-voltage signal of Kremin allows the stylus to be detected while “hovering” (i.e., without a wired connection and thus wirelessly). Kremin, ¶ [0084].

15[a2] a component operable to convert the voltage of approximately 1 to 3 volts to the high voltage; and

As discussed above, the stylus 12 of Yeh includes a boost circuit 3204 (e.g., in FIG. 5) coupled to a battery 3402 by a switch SW, such that a boosted voltage Vboost is generated to drive a quartz oscillator 3202 to generate the excitation signal Srf. Yeh, ¶ [0046]. The boost circuit of Yeh is a component operable to convert the voltage to the high voltage.

To the extent Plaintiff contends that Yeh does not expressly, implicitly, or inherently disclose limitation **15[a2]**, a person of ordinary skill would understand how to modify Yeh to meet this limitation based on such person’s knowledge and Yeh. Alternatively, a person of ordinary skill could modify Yeh in view of Partow to meet this limitation.

The technology of Partow produces “a large position signal” (i.e., a high-voltage signal). Partow, 1:65-67. The technology includes a transformer 18 that receives sine waves that are 5 volts peak-to-peak (or 2.5 volts zero-to-peak) and outputs a signal that is 20 volts peak-to-peak (or 10 volts zero-to-peak). Partow, 2:53-62 & 6:20-22.²



FIGs. 8A-8D of Partow

Further, Partow specifically discloses an embodiment with “a power supply voltage of 3.0 volts” that is fed into a transformer, and the “output of the transformer is 60 volts, zero-to-peak, or 120 volts, peak-to-peak,” Partow at 3:37-46, well in excess of the “high voltage” range discussed on the ’866 Patent. In addition, Partnow specifically discloses that the ranges of power can and should be modified as the circumstances require. It contains an entire section titled “Important Considerations” that discusses several examples with different voltage levels. See *Partow* at 1:35-4, cols. 3-6.

To the extent Plaintiff contends that Yeh and Partow do not expressly, implicitly, or inherently disclose limitation **15[a2]**, a person of ordinary skill would understand how to modify Yeh to meet this limitation based on such person’s knowledge and Yeh. Alternatively, a person of ordinary skill could modify Yeh in view of Kremin to meet this limitation.

