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Paper 14
Entered: July 22, 2019

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE, INC.
Petitioner,

v.

UUSI, LLC d/b/a NARTRON
Patent Owner.

Case IPR2019-00355
Patent 5,796,183

Before BRYAN F. MOORE, MINN CHUNG, and
NORMAN H. BEAMER, *Administrative Patent Judges*.

MOORE, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
35 U.S.C. § 314(a)

I. INTRODUCTION

On November 29, 2018, Apple, Inc. ("Petitioner") filed a Petition (Paper 2, "Pet.") pursuant to 35 U.S.C. §§ 311–319 to institute an *inter partes* review of claims 61–69, 90, 91, 93, 94, 96–99, 101, 102, and 104 of U.S. Patent No. 5,796,183 ("the '183 patent"). On April 23, 2019, UUSI, LLC d/b/a Nartron ("Patent Owner") filed a Preliminary Response (Paper 10, "Prelim. Resp."). Pursuant to a May 22, 2019 Order (Paper 11), the parties exchanged briefs further addressing the issue of discretionary denial of institution under 35 U.S.C. § 314(a) (Papers 12, 13).

Applying the standard set forth in 35 U.S.C. § 314(a), which requires demonstration of a reasonable likelihood that Petitioner would prevail with respect to at least one challenged claim, we deny the Petition and do not institute an *inter partes* review.

II. BACKGROUND

A. The '183 Patent

The '183 patent, titled "Capacitive Responsive Electronic Switching Circuit," was filed January 31, 1996, and issued August 18, 1998. Ex. 1001, [22], [45], [54]. The '183 patent has expired. Prelim. Resp. 17.

The '183 patent relates to a "capacitive responsive electronic switching circuit used to make possible a 'zero force' manual electronic switch." Ex. 1001, 1:6–9. According to the '183 patent, zero force touch switches have no moving parts and no contact surfaces that directly switch loads. *Id*. at 2:40–41. Instead, such switches detect an operator's touch and use solid state electronics to switch loads or activate mechanical relays. *Id*. at 2:42–44. "A common solution used to achieve a zero force touch switch has been to make use of the capacitance of the human operator." *Id*. at 3:12–14. The '183 patent recites three methods used by capacitive touch switches to detect an operator's touch, one of which relies on the change in capacitive coupling between a touch terminal and ground. *Id*. at 3:13–15, 3:44–46. In this method, "[t]he touch of an operator then provides a capacitive short to ground via the operator's own body capacitance." *Id*. at 3:52–55. Figure 8, reproduced below, is an example that makes use of this method.

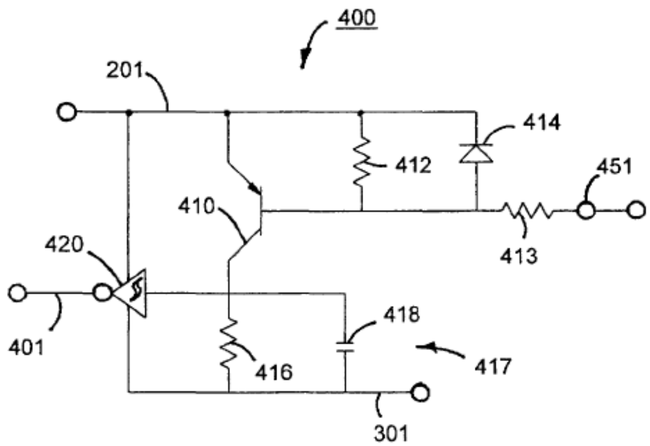

Fig. 8

Figure 8 depicts a "touch circuit" in which, when a pad (not shown) is touched to create a short to ground via terminal 451, transistor 410 turns on and connects a high frequency input at 201 to resistor/capacitor circuit 416/418, thus triggering Schmitt Trigger 420 to provide control output 401. *Id.* at 14:47–52, 15:17–47. Significantly, the operator of a capacitive touch switch using this method need not come in conductive contact with the touch terminal. *Id*. at 3:57–59. Rather, the operator needs only to come into close proximity of the switch. *Id*.

Figure 11 of the ’183 patent is reproduced below.

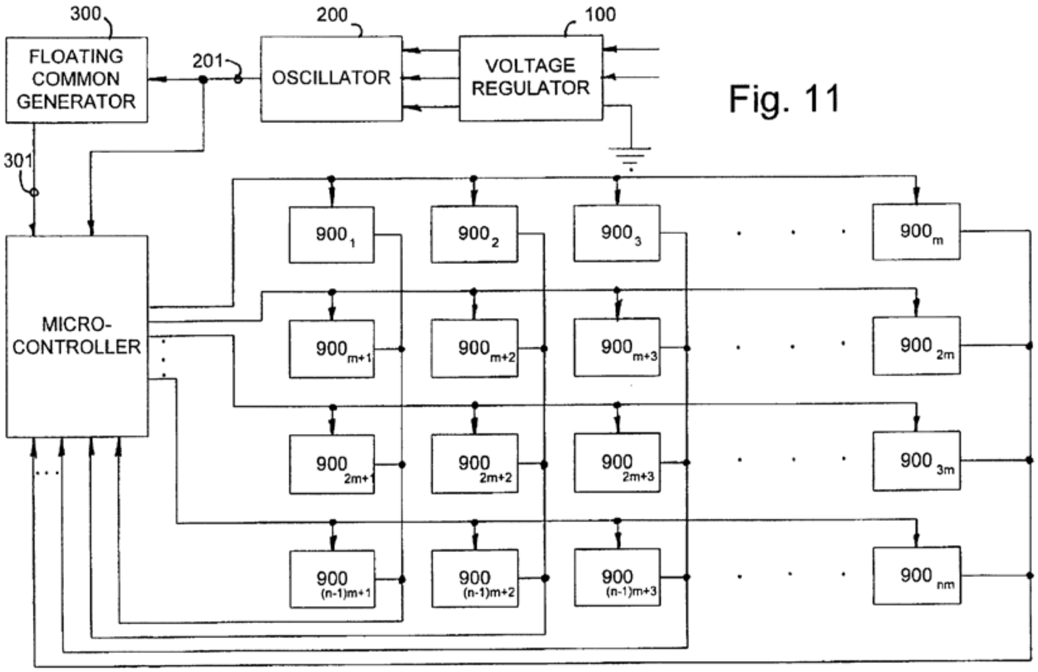

Figure 11 depicts a “multiple touch pad circuit” including “an array of touch circuits” 900_1 through 900_{nm}. *Id*. at 18:34–43. The microcontroller selects successive rows of the touch circuit array by providing the signal from oscillator 200 sequentially to each row. *Id*. at 18:43–46. A particular activated touch circuit is detected by the microcontroller via association of an activated row with received input from a column line of the array. *Id*. at 18:46–49.

The ’183 patent recognizes that placing capacitive touch switches in dense arrays, as in Figure 11, can result in unintended actuations. *Id*. at 3:65–4:3. One method of addressing this problem known in the art involves placing guard rings around each touch pad. *Id*. at 4:4–7. Another known method of addressing this problem is to adjust the sensitivity of the touch pad such that the operator's finger must entirely overlap a touch terminal. *Id*. at 4:8–14. "Although these methods (guard rings and sensitivity adjustment) have gone a considerable way in allowing touch switches to be spaced in comparatively close proximity, a susceptibility to surface contamination remains as a problem." *Id*. at 4:14–18.

The '183 patent uses the technique of Figure 11 to overcome the problem of unintended actuation of small capacitive touch switches "by using the method of sensing body capacitance to ground in conjunction with redundant detection circuits." *Id*. at 5:33–35. Specifically, the '183 patent's touch detection circuit operates at frequencies at or above 50 kHz, and preferably at or above 800 kHz, in order to minimize the effects of surface contamination on the touch pads. *Id.* at 11:19–29. Operating at these frequencies also improves sensitivity, allowing close control of the proximity required for actuation of small-sized touch terminals in a close array, such as a keyboard. *Id*. at 5:48–57.

B. The Claims

Independent claim 105 is illustrative of the challenged claims and is reproduced below.

> 105. A capacitive responsive electronic switching circuit for a controlled keypad device comprising:
>
> an oscillator providing a periodic output signal having a predefined frequency;
>
> a microcontroller using the periodic output signal from the oscillator, the microcontroller selectively providing signal output frequencies to a closely spaced array of input touch terminals of a keypad, the input touch terminals comprising first and second input touch

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