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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte SEUNGIL KIM¹

Appeal 2017-003993²
Application 13/132,224
Technology Center 2100

Before ALLEN R. MacDONALD, SHARON FENICK, and
MICHAEL M. BARRY, *Administrative Patent Judges*.

FENICK, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant appeals under 35 U.S.C. § 134(a) from the Examiner’s non-final rejection of claims 1–4, 6–16, and 19–21. Appeal Br. 5. Claims 5, 17, and 18 are canceled. Appeal Br. 23, 25. We have jurisdiction under 35 U.S.C. § 6(b)(1). We AFFIRM.

¹ Appellant indicates the real party in interest is Empire Technology Development LLC. Appeal Br. 3.

² Our Decision references Appellant’s Appeal Brief (“Appeal Br.,” filed May 9, 2016), and the Examiner’s Answer (“Answer,” mailed November 2, 2016) and Non-Final Office Action (“Non-Final Action,” mailed September 1, 2015).

Representative Claims

Representative claims 1 and 16 under appeal read as follows
(emphasis added):

1. A device, comprising:
a detector configured to:
determine characteristics of a detected simultaneous touch input,
determine whether a duration for the simultaneous touch input exceeds a predetermined threshold time limit, and
responsive to a determination that the duration for the simultaneous touch input does not exceed the predetermined threshold time limit, determine whether the detected simultaneous touch input has characteristics of a key input error;
and
an arbiter configured to reject any function corresponding to the detected simultaneous touch input, responsive to a determination that the detected simultaneous touch input has characteristics of a key input error.

16. A device, comprising:
a key input user interface configured to receive a key input;
a detector configured to:
measure time from a detected start of the key input,
determine whether the key input corresponds to an appropriate function, and
determine whether an end to the key input has been detected within a predetermined threshold amount of time; and
an arbiter configured to reject entry of the appropriate function corresponding to the key input responsive to a determination that the end to the key input has not been detected within the predetermined threshold amount of time,

wherein the key input user interface is a virtual keyboard or a standard keyboard, and the key input corresponds to physical contact with any key on the virtual keyboard or the standard keyboard that is not designated as a special function key.

References

Tysowski	US 2009/0281979 A1	Nov. 12, 2009
Westerman et al. ("Westerman")	US 6,570,557 B1	May 27, 2003
Davidson et al. ("Davidson")	US 2012/0167009 A1	June 28, 2012

Rejection

1. The Examiner rejected claims 1–4, 6–16, and 19–21 under 35 U.S.C. § 103(a) as unpatentable over a combination of Tysowski, Westerman, and Davidson. Non-Final Action 3–16.

Issues on Appeal

- I. Did the Examiner err in finding the combination of Tysowski, Westerman, and Davidson teaches or suggests “an arbiter configured to reject any function corresponding to the detected simultaneous touch input, responsive to a determination that the detected simultaneous touch input has characteristics of a key input error,” as recited in claim 1? (Appeal Br. 9–15).
- II. Did the Examiner err in finding the combination of Tysowski, Westerman, and Davidson teaches or suggests “an arbiter configured to reject entry of the appropriate function corresponding to the key input responsive to a determination that the end to the key input has not been detected within the

predetermined threshold amount of time,” as recited in claim 16? (Appeal Br. 16–19).

ANALYSIS

We have reviewed the Examiner’s rejections in light of Appellant’s arguments that the Examiner has erred.

- I. Did the Examiner err in finding the combination of Tysowski, Westerman, and Davidson teaches or suggests “an arbiter configured to reject any function corresponding to the detected simultaneous touch input, responsive to a determination that the detected simultaneous touch input has characteristics of a key input error,” as recited in claim 1?

The Examiner finds that the “arbiter configured to reject any function corresponding to the detected simultaneous touch input, responsive to a determination that the detected simultaneous touch input has characteristics of a key input error” recited in claim 1 (“claim 1 arbiter limitation”) is taught or suggested by Tysowski. Non-Final Action 3 (citing Tysowski ¶¶ 66, 75, 79); Answer 3–4.

Tysowski describes processing of keystrokes entered on an electronic device. Tysowski Abstract. In the event of a conflict in keys activated on a keyboard, Tysowski provides for arbitration between the keys to select a key, utilizing a dictionary to determine the correct key. *Id.* Tysowski describes, as an example, a situation in which a user intending to enter the word “KITS” has already entered the word “KIT,” but mistakenly activates both the ‘S’ and the ‘A’ key for the last letter. *Id.* ¶ 66. The conflict is

resolved by consulting a dictionary to determine the likelier intent from the two possible alternatives (“KITS” and “KITA”). *Id.* ¶ 66.

Appellant argues that because some function related to one of the simultaneously pressed keys is processed, Tysowski does not teach the claim 1 arbiter limitation, requiring the rejection of “any function corresponding to the detected simultaneous touch input.” Appeal Br. 10. Appellant argues that claim 1 requires that the arbiter act “*as if no key was pressed.*” *Id.* Appellant argues that the claim requires “neither the ‘S’ keystroke nor the ‘A’ keystroke, or any other keystroke for that matter, is processed.” *Id.*

However, Appellant’s argument is not commensurate with the scope of the claim. The claim does not require the arbiter to reject any function corresponding to either of the touch inputs. Appellant’s Specification describes functions corresponding to detected simultaneous touch inputs to a keyboard, e.g. “a special function key in combination, *i.e.*, simultaneous, with an alpha-numeric key” and “a customized special function combination, *i.e.*, simultaneous, of alpha-numeric keys or special function keys, *e.g.*, ‘control-alt-delete.’” Spec. ¶ 20. Tysowski also describes functionality related to two simultaneously activated keystrokes. Tysowski ¶ 14.

With the distinction between the function of a simultaneous touch input, on one hand, and the function of individual touch inputs, on the other, in mind, as included both in Tysowski and the Appellant’s Specification, we conclude that the broadest reasonable interpretation of the claim 1 arbiter limitation’s “reject[ion of] any function corresponding to the detected simultaneous touch input” admits the activation of functions that correspond,

not to the simultaneous touch input, but instead to only one of the touch inputs, which make up the simultaneous touch input.

We are not persuaded, on the present record, that the Examiner erred in finding that Tysowski teaches or suggests the claim 1 arbiter limitation.

Appellant addresses the Examiner's additional findings that each of Westerman and Davidson teach or suggest the claim 1 arbiter limitation. Appeal Br. 10–15. In the interest of compact prosecution, we also address these arguments.

Westerman describes a multi-touch system, which provides a “modifier chord,” activated in order to provide modification of the functionality of an additional typing or pointing input. Westerman Abstract, 2:23–39. Westerman describes a situation in which a “Shift” modifier chord is touched (modifier chord touchdown 93) and produces two capitalized letters, ‘J’ and ‘I’ (as a result of ‘J’ touch 311 and ‘I’ touch 312 in concert with the chord being touched between touchdown 93 and liftoff 94). *Id.* at Fig. 11A, 4:27–29, 10:45–11:35. Westerman then continues to describe a situation in which the “Shift” modifier chord is touched (between touchdown 93 and liftoff 94) but the shift functionality is cancelled based on an additional simultaneous thumb touch 302 before key touches (‘i’ key touch 321 and ‘n’ key touch 322), yielding two lowercase letters, because “[t]he thumb touch **302** is quite likely the result of sloppy hand resting” and cancels the modifier chord. *Id.* at Fig. 11B, 4:27–29, 10:45–11:5, 11:36–52. The Examiner finds that Westerman teaches the claim 1 arbiter limitation. Non-Final Action 4–5; Answer 4 (quoting with emphasis portions of Westerman 11:36–52).

Appellant argues that the example illustrated by Figure 11A of Westerman does not teach the claim 1 arbiter limitation because Westerman teaches that a key touch that precedes the modifier chord touchdown or follows modifier chord liftoff should not be capitalized. Appeal Br. 11–12. However, this example from Westerman does not correspond to the detection of a simultaneous touch input, as this describes a situation in which no simultaneous input occurs. Appellant also discusses Figure 11B of Westerman, arguing that making the choice between an uppercase or lowercase letter when a simultaneous key touch of the modifier chord and a letter key occurs is not acting “as if no key was pressed.” *Id.* at 12–13. This argument is substantively the same as that made and addressed with respect to Tysowski, *supra*, and is likewise unpersuasive as not commensurate with the scope of claim 1.

Additionally, we note that the cancellation of the modifier chord that occurs in Westerman while the modifier chord is touched (between touchdown 93 and liftoff 94) occurs as a result of the thumb touch input 302, simultaneously, which leads to the cancellation of functionality of the modifier chord. Westerman Fig. 11B, 11:41–50. In this situation, the simultaneous touch input (modifier chord and thumb touch input) leads to the cancellation of the modifier chord — “as if no key was pressed” — and if a letter key is pressed it is not capitalized. Thus, even under the Appellant’s narrow reading of “reject[ion of] any function corresponding to the detected simultaneous touch input,” Westerman can be seen to teach or suggest the rejection of any function (for the thumb touch input 302 or the modifier chord) when they are simultaneously input.

We are not persuaded, on the present record, that the Examiner erred in finding that Westerman teaches or suggests the claim 1 arbiter limitation.

Davidson describes the automatic correction of a text string, where “keystroke timing information is used to identify errors such as transposed, double, and *extra adjacent or nearly adjacent characters*.” Davidson ¶ 11 (emphasis added), Abstract. Davidson describes that:

keystroke timing information is evaluated at least in part by comparing the timing of observed keystroke events with a baseline. For example, in some embodiments a baseline typing speed data is determined and used as a baseline to which to compare observed keystroke events. If the observed time difference between successive events is less than a corresponding baseline, for example for the same character pair, by more than a threshold amount, then a replacement candidate associated with an error with respect to the character pair, such as a double strike, transposition, or other error, is ranked more highly as a potential replacement for the string entered by the user.

Id. ¶ 15. The Examiner finds that Davidson teaches the claim 1 arbiter limitation. Non-Final Action 5; Answer 5–6.

Appellant argues that the example referenced in Davidson (“there” being typed, with “ee” being erroneous key input) would require the consecutive activation of the ‘e’ key, which would not be a “simultaneous touch input.” Appeal Br. 13. However, while this example might not suggest the detection of simultaneous touch input, Davidson discusses not just “double” errors, but also such as “extra adjacent or nearly adjacent characters.” Davidson ¶ 11. Appellant’s focus only on one example in Davidson does not persuade us of Examiner error. While extra adjacent keys might be activated before or after a correct key, Davidson, with its discussion of the tracking of key down and key up events (*id.* ¶ 13) and of a very small keyboard causing more “double stroke type errors” (*id.* ¶ 17) at

least suggests that such extra adjacent key press events might be simultaneous with an intended key press. Thus, we do not agree with Appellant that Davidson is limited to errors relating to consecutive, and not simultaneous, keystrokes.

Appellant additionally argues that the keystroke timing information in Davidson finds errors if a shorter than baseline time occurs between keystroke events, and, thus, Davidson does not teach or suggest the arbiter configured to reject entry based on a prior determination of “whether the detected simultaneous touch input has characteristics of a key input error” based on “whether a duration for the simultaneous touch input exceeds a predetermined threshold time limit” as required by claim 1. With respect to this determination, however, the Examiner relies on teachings or suggestions of Westerman. Non-Final Action 4. The claim 1 arbiter limitation is responsive to the determination (which the Examiner finds to be taught or suggested in Westerman) that key input error characteristics are determined, and we are not persuaded by this argument of Examiner error in finding Davidson teaches or suggests the claim 1 arbiter limitation.

Appellant additionally argues that Davidson does not teach or suggest “reject[ing] any function corresponding to the detected” erroneous input because Davidson teaches suggesting a correction. This argument is substantively the same as that made and addressed with respect to Tysowski, *supra*, and again it is unpersuasive as not commensurate with the scope of claim 1.

We are not persuaded, on the present record, that the Examiner erred in rejecting claim 1 as obvious in view of the combination of Tysowski, Westerman, and Davidson. Therefore, we sustain the Examiner’s rejection

of claim 1. Independent claim 6 and dependent claims 2–4 and 7–15 are argued on the same basis. Appeal Br. 16, 20. For the same reasons discussed above, we sustain the Examiner’s rejection of these claims as well.

- II. Did the Examiner err in finding the combination of Tysowski, Westerman, and Davidson teaches or suggests “an arbiter configured to reject entry of the appropriate function corresponding to the key input responsive to a determination that the end to the key input has not been detected within the predetermined threshold amount of time,” as recited in claim 16?

The Examiner finds that the “arbiter configured to reject entry of the appropriate function corresponding to the key input responsive to a determination that the end to the key input has not been detected within the predetermined threshold amount of time” recited in claim 16 (“claim 16 arbiter limitation”) is taught or suggested by Westerman. Non-Final Action 12–13 (citing Westerman Figs. 11A–13, 11:5–12:45); Answer 7–8.

Appellant argues that Westerman does not “reject entry of the appropriate function corresponding to [a] . . . key input,” describing again Westerman’s discussion of not capitalizing a letter (e.g., processing lower case ‘a’ rather than upper case ‘A’) if the shift chord modifier has not yet been touched (before touchdown) or if the shift chord modifier is no longer being touched (after liftoff). Appeal Br. 18. Appellant concludes, “[c]learly the example does not correspond to ‘an arbiter configured to reject entry of the appropriate function corresponding to the key input responsive to a determination that the end to the key input has not been detected within the predetermined threshold amount of time,’ as recited in **Claim 16.**” *Id.*

Appellant's focus on the one example of a key press from Figure 11A, without reference to the rest of the examples discussed in *Westerman*, does not convince us that the Examiner erred in finding the teaching or suggestion of the claim 16 arbiter limitation in *Westerman*. The discussion in *Westerman* that an extended touchdown on a shift modifier chord may be "just resting the hand sloppily" or "sloppy hand resting," and that the chord would be cancelled if a thumb touch 302 occurs during the extended touchdown at least suggests the claim 16 arbiter limitation of rejecting entry of the appropriate function (shift) if no end to the key input proceeds beyond a predetermined threshold amount of time. *Westerman* 11:6–52.

We are not persuaded, on the present record, that the Examiner erred in rejecting claim 16 as obvious in view of the combination of *Tysowski*, *Westerman*, and *Davidson*. Therefore, we sustain the Examiner's rejection of claim 16. Independent claim 20 and dependent claims 19 and 21 are argued on the same basis. Appeal Br. 19–20, 21. For the same reasons discussed above, we sustain the Examiner's rejection of these claims as well.

DECISION

We affirm the Examiner's decision rejecting claims 1–4, 6–16, and 19–21 under 35 U.S.C. § 103(a) as unpatentable over a combination of *Tysowski*, *Westerman*, and *Davidson*.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED