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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* SHARON DRASNIN, SCOTT MITCHEL MAIL,  
JIM TOM BELESIU, TIMOTHY C. SHAW,  
MOSHE R. LUTZ, and PAUL HENRY DIETZ

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Appeal 2019-000616  
Application 13/471,393  
Technology Center 2800

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Before JEFFREY T. SMITH, BRIAN D. RANGE, and LILAN REN,  
*Administrative Patent Judges.*

REN, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant<sup>1</sup> appeals from the Examiner's decision to reject claims 1, 3, 4, 6, 9–20, and 22–25. *See* Final Act. 2, 4. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

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<sup>1</sup> We use the word Appellant to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as “Microsoft Technology Licensing, LLC.” Appeal Br. 3.

### CLAIMED SUBJECT MATTER

The claims are directed to “pressure sensitive keyboard” which “includes multiple pressure sensors associated with the keys of the keyboard.” Spec. 44. Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A method comprising:
  - obtaining an indication of pressure applied to a key of a pressure sensitive keyboard configured to be physically and communicatively removable from a computing device;
  - determining that the pressure applied to the key is a key strike in response to:
    - the pressure applied to the key rising to a key press threshold amount;
    - no more than a threshold number of keys concurrently being pressed; and
    - the pressure applied to the key dropping to a key release threshold amount after a de-bouncing amount of time has elapsed, the de-bouncing amount of time comprising a duration during which the pressure applied to the key is ignored to avoid a false determination of a key release; and
  - providing feedback for a user of the pressure sensitive keyboard that a key strike occurs in response to determining that the pressure applied to the key is a key strike.

Claim Appendix (Appeal Br. 47).

## REFERENCES

The prior art references relied upon by the Examiner are:

<b>Name</b>	<b>Reference</b>	<b>Date</b>
Smith	US 6,603,461 B2	Aug. 5, 2003
Bellwood	US 6,684,166 B2	Jan. 27, 2004
Westerman	US 8,633,898 B2	Jan. 21, 2014
Casparian	US 8,674,941 B2	Mar. 18, 2014
Schultz	US 7,454, 712 B2	Nov. 18, 2008
Chen	US 2011/0134043 A1	Jun. 9, 2011

## REJECTIONS

Claims 1, 3, 4, 6, 9–20, and 22–25 rejected under 35 U.S.C. § 101.  
Final Act. 2.<sup>2</sup>

Claims 1, 22, and 25 are rejected under pre–AIA 35 U.S.C. § 103(a) as being unpatentable over Westerman in view of Smith. Final Act. 4.

Claims 3, 4, 20, 23, and 24 are rejected under pre–AIA 35 U.S.C. § 103(a) as being unpatentable over Westerman in view of Smith and Schultz. Final Act. 8.

Claims 6, 9–11, 13, and 14 are rejected under pre–AIA 35 U.S.C. § 103(a) as being unpatentable over Westerman in view of Smith and Chen. Final Act. 10.

Claim 12 is rejected under pre–AIA 35 U.S.C. § 103(a) as being unpatentable over Westerman in view of Smith, Chen, and Bellwood. Final Act. 12.

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<sup>2</sup> The Final Action lists claim 7 as being rejected under section 101. Final Act. 2. Claim 7 has been canceled. Claims Appendix (Appeal Br. 49).

Claim 15, 16, and 18 are rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Westerman in view of Smith, Chen, and Anson. Final Act. 12.

Claim 17 is rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Westerman in view of Smith, Chen, Anson, and Casparian. Final Act. 15.

Claim 19 is rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Westerman in view of Chen, Anson, and Smith. Final Act. 16.

## OPINION

### Section 101 Rejection

#### *Legal Framework*

An invention is patent-eligible if it claims a “new and useful process, machine, manufacture, or composition of matter.” 35 U.S.C. § 101. However, the Supreme Court has long interpreted 35 U.S.C. § 101 to include implicit exceptions: “[l]aws of nature, natural phenomena, and abstract ideas” are not patentable. *E.g.*, *Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208, 216 (2014).

In determining whether a claim falls within an excluded category, our inquiry focuses on the Supreme Court’s two-step framework, described in *Mayo* and *Alice*. *Id.* at 217–18 (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 75–77 (2012)). In accordance with that framework, we first determine what concept the claim is “directed to.” *See Alice*, 573 U.S. at 219 (“On their face, the claims before us are drawn to the concept of intermediated settlement, *i.e.*, the use of a third party to

mitigate settlement risk.”); *see also Bilski v. Kappos*, 561 U.S. 593, 611 (2010) (“Claims 1 and 4 in petitioners’ application explain the basic concept of hedging, or protecting against risk.”).

Concepts determined to be abstract ideas, and thus patent ineligible, include certain methods of organizing human activity, such as fundamental economic practices (*Alice*, 573 U.S. at 219–20; *Bilski*, 561 U.S. at 611); mathematical formulas (*Parker v. Flook*, 437 U.S. 584, 594–95 (1978)); and mental processes (*Gottschalk v. Benson*, 409 U.S. 63, 69 (1972)). Concepts determined to be patent eligible include physical and chemical processes, such as “molding rubber products” (*Diamond v. Diehr*, 450 U.S. 175, 191 (1981)); “tanning, dyeing, making water-proof cloth, vulcanizing India rubber, smelting ores” (*id.* at 182 n.7 (quoting *Corning v. Burden*, 56 U.S. 252, 267–68 (1853))); and manufacturing flour (*Benson*, 409 U.S. at 69 (citing *Cochrane v. Deener*, 94 U.S. 780, 785 (1876))).

In *Diehr*, the claim at issue recited a mathematical formula, but the Supreme Court held that “[a] claim drawn to subject matter otherwise statutory does not become nonstatutory simply because it uses a mathematical formula.” *Diehr*, 450 U.S. at 176; *see also id.* at 191 (“We view respondents’ claims as nothing more than a process for molding rubber products and not as an attempt to patent a mathematical formula.”). Having said that, the Supreme Court also indicated that a claim “seeking patent protection for that formula in the abstract . . . is not accorded the protection of our patent laws, . . . and this principle cannot be circumvented by attempting to limit the use of the formula to a particular technological environment.” *Id.* (citing *Benson* and *Flook*); *see, e.g., id.* at 187 (“It is now commonplace that an *application* of a law of nature or mathematical formula

to a known structure or process may well be deserving of patent protection.”).

If the claim is “directed to” an abstract idea, we turn to the second step of the *Alice* and *Mayo* framework, where “we must examine the elements of the claim to determine whether it contains an ‘inventive concept’ sufficient to ‘transform’ the claimed abstract idea into a patent-eligible application.” *Alice*, 573 U.S. at 221 (citations omitted). “A claim that recites an abstract idea must include ‘additional features’ to ensure ‘that the [claim] is more than a drafting effort designed to monopolize the [abstract idea].’” *Id.* (alterations in original) (quoting *Mayo*, 566 U.S. at 77). “[M]erely requir[ing] generic computer implementation[] fail[s] to transform that abstract idea into a patent-eligible invention.” *Id.*

The Office published revised guidance on the application of § 101. USPTO’s January 7, 2019 Memorandum, *2019 Revised Patent Subject Matter Eligibility Guidance* (“Memorandum”), 84 Fed. Reg. 50 updated by USPTO, *October 2019 Update: Subject Matter Eligibility* (available at <https://go.usa.gov/xp88j>); see also October 2019 Patent Eligibility Guidance Update, 84 Fed. Reg. 55942 (Oct. 18 2019) (notifying public that October update was available). Under that guidance, we first look to whether the claim recites:

- (1) any judicial exceptions, including certain groupings of abstract ideas (i.e., mathematical concepts, certain methods of organizing human activity such as a fundamental economic practice, or mental processes); and
- (2) additional elements that integrate the judicial exception into a practical application (see MPEP § 2106.05(a)–(c), (e)–(h)).

Only if a claim recites a judicial exception and does not integrate that exception into a practical application, do we then look to whether the claim:

- (3) adds a specific limitation beyond the judicial exception that is not “well-understood, routine, conventional” in the field (*see* MPEP § 2106.05(d)); or
- (4) simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception.

*See generally* Memorandum.

*Analysis*

Applying the guidance set forth in the Memorandum, we conclude that claims 1, 3, 4, 6, 9–20, and 22–25 are patent eligible under § 101.

*Revised Step 2A, Prong One–Directed to a Judicial Exception*

The Memorandum instructs us first to determine whether each claim recites any judicial exception to patent eligibility. 84 Fed. Reg. at 54. The Memorandum identifies three judicially-excepted groupings: (1) mathematical concepts, (2) certain methods of organizing human activity such as fundamental economic practices, and (3) mental processes. *Id.* at 52.

The Examiner determines that the claims are directed to an abstract idea of “inform[ing] a user of the pressure sensitive keyboard that pressure applied to a key resulted in a key strike by providing a feedback” without significantly more. *Ans.* 3; *see also* Final Act. 2. Appellant argues, on the other hand, that “the claimed solution is rooted in computer technology to overcome uncertainty regarding whether pressure applied to a pressure sensitive key board is a key strike.” Appeal Br. 20–21.

Claim 1 recites the following limitations: (1) “obtaining an indication of pressure applied to a key of a pressure sensitive keyboard . . . ;” (2) “determining that the pressure applied to the key is a key strike in response to” various cited conditions; and (3) “providing feedback for a user of the pressure sensitive keyboard . . . .” These limitations, under their broadest

reasonable interpretation, involve no more than collecting, analyzing, and displaying data. The Examiner finds, and Appellant does not dispute<sup>3</sup>, that the recited steps “can be done by a human monitoring the change in pressure, the number of keys being pressed, and the amount of time has elapsed.” Ans. 4. The Examiner finds, for example, that the determining step “can be done by a user monitoring the pressure applied to a key and determining whether the applied pressure would reach the predetermined pressure threshold.” *Id.* at 3.

Claim 1, as well as the remaining claims reciting the same subject matter, are therefore directed to an abstract idea.

*Revised Step 2A, Prong Two – Practical Application*

Having determined that claims 1, 3, 4, 6, 9–20, and 22–25 are directed to an abstract idea, we next look to determine whether the claims recite “additional elements that integrate the judicial exception into a practical application.” MPEP § 2106.05(a)–(c), (e)–(h); Memorandum, 84 F.3d at 53–54. Integration into a practical application requires an additional element or a combination of additional elements in the claim to “apply, rely on, or use the judicial exception in a manner that imposes a meaningful limit on the judicial exception, such that the claim is more than a drafting effort designed to monopolize the exception.” Memorandum, 84 Fed. Reg. at 53–54; *see also id.* at 55 (setting forth exemplary considerations indicative that an additional element or combination of elements may have integrated the judicial exception into a practical application).

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<sup>3</sup> No Reply Brief was filed.

Here, Appellant argues that “claim 1 represents an improvement over conventional techniques” regarding key strike assessment. Appeal Br. 21. Claim 1 indeed recites elements additional to the abstract idea which are conditions for the “determining” step to assess that “the pressure applied to the key is a key strike.” Claim 1 also recites that the determining step applies to “a pressure sensitive keyboard configured to be physically and communicatively removable from a computing device” for “a user” of such a device. Claim 1 therefore improves the technological field of a pressure sensitive keyboard. Claim 1, when considered as a whole, integrates the judicial exception into a practical application of a pressure sensitive keyboard and satisfies § 101 subject matter eligibility.

Because we conclude that the judicial exception has been integrated with additional elements into a practical application for the device of a pressure sensitive keyboard, we need not proceed to analyze whether the claims provide an inventive concept.

The rejection of claims 1, 3, 4, 6, 9–20, and 22–25 under section 101 is not sustained.

### Section 103 Rejections

We review the appealed rejections for error based upon the issues identified by Appellant and in light of the arguments and evidence produced thereon. *Cf. Ex parte Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential) (cited with approval in *In re Jung*, 637 F.3d 1356, 1365 (Fed. Cir. 2011) (“[I]t has long been the Board’s practice to require an applicant to identify the alleged error in the examiner’s rejections.”)). After having considered the evidence presented in this Appeal and each of Appellant’s contentions, we are not persuaded that reversible error has been identified,

and we affirm the Examiner's § 103 rejections for the reasons expressed in the Final Office Action and the Answer. We add the following primarily for emphasis.

*Claim 1*

In rejecting claim 1 under section 103, the Examiner finds “although Westerman does not directly or explicitly teach determining that the key is released in response to the pressure applied to the key dropping to a key release threshold amount only after a de-bouncing amount of time has elapsed,” Westerman teaches: (1) “tracking group paths through successive proximity images including detection of path endpoints at contact touchdown and liftoff;” (2) “that proximity markers record the time at which each contact path drops below a release proximity threshold prior to total lift off;” and (3) “the debounce tests which checks if the finger has touched the surface for at least two sensor array scan cycles and that it had been off the surface for several scan cycles before touching down (i.e., debouncing occurs when the finger lifts off and quickly touches back down over the same spot).” Final Act. 5 (citing various portions of Westerman). The Examiner also finds that “Smith teaches a de-bounce logic that disregards any successive key actuation occurring within an adjustable time interval after an initial key actuation.” *Id.* Based on The Examiner finds that the recited step “determining that the pressure applied to the key is a key strike in response to . . . the pressure applied to the key dropping to a key release threshold amount after a de-bouncing amount of time has elapsed” is taught by the combined teaching of Westerman and Smith. *Id.*

Appellant argues that the Examiner reversibly erred with regard to this claim limitation but does not address the Examiner's findings of Westerman

at all. Appeal Br. 26–28. Appellant’s argument is solely directed to whether Smith teaches or suggests the limitation at issue. *Id.* We are unpersuaded by Appellant’s argument, first and foremost, because it attacks the references individually, rather than considering what the combined references would have suggested to the person of ordinary skill in the art. “Non-obviousness cannot be established by attacking references individually where the rejection is based upon the teachings of a combination of references.” *In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986).

We are also unpersuaded by Appellant’s argument because it does not identify reversible error in the Examiner’s findings in support of the rejection. For example, the Examiner finds that Westerman teaches the debounce test as to whether a user’s touch of a key on a keyboard is ignored. Final Act. 5 (citing various portions of Westerman including 5:36–65); Ans. 7 (citing the same). The Examiner finds that Westerman describes “a release proximity threshold” which teaches the recited “pressure applied to the key dropping to a key release threshold.” Ans. 7–8 (citing Westerman 14:10–13 and column 47). The Examiner provides a detailed analysis as to the basis for the rejection which is not addressed by Appellant. Ans. 5–7.

We further note that Appellant, in fact, acknowledges the Examiner’s finding of Smith’s debounce logic for a keyboard. Appeal Br. 27. Appellant merely argues that “the de-bouncing amount of time” recited in claim 1 “necessarily occurs” prior to “a key strike” which – according to Appellant – is distinguishable from Smith’s time interval “following a key actuation.” *Id.* (emphases removed). Appellant, however, does not dispute the Examiner’s explanation as to how “a key strike” and “a key actuation” are related but different. Ans. 5–6 (explaining, for example, that both “key strike” and “key

actuation” involve a user’s touch of a key but “a key actuation may or may not be registered as input by the system, but a key strike meeting the pre-established criteria will be registered as input by the system). Appellant’s position, thus, does not identify reversible error.

We sustain the rejection of claim 1 under section 103 based on *Westerman and Smith*. Appellant does not argue separately the rejections of claims 3, 4, 6, 10–14, 22, and 25 and they are sustained as well. Appeal Br. 28; *see* 37 C.F.R. § 41.37(c)(1)(vii).

*Claim 9*

Claim 9 is a dependent claim of claim 1 and additionally recites “the key press threshold amount varying for different keys of the keyboard.” The Examiner rejects claim 9 based on the combined teaching of *Westerman, Smith, and Chen*. Final Act. 10–11.

In the Examiner’s Answer, the Examiner finds that, for example, *Chen* describes “keyboard **602** includes a pressure sensor **604** capable of capturing state information associated with varying pressures exerted on each key of the keyboard **602**.” *Chen* ¶ 36 (cited in Ans. 8). The Examiner finds that *Chen* describes a process to assess whether a key is “light-pressed” or “heavy-pressed” which would result in different key input combinations. Ans. 8 (citing *Chen* ¶¶ 23–25); *see also* Final Act. 10–11 (citing *Chen* ¶ 33). The Examiner provides an example of the operation of *Chen*’s keyboard in support of the rejection. Ans. 8–9.

Appellant’s argument with regard to claim 9 is not persuasive because it does not address the Examiner’s fact findings of *Chen*. Appellant does not dispute the Examiner’s fact findings with regard to *Chen* ¶¶ 23–25 and *Chen* ¶ 36. *See* Appeal Br. 30–31. Appellant does not dispute the Examiner’s

example of Chen (Ans. 8–9) in support of the rejection. We are therefore not persuaded by Appellant’s argument that Chen ¶ 33 does not teach or suggest the claim limitation for the argument does not address the Examiner’s findings of Chen as a whole. We further note that Appellant’s argument with regard to Chen ¶ 33 is unelaborated and conclusory and is unpersuasive for this additional reason. We sustain the rejection of claim 9.

*Claim 15*

Claim 15 is an independent claim and the dispositive issue here is whether the prior art teaches or suggest “the key press threshold amount varying for different keys of the keyboard” as recited.

The Examiner provides the same relevant findings as claim 9 with regard to Chen in support of the limitation. Ans. 10. Appellant’s arguments here mirror those raised for claim 9. Appeal Br. 34 (arguing that Chen ¶ 33 does not teach or suggest this limitation and that Westerman and Anson do not remedy the deficiency without addressing the Examiner’s findings based on Chen as a whole). We sustain the rejection of claim 15 for the reasons provided *supra* with regard to claim 9.

We sustain the rejection of claim 15 under section 103 based on Westerman, Smith, Chen, and Anson. Appellant does not argue separately the rejections of claims 16–19 and they are sustained as well. Appeal Br. 35; *see* 37 C.F.R. § 41.37(c)(1)(vii).

*Claim 20*

Claim 20 recites:

20. A method as recited in claim 1, the determining comprising:

determining that the pressure applied to the key is a key strike in response to:

the pressure applied to the key rising to the key press threshold amount;

no more than the threshold number of keys concurrently being pressed;

a same key rejection threshold amount of time having elapsed since a previous key strike was determined for the key, the same key rejection threshold amount of time indicating an amount of time that the key is to be released prior to a subsequent determination that the key is struck; and

a different key rejection threshold amount of time having elapsed since a previous key strike was determined for a different key of the keyboard, the different key rejection threshold amount of time indicating an amount of time that the different key is to be released prior to a subsequent determination that the key is struck.

Claims Appendix (Appeal Br. 53).

The Examiner finds that these limitations are taught or suggested by a combined teaching of Westerman, Smith, and Schultz. Final Act. 8. For example, because Schultz teaches customizing the debouncing time based on particular parameters such as user reaction time – which is acknowledged by Appellant (Appeal Br. 39 (acknowledging that Schultz describes ignoring certain user inputs based on various parameters)), the Examiner finds that “the modification of Westerman by Smith and Schultz would enable the de-bounce amount of times to be customized as well as when a key actuation can be ignored” and customizing the debouncing time based on the user’s reaction time. Ans. 13.

Appellant again attacks Schultz individually and in isolation from the remaining cited references. Appeal Br. 39 (asserting without elaboration that Schultz does not teach or suggest the limitations at issue without addressing the combined teaching). “Non-obviousness cannot be established

by attacking references individually where the rejection is based upon the teachings of a combination of references.” *Merck*, 800 F.2d at 1097. We are not persuaded as a result. We further note that Appellant’s argument is not persuasive because it does not address the Examiner’s detailed analysis as to why Westerman modified by Smith and Schultz teaches or suggests the limitations of claim 20. *See* Ans. 10–14. We sustain the rejection of claim 20.

*Claim 23*

The dispositive issue here for independent claim 23 is whether the combined prior art teaches or suggests

determining that the pressure applied to the key is a key strike in response to: the pressure applied to the key rising to a key press threshold amount; no more than a threshold number of keys concurrently being pressed; a same key rejection threshold amount of time having elapsed since a previous key strike was determined for the key, the same key rejection threshold amount of time indicating an amount of time that the key is to be released prior to a subsequent determination that the key is struck; and a different key rejection threshold amount of time having elapsed since a previous key strike was determined for a different key of the keyboard, the different key rejection threshold amount of time indicating an amount of time that the different key is to be released prior to a subsequent determination that the key is struck.

Appeal Br. 41–42.

The Examiner provides the same relevant findings as claim 20 with regard to the combined teaching of Westerman, Smith, and Schultz in support of the limitations. Ans. 14. Appellant’s arguments here mirror those raised for claim 20. Appeal Br. 34 (asserting without elaboration that Schultz does not teach or suggest the limitations at issue without addressing

the combined teaching). We sustain the rejection of claim 23 for the reasons provided *supra* with regard to claim 20. Appellant does not argue separately the rejection of claim 24 and it is sustained as well. Appeal Br. 45; *see* 37 C.F.R. § 41.37(c)(1)(vii).

### CONCLUSION

The Examiner’s rejection under section 101 is reversed.

The Examiner’s rejections under section 103 are affirmed.

More specifically,

### DECISION SUMMARY

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1, 3, 4, 6, 9–20, 22–25	101	Eligibility		1, 3, 4, 6, 9–20, 22–25
1, 22, 25	103	Westerman, Smith	1, 22, 25	
3, 4, 20, 23, 24	103	Westerman, Smith, Schultz	3, 4, 20, 23, 24	
6, 9–11, 13, 14	103	Westerman, Smith, Chen	6, 9–11, 13, 14	
12	103	Westerman, Smith, Chen, Bellwood	12	
15, 16, 18	103	Westerman, Smith, Chen, Anson	15, 16, 18	
17	103	Westerman, Smith, Chen, Anson, Casparian	17	
19	103	Westerman, Chen, Anson, Smith	19	
<b>Overall Outcome:</b>			1, 3, 4, 6, 9–20, 22–25	

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TIME PERIOD FOR RESPONSE

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