

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

IMMERSION CORPORATION,
Patent Owner.

Case IPR2016-01777
Patent 8,749,507 B2

Before MICHAEL R. ZECHER, BRYAN F. MOORE, and MINN CHUNG,
Administrative Patent Judges.

CHUNG, *Administrative Patent Judge.*

DECISION

Denying Institution of *Inter Partes* Review
35 U.S.C. § 314(a) and 37 C.F.R. § 42.108

I. BACKGROUND

A. Introduction

Apple Inc. (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting an *inter partes* review of claims 1–5, 9–12, and 14–17 of U.S. Patent No. 8,749,507 B2 (Ex. 1001, “the ’507 patent”). Immersion Corporation (“Patent Owner”) filed a Preliminary Response (Paper 6, “Prelim. Resp.”).

The standard for instituting an *inter partes* review is set forth in 35 U.S.C. § 314(a), which provides that an *inter partes* review may not be instituted unless the information presented in the Petition “shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” Upon consideration of the Petition and the Preliminary Response, we conclude that the information presented in the Petition does not establish a reasonable likelihood that Petitioner would prevail in showing the unpatentability of any of the challenged claims on the grounds set forth in the Petition. Accordingly, we deny Petitioner’s request to institute an *inter partes* review of claims 1–5, 9–12, and 14–17.

B. Related Proceedings

Petitioner asserts that the ’507 patent is the subject of the following proceedings: (1) *Immersion Corp. v. Apple Inc.*, No. 1:16-cv-00325 (D. Del.); and (2) *Certain Mobile and Portable Electronic Devices Incorporating Haptics (Including Smartphones and Laptops) and Components Thereof*, ITC Investigation No. 337-TA-1004 (USITC). Pet. 1. Patent Owner does not dispute Petitioner’s contention, but additionally identifies *Immersion Corp. v. Apple Inc.*, No. 1:16-cv-00077 (D. Del.) as a

“related case.” Paper 4, 2. Patent Owner, however, does not indicate whether the ’507 patent is asserted in that case.

II. THE ’507 PATENT

A. Described Invention

The ’507 patent describes a system and method for adaptively interpreting a user’s intent based on parameters supplied by a touch-sensitive input device. Ex. 1001, Abstract. Figure 1 of the ’507 patent is reproduced below.

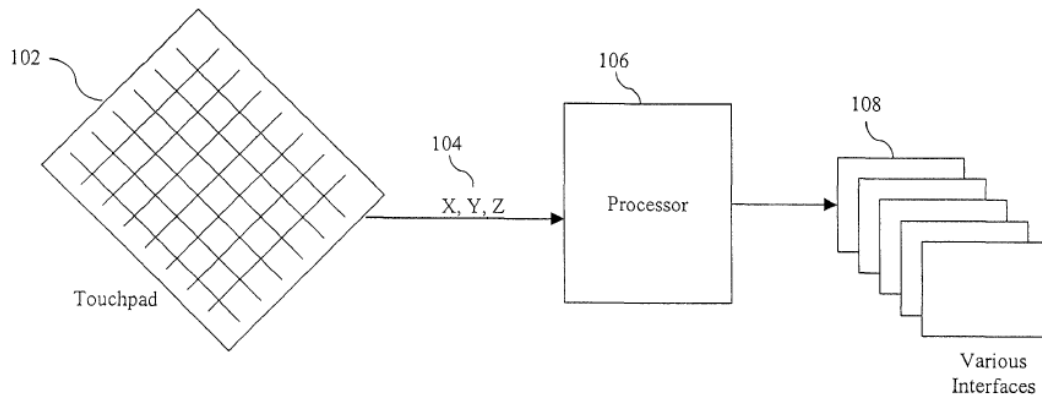


FIG. 1

Figure 1 depicts an exemplary system for implementing embodiments of the ’507 patent. *Id.* at col. 2, ll. 23–25, 37–39. As shown in Figure 1, touchpad 102 senses the positions of a touch on the surface of the touchpad, and provides an output signal comprising position data (X and Y parameters) and pressure data (Z parameter) to processor 106. *Id.* at col. 2, ll. 41–45, col. 3, ll. 51–52. According to the ’507 patent, in order to address the difficulties faced in attempting to determine the intent of a user based on the X, Y, and Z parameters, the disclosed invention provides systems and methods for

adaptive interpretation of the intent of a user of a touch-sensitive input device. *Id.* at col. 4, ll. 56–58, 64–66.

Figure 3 of the '507 patent is reproduced below.

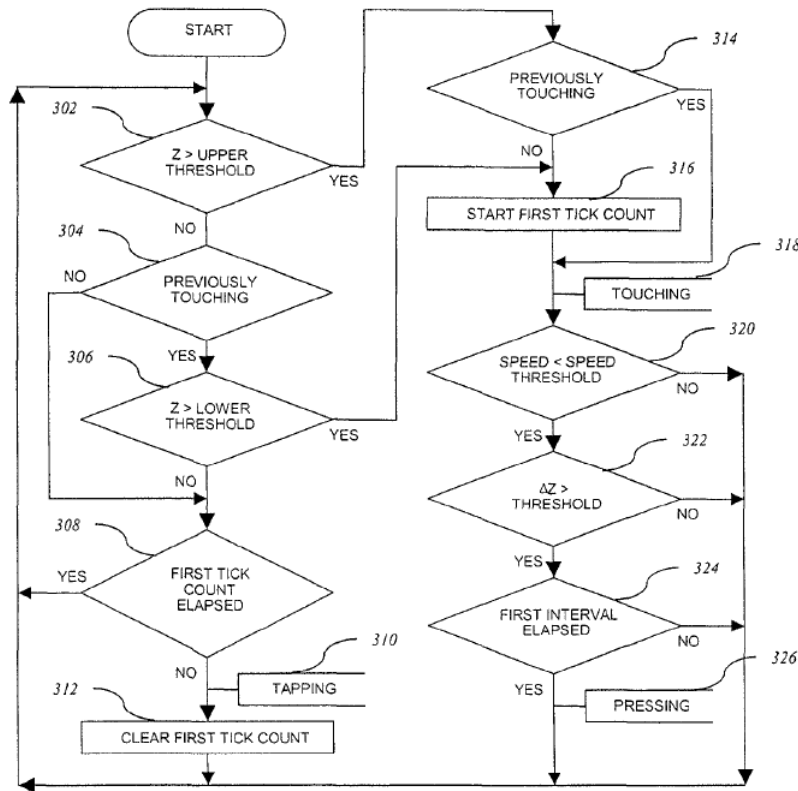


FIG. 3

Figure 3 depicts a flowchart illustrating a process for detecting a finger press by a user on a touchpad. *Id.* at col. 2, ll. 28–30, col. 7, ll. 7–9. At step 302 shown in Figure 3, the processor determine whether the output signal received from the touchpad indicates that the pressure of a user touch exceeds an upper threshold. *Id.* at col. 8, ll. 21–22. If so, the processor checks at step 314 if the user was touching the touchpad previously. *Id.* at col. 8, ll. 22–24. If the user was not previously touching the touchpad, the processor starts the first tick counter and decides the user is now touching

the touchpad. *Id.* at col. 8, ll. 25–27. Once the processor concludes that the user is touching the touchpad, the processor compares the speed of the finger movement on the touchpad to a speed threshold value. *Id.* at col. 8, ll. 31–33; *see also id.* at col. 7, l. 65–col. 8, l. 4 (describing a method of determining the speed of the finger movement and stating that until the speed falls below a speed threshold the processor will not recognize a press). If the speed is less than the speed threshold, the change in pressure (from the previously received value) is compared to a change threshold. *Id.* at col. 8, ll. 41–42. If the change in pressure is determined to be greater than the change threshold at step 322, the processor determines whether a first interval (in the first tick counter) has elapsed at step 324. *Id.* at col. 8, ll. 44–47. If so, the processor concludes that the user is pressing. *Id.* at col. 8, ll. 47–48.

In other words, in order to determine that a user is pressing, the following three conditions must be met: (1) the pressure exceeds the pressure threshold; (2) the change in pressure is greater than the change threshold; and (3) the first interval has elapsed. In the process described in Figure 3, the first two conditions must be maintained for the duration of the first interval, i.e., the user must continue to touch for the duration of the first interval, before a press is recognized.

B. Illustrative Claim

Of the challenged claims, claims 1, 9, and 14 are independent. Claim 1 is illustrative of the challenged claims and is reproduced below with the key disputed limitation emphasized in *italics*.

1. A method comprising:
 - receiving contact data from an input device;
 - determining an interaction with a displayed object on a screen based on the contact data;
 - responsive to determining the interaction, determining a gesture based on the contact data comprising:
 - determining a pressure and a change in pressure based on the contact data, and
 - determining a press if:*
 - the pressure is greater than a pressure threshold,*
 - the change in pressure is greater than a change in pressure threshold, and*
 - a first interval has elapsed; and*
 - responsive to determining the gesture, outputting the haptic effect.

Ex. 1001, col. 10, ll. 30–44.

III. PETITIONER’S CHALLENGES

A. Prior Art Cited in Petitioner’s Challenges

Petitioner cites the following references in its challenges to patentability:

Reference and Relevant Date	Designation	Exhibit No.
U.S. Patent No. 5,673,066 (issued Sept. 30, 1997)	Toda ¹	Ex. 1003
U.S. Patent Application Pub. No. 2002/0033795 A1 (published Mar. 21, 2002)	Shahoian	Ex. 1004

¹ For clarity and ease of reference, we only list the first named inventor.

Reference and Relevant Date	Designation	Exhibit No.
U.S. Patent No. 6,072,474 (issued June 6, 2000)	Morimura	Ex. 1005

B. Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability (Pet. 3):

Claims Challenged	Statutory Basis	References
1–5, 9–12, and 14–17	§ 103(a)	Toda and Shahoian
1, 9, and 14	§ 103(a)	Morimura and Shahoian

IV. CLAIM CONSTRUCTION

In an *inter partes* review, claim terms in an unexpired patent are given their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *see Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144 (2016) (holding that 37 C.F.R. § 42.100(b) “represents a reasonable exercise of the rulemaking authority that Congress delegated to the . . . Office”). Under the broadest reasonable interpretation (BRI) standard, and absent any special definitions, claim terms generally are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art, in view of the specification. *In re Translogic Tech. Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

Petitioner and Patent Owner address the claim term “pseudo pressure” recited in claims 2, 10, and 15. Pet. 11; Prelim. Resp. 10–13. Petitioner also discusses the claim terms “pressure,” “determining a press if . . . the change

in pressure is greater than a change in pressure threshold,” “gesture,” and “softkey.” Pet. 10–11. For purposes of this decision, we need not construe explicitly the claim language identified above in order to determine whether there is a reasonable likelihood of Petitioner prevailing with respect to the challenged claims. *See* 35 U.S.C. § 314(a); *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”).

V. ANALYSIS OF PETITIONER’S PRIOR ART CHALLENGES

A. Obviousness Based on the Combination of Toda and Shahoian

Petitioner contends claims 1–5, 9–12, and 14–17 are unpatentable under 35 U.S.C. § 103(a) as obvious over the combination of Toda and Shahoian. Pet. 12–47. We have reviewed the parties’ contentions and supporting evidence. Given the evidence of record, we are not persuaded that Petitioner has established a reasonable likelihood of prevailing on this asserted ground as to any of these challenged claim for the reasons explained below.

1. Relevant Principles of Law

A claim is unpatentable under § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations,

including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) where in evidence, objective indicia of non-obviousness (i.e., secondary considerations). *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

2. Overview of Toda (Ex. 1003)

Toda describes a method of detecting a press (called a “switch input operation”) on a touch-sensitive tablet. Ex. 1003, col. 2, ll. 7–26. To determine that a touch is an intentional switch input operation, Toda compares the pressure profile of the touch with the empirically determined features of a known intentional touch. *Id.* at col. 8, l. 23–col. 9, l. 3.

Figure 9(a) of Toda is reproduced below.

FIG. 9(a)

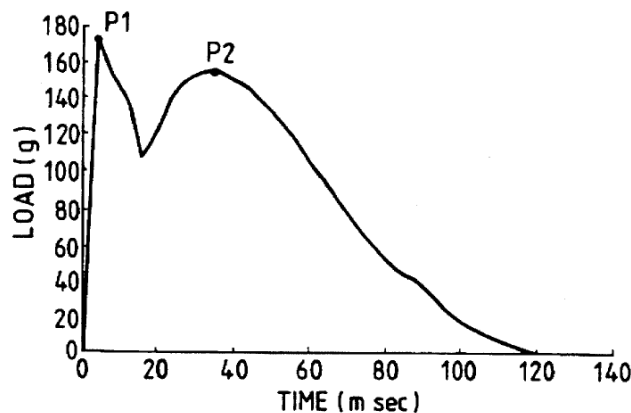


Figure 9(a) depicts an empirically measured pressure profile of a known intentional switch input operation. *Id.* at col. 4, ll. 4–10. As shown in Figure 9(a) above, Toda identifies the placement of two peaks, P1 and P2, in the pressure profile as the salient features in determining an intentional

press. *Id.* at col. 8, ll. 41–58. For example, in an exemplary embodiment, the criteria for recognizing an intentional switch input operation include the following tests: (1) a peak P1 is detected within 30 milliseconds after the initial touch; (2) a peak P2 is detected within 60 milliseconds after the peak P1; and (3) the touch pressure F of the peak P2 is greater than 75 g. *Id.* at col. 8, ll. 59–67.

Figure 15(a) of Toda is reproduced below.

FIG. 15(a)

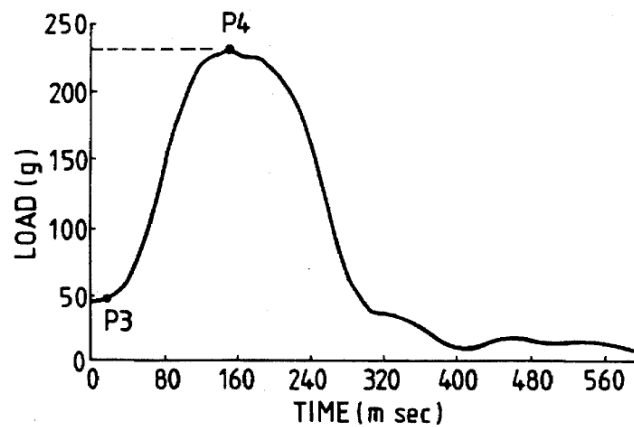


Figure 15(a) depicts an empirically measured pressure profile of a known intentional switch input operation when a finger is moved to perform the operation. *Id.* at col. 4, ll. 35–38. According to Toda, a relevant feature in the profile of Figure 15(a) is that the touch pressure rises sharply from P3 (hence, a “rising point”) to the peak P4. *Id.* at col. 11, ll. 7–11. In an exemplary embodiment, the criteria for recognizing an intentional switch input operation include the following tests: (1) a rising point P3 is detected; (2) a peak P4 is detected within 150 milliseconds after the peak P3; and (3) the touch pressure at the peak P4 is greater than 150 g. *Id.* at col. 11, ll. 7–13.

In another embodiment, in order to detect a rising point P3, the change in pressure is measured three times. According to Toda, a rising point is determined when the pressure increases by more than 10 g for three times sequentially. *Id.* at col. 11, ll. 40–52.

3. Overview of Shahoian (Ex. 1004)

Shahoian describes a touch input device with a haptic feedback. Ex. 1004, Abstract. At least one actuator is coupled to the touch input device to provide a haptic sensation to the user. *Id.*

4. Discussion

a. Claims 1, 9, and 14

Independent claims 1, 9, and 14 all recite “determining a press if: the pressure is greater than a pressure threshold, the change in pressure is greater than a change in pressure threshold, and a first interval has elapsed” (the “determining a press limitation”). Petitioner relies on Toda for all but one limitation recited in these independent claims, including the “determining a press limitation.” Pet. 17–35, 43–46. As discussed below, Petitioner does not demonstrate sufficiently how Toda teaches or renders obvious the “determining a press limitation.”

The plain language of the “determining a press limitation” indicates that the limitation recites a single concept—i.e., determining a press when all three conditions recited in the limitation are satisfied. This reading of the claim limitation is consistent with the disclosure in the written description of the ’507 patent discussed in Section II.A above. As discussed above, the Specification describes that, in order to determine that a user is pressing, at

least the following three conditions must all be met: (1) the pressure exceeds the pressure threshold; (2) the change in pressure is greater than the change threshold; and (3) the first interval has elapsed. Ex. 1001, col. 8, ll. 21–48, Fig. 3. Thus, a proper obviousness analysis must address the “determining a press limitation” as an integral whole and show how a reference or a combination of references renders the limitation as a whole obvious. *See KSR*, 550 U.S. at 406.

Petitioner, however, breaks up the “determining a press limitation” into four distinct elements identified by Petitioner as elements [1.5], [1.6], [1.7], and [1.8], and largely addresses them separately, arguing Toda teaches or renders obvious each of these limitations individually. *See* Pet. 24–30. For purposes of this Decision, we focus on the element identified by Petitioner as element [1.8], i.e., the limitation reciting “a first interval has elapsed,” to illustrate the deficiencies in Petitioner’s approach.

Petitioner presents two separate theories based on two different embodiments of Toda to argue Toda teaches or renders obvious the condition “a first interval has elapsed” as recited in the claims. *Id.* at 26–30. First, Petitioner argues that the embodiment depicted in Figure 17 of Toda teaches elapsing of “a first interval” because Toda describes measuring a change in pressure for three consecutive times. *Id.* at 26–27 (citing Ex. 1003, col. 11, ll. 42–45, Fig. 17 (step 123), Fig. 19A (step 123)). Petitioner argues that the “three sampling times” correspond to “a first interval” recited in the claims. *Id.* at 27. Petitioner, however, does not explain adequately how the three sequential sampling is conducted over a predetermined interval as a condition to detecting a press.

The cited portion of Toda describes detecting or recognizing a “rising point P3” in a pressure profile² by determining whether the pressure increases by more than 10 g for three consecutive times. Ex. 1003, col. 11, ll. 40–52 (“it is judged whether the rising step P3 is detected”); Fig. 17 (step 123) (“IS RISING POINT P3 DETECTED?”). Toda, however, does not describe any time “interval” associated with the three sequential measurements. Nor is there any disclosure in Toda of an expiration of a time period or interval as a condition to detecting the rising point P3. Hence, the cited portion of Toda does not teach or render obvious the condition “a first interval has elapsed” recited in the claims.

Petitioner contends that a person of ordinary skill in the art would have recognized “determining . . . a time interval has passed” would be “one factor” to determining a press because Toda teaches that determining a switch input operation takes about 120 to 600 milliseconds to measure the pressure profile. Pet. 28–29. Petitioner’s argument is not persuasive. To demonstrate obviousness, Petitioner must show why Toda teaches or suggests *requiring* elapsing of a time interval as a *condition* to detecting a press, not that Toda shows a passage of a time is a “factor” in determining a press.

Petitioner further contends that conditioning the detection of a press on the passage of a time interval would have been within the skill of a person of ordinary skill in the art because Toda considers various passage of

² The “rising point P3” is depicted in Figure 15(a), which is described in the paragraphs of Toda preceding the passages cited by Petitioner. *See* Ex. 1003, col. 11, ll. 7–11, Fig. 15(a).

time in its detection algorithm. *Id.* at 29–30 (citing Ex. 1003, Fig. 11 (steps 103, 108), Fig. 18A (steps 103, 108)). We are not persuaded by Petitioner’s argument in this regard because the cited steps of Toda show detecting a peak in a pressure profile within a certain time period. Toda does not show that the detection of the peaks is conditioned on the passage of a specified time interval. Rather, the detection of the peaks can occur anytime as long as it occurs within the specified time interval.

Petitioner’s second theory is similarly deficient. Petitioner contends that step 103 of the flowchart depicted in Figure 11 of Toda teaches elapsing of a time interval because Figure 11 shows that, if the time interval of 30 milliseconds elapses, the process follows the “no” branch towards routine “3,” where, as shown in Figure 17, a press (i.e., “Switch Inputting On”) is eventually determined. *Id.* at 27. Hence, Petitioner argues that Toda teaches detecting a press “based in part on a time interval of 30 ms having passed.” *Id.*

As discussed above, step 103 of Figure 11 determines whether a peak P1 has occurred, not if a time interval has elapsed. More importantly, it is not enough to show Toda teaches detecting a press “based in part” on a passage of a time interval. It is not even enough to show Toda teaches each of the claim limitations identified by Petitioner as elements [1.5], [1.6], [1.7], and [1.8] individually. Rather, Petitioner must show how Toda teaches, suggests, or renders obvious the “determining a press limitation” as a whole. As discussed above, in the process depicted in Figure 3 of the ’507 patent, the “first interval has elapsed” condition means that the other two conditions—i.e., the pressure exceeds the pressure threshold, and the change

in pressure is greater than the change threshold—must be maintained for the duration of the first interval before a press is determined. In other words, the meaning of the “first interval has elapsed” condition as an integral part of the “determining a press limitation” may be very different from its meaning in isolation. Thus, to show obviousness, consideration of “the subject matter, as a whole” of the “determining a press limitation” is required. *See KSR*, 550 U.S. at 406.

In order to demonstrate that Toda renders the “determining a press limitation” obvious, Petitioner must identify the differences between the teachings of Toda and the claimed method of determining a press, *see KSR*, 550 U.S. at 406, and explain how the algorithms of Toda could be modified to achieve the claimed method of the ’507 patent. *See Comaper Corp. v. Antec Inc.*, 596 F.3d 1343, 1351–52 (Fed. Cir. 2010) (“Determining obviousness requires considering whether two or more pieces of prior art could be combined, or *a single piece of prior art could be modified*, to produce the claimed invention.”) (emphasis added). Petitioner makes no such showing in the Petition. Petitioner does not identify any difference between the algorithms of Toda and the claimed process of determining a press, nor does Petitioner show how Toda’s algorithms can be modified to achieve the claimed process of the ’507 patent.

Hence, Petitioner does not demonstrate that the “determining a press limitation” recited in claims 1, 9, and 14 is obvious in view of Toda. Shahoian is relied upon by Petitioner only to teach the last limitation of the claims, i.e., the limitation reciting “output[ting] haptic effect.” Pet. 30–35, 45, 46. Hence, Shahoian cannot and does not remedy the above-identified

deficiencies in Petitioner's analysis of the "determining a press limitation." Accordingly, on this record, the information presented in the Petition does not demonstrate a reasonable likelihood of Petitioner prevailing in its challenge to independent claims 1, 9, and 14 under 35 U.S.C. § 103(a) as obvious over the combination of Toda and Shahoian.

b. Claims 2–5, 10–12, and 15–17

Claims 2–5 depend from claim 1. Similarly, claims 10–12 depend from claim 9, and claims 15–17 depend from claim 14. Petitioner's arguments and evidence presented with respect to these dependent claims do not remedy the deficiencies in Petitioner's analysis of the challenged independent claims discussed above. Therefore, Petitioner does not demonstrate a reasonable likelihood of prevailing in its challenge to dependent claims 2–5, 10–12, and 15–17 under 35 U.S.C. § 103(a) as obvious over the combination of Toda and Shahoian.

B. Obviousness Based on the Combination of Morimura and Shahoian

Petitioner contends claims 1, 9, and 14 are unpatentable under 35 U.S.C. § 103(a) as obvious over the combination of Morimura and Shahoian. Pet. 48–66. We have reviewed the parties' contentions and supporting evidence. Given the evidence of record, we are not persuaded that Petitioner has established a reasonable likelihood of prevailing on this asserted ground as to any of these challenged claim for the reasons explained below.

1. Overview of Morimura (Ex. 1005)

Morimura describes a document processing device with a pen or stylus input interface, such as a Japanese word processor. Ex. 1005, col. 1,

ll. 5–11. Morimura discloses a variable plotting/editing process, which allows varying the line width of the drawing pen depending on the “tool force” or pressure applied to the pen. *Id.* at col. 7, ll. 32–55, col. 10, ll. 20–30.

2. Discussion

In this ground of challenge based on the combination of Morimura and Shahoian, Petitioner relies on Morimura for all but one limitation recited in claims 1, 9, and 14, including the “determining a press limitation.” Pet. 51–65. Shahoian is relied upon by Petitioner only to teach the last limitation of the claims, i.e., the limitation reciting “output[ting] haptic effect.” *Id.* at 60–62, 64, 65. Similar to our analysis above with respect to the ground based on Toda and Shahoian, Petitioner does not demonstrate sufficiently how Morimura teaches or renders obvious the “determining a press limitation.”

Petitioner contends that Figure 8 of Morimura inherently discloses the limitation “a first interval has elapsed.” *Id.* at 59. Petitioner asserts that obtaining a change in tool force by subtracting the previous tool force P_0 from the current tool force P , as described in Morimura, inherently discloses the “first interval has elapsed” limitation because “obtaining the tool force at two different points in time necessarily requires waiting for a first time interval to elapse after the determination of the first tool force and before the determination of the second tool force.” *Id.*

As discussed above, however, it is not sufficient to show a mere passage of time to satisfy the “first interval has elapsed” limitation. Rather, Petitioner must show Morimura discloses *requiring* elapsing of a time

interval as a *condition* to detecting a press. Petitioner's inherency argument is not persuasive because Petitioner does not explain why conditioning detecting a press on a passage of a time interval is the "the natural result flowing from" the operation of obtaining a change in tool force. *See PAR Pharm., Inc. v. TWI Pharm., Inc.*, 773 F.3d 1186, 1195 (Fed. Cir. 2014) (quoting *In re Oelrich*, 666 F.2d 578, 581 (CCPA 1981)).

Petitioner's obviousness argument is similarly unpersuasive because it is focused on mere elapse of time and does not address the recited claim limitation of requiring expiration of a time interval as a condition to detecting a press. Pet. 59–60.

Furthermore, similar to our analysis above with respect to the ground based on Toda and Shahoian, Petitioner does not present an obviousness analysis for the "detecting a press limitation" as a whole. Petitioner does not identify any difference between the algorithms of Morimura and the claimed process of determining a press, nor does Petitioner show how Morimura's algorithms can be modified to achieve the claimed process of the '507 patent. *See KSR*, 550 U.S. at 406; *Comaper*, 596 F.3d at 1351–52.

Hence, Petitioner does not demonstrate the "determining a press limitation" recited in claims 1, 9, and 14 is obvious in view of Morimura. As discussed above, Shahoian is relied upon by Petitioner only to teach the last limitation reciting "output[ting] haptic effect." Hence, Shahoian cannot and does not remedy the above-identified deficiencies in Petitioner's analysis of the "determining a press limitation." Accordingly, on this record, the information presented in the Petition does not demonstrate a reasonable likelihood of Petitioner prevailing in its challenge to claims 1, 9,

and 14 under 35 U.S.C. § 103(a) as obvious over the combination of Morimura and Shahoian.

VI. CONCLUSION

Based on the arguments and evidence presented in the Petition, we conclude Petitioner has not demonstrated a reasonable likelihood that Petitioner would prevail in showing at least one of the challenged claims of the '507 patent is unpatentable based on any asserted ground of unpatentability. Therefore, we do not institute an *inter partes* review with respect to any of the challenged claims of the '507 patent.

VII. ORDER

In consideration of the foregoing, it is ORDERED that the Petition is denied as to all challenged claims of the '507 patent, and no trial is instituted.

IPR2016-01777
Patent 8,749,507 B2

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