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Paper 17
Date: May 29, 2024

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

CHIAN CHIU LI,
Patent Owner.

IPR2023-00560
Patent 11,016,564 B2

Before THU A. DANG, GARTH D. BAER, and JASON W. MELVIN, *Administrative Patent Judges*.

MELVIN, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

Apple Inc. ("Petitioner") filed a Petition (Paper 1, "Pet.") requesting *inter partes* review of claims 1–6, 8–12, 14–16, and 18–20 ("the challenged claims") of U.S. Patent No. 11,016,564 B2 (Ex. 1001, "the '564 patent"). Chian Chiu Li ("Patent Owner") filed a Preliminary Response. Paper 5. We instituted review. Paper 6. Patent Owner filed a Response (Paper 8, "PO Resp."), Petitioner filed a Reply (Paper 9, "Pet. Reply"), and Patent Owner filed a Sur-Reply (Paper 10). We held an oral hearing on April 24, 2024. Paper 16 ("Tr.").

For the reasons set forth below, we conclude that Petitioner has proven that the challenged claims are unpatentable.

A. REAL PARTIES IN INTEREST

Each party identifies itself as the real party in interest. Pet. 65; Paper 3, 1 (Patent Owner's Mandatory Notices).

B. RELATED MATTERS

The parties identify the following related district-court litigation involving the '564 patent: *Apple Inc. v. Chian Chiu Li*, No. 3:22-cv-02956-TLT (N.D. Cal.). Pet. 65; Paper 3, 1.

C. THE '564 PATENT

The '564 patent is titled "System and Method for Providing Information" and relates to presenting information using an electronic device that starts showing content when it detects a user gazing at the idle device. Ex. 1001, codes (54), (57). The patent discloses transitioning to show information "when a user shakes, taps, or speaks to a standby or idling device, and then looks at it." *Id.* at 2:36–41.

As the specification describes, the device may include multiple sensors, including "sensor 10[,] which tracks the eye of a user using mature eye-tracking technologies" (*id.* at 3:65–66), and "sensor 20[,] which functions as a motion detector, [and] which is well known in the art and employed at some devices already" (*id.* at 4:12–14). The device may include "sensor 24 to detect its own movement by sensing acceleration, deceleration, and rotation," thus "detecting device shaking, device vibration, user running, user walking, and so on." *Id.* at 4:22–28.

Thus, "[w]hen a user approaches a device, sensor 20 may detect it and then the system may activate sensor 10 to detect the user's gaze direction." *Id.* at 6:33–35. Detecting gaze only after detecting movement provides a benefit according to the '564 patent: "Since a motion detector may consume less power than an eye-tracking sensor, it saves energy and extends the battery life of a device." *Id.* at 6:40–42. In another embodiment, the device uses sensor 24 to detect the user's desire to "make use of standby or idle device in a simple and convenient manner." *Id.* at 6:50–52. To that end, "a circuitry may be configured such that shaking may activate a gaze sensing system." *Id.* at 6:64–66. The patent explains that using sensors to detect movement before activating gaze detection "avoids content shows caused by unintended gaze" and "saves energy as a gaze sensing system may be off most of the time unless getting activated upon receiving shaking signals." *Id.* at 7:7–12.

D. CHALLENGED CLAIMS

Petitioner challenges claims 1–6, 8–12, 14–16, and 18–20. Pet. 1, 4–5. Claim 1 is independent and is reproduced, below:

> 1. A method for presenting information at an electronic device, comprising:
>
> 1) detecting an act made by a user involving physical contact with the electronic device or physical movement of the electronic device when a display of the electronic device has an idle screen or a screen in standby mode, inactive mode, or screen-saver mode;
>
> 2) performing gaze detection only after detecting the act;
>
> 3) ascertaining whether the user looks at a direction toward the electronic device;
>
> 4) determining whether the user is recognized via a recognition mechanism; and
>
> 5) presenting a plurality of content items when the user is recognized via the recognition mechanism and it is ascertained that the user looks at a direction toward the electronic device.

Ex. 1001, 12:56–13:4. Claims 8 and 14 are independent, and recite limitations similar to claim 1's, with claim 8 reciting a method and claim 14 reciting an electronic device. *Id.* at 13:24–39 (claim 8), 14:6–25 (claim 14). The other challenged claims depend directly from one of the independent claims.

E. Prior Art and Asserted Grounds

Petitioner asserts the following unpatentability grounds:

Claims Challenged	35 U.S.C. §	References/Basis
1–5, 8, 9, 11, 12, 14–16, 18, 20	103	Ryu,[1] Hodge[2]
1, 6, 8, 10, 14, 19	103	Ryu, Hodge, Stallings[3]

[1] US 10,540,013, issued Jan. 21, 2020 (Ex. 1004).
[2] US 2010/0079508, published April 1, 2010 (Ex. 1005).
[3] US 8,331,992, issued Dec. 11, 2012 (Ex. 1006).

Pet. 4–5. Petitioner also relies on the Declaration of Benjamin B. Bederson. Ex. 1003.

II. ANALYSIS

A. LEVEL OF SKILL IN THE ART

Petitioner asserts that an ordinarily skilled artisan would have had "at least a bachelor's degree in computer science, software engineering, or an equivalent degree with at least one year of experience in the fields of human computer interaction, software engineering or computer engineering in either a research or work capacity." Pet. 3–4 (citing Ex. 1003 ¶ 30–32). Petitioner adds that "this hypothetical person would have experience with user interface design, user interface/mobile device software, and user interaction techniques, or their equivalent." *Id.* at 4. Patent Owner does not address the level of skill in the art. *See generally* PO Resp. We adopt Petitioner's proposed level of ordinary skill as it appears to be consistent with the level of skill reflected by the specification and in the asserted prior art references.

B. CLAIM CONSTRUCTION

Neither party argues for an express claim construction. *See* Pet. 5; *see generally* PO Resp. Patent Owner's arguments, however, focus on the independent claims' requirement to "perform gaze detection only after detecting the [physical contact or movement] act." *Id.* at 1, 13–18. Patent Owner argues that this "only after" claim language excludes a device that uses triggers for gaze detection other than movement detection. *Id.* at 3–4, 7, 9–10; Tr. 24:5–10, 24:16–18, 25:3–5. Petitioner does not dispute that gaze detection must be triggered by movement detection, but submits further that the "only after" claim limitation is temporal in nature, rather than structural

or capability limiting, and thus does not exclude devices that, for example, use proximity detection before the claimed movement detection, as long as the movement detection must occur before performing gaze detection. Pet. Reply 1–8; Tr. 16:17–21.

Patent Owner attempts to elaborate on the claims' scope by pointing to three different scenarios in the specification: (1) gaze detection is performed continuously without any trigger act such as a physical movement or proximity event (citing Ex. 1001, Fig. 2, 2:33–36, 4:31–38); (2) gaze detection is performed after an act such as a proximity event or a physical movement (citing *Id.* at Fig. 6, 6:32–37, 6:58–66); and (3) gaze detection is performed only after a physical movement (the "Given Act") (citing *Id.* at 7:9–12). PO Resp. 2–4. For scenario (3), Patent Owner contends that "[t]he Given Act excludes a user approaching a device, and only involves touching or physical movement of a device by a user, which more accurately indicates the user's intention to view content at a device and a gaze (or a glance) at the device further confirms the intention." *Id.* at 3–4. Patent Owner contends that when gaze detection is performed only after physical movement, the risk of accidental display of information is reduced, unnecessary gaze detection is avoided, and less power is consumed. *Id.* at 4. In other words, Patent Owner justifies the "only after" claim language as providing a benefit.

Petitioner agrees that the '564 patent describes various gaze-detection scenarios, but submits that it teaches an electronic device that has the capability to perform each of the scenarios. Pet. Reply 3–4 (citing Ex. 1001, Fig. 1, 3:65, 4:12–4:13, 4:18–24). Thus, in Petitioner's view, the user could specify which, if any, user input would be necessary to trigger gaze

detection. Pet. Reply 5 (citing Ex. 1001, 6:35–36, 6:58–59, 7:13–24; Ex. 1010 ¶¶ 4–7). Petitioner argues that the claims do not preclude the capability to detect proximity events, as the "only after" limitation requires that "performing" occurs "only after" detecting the act, and thus the device is not precluded from being able to detect other, unclaimed acts. *Id.* at 6–7; Tr. 12:20–13:9. Stated otherwise, Petitioner contends that the claims are directed to a device *performing* in a particular way and do not exclude a device *capable* of other modes of operation.

Patent Owner relies on its view to assert that the claims require a device that affirmatively excludes performing gaze detection after detecting proximity. PO Resp. 7. For example, Patent Owner submits that even if a device lacks a proximity sensor, it must further exclude the possibility of gaze detection based on proximity. *Id.* ("[R]egardless of whether the device 100 has a proximity sensor or not, Ryu . . . does not disclose gaze detection is performed only after detecting [physical movement]. As a consequence, Ryu does not exclude performing gaze detection after detecting an event using proximity information.").

Patent Owner, however, has not identified any disclosure in the '564 patent that requires an affirmative exclusion for alternative triggers when a device has only a movement sensor. To the extent the specification addresses devices using only a physical movement sensor, it does not speak to whether such devices exclude other sensors or how such devices might affirmatively exclude alternative triggers. Rather, it simply addresses how a device may use a physical movement sensor to trigger gaze detection. Ex. 1001, 6:49–66. As a whole, the described scenarios encompass a device that operates in various modes using appropriate sensors to implement a

desired mode. Ex. 1001, 6:31–7:48. Thus, Patent Owner's position on claim scope is not persuasive and we agree with Petitioner that the claims are directed to methods and devices that operate in the claimed manner, even if they could be configured to operate in a different manner.

We conclude that "only after" does not require further construction. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (noting that "we need only construe terms 'that are in controversy, and only to the extent necessary to resolve the controversy'" (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

C. Obviousness over Ryu and Hodge

Petitioner asserts a combination of Ryu and Hodge. Pet. 5–52. Ryu relates to a method of performing a function of a device based on motion information of the device in a standby mode. Ex. 1004, code (57). Ryu's Figure 1 is reproduced below:

FIG. 1

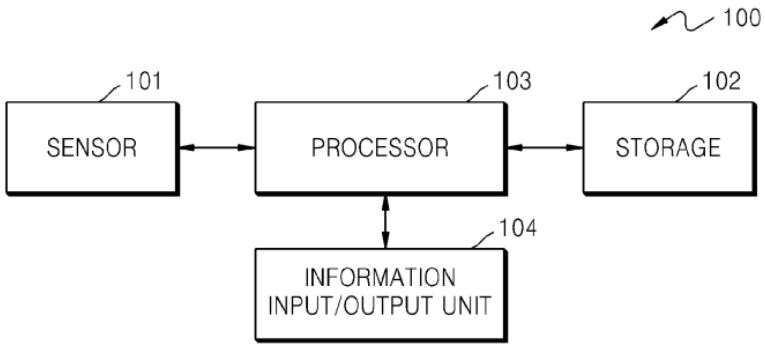

Figure 1 shows a block diagram of device 100 that performs a function based on motion information regarding movement of device 100,

including sensor 101, storage 102, processor 103, and information input/output unit 104. *Id.* at 4:58–65. Ryu discloses that "sensor 101 may include a plurality of sensors of various types to sense movement of the device 100." *Id.* at 5:15–16; *accord id.* at 7:29–30 ("[S]ensor 101 may be referred to as a movement sensor for detecting the movement of the device 100."). It elaborates that "sensor 101 may include at least one of a gyro sensor for sensing a rotation based movement of the device 100 and an accelerometer sensor for sensing a perpendicular direction based movement of the device 100 and a moving distance of the device 100." *Id.* at 6:62–67.

Ryu's Figure 8 illustrates a device entering active mode after performing gaze detection subsequent to physical movement of the device:

FIG. 8

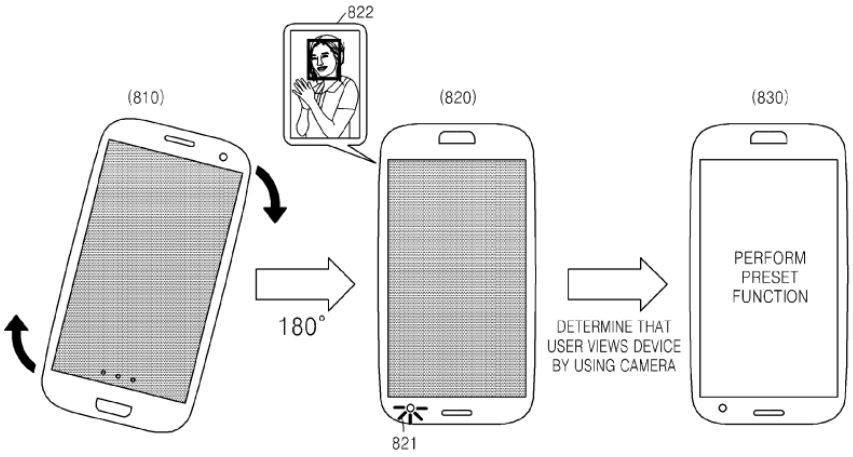

Figure 8 illustrates screen activation by device 100 after a 180° rotation of device 100 and gaze detection of the user. *Id.* at 19:49–20:3. Ryu discloses that device 100 can be in standby mode in which screen 810 is black. *Id.* at 19:51–53. When device 100 is rotated by 180°, processor 103 activates front camera 821. *Id.* at 19:54–56. Processor 103 may then determine whether a

user is looking at device 100 using image 822 obtained from front camera 821. *Id.* at 19:64–67. If processor 103 determines that the user is looking at device 100, an operation mode may be entered as depicted by screen 830. *Id.* at 19:67–20:3.

Hodge relates to an electronic device with "gaze detection capabilities that allow the device to detect when a user is looking at the device." Ex. 1005, code (57). Hodge teaches that its device may include user-identification capabilities to distinguish between authorized and unauthorized users. *Id.* ¶ 116.

Petitioner maps the independent claim elements to Ryu's method of performing gaze detection after detecting a device's physical movement. Pet. 5–52. Petitioner maps the claimed "recognition mechanism" to Hodge's capability of distinguishing between authorized and unauthorized users. *Id.* at 28–33, 44–46, 49–50 (citing Ex. 1003 ¶¶ 50–53, 64–67, 77, 99–100; Ex. 1005 ¶ 116). Petitioner reasons that using Hodge's recognition mechanism with Ryu's device would allow the device "to recognize only an authorized user" and therefore "improve the security and privacy of Ryu's device." Pet. 13. Petitioner further submits that using Hodge's approach would work in Ryu's device the same way it did in Hodge's device to improve privacy and security. *Id.* at 13–14.

Patent Owner disputes only whether Ryu teaches the claim limitation "performing gaze detection only after sensing the act," which appears in each of the independent claims. PO Resp. 1, 6–10, 13–17. For that limitation, Petitioner relies on Ryu's gaze detection performed after detecting the device's physical movement. Pet. 20–24. Petitioner contends that Ryu teaches an electronic device in standby mode that requires sensed

movement before changing its operating mode to active mode. *Id.* at 22. Petitioner contends that once the device is in active mode, it executes an application related to its front camera to determine if the user is gazing at the device. *Id.* at 22–24 (citing Ex. 1004, Fig. 8, 19:49–56; Ex. 1003 ¶¶ 58–59).

Although Petitioner disagrees with Patent Owner's construction of the "only after" claim limitation (Pet. Reply 1–8), Petitioner contends that Ryu discloses this claim limitation even under a more restrictive claim scope, as Ryu's Figure 1 embodiment includes a movement sensor but does not include a proximity sensor (Tr. 8:16–10:17).

Patent Owner contends that Ryu does not disclose or recognize the "only after" limitation because "Ryu is silent on whether the device 100 has any proximity sensor" and "Ryu detects an act by the movement sensor and uses the act as a trigger for gaze detection, while other triggers for gaze detection are not disclosed." PO Resp. 8–9; Tr. 20:3–9, 22:13–20. As discussed above, we do not agree with Patent Owner's assertion that the claims require affirmatively preventing alternative gaze-detection triggers. *See supra* at 5 (§ II.B). Thus, we do not agree with Patent Owner's argument that Ryu does not disclose the "only after" claim limitation, even for a device that lacks a proximity sensor. *Id.* at 7.

As for Ryu's silence on whether its device 100 has a proximity sensor, we find that Ryu's primary embodiment does not include a proximity sensor. Petitioner contends that Ryu's Figure 1 discloses the "only after" limitation because Ryu's primary embodiment includes only a movement sensor and not a proximity sensor. Pet. 17–18; Pet. Reply 10; Tr. 8:6–9:14; Ex. 1004, 4:63–65, 5:15–16 ("The sensor 101 may include a plurality of sensors of various types to sense movement of the device 100."), 6:61–7:10. In some

regards, Patent Owner contends that "[i]n another embodiment," Ryu discloses a device 1100 that has a sensor 1102 which could be a movement or proximity sensor. *Id.* at 6–7 (citing Ex. 1004, 21:38–40, 22:21–23, 22:27–35). Petitioner does not rely on Ryu's "device 1100" embodiment, so Patent Owner's argument based on that embodiment is inapposite.

Further, Ryu's contrast between its embodiments undermines Patent Owner's position that Ryu's "device 100, like the device 1100, may also have a proximity sensor." PO Resp. 7. In Ryu's primary embodiment, "[t]he sensor 101 detects movement of the device 100," and Ryu details a variety of sensors that can detect movement. *Id.* at 6:47–7:33. Then, "[t]he device 100 of Fig. 1 performs a preset function based on motion information regarding a movement of the device 100 and operation of the device 110." Ex. 1004, 4:59–62. That describes a device performing the claimed method in which physical movement is used to trigger gaze detection. Ryu discloses that its device with a proximity sensor is "another exemplary embodiment" (*Id.* at 21:37–22:47) and therefore supports that Ryu's primary embodiment does not contain a proximity sensor—i.e., it is incapable of detecting proximity.

Accordingly, we agree with Petitioner that Ryu discloses a device that triggers gaze detection only after the device senses physical movement.

Patent Owner argues further that Ryu has no motivation to implement an "only after" limitation because Ryu does not need to exclude other triggers that do not exist. PO Resp. 9. That argument is not persuasive because, as explained, Ryu teaches a device with the claimed capability and no additional sensors that would suggest alternative approaches. Ryu need not address expressly elements that its device does not have.

Patent Owner does not otherwise challenge Petitioner's assertions regarding Ryu and Hodge. *See generally* PO Resp. We find that the combination of Ryu and Hodge teaches the uncontested limitations and that skilled artisans would have had reason to make the combination as Petitioner explains. *See* Pet. 5–52. We have reviewed Petitioner's contentions in light of the full record, and conclude that Petitioner has demonstrated by a preponderance of the evidence that Ryu and Hodge renders claims 1–5, 8, 9, 11, 12, 14–16, 18, and 20 obvious.

D. OBVIOUSNESS OVER RYU, HODGE, STALLINGS

Petitioner asserts that Ryu, Hodge, and Stallings teach claims 1, 6, 8, 10, 14, and 19 of the '564 patent. Pet. 52–61. Stallings relates to a mobile-communication device that receives information while in a sleep or locked state, and associates one or more portions of the current information with one or more corresponding windows. Ex. 1006, code (57). Stallings teaches that its device may display information provided by Really Simple Syndication (RSS) feeds, which allow a device to subscribe to RSS feeds to regularly check for new content and download any updates. *Id.* at 5:51–67.

Petitioner largely follows the same mapping described above for Ryu and Hodge, but maps the "presenting a plurality of content items" claim elements of the independent claims to Stalling's teachings of a user configuring the number of, arrangement, and the types of information provided in the RSS windows. Pet. 57–58 (citing Ex. 1003 ¶¶ 107–108; Ex. 1006, 6:55–7:1). Petitioner submits that using RSS feeds to provide information as taught by Stallings would improve the combination device's functionality and "allow for a user to be presented with various pieces of information (content) on the gateway screen that the user would find

relevant prior to performing a function." Pet. 55; *accord id.* at 56 (submitting Stallings's functionality "allowed the user to be presented with a quick and concise overview of pertinent information that would allow a user to be informed or notified of any changes").

Petitioner further addresses claim 6, which depends from claim 1, along with claims 10 and 19, which depend from claims 8 and 14, respectively, and recite limitations parallel to claim 6's. Pet. 58–61. Claim 6 requires that "the plurality of content items is arranged by a service." Ex. 1001, 13:19–20. Petitioner contends that Stallings's RSS windows satisfy that requirement because "content displayed in each of the RSS windows was downloaded from a corresponding URL to which the user had subscribed." Pet. 58–59 (citing Ex. 1003 ¶¶ 109–111).

Patent Owner argues that Petitioner's obviousness showing is inadequate for the same reasons as discussed above regarding obviousness over Ryu and Hodge. PO Resp. 1, 6–10, 17–18. We have addressed that argument above. We further agree with Petitioner that Stallings discloses both claim 1's "presenting" limitation and claim 6's "arranged by a service" limitation and that skilled artisans would have had reason to incorporate Stallings's teachings in both regards.

Patent Owner does not otherwise challenge Petitioner's assertions regarding Ryu, Hodge, and Stallings. *See generally* PO Resp. We find that the combination of Ryu, Hodge, and Stallings teaches the uncontested limitations for the reasons given by the Petitioner. Pet. 52–61. We have reviewed Petitioner's contentions in light of the full record, and conclude that Petitioner has demonstrated by a preponderance of the evidence that Ryu and Hodge renders claims 1, 6, 8, 10, 14, and 19 obvious.

III. CONCLUSION[4]

We conclude Petitioner has shown the challenged claims are unpatentable. In summary:

Claim(s)	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–5, 8, 9, 11, 12, 14–16, 18, 20	103	Ryu, Hodge	1–5, 8, 9, 11, 12, 14–16, 18, 20	
1, 6, 8, 10, 14, 19	103	Ryu, Hodge, Stallings	1, 6, 8, 10, 14, 19	
Overall Outcome			1–5, 6, 8, 9, 10, 11, 12, 14–16, 18–20	

IV. ORDER

Accordingly, it is

ORDERED that Petitioner has shown by a preponderance of the evidence that claims 1–5, 6, 8, 9, 10, 11, 12, 14–16, 18–20 of the '564 patent are unpatentable; and

[4] Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding. See* 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. §§ 42.8(a)(3), (b)(2).

FURTHER ORDERED that, because this is a Final Written Decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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