

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MASIMO CORPORATION,
Petitioner,

v.

APPLE INC.,
Patent Owner.

Case IPR2023-00664
Patent 11,106,352

SECOND DECLARATION OF DR. ANDREW COCKBURN

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I. ASSIGNMENT

1. I have been engaged as an expert by Fish & Richardson P.C. on behalf of Apple Inc. (“Apple” or “Patent Owner”) for the above-captioned *Inter Partes* Review involving United States Patent No. 11,106,352 (“the ’352 Patent”).

2. I understand that this declaration will be submitted in support of Patent Owner’s Reply to Petitioner’s Opposition to Patent Owner’s Revised Contingent Motion to Amend. This declaration supplements, and is intended to be read in conjunction with, my declaration in support of Patent Owner’s Response to the Petition for *inter partes* review of the ’352 Patent (APPLE-2003, “my First Declaration”). In my First Declaration, I address many topics, including (but not limited to) my background and qualifications, the level of skill in art, an overview of the ’352 patent, claim construction, certain legal standards explained to me by Apple’s counsel, and a detailed analysis of the prior art against the ’352 patent’s claims. The opinions and explanations expressed in my First Declaration apply equally here.

3. In writing this Second Declaration, I have considered the following: my own knowledge and experience, including my teaching and work experience in the relevant fields; and my experience of working with others involved in those fields.

4. I have no financial interest in either party or in the outcome of this proceeding. I am being compensated for my work as an expert on an hourly basis, for all tasks involved. My compensation is not dependent on the outcome of these proceedings or on the content of my opinions.

II. ANALYSIS REGARDING THE SUBSTITUTE CLAIMS OF THE '352 PATENT

5. I have been asked by Patent Owner to evaluate the contentions of Petitioner and Dr. Rosenberg regarding the allegation that Chae, Narendra, Shuttleworth, Karunamuni, Hong, Android, Tu, Gao, Moto 360, Tsukamoto, Le Grand, Dascola, Brinda, and/or Lee render obvious the invention set forth in substitute claims 25-39. I currently hold the opinions expressed in this declaration. Based upon my knowledge and experience in this field and my review of Chae, Narendra, Shuttleworth, Karunamuni, Hong, Android, Tu, Gao, Moto 360, Tsukamoto, Le Grand, Dascola, Brinda, and Lee, it is readily apparent that the references and the proposed combinations fail to render obvious several elements recited in substitute claims 25-39. Although I identify a number of specific claim elements below, I note that there may be additional claim elements lacking from the references and the proposed combinations even though they are not expressly identified below. Indeed, my analysis may continue after the signing of this declaration, in which case I may provide further testimony regarding additional

claim elements and other reasons regarding the references and the proposed combinations.

A. The opposition fails to establish obviousness of the additional elements of claims 25-27, 30-32, and 35-37

1. Masimo fails to show that Tu discloses or renders obvious a “tilt angle threshold” and “determining that the computer system is tilted at an angle”

6. Masimo argues that “Figure 4 of Tu illustrates a process of using tilt data from an accelerometer (block 414) to detect and confirm a raise gesture (blocks 416 and 422) that invokes wake control logic to wake up the display (block 424).” Opp. 3. Throughout the element-by-element analysis of substitute claims 25-27, 30-32, and 35-37, Masimo continues to rely on Tu’s disclosure of detecting a tilt using accelerometer data. Opp., 3-5. However, Tu discloses that the “accelerometer readings include gravitational acceleration (1 g, in a direction that depends on the orientation of the device).” EX1065, [0065]. Tu discloses that “[f]or instance, in the hanging-arm position of FIG. 1A, accelerometer 210 may detect a_x of approximately 1 g, and a_y and a_z of approximately zero. In the typing position of FIG. 1C, accelerometer 210 may detect a_x of approximately 0, a_y between 0 and 1 g, and a_z between 0 and -1 g.” *Id.* Based on Tu’s disclosure, Tu’s accelerometer provides gravitational acceleration data a_x , a_y , and a_z that are between -1 g and 1 g. *Id.* I agree with Rosenberg that Tu does not describe a specific number of degrees associated with a threshold. EX2009, 17:21-18:12.

Because the accelerometer data is measured in “g’s” not angles, Tu does not describe using a “tilt angle threshold.”

2. Masimo improperly relies on multiple different embodiments from Tu without combining them

7. Masimo initially argues that “Figure 4 of Tu illustrates a process of using tilt data from an accelerometer (block 414) to detect and confirm a raise gesture (blocks 416 and 422) that invokes wake control logic to wake up the display (block 424).” Opp. 3. Tu discloses that “FIG 4 is a flow diagram for a raise-gesture detection process.” EX1065, [0018]. As Tu explains, detecting “raise gestures” take into account “characteristics of a ‘*focus pose*’ (which can be an orientation of the wrist-worn computing device that would allow the user wearing the device to look at its display).” EX1065, [0009]. Masimo continues to rely on Tu’s FIG. 4 embodiment in the element-by-element analysis of substitute claims 25-27, 30-32, and 35-37. Opp., 3-5.

8. However, Masimo’s arguments for “determining that the computer system is tilted at an angle that is greater than the tilt angle threshold” inexplicably shifts to Tu’s FIG. 13. Opp. 5-6. Tu discloses that “FIG. 13 is a flow diagram of a process for detecting a *loss-of-focus* event,” which is “a motion that would remove the device from [*sic*] the user’s line of sight.” EX1065, [0027], [0040], [0129]. I disagree with Masimo and Rosenberg that FIG. 13’s “method could readily be adapted to activate the display as well, consistent with Figure 4.” Opp. 6.

9. A POSITA would not have combined these two incongruous embodiments because they are directed to entirely different purposes and results. Indeed, Tu's FIGS. 4 and 13 are directed to different embodiments because detecting a raise gesture requires a different algorithm and different response than detecting a loss of focus. For example, Tu discloses that *early detection* is desirable for raise gestures:

The preheat event can be *detected early enough* that, by the time the user completes the raise gesture, the applications processor is in the wake state and ready to process user input. In some embodiments, *early detection of preheat and waking* of the applications processor can help to reduce or eliminate user-perceptible delay in the device's response to a natural raise gesture. *Earlier detection* may result in more false positives, and the sensitivity can be tuned such that a preheat event is detected as late in the gesture as possible while still allowing sufficient time for the applications processor to transition to the wake state.

EX1065, [0152].

In some embodiments, it may be desirable to activate the user interface at *an earlier stage* (e.g., when a possible raise gesture or detected raise gesture is reported); this can result in more false positives but fewer false negatives and may provide a more responsive and satisfying user experience. In addition, activation of the user interface can occur in stages. For instance, the interface might be partially enabled (e.g., display on but dimmed, touch

overlay disabled or enabled at reduced resolution) when a notification of a possible raise gesture is received, then fully enabled when a notification of a detected raise gesture is received.

EX1065, [0180]. In contrast, Tu discloses ***delayed detection*** is desirable for a loss-of-focus event:

Further, in some embodiments, it may be desirable to avoid a false loss-of-focus detection due to transitory motions. Accordingly, loss-of-focus detection can incorporate hysteresis, such that loss of focus is not detected until the device goes out of the focus pose and remains there for some minimum time period. If the device re-enters focus pose before the time expires, the loss-of-focus detection algorithm can reset. The minimum time period can depend on how long the device has been in the focus pose, with a longer dwell time in focus pose correlating with a longer required time out of focus to trigger a loss-of-focus event. It should be noted that ***delayed detection*** of a loss-of-focus event (and deactivating the display) is expected to be less disruptive to the user than prematurely detecting a loss-of-focus event (and deactivating the display) when the user is, in fact, still looking at the display. Accordingly, the loss-of-focus algorithm can be tuned to err on the side of ***being slow to detect*** loss of focus.

EX1065, [0137]. Therefore, a combination of Tu's FIGS. 4 and 13 fails to satisfy the requirements of claims 25-27, 30-32, and 35-37.

3. Masimo fails to show a motivation to combine the Petition's prior art with Tu

10. Masimo argues that:

A POSITA would have been motivated to implement the “tilt-to-wake” functionality disclosed by Tu with the devices disclosed by the prior art cited in the Petition to manage the device's power consumption more efficiently and improve ease-of-use. For example, Chae and Android disclose waking up a smartphone in response to an input, such as a button press. Pet., 36-39. A POSITA would have understood that tilting the device would be a more convenient alternative to a button press. EX1064 ¶32. A POSITA would have further understood that implementing “tilt to wake” would promote power efficiency by only activating the display when a user is moving the device into the user's line of sight. *Id.* Activating the display on a tilt would also have been user-friendly since it would eliminate the need for the user to press a button. *Id.*

Opp., 8. As Masimo admits, Chae discloses a button press to wake up a smartphone. Implementing the “tilt-to-wake” functionality disclosed by Tu with Chae's device would not promote power efficiency and would not improve ease-of-use, convenience, and user-friendliness over a button press. Considering Tu's early (and more false positives) raise gesture detection (EX1065, [0152], [0180]), implementing Tu's “tilt-to-wake” would consume more power than a button press, and the device would wake up when placed upright in a pocket or purse. A POSITA would have understood that a device's needless power consumption

would negatively influence ease-of-use, convenience, and user-friendliness because the device would require more frequent charging and it may be unavailable when needed due to battery depletion. Chae's smartphone button would eliminate the needless power consumption associated with false positive raise gesture detection. As such, Chae already provides for the features and benefits that is Masimo's alleged motivation to combine, and the alleged modification to Chae would not have been an improvement on what Chae already provides. Thus, a POSITA would not have been motivated to combine Tu with Chae to promote power efficiency and improve ease-of-use, convenience, and user-friendliness.

B. The opposition fails to establish obviousness of the additional elements of claims 28-29, 33-34, and 38-39

1. Masimo fails to show that Dascola and Brinda disclose or render obvious “sliding the wake screen user interface in the longitudinal direction from a lower edge of the display” and displaying “an underlying user interface that was covered by the wake screen user interface”

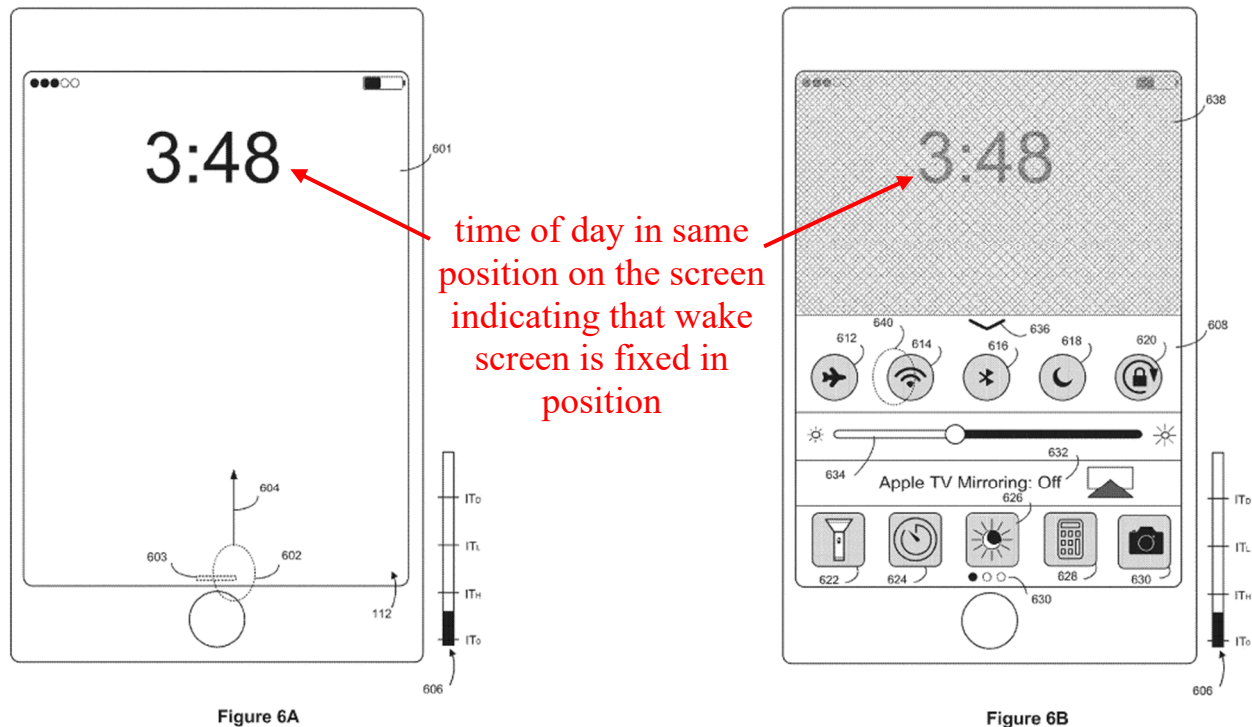
11. Masimo argues that:

Dascola discloses or makes obvious these limitations. Specifically, Figures 6B-6D of Dascola illustrate the user interface sliding upwards from a lower edge of the screen. EX1051, Figs. 6A-6D, ¶400. This disclosure would have at least suggested to a POSITA that in response to the drag gesture in Fig. 6A, sliding the wake screen in the longitudinal direction from the lower edge of the

display generation component. EX1064 ¶65. Dascola discloses that “control user interface 608 is gradually revealed as the contact moves along the path indicated by arrow 604.” EX1051 ¶400, Fig. 6B.

Opp., 15. Masimo does not explain how Dascola’s wake screen covers the control UI and slides up to reveal the control UI.

12. As evident by Dascola’s FIGS. 6A-6D and corresponding description, Dascola’s control UI is revealed by sliding up to partially cover a wake screen that is fixed in position. EX1051, [0400]-[0401], FIGS. 6A-6D. In fact, Dascola discloses that “*control user interface is displayed **partially or fully overlaying another user interface** (e.g., an initial screen such as a lock screen and/or wake screen, a display including a plurality of application initiation icons, and/or an application user interface)” and “the appearance of *a user interface that is **partially overlaid** by the control user interface 608* is altered, as indicated at 638. For example, the ***partially overlaid user interface*** is blurred and/or has reduced brightness compared with a prior appearance of the user interface.” EX1051, [0401]. Consistent with Dascola’s disclosure, Dascola’s FIGS. 6A and 6B below illustrate that the time of day is in the same position on the wake screen when the control UI is hidden and revealed, indicating that control UI is revealed by sliding up to partially cover a wake screen that is fixed in position.*



EX1051, FIGS. 6A, 6B. Karunamuni, which Masimo's Petition relies on for the control panel UI limitations of claims 28, 33, and 38 (Pet., 82-87), is like Dascola and also discloses a control UI partially overlaying and obscuring another user interface:

FIG. 3 is a diagram that shows an example 300 of a *control center interface 302* that at least ***partially overlays and obscures content*** that was being displayed prior to the control center interface's invocation. Control center interface 302 can ***obscure*** much, but potentially less than all, of the content over which it is laid. As shown in FIG.3, the uppermost regions of the springboard are still visible even while *control center interface 302 is overlaid on top of the springboard*. Control center interface 302 can include a handle 318 with which a user can interact in order to cause control

center interface 302 to retract downward and disappear until recalled. A downward dragging gesture relative to handle 312 can cause control center interface 302 to retract, for example. Upon retraction, the content that control center interface 302 previously at least partially obscured becomes entirely visible once again.

EX1011, [0015]. Rosenberg's example of "revealing" is consistent with Dascola and Karunamuni's disclosures:

And, as I slide the -- as I grab hold of the very top bar that was visible, and I slide it north, I am revealing what was hidden before, what was hidden behind the bezel or off the display.

EX2009, 53:2-6.

13. Masimo implicitly admits Dascola's defect by relying on Brinda. Brinda, however, does not cure the failure of Dascola. Masimo does not explain how Brinda's protection and original layers correspond to the claimed wake screen and underlying user interface. Brinda's protection layer *slides down* into the lower edge: "the protection layer is *moved downwards* into a lower edge of the touch screen to remove the protection layer." EX1072, 4:65-67, 6:35-38. In contrast, the claims require the wake screen to *slide up* "from a lower edge of the display generation component." Masimo also does not explain how Brinda's protection layer (that slides down) and original layer (that is fixed) correspond to Dascola's wake screen (that is fixed) and control UI (that slides up) or what that combination would even look like.

2. Masimo fails to show a motivation for adding Dascola and Brinda

14. Masimo relies on Karunamuni for the control panel UI limitations of claims 28, 33, and 38. Pet., 82-87. Like Dascola, Karunamuni discloses “a control center interface... that at least partially overlays and obscures content that was being displayed prior to the control center interface’s invocation.” EX1011, [0015]. Masimo offers only one specific motivation for adding Dascola and Brinda—“to improve the aesthetics.” Opp., 16. But Karunamuni already provides for the features and benefits that is Masimo’s alleged motivation to combine, and the alleged modification to Karunamuni would not have been an improvement on what Karunamuni already provides. Thus, a POSITA would not have been motivated to combine Dascola and Brinda with Karunamuni to improve the aesthetics.

3. Masimo fails to show obviousness based on Dascola and Lee

15. Claims 29, 34, and 39 depend on claims 28, 33, and 38, respectively, and Masimo fails to show obviousness of claims 28, 33, and 38 for the same reasons discussed above.

C. The ’352 specification provides written description support for claims 26, 31, and 36

16. Substitute claims 26, 31, and 36 recite “determining whether the computer system is tilted from a position in which the computer system is substantially horizontal to a position in which the computer system is substantially vertical.” Masimo argues that this limitation lacks written description support

because the '352 specification describes the tilt angle threshold being satisfied before the computer system is substantial vertical. Opp., 21. Masimo ignores that the '352 specification explicitly describes an example where “the device determines whether the device has been rotated by more than a threshold angle (...such as *tilted from a position in which the device is substantially horizontal to a position in which the device is substantial vertical*).” EX2007, [00162]; EX1001, 37:67-38:5. This example in the '352 specification is almost word-for-word the claim language “determining whether the computer system is *tilted from a position in which the computer system is substantially horizontal to a position in which the computer system is substantially vertical*.” Masimo’s reliance on another example described in the specification does not establish that there is no written description support.

D. The '352 specification provides written description support for claims 27, 32, and 37

17. Substitute claims 27, 32, and 37 recite “controlling the display generation component to not be activated.” Masimo argues that the claim language “entails an affirmative step, such as sending a signal to cause the display not to activate.” Opp., 22. Masimo provides no support for this implied claim construction.

18. The '352 specification states that “[b]ecause a tilt angle of the device has not increased above a threshold tilt angle in Figure 5A2, the display is not

activated.” EX2007, [00162]. A POSITA would have understood that a display can be controlled to not be activated in several different ways, including, e.g., by programming a device to not be activated under certain circumstances or controlling a display’s power supply not to provide power unless certain conditions are satisfied. Tu corroborates a POSITA’s understanding regarding controlling power to a display during inactive and active states:

The user interface component can include, for example, a display that can be powered off when the user interface component is in the inactive state and powered on when the user interface component is in the active state. As another example, the user interface component can include a touch screen display that can be powered off when the user interface component is in the inactive state and powered on when the user interface component is in the active state.

EX1065, [0240]. Rosenberg confirmed and I agree that one way of “turning off the display entirely would involve controlling power supply to the display.”

EX2009, 9:1-5.

E. Substitute claims 26, 31, and 36 are definite

19. Masimo argues that “substantially horizontal” and “substantially vertical” are indefinite. Opp., 22-24. The claim is definite because the specification provides examples or teachings that can be used to measure a degree even without a precise numerical measurement, e.g., a figure that provides a standard for measuring the meaning of the term of degree. Here, the ’352 specification and

figures provide examples of “substantially horizontal” and “substantially vertical.”

The '352 specification discloses that in FIG. 5A1, “the device display is substantially horizontal,” as shown below. EX2007, [00162]; EX1001, 37:67-38:5.

Rosenberg confirmed and I agree that a POSITA would have known how to hold the device in their hand so that it is substantially horizontal as depicted in FIG.

5A1. EX2009, 34:8-15.

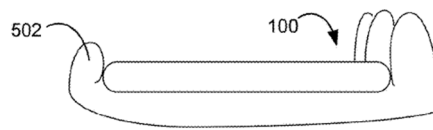


Figure 5A1

EX2007, FIG. 5A1; EX1001, FIG. 5A1. The '352 specification discloses that in FIG. 5A4, “the display 112 is substantially vertical.” EX2007, [00162]; EX1001, 37:67-38:5. Rosenberg confirmed and I agree that a POSITA would have known how to hold the device in their hand so that it is substantially vertical as depicted in FIG. 5A4. EX2009, 36:5-12.

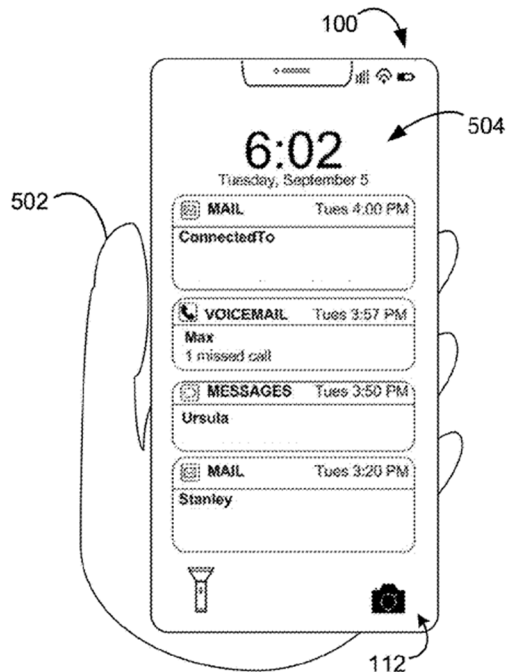


Figure 5A4

EX2007, FIG. 5A4; EX1001, FIG. 5A4. Additionally, Rosenberg confirmed and I agree that a POSITA would have understood that “substantially” indicates that physical perfection is unnecessary. EX1064, [0192]; EX2009, 21:10-18.

F. Substitute claims 29, 34, and 39 are definite

20. Substitute claims 29, 34, and 39 recite “while displaying the wake screen user interface and while two or more notifications remains displayed on the wake screen user interface, detect a third input, at a power button of the computer system, for dismissing the wake screen user interface.” Masimo argues that “while two or more notifications remains displayed” is indefinite because none of the claims recite initially displaying notifications and thus a POSITA would not have understood what “remains displayed” means. Opp., 24-25. Considering the entirety

of the claim language “while displaying the wake screen user interface and *while two or more notifications remains displayed* on the wake screen user interface, detect a third input, at a power button of the computer system, for dismissing the wake screen user interface,” it is irrelevant whether any claims recite initially displaying notifications. A POSITA reading the claim language would have understood that “detect a third input” occurs “while two or more notifications remains displayed,” e.g., the notifications have not been dismissed.

G. Substitute claims 27, 32, and 37 are definite

21. Substitute claims 27, 32, and 37 recite “wherein: in response to determining that the change in the orientation of the computer system does not satisfy the tilt angle threshold, controlling the display generation component to not be activated.” Masimo argues that a “POSITA would not have understood how determining that the tilt-angle threshold is *not* satisfied and *not activating the display*,” as required by claims 27, 32, and 37, “is part of determining that the input meets *display-waking criteria*,” as required by claims 25, 30, and 35. Opp., 25. Claims 27, 32, and 37 do not recite that “determining that the change in the orientation of the computer system does not satisfy the tilt angle threshold” and “controlling the display generation component to not be activated” is part of “detecting the input that meets display-waking criteria,” and thus is not a part of “detecting the input that meets display-waking criteria,” as Masimo alleges.

Specifically, the phrase “detecting the input that meets display-waking criteria comprises” is present in claims 25, 30, and 35 while being clearly absent from claims 27, 32, and 37.

III. ADDITIONAL REMARKS

22. I currently hold the opinions set expressed in this declaration. But my analysis may continue, and I may acquire additional information and/or attain supplemental insights that may result in added observations.

23. I hereby declare that all statements made of my own knowledge are true and that all statements made on information and belief are believed to be true. I further declare that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of the Title 18 of the United States Code.

Dated: 21st June, 2024

By: 
Andrew Cockburn