

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of: Al-Ali et al.
U.S. Patent No.: 8,190,223 Attorney Docket No. 50095-0132IP2
Issue Date: May 29, 2012
Appl. Serial No.: 11/367,033
Filing Date: Mar. 1, 2006
Title: NONINVASIVE MULTI-PARAMETER PATIENT MONITOR

DECLARATION OF DR. ANDREW COCKBURN

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.

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: 6th December, 2025

By: 

Andrew Cockburn

1. I have been retained on behalf of Apple Inc. to offer technical opinions relating to U.S. Patent No. 8,190,223 (“the ’223 Patent”) and prior art references relating to its subject matter.

2. I am submitting this declaration (my “Second Declaration”) in support of the Petitioner’s Reply to the Patent Owner’s Response to the Petition for *inter partes* review of the ’223 Patent. This Second Declaration supplements certain portions of my prior declaration in support of the Petition for this IPR Proceeding (APPLE-1003, “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 ’223 Patent, a POSITA’s background knowledge, certain legal standards explained to me by counsel, legal principles applied for the purposes of my analysis and this declaration, and a detailed analysis of the prior art against the claim elements of the ’223 Patent.

3. I maintain all of my earlier analysis and continue to hold the opinions expressed in my First Declaration. This Second Declaration does not replace my First Declaration. These declarations are complementary and should be read in tandem. Accordingly, this Second Declaration does not cover every topic addressed in my First Declaration.

4. In forming this Second Declaration, I have considered, among various documents, the following:

- The Patent Owner’s Response (“POR”)
- EX2042 Dr. Duckworth’s declaration
- APPLE-1021 U.S. Patent Application Publication No. US 2002/0015034 (“Malmberg”)
- APPLE-1023 Excerpt from Wiley Electrical and Electronics Engineering Dictionary, John Wiley & Sons, Inc. (2004)
- APPLE-1024 Excerpt from Merriam-Webster’s Collegiate Dictionary, Merriam-Webster, Incorporated (2005)

5. I have no financial interest in the parties or in the outcome of this proceeding. I am being compensated for my work as an expert on an hourly basis. My compensation is not dependent on the outcome of these proceedings or the content of my opinions.

I. It is common sense that a parameter whose change triggers an action is actively monitored

6. I understand that Dr. Duckworth has argued that “[n]one of the references disclose using the same display area to show two currently measured parameters.” EX2042 (Dr. Duckworth’s declaration), ¶122. I would like to address here that in the Naghavi-Hochstedler-Burnes system, a POSITA would have understood that at least the replacing parameter is actively monitored by the system.

7. In my first declaration, I described the system that results from the combination of Naghavi, Hochstedler, and Burnes. In this combination system,

patient information is displayed on a graphical user interface (GUI), and the layout of the GUI (which is implemented based on Hochstedler) mutates in response to “changes in health status” of the patient, as taught by Naghavi. APPLE-1005 (Naghavi), [0059]; *see* my First Declaration (APPLE-1003), ¶¶34-38. These “changes in health status” relate to a change in “severity” of a parameter, and specifically to a parameter that changes such that it has a “value[] found to be ‘out of range’” or “near or approaching the ‘out of range’ criteria.” APPLE-1006 (Burnes), [0038]-[0039]; APPLE-1005 (Naghavi), [0059]; *see* my First Declaration (APPLE-1003), ¶38.

8. It is common sense that in order for a change in a parameter value to be a trigger for some action (here, a trigger for a change in the display layout), that parameter must be actively monitored. If the triggering parameter were not being monitored, the system would have no way of knowing about a change in the value of that parameter. For instance, suppose the parameter is an oxygen saturation value measured by an oxygen sensor. If the oxygen sensor is unplugged or turned off, the system cannot know if the patient’s oxygen saturation has changed, and surely cannot know whether their oxygen saturation is out of range or approaching out of range.

9. In the specific context of the Naghavi-Hochstedler-Burnes combination, where a change in one parameter value causes that parameter value to

be displayed in place of another parameter value (*see* my First Declaration, ¶¶75-82), this means that the replacing parameter must be actively monitored by the combination system.

II. Even if Patent Owner’s claim interpretations are adopted, the claims are still unpatentable

10. I understand that Patent Owner has argued that the claims require that the replaced parameter (*e.g.*, the first parameter) “is removed from the display.” EX2042 (Dr. Duckworth’s declaration), ¶79. I also understand that Patent Owner has implied that the claims further require that “the device is currently monitoring, but not displaying” the replacing parameter (*e.g.*, the second parameter). EX2042 (Dr. Duckworth’s declaration), ¶92. I have considered whether the claims of the ’223 Patent would still be obvious over the Naghavi-Hochstedler-Burnes combination if these two interpretations offered by Patent Owner are adopted in this proceeding. I have concluded that that the claims would still be rendered obvious.

11. In the Naghavi-Hochstedler-Burnes combination, I relied on Naghavi for (among other things) its teaching that the system can “automatically detect changes in health status” of a monitored patient and in response, “automatically react and rearrange the available options to best suit the condition of” the patient. APPLE-1005 (Naghavi), [0063]; *see* my First Declaration (APPLE-1003), ¶35. Although Naghavi does not provide specific description of how its user interface is

arranged, it does state that changing its display responsive to a health status change involves “show[ing] *different types of icons and health objects* according to different diseases and/or physical conditions of patient 1.” APPLE-1005 (Naghavi), [0059].

12. Changing a display to show “different types of icons and health objects” (APPLE-1005 (Naghavi), [0059]) entails (1) changing the display to show a different type of icon/health object that was not previously displayed, and/or (2) changing the display to remove a type of icon health object from display. For instance, a type of icon/health object that was not previously relevant may become relevant when a change in the “physical conditions” (*id.*) of the patient occurs, and the display can then change accordingly to show this newly relevant type of icon/health object—that is, the display changes to show an icon/health object that was not previously displayed. Similarly, a type of icon/health object may become no longer relevant (or at least, less relevant) when the patient’s physical condition changes, and again, the display can change accordingly to remove the icon/health object—that is, an icon/health object is removed from display.

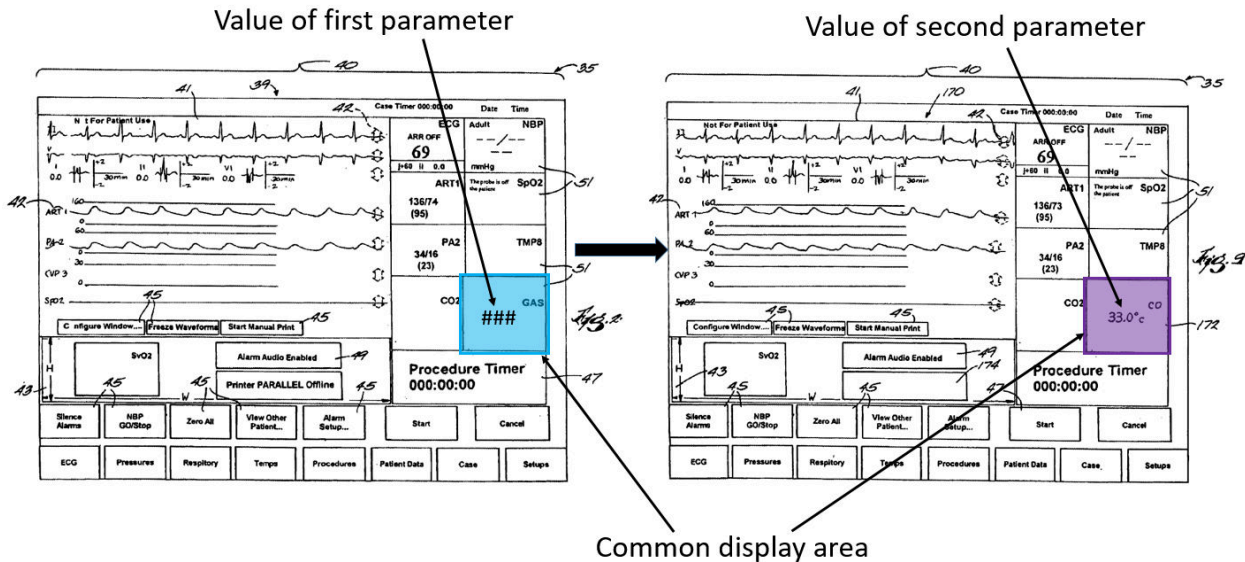
13. In the context of the Naghavi-Hochstedler-Burnes combination, the icons/health objects described by Naghavi correspond to parameter values for parameters that are monitored by the combination system. *See my First*

Declaration, ¶¶35-36, 62-63. Parameter values are displayed, *e.g.*, in display layouts such as those illustrated by Hochstedler. *See id.* And the display layout are changed in response to one of the parameter values changing to be out of range or near out of range, based on Burnes. *See id.*, ¶¶38-39, 77-82. Specifically, changing a display layout involves “show[ing] different types of icons and health objects”—that is, different parameter values—based on the “physical condition” of the patient—that is, based on the patient’s physical condition as indicated by one of the parameter values changing to be out of range or near out of range, based on Naghavi. APPLE-1005 (Naghavi), [0059].

14. One example of this is depicted by the change between the layout illustrated in Hochstedler’s FIG. 2 and that illustrated in Hochstedler’s FIG. 9, which I annotated in my First Declaration (*see* APPLE-1003, ¶73) and reproduced again here. In this example, the value of the first parameter—one type of icon/health object—is removed from the display, and the value of the second parameter—a different type of icon/health object—is newly displayed. This occurs based on the “physical condition” (APPLE-1005 (Naghavi), [0059]) of the patient—that is, based on the patient’s physical condition as indicated by the second parameter value changing to be out of range or near out of range, such that the first parameter has become less relevant and the second parameter has become more relevant. A similar example is depicted by the change between the layout

illustrated in Hochstedler's FIG. 2 and that illustrated in Hochstedler's FIG. 13.

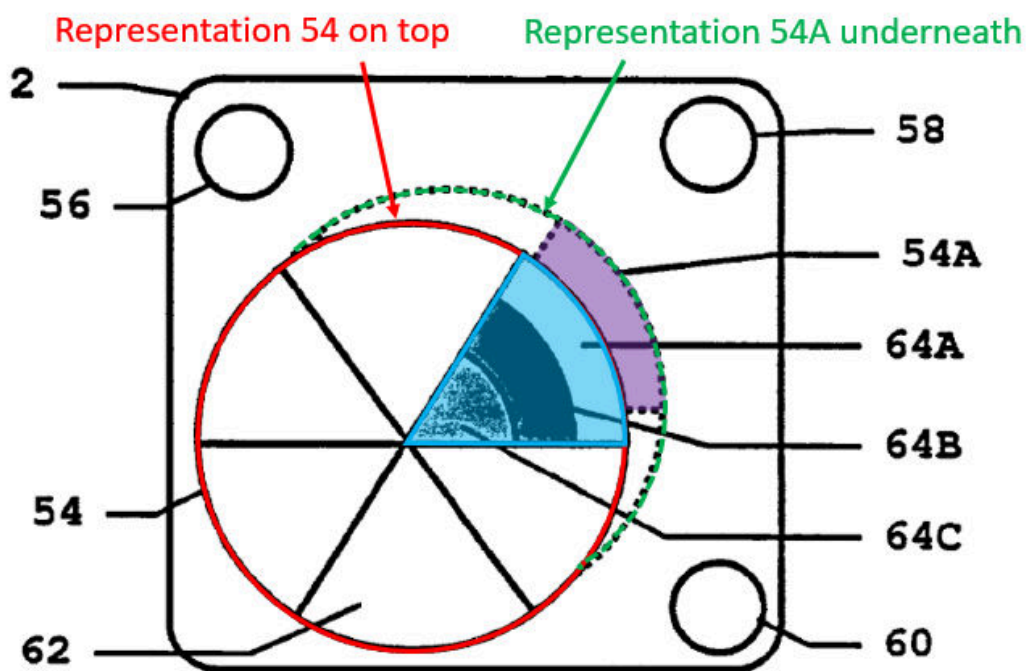
See *id.*, ¶74.



Composite figures based on Hochstedler's FIGS. 2 and 9

15. I have described why the claims are rendered obvious specifically over Naghavi-Hochstedler-Burnes here. However, more generally, I note that complete removal of one parameter value from a display, and introduction of a newly displayed parameter value in its place, was well-known. For instance, this type of display change is described in and illustrated by Malmborg, which displays parameter values in sectors of circles. See APPLE-1021 (Malmborg), [0010], [0042]-[0043], [0045] (“Actual measurement values for the parameters can be displayed in the sectors”). When “signal data depart from normal data,” such as “when a parameter value (signal data) exceeds or drops-below preset threshold values for the parameter,” the display changes. *Id.*, [0010]-[0011].

16. FIG. 6 of Malmborg, which I have reproduced and annotated below, illustrates an example of how the display changes responsive to changes in parameters. In this example, “the representations” of signal data are “in the form of windows superimposed upon one another,” as “indicated with a dashed representation 54A [green] under the first representation 54 [red].” APPLE-1021 (Malmborg), [0067]. Each representation includes multiple sectors each representing a parameter and displaying a value for that parameter; a sector in each representation is highlighted in blue and purple, respectively. *Id.*, Abstract, [0010]; *see also* [0045] (“Actual measurement values for the parameters can be displayed in the sectors”). The display order of the representations is changed automatically to reflect changes in the physiological parameters: “the representation 54, 54A with the greatest deviation” (*e.g.*, the representation containing the sector representing the parameter with the greatest deviation), “most deviations” (*e.g.*, the representation containing the most sectors representing parameters with deviations), or “highest priority deviations” is placed “at the top of the stack.” APPLE-1021 (Malmborg), [0068].



Excerpt from Malmborg, FIG. 6 (annotated)

17. This change in the display order (that is, changing the display such that circle 54A is on top and circle 54 moves to the bottom) involves removing some parameter values from the display entirely—namely, the parameter values that are shown in circle 54. The change also involves newly displaying other parameter values that were not previously displayed—namely, the parameter values that belong to circle 54A.

18. Although I have not relied on Malmborg in reaching my conclusion that the claims are obvious over the Naghavi-Hochstedler-Burnes combination, I include this discussion here simply to provide some context: the idea of removing a

parameter from display, and in exchange displaying another parameter that was previously not displayed, is certainly not new.

III. Claim 4 is unpatentable

19. I understand that Patent Owner has argued that claim 4 is not obvious over Naghavi-Hochstedler-Burnes because Hochstedler describes “a weighted algorithm to dynamically recommend layouts, such that “layouts that are selected based on the system arrangement and an algorithm,” rather than being “default” layouts. EX2042 (Dr. Duckworth’s declaration), ¶155.

20. As I explained in my First Declaration, Hochstedler’s GUI provides an example of a default layout by disclosing a dialog box with a “default selection button” for the layout selection in FIG. 8. APPLE-1004 (Hochstedler), 8:36-38; *see* my First Declaration (APPLE-1003), ¶86. Hochstedler also describes a weighted algorithm for layout selection (*see* APPLE-1004 (Hochstedler), 7:6-14), and I understand that Patent Owner has argued that having a default layout would exclude the layouts that Hochstedler’s system recommends via this weighted algorithm. EX2042 (Dr. Duckworth’s declaration), ¶155. I disagree.

21. The term “default,” in the context of computers, refers to “a selection automatically used by a program in the absence of a choice made by the user.” APPLE-1024, 3; *see also* APPLE-1023, 3 (defining “default” as “A setting of a component, device, piece of equipment, or system which is automatically selected

if a user chooses no alternative”). Thus, it is my opinion that a POSITA would have understood that a layout that is recommended by Hochstedler’s weighted algorithm, and automatically selected by the system (*e.g.*, the user does not make a selection), is an example of a default layout. For example, “Bedlayout1”, shown in Hochstedler’s Figure 8 represents the default layout selected by the algorithm – “the overall layout is about to be changed to a new bed layout, Bedlayout1.” APPLE-1004 (Hochstedler), 8:30-33.

22. Furthermore, to the extent that Dr. Duckworth contends that the “Show Defaults” button 163 of Hochstedler’s Figure 8 relates to “default settings” that are unrelated to default layouts, I disagree. EX2042 (Dr. Duckworth’s declaration), ¶154. In particular, a POSITA would understand that the controls displayed within a window titled “Select Layout Configuration” concern the selection of layouts, and therefore would understand that button 163 (labelled “Show Defaults”) would show default layouts, not generic settings that are unconnected with layouts.