

**UNITED STATES PATENT AND TRADEMARK OFFICE**

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

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*Ex parte* THOMAS MATHEW, DI-AN HONG,  
GEORGE VALLIATH, and WILLIAM L. OLSON

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Appeal 2008-2410  
Application 10/654,495  
Technology Center 3700

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Decided: August 19, 2008

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Before TONI R. SCHEINER, ERIC GRIMES, and  
FRANCISCO C. PRATS, *Administrative Patent Judges*.

GRIMES, *Administrative Patent Judge*.

**DECISION ON APPEAL**

This is an appeal under 35 U.S.C. § 134 involving claims to an apparatus and method for conducting electromyography, which the Examiner has rejected as anticipated by and obvious in view of the prior art. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

## BACKGROUND

“Muscle tissue contracts and relaxes as a function . . . of the presence and absence of triggering biologically-based electrical signals. Sensors can be employed to detect such signals.” (Spec. 1.) “Such sensors must ordinarily be located in direct contact with a skin surface. . . . Corresponding electrodes are utilized to source a small potential across a portion of the muscle tissue and another electrode serves to detect the electrical response of the muscle tissue to this potential.” (*Id.*)

“The resultant waveforms are typically referred to as electromyograms” (*id.*). “[O]btaining electromyograms typically entails deployment and subsequent equipment operation by a skilled and trained operator” (*id.*). The Specification discloses “a conformable housing [that] supports an electromyogram sensor, an electromyogram signal processor, and a display” (*id.* at 2) so that “a relatively untrained individual can make beneficial and accurate use of electromyogram waveform information” (*id.* at 4).

## DISCUSSION

### 1. CLAIMS

Claims 1-4, 6-20, and 23-33 are on appeal. Claims 5, 21, 22, and 34-36 are also pending but have been withdrawn from consideration by the Examiner (Appeal Br. 2).

The claims subject to each rejection have not been argued separately and therefore stand or fall together. 37 C.F.R. § 41.37(c)(1)(vii). Claims 1 and 19 are representative and read:

1. An apparatus comprising:

- a conformable housing of sufficient size to permit substantially conformal disposition about a human body part;
- an electromyogram sensor comprising at least a first, second, and third electromyogram electrode, the electromyogram sensor being supported by the conformable housing, such that when the conformable housing is substantially conformally disposed about a human body part the electromyogram sensor can detect muscle activity;
- an electromyogram signal processor operably coupled to the electromyogram sensor and being supported by the conformable housing;
- a reusable alphanumeric display operably coupled to the electromyogram signal processor and being supported by the conformable housing.

19. A method comprising:

at an electromyogram signal processor supported by a conformable housing that is conformably disposed about a human body part:

- receiving electromyogram signals from at least one electromyogram sensor that is supported by the conformable housing and from at least one electromyogram sensor that is distal to the conformable housing;
- processing the electromyogram signals to determine a corresponding muscle condition indicia;
- providing a display signal that corresponds to the muscle condition indicia.

2. ANTICIPATION

Claims 1-4, 6-9, 11-14, 17, and 18 stand rejected under 35 U.S.C. § 102(e) as anticipated by Simpson.<sup>1</sup> The Examiner finds that Simpson anticipates claim 1 because it teaches

an apparatus including a conformable housing (2) of sufficient size to permit substantially conformal disposition about a human body part; three electromyogram sensors (3,4) supported by the conformable housing; an electromyogram signal

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<sup>1</sup> Simpson et al., US 2002/0193701 A1, published Dec. 19, 2002.

processor (see Figure 2) operably coupled to the electromyogram sensor and supported by the conformable housing that analyzes the EMG signals (see paragraph [0010]); and a display (5) operably coupled to the electromyogram signal processor and supported by the conformable housing.

(Answer 3.)

We agree with the Examiner's finding.

Appellants argue that "Simpson is *not*, in fact, making use of electromyographic signal processing" (Appeal Br. 6). Appellants point to Simpson's teaching that a "suitable frequency range is up to 5 Hz, preferably in a low and a high band within a 0-5 Hz range, for example 0.2-0.45 Hz, and 0.8-3.0 Hz" (Simpson, ¶ 0037) and argue that this "frequency range is *starkly different* from the frequency range that characterizes electromyography" (Appeal Br. 6). Appellants assert that the "most generous range known to applicant in this regard extends from 15Hz to 500Hz" and, therefore, those skilled in the art would not understand Simpson's disclosure to be within the practice of electromyography (*id.* at 6-7). Appellants conclude that Simpson lacks the "electromyogram sensor" and "electromyogram signal processor" recited in claim 1 (*id.* at 7).

This argument is unpersuasive, for two reasons. First, Appellants have cited no evidence of record that supports their assertion that electromyography is characterized by a frequency range higher than that disclosed by Simpson. As support for their position, Appellants state: "See, for example, the Wikipedia article on 'Electromyography' as of February 14, 2006. Other references tend towards a more limited characterizing range such as, for example, 20Hz to 200Hz." (Appeal Br. 7, fn. 12.) Neither the Wikipedia article nor the "[o]ther references" have been made of record,

however, and we decline the implicit invitation to go search them out ourselves.

Second, even if the evidence of record supported Appellants' assertion regarding the frequency range that characterizes electromyography, Appellants have not shown that a different frequency range would result in any structural difference between Simpson's apparatus and the apparatus of claim 1. That is, even if Simpson's device were intended to analyze a different frequency of signals than are analyzed in electromyography, Appellants have not shown that the housing, electrodes, signal processor, or display recited in claim 1 differ structurally from those used in Simpson's device.

The Examiner's rejection of claim 1 is supported by a preponderance of the evidence of record and is therefore affirmed. Claims 2-4, 6-9, 11-14, 17, and 18 fall with claim 1.

### 3. OBVIOUSNESS: APPARATUS CLAIMS

Claims 1-3, 7-9, 11, 12, 14, and 16-18 stand rejected under 35 U.S.C. § 103 as obvious in view of O'Neal<sup>2</sup> and Simpson (Answer 5). As discussed above, we agree with the Examiner that Simpson anticipates claim 1. We therefore also agree that Simpson would have made obvious the apparatus of claim 1: “[A]nticipation is the epitome of obviousness.” *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983).

Appellants argue that, “[a]s noted above, Simpson *does not* provide teachings with respect to electromyograms, electromyogram sensors, or electromyogram signal processors” (Appeal Br. 9). Appellants conclude that

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<sup>2</sup> O'Neal et al., U.S. Patent 5,368,042, issued Nov. 29, 1994.

“claim 1 is again seen to avoid the prior art and to present patentable subject matter. The remaining claims (2-3, 7-9, 11, 12, 14, and 16) are ultimately dependent on claim 1.” (*Id.* at 10.)

Appellants’ attempt to distinguish claim 1 from Simpson is unconvincing for the reasons discussed above, and Appellants have not separately argued the dependent claims rejected as obvious in view of O’Neal and Simpson. We therefore affirm the rejection of claims 1-3, 7-9, 11, 12, 14, and 16-18 under 35 U.S.C. § 103.

The Examiner has also rejected claim 10 as obvious in view of Simpson and Konno<sup>3</sup> (Answer 6), and has rejected claim 15 as obvious in view of O’Neal, Simpson, and Mok<sup>4</sup> (*id.* at 7). Claims 10 and 15 depend on claim 1. The Examiner relies on Simpson for disclosure of the apparatus of claim 1 and concludes that the cited references collectively would have made obvious the additional limitations of claims 10 and 15 (*id.* at 6-7).

Appellants have pointed to no defect in the Examiner’s findings or conclusion. We therefore summarily affirm the rejections of claims 10 and 15.

#### 4. OBVIOUSNESS: METHOD CLAIMS

Claims 19, 23, and 30-33 stand rejected under 35 U.S.C. § 103 as obvious in view of Simpson and Mok. Claim 20 stands rejected under 35 U.S.C. § 103 as obvious in view of Simpson, Mok, and Konno. Claims 24-29 stand rejected as obvious in view of Simpson, Mok, and Costello.<sup>5</sup>

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<sup>3</sup> Konno, U.S. Patent 4,667,513, issued May 26, 1987.

<sup>4</sup> Mok et al., US 2003/0109905 A1, published June 12, 2003.

<sup>5</sup> Costello et al., U.S. Patent 5,785,666, issued July 28, 1998.

The Examiner finds that Simpson discloses all the limitations of the method of claim 19, including receiving electromyogram signals, except that Simpson's electromyogram signals are not received from a "sensor that is distal to the conformable housing," as recited in claim 19 (Answer 8). The Examiner concludes that Mok would have made obvious the limitation missing from Simpson (*id.* at 9), and that Konno and Costello would have made obvious the additional limitations of dependent claims 20 and 24-29, respectively (*id.* at 9, 10).

We agree with the Examiner's reasoning and conclusions.

Appellants argue that

[I]ndependent claim 19 makes specific provision for and reference to an "electromyogram signal processor," an "electromyogram sensor," and "electromyogram signals," all of which are absent from Simpson. Accordingly, a combination of Simpson with another reference, which combination is based upon such an erroneous conclusion, cannot stand.

The remaining claims 20, and 23-33 are ultimately dependent upon independent claim 19, which claim has been shown allowable above.

(Appeal Br. 10.)

For the reasons discussed above, we are not persuaded by Appellants' attempt to distinguish Simpson's apparatus and method from electromyography. Appellants have not pointed to any other reason to doubt the Examiner's conclusion that the method claims on appeal would have been obvious based on the cited references. We therefore affirm the rejection of claims 19, 23, and 30-33 as obvious in view of Simpson and Mok; the rejection of claim 20 as obvious in view of Simpson, Mok, and

Appeal 2008-2410  
Application 10/654,495

Konno; and the rejection of claims 24-29 as obvious in view of Simpson, Mok, and Costello.

#### SUMMARY

We affirm all of the rejections on appeal.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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