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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte RICHARD T. STONE, WARREN W. BALL,
CARL D. WAHLSTRAND, STEVEN M. GOETZ,
and LYNN M. OTTEN

Appeal 2011-011896[1]
Application 11/591,176
Technology Center 3700

Before DONALD E. ADAMS, STEPHEN WALSH, and ERICA A. FRANKLIN, *Administrative Patent Judges*.

ADAMS, *Administrative Patent Judge*.

DECISION ON APPEAL

This appeal under 35 U.S.C. § 134 involves claims 1, 3-17, 19-25, 27-30, 32-36, and 38 (App. Br. 3; Reply Br. 3; Ans. 2). We have jurisdiction under 35 U.S.C. § 6(b).

[1] This Appeal is related to Appeal No. 2012-001263, Application No. 11/591,193.

STATEMENT OF THE CASE

"Implantable electrical stimulators may be used to deliver electrical stimulation therapy to patients to treat a variety of symptoms or conditions such as chronic pain, tremor, Parkinson's disease … or gastroparesis. In general, an implantable stimulator delivers neurostimulation therapy in the form of electrical pulses" (Spec. 1: ¶ [0003]). Appellants' invention relates to medical devices and, more particularly, to user interfaces for configuring electrical stimulation therapy (*id.* at ¶ [0002]). Appellants' claims are directed to a method (claims 1, 3-9, and 11-16); a system (claims 17, 19-25, and 27-29); and a computer-readable medium (claims 30, 32-36, and 38). Claims 1, 5, and 11 are representative and are reproduced in the Claims Appendix of Appellants' Brief.

Claims 1, 3, 4, 6-9, 13-17, 19, 20, 22-25, 29, 30, and 32-36 stand rejected under 35 U.S.C. § 102(e) as being anticipated by McIntyre.[2]

Claims 5 and 21 stand rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of McIntyre and Mann '325.[3]

Claims 11, 12, 27, 28, and 38 stand rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of McIntyre and Mann '048.[4]

We affirm.

[2] McIntyre et al., US 2006/0017749 A1, published January 26, 2006.
[3] Mann et al., US 6,393,325 B1, issued May 21, 2002.
[4] Mann et al., US 6,622,048 B1, issued September 16, 2003.

Anticipation:

ISSUE

Does the preponderance of evidence on this record support Examiner's finding that McIntyre teaches Appellants' claimed invention?

FACTUAL FINDINGS (FF)

FF 1. We adopt the Examiner's findings concerning the scope and content of the prior art (Ans. 3-5) and provide the following for emphasis.

FF 2. McIntyre's Figure 6 is reproduced below:

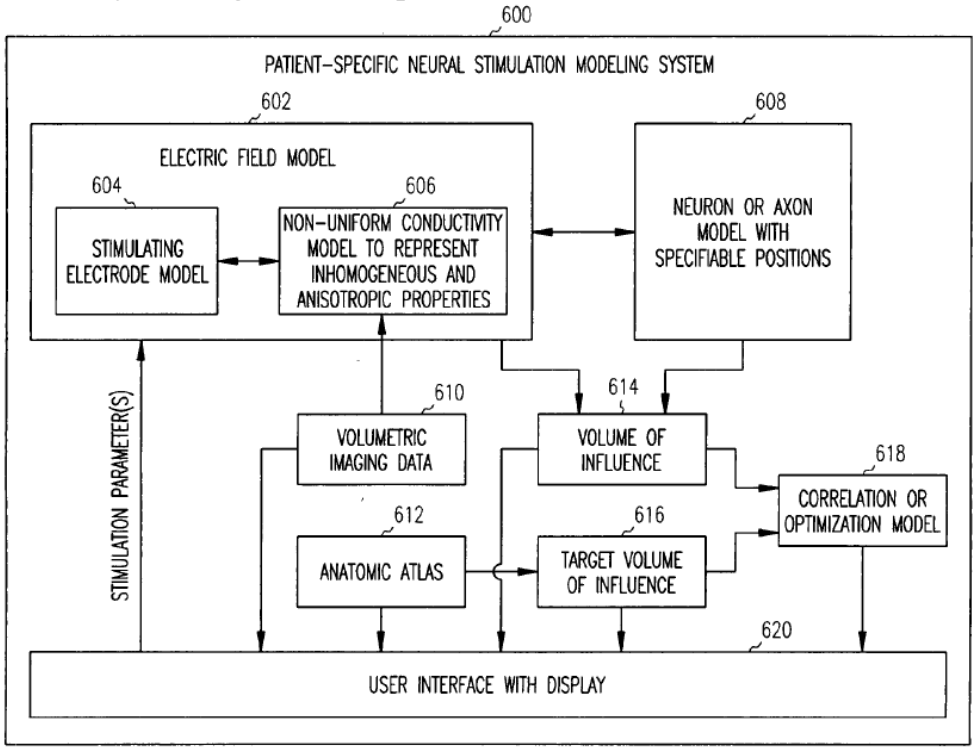

FIG. 6

FIG. 6 is a block diagram illustrating generally one example of … a computer-assisted patient-specific neural stimulation modeling system **600**. In this example, the system **600** includes an electric field model **602**. In one example, the electric field model **602** is implemented as a computer-solvable FEM mesh. It typically includes a stimulating electrode model **604**. The stimulating electrode model **604** typically represents the morphology of the particular stimulation electrode…. The

> electric field model **602** also includes non-uniform tissue conductivity data **606**. Such data represents any inhomogeneous or anisotropic properties of the tissue near the stimulation electrode, and can be obtained by DTI imaging or by using other techniques described elsewhere in this document.

(McIntyre 9: ¶ [0084].)

FF 3. McIntyre teaches that "tissue conductivity data [is incorporated] into a finite element model (FEM) tailored to accurately represent the structure of the particular clinical DBS[5] electrode and surrounding tissue medium" (*id.* at 2: ¶ [0025]).

FF 4. McIntyre teaches that

> [T]he system **600** also includes a neuron or axon model **608**. In one example, a multi-compartment neuron or axon model positions the modeled neurons or axons at specifiable positions along one or more nerve pathways in the FEM mesh. Such nerve pathways can be ascertained using the DTI-derived imaging data, or by using anatomic atlas data, or any other technique.

(*id.* at 9: ¶ [0085].)

FF 5. McIntyre teaches that "DTI data is obtained from the same patient being analyzed. Alternatively, 'atlas' DTI data is obtained from at least one other patient. If atlas DTI data from another patient is used, it is typically spatially scaled to correspond to the anatomic size and shape of the patient being analyzed" (*id.* at 6: ¶ [0054]).

FF 6. McIntyre teaches that by "[u]sing a computer FEM solver to solve the electric field model **602**, together with the neuron or axon model **608** … a volume of influence **614** is calculated" (*id.* at 9: ¶ [0085]).

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[5] "High frequency deep brain stimulation (DBS)" (McIntyre 1: ¶ [0002]).

FF 7. McIntyre teaches that

> The system **600** includes a user interface with a display, such as to display the volume of influence in conjunction with the volumetric imaging data **610**, which may be annotated or segmented using anatomic boundaries obtained from the anatomic atlas **612**, or otherwise. In one example, the display also provides an indication of information regarding the correlation or the optimization.

(*Id.*)

FF 8. McIntyre teaches that "a position tracking device … tracks the location of the … electrode so that the location can be displayed on the display device," e.g., a computer, which also "includes data storage … receiving imaging data from a medical imaging device … [and] other atlas data storage … and a neuron or axon model" (McIntyre 8: ¶ [0073]).

ANALYSIS

Appellants contend that "even if considered it its entirety, McIntyre still fails to disclose or suggest each of the required elements of claim 1" (Reply Br. 6). In this regard, Appellants contend that "Examiner failed to indicate where any of the six acts recited in claim 1 are disclosed in … McIntyre" (App. Br. 8; Reply Br. 5; *see also* App. Br. 9-10). We are not persuaded (*see* FF 1-8).

We are not persuaded by Appellants' contention that McIntyre fails to teach "stimulation parameters … are determined based on a mapping of the location of the identified one or more anatomical structures to the location of the one or more leads within the atlas coordinate system" (App. Br. 10; *Cf.* FF 1-8; *see* FF 3 ("tissue conductivity data [is incorporated] into a finite element model (FEM) tailored to accurately represent the structure of the

particular clinical DBS electrode and surrounding tissue medium"); Ans. 5: ¶¶ (5)-(6)).

We recognize, but are not persuaded by Appellants' contention that McIntyre fails to teach "correlating a location of at least one implantable medical lead within a patient to the atlas coordinate system" (Reply Br. 6 (emphasis removed); *Cf.* FF 1-8; Ans. 4: ¶ (1) ("an anatomic boundary or other representation of an anatomic structure is superimposed on the VOA and imaging data or the like"); Ans. 4: ¶ (2) ("the calculated VOA region is displayed, such as on a computer monitor"); Ans. 4: ¶ (3) ("several model-computed volumes of influence (e.g., using different electrode locations or parameter settings) are computed and correlated to the target volume of influence, such as to optimize or otherwise select a desirable electrode location or stimulation parameter setting")).

Appellants fail to explain why McIntyre's teaching of a graphical interface that displays an anatomic boundary superimposed on the VOA and imaging data; and the correlation of target volume of influence *using different electrode locations to select a desirable electrode location* fails to teach "that the locations of the electrodes within the patient are determined, much less that such locations must be correlated to an atlas coordinate system in order to generate the various volumes of interest" (Reply. Br. 6; *Cf.* FF 1-8; *see* FF 8 ("a position tracking device … tracks the location of the … electrode so that the location can be displayed on the display device", e.g., a computer monitor, which also "includes data storage … receiving imaging data from a medical imaging device … [and] other atlas data storage … and a neuron or axon model"); Ans. 4). Accordingly, we are not

persuaded by Appellants' contentions regarding electrode location (*see* Reply Br. 6-8).

We find no error in Examiner's finding that McIntyre teaches the use of "an atlas of brain anatomy data, which can be scaled for the particular patient" (Ans. 4: ¶ (1); FF 5). Therefore, we are not persuaded by contention that McIntyre fails to teach "predefined anatomical structures within a reference anatomical region of a reference anatomy" (Reply Br. 7 (emphasis removed)).

CONCLUSION OF LAW

The preponderance of evidence on this record supports Examiner's finding that McIntyre teaches Appellants' claimed invention. The rejection of claim 1 under 35 U.S.C. § 102(e) as being anticipated by McIntyre is affirmed. Claims 3, 4, 6-9, 13-17, 19, 20, 22-25, 29, 30, and 32-36 are not separately argued and fall together with claim 1.

Obviousness:

ISSUE

Does the preponderance of evidence on this record support a conclusion of obviousness?

ANALYSIS

Having found no deficiency in McIntyre, we are not persuaded by Appellants' contention that Mann '325 or Mann '048 fail to make up for the deficiency in McIntyre (App. Br. 11 and 12).

CONCLUSION OF LAW

The preponderance of evidence on this record supports a conclusion of obviousness.

The rejection of claim 5 under 35 U.S.C. § 103(a) as unpatentable over the combination of McIntyre and Mann ‘325 is affirmed. Claim 21 is not separately argued and falls together with claim 5.

The rejection of claim 11 under 35 U.S.C. § 103(a) as unpatentable over the combination of McIntyre and Mann ‘048 is affirmed. Claims 12, 27, 28, and 38 are not separately argued and fall together with claim 11.

TIME PERIOD FOR RESPONSE

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

AFFIRMED

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