UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/198,386	08/08/2005	William J. Carroll	000309-00077	8339

27557 7590 01/11/2012

BLANK ROME LLP
WATERGATE
600 NEW HAMPSHIRE AVENUE, N.W.
WASHINGTON, DC 20037

EXAMINER	
GEDEON, BRIAN T	
ART UNIT	**PAPER NUMBER**
3766	

MAIL DATE	DELIVERY MODE
01/11/2012	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

_____

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

_____

Ex parte WILLIAM J. CARROLL

_____

Appeal 2010-000923
Application 11/198,386
Technology Center 3700

_____

Before LINDA E. HORNER, STEVEN D.A. McCARTHY, and PHILLIP J. KAUFFMAN, *Administrative Patent Judges*.

HORNER, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

William J. Carroll (Appellant) seeks our review under 35 U.S.C. § 134 of the Examiner's decision rejecting claims 5, 8, and 10-12 under 35 U.S.C. § 103(a) as unpatentable over Wingrove (US 5,540,735, issued July 30, 1996). We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

THE INVENTION

Appellant's claimed invention relates to surface electrical stimulation that delivers electrical pulses across the skin for various purposes, such as relief of pain, disuse atrophy, maintenance of range of motion, or healing of tissue. Spec. 2, para. [0003]. Claim 5, reproduced below, is representative of the subject matter on appeal.

> 5. A method of providing selective surface electrical stimulation, comprising:
>
> providing a first stimulation circuit, connected to at least two first circuit electrodes in a first state;
>
> providing a second stimulation circuit, connected to at least two second circuit electrodes in the first state;
>
> using a switch means, selectively changing circuit connections in a second state so that the first stimulation circuit is connected to at least one second circuit electrode and the second stimulation circuit is connected to at least one first circuit electrode.

CONTENTIONS AND ISSUES

Appellant argues claims 5, 8, 10, and 11 as a group. App. Br. 3-4. We select claim 5 as representative, and claims 8, 10, and 11 stand or fall with claim 5. *See* 37 C.F.R. § 41.37(c)(1)(vii). Appellant separately argues claim 12. App. Br. 5-6.

The Examiner determined that the method of claim 5 would have been obvious because even though Wingrove does not expressly disclose using a switch means, "providing a mechanical or automatic means to replace manual activity which has accomplished the same result involves only routine skill in the art." Ans. 3. The Examiner explained that use of "switch means is nothing more than an automation of the manual repositioning of the electrodes disclosed in Wingrove." Ans. 4.

Appellant argues that Wingrove does not render obvious the method of claim 5 because Wingrove does not recognize the problem Appellant was trying to solve, *viz*, low patient compliance with instructions to change electrode configuration manually. App. Br. 3-4; Reply Br. 2. Appellant argues for claim 12 that "*Wingrove* does not describe selectively changing circuit connections sequentially from a first state (interferential stimulation) to a second state (NMES[1])." App. Br. 6. The Examiner determined that claim 12 does not claim a sequence of stimulation and Wingrove's Figures 9-11 clearly depict a selective changing of connections from a first state (interferential stimulation) to a second state (NMES). Ans. 4-5.

The issues presented by this appeal are:

Would it have been obvious to one of ordinary skill in the art in view of Wingrove to use switch means to selectively change circuit connections as called for in claim 5?

Would it have been obvious to one of ordinary skill in the art in view of Wingrove to apply interferential current stimulation in a first state and NMES in a second state, as called for in claim 12?

FINDINGS OF FACT

The following enumerated findings are supported by at least a preponderance of the evidence.

1. Wingrove discloses that "[n]euromuscular stimulation (NMS), transcutaneous electrical nerve stimulation (TENS), and interferential stimulation are three types of electrical stimulation utilized to relieve pain or reduce edema." Col. 1, ll. 26-29.

[1] NMES stands for Neuromuscular Electrical Stimulation.

2. Wingrove discloses that to apply interferential stimulation, the patient must place four electrodes on his skin in a criss-cross pattern and correctly connect four wires between each skin electrode and the stimulation unit. Col. 2, ll. 3-16.
3. Wingrove teaches that "this treatment as currently applied is so complex and cumbersome that many patients have difficulty or do not follow their prescribed treatment." Col. 2, ll. 21-23.
4. One object of Wingrove is to provide "an easy-to-use apparatus to help patients relieve pain in their hands (or other flexing body portions) caused by conditions such as carpal tunnel syndrome." Col. 2, ll. 43-45.
5. In the hand/wrist embodiment, Wingrove discloses "a wrist brace positioning means with internal stimulation output contacts and electrodes" that allows the patient to avoid having to "place separate skin electrodes on his/her skin and then connect multiple wires from the stimulator to the skin electrodes." Col. 2, ll. 45-52.
6. Figure 9 of Wingrove "shows an interferential stimulation pattern that can be produced" and Figures 10 and 11 "show alternative stimulation patterns that can be produced." Col. 3, ll. 25-28.
7. Wingrove discloses that "[i]deally, the stimulator 11 used in the present invention can provide neuromuscular stimulation (NMS) or transcutaneous electrical nerve stimulation (TENS), in addition to interferential stimulation." Col. 6, ll. 30-33.
8. Wingrove discloses that "[a]lthough the criss-cross pattern is the preferred method, this invention may be used to apply stimulation between any two electrodes supported by the wrist brace 12. As

illustrated in FIGS. 10 and 11, the waveforms can travel between any suitably connected pair of electrodes." Col. 7, ll. 28-32.

9. Appellant's Specification describes that "[i]nput 516 of switch 506 is selectively connected to one of outputs A and B associated with input 516, depending on the state of switch 506," and that "[i]nput 518 of switch 506 is connected either to electrode 104 or to electrode 106', depending on the state of switch 506." Spec. 6-7, para. [0026].

10. The Specification describes:

> [S]witch 506 is shown schematically as a double pole, double throw switch. However, it will be understood that the scope of the invention is not limited to any particular type of switch. The functionality of switch 506 can be implemented either as a mechanical switch, a solid state or electronic switch, or in any other known manner that produces similar results in terms of the application of electrical stimulation in the desired patterns.

Spec. 7, para. [0027].

PRINCIPLES OF LAW

> When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense. In that instance the fact that a combination was obvious to try might show that it was obvious under § 103.

KSR Int'l Co. v. Teleflex, Inc., 550 U.S. 398, 421 (2007) (addition of a well-known electronic sensor to a well-known mechanical adjustable pedal would have been obvious).

Since *KSR*, the Federal Circuit has concluded that it would have been obvious to combine: (1) a mechanical device for actuating a phonograph to play back sounds associated with a letter in a word on a puzzle piece, with

(2) an electronic, processor-driven device capable of playing the sound associated with a first letter of a word in a book. *Leapfrog Enter., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1161 (Fed. Cir. 2007). The court's conclusion of obviousness was based in part on the reasoning that "[a]pplying modern electronics to older mechanical devices has been commonplace in recent years." *Id.* The Federal Circuit recognized that "[a]n obviousness determination is not the result of a rigid formula disassociated from the consideration of the facts of a case. Indeed, the common sense of those skilled in the art demonstrates why some combinations would have been obvious where others would not." *Id.* (citing *KSR*, 550 U.S. at 417 ("The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.")). The Federal Circuit relied in part on the fact that Leapfrog presented no evidence that the inclusion of a reader in the combined device was "uniquely challenging or difficult for one of ordinary skill in the art" or "represented an unobvious step over the prior art." *Id.* at 1162 (citing *KSR*, 550 U.S. at 418).

Similarly, in *Muniauction, Inc. v. Thomson Corp.*, 532 F.3d 1318 (Fed. Cir. 2008), the court concluded that conducting previously known methods of bidding through an Internet web browser was obvious because it amounted to no more than applying the use of the Internet to existing electronic processes at a time when doing so was commonplace. *Id.* at 1327. Also, in *Western Union Co. v. MoneyGram Payment Systems, Inc.*, 626 F.3d 1361 (Fed. Cir. 2010), the court found "the use of an electronic transaction device where the prior art employed a fax machine to be an unpatentable improvement at a time when such a transition was commonplace in the art."

Id. at 1370 (citing *In re Mettke*, 570 F.3d 1356, 1360-61 (Fed. Cir. 2009) (finding it obvious to add Internet access to a prior art kiosk that included a fax-machine)).

ANALYSIS

We agree with the Examiner that use of a switch means in the device of Wingrove to switch the connections between the skin electrodes and the stimulation unit, and thus switch between various known stimulation patterns, would have been obvious to one of ordinary skill in the art at the time of Appellant's invention.

Wingrove discloses that it was known in the art to use NMS, TENS, and interferential stimulation to treat pain and edema (Fact 1). Wingrove recognizes the design need and market pressure to provide an easy-to-use device for applying electrical stimulation therapy (Facts 2, 3). An object of Wingrove's invention was to provide a simple, easy-to-use apparatus to help patients relieve pain using electric stimulation therapy that avoids requiring the patient to place the electrodes on the skin and connect multiple wires from the stimulator to the electrodes (Facts 4, 5). Wingrove discloses that the hand/wrist brace embodiment can be used to provide an interferential stimulation pattern and a NMS pattern (Facts 6-8). These patterns require different connections between the electrodes and the stimulation unit.

The finite predictable solutions for switching between these stimulation therapies is either to have two different wrist braces, one for applying interferential stimulation and another for applying NMS, and requiring a patient to don and use the proper brace at the appropriate time, or to use the same brace and simply switch from the criss-cross connection between the electrodes and the stimulation unit used for interferential

stimulation to the connections used for NMS. We find, in light of design need and market demand recognized in Wingrove, that a person of ordinary skill in the art would have had good reason to pursue the known options within his or her technical grasp at the time of Appellant's invention. We also find that the switch means disclosed in Appellant's Specification were known and that the use of switches in place of manual methods to switch between one circuit and another was commonplace at the time of Appellant's invention (Fact 10). Thus, the use of switch means in Wingrove to change between different stimulation patterns would have been obvious to try and would have led to predictable results. Hence, Appellant's claimed invention is the product not of innovation but of ordinary skill and common sense. *See KSR*, 550 U.S. at 417 ("The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results."). Appellant presented no evidence that the use of switch means in Wingrove would have been uniquely challenging or difficult for one of ordinary skill in the art or would have represented an unobvious step over the prior art.

We agree with the Examiner's reading of the language of claim 12 as not requiring selectively changing circuit connections sequentially from a first state (interferential stimulation) to a second state (NMES). Ans. 4-5. Wingrove's Figures 9-11 clearly depict a selective changing of connections from a first state (interferential stimulation) to a second state (NMES) (Facts 6-8). For these reasons, we sustain the rejection of claims 5, 8, and 10-12 under 35 U.S.C. § 103(a) as unpatentable over Wingrove.

CONCLUSIONS

It would have been obvious to one of ordinary skill in the art in view of Wingrove to use switch means to selectively change circuit connections as called for in claim 5.

It would have been obvious to one of ordinary skill in the art in view of Wingrove to apply interferential current stimulation in a first state and apply Neuromuscular Electrical Stimulation (NMES) in a second state, as called for in claim 12.

DECISION

The decision of the Examiner to reject claims 5, 8, and 10-12 is AFFIRMED.

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

AFFIRMED

nlk