

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* NOLAN C. LERCHE, JAMES E. BROOKS,  
CHARLES C. ABNET, CLARENCE H. CHUI, and  
STUART B. BROWN

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Appeal 2008-4006  
Application 11/061,195  
Technology Center 2800

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Decided: October 31, 2008

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Before CHARLES F. WARREN, CATHERINE Q. TIMM, and  
KAREN M. HASTINGS, *Administrative Patent Judges*.

HASTINGS, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's final rejection of claims 1, 2, 4, 16, 17, 19, 22, 24-26, 29 and 30. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

## BACKGROUND

The invention relates to a micro-switch for use in a downhole well tool, that is, a device used in forming a well (Spec. 1:4-11). Appellants' invention is to provide an activating switch having improved reliability and triggering characteristics to electrically activate a downhole device (see, e.g., Spec 1:15-18; Spec. 2:17-18).

Claim 1 is illustrative:

1. An apparatus for use in a downhole tool, comprising:

a downhole component; and

a switch including conductors and a microelectromechanical device adapted to electrically connect the conductors when activated to provide electrical energy to the downhole component.

The Examiner relies upon the following prior art references in the rejections of the appealed claims:

Zavracky	5,638,946	June 17, 1997
Owens	5,769,160	June 23, 1998

The only issue on appeal is the Examiner's rejection of claims 1, 2, 4, 16, 17, 19, 22, 24-26, 29 and under 35 U.S.C. § 103(a) as being unpatentable over Owens in view of Zavracky<sup>1</sup>.

Appellants do not argue with any reasonable specificity any of the individual claims on appeal (App. Br. 6-12; Reply Br. 2-6). Accordingly, all

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<sup>1</sup> The Examiner has withdrawn the statutory double patenting rejection made in the final rejection under 35 U.S.C. § 101. The Examiner has also withdrawn the obviousness-type double patenting rejection made in the final rejection in view of the terminal disclaimer filed Jan. 4, 2006 (Ans. 3).

the appealed claims stand or fall together with claim 1 and we will focus our consideration of the present appeal on the Examiner's rejection of claim 1.

### ISSUE ON APPEAL

The issue on appeal arising from the contentions of Appellants and the Examiner is whether the Appellants have shown that the Examiner reversibly erred in rejecting the claims because there existed no motivation or suggestion to combine the teachings of Owens and Zavracky.

### PRINCIPLES OF LAW

“Section 103 forbids issuance of a patent when ‘the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.’” *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1734 (2007). The legal question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of skill in the art, and (4) secondary considerations, if any. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). *See also KSR*, 127 S. Ct. at 1734.

“The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *KSR*, 127 S. Ct. at 1739. The question to be asked is “whether the improvement is more than the predictable use of prior art elements according to their established functions.” *KSR*, 127 S. Ct. at 1740.

*KSR* states:

Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.

*KSR*, 127 S. Ct. at 1740-41.

The Federal Circuit recently 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.” *Leapfrog Enter., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1161 (Fed. Cir. 2007).

#### FINDINGS OF FACT

1. Owens describes a downhole component and a diverter to “selectively direct electricity or hydraulic fluid pressure to selected portions of the well tool, or other tools positioned in the well” (abstract). The diverter may be either a hydraulic circuit or a “functionally comparable circuit could be designed for an electrical switch” (col. 5, ll. 34-40).
2. Appellants’ Background section of the Specification describes that it was known to electrically activate a downhole device connected to a

power source using switches, either at the surface or in a downhole module (Spec. 1: 12-15). The “activating mechanisms” may include “mechanical, hydraulic, and electrical activating mechanisms” (Spec. 1:12-13).

3. Appellants describe their invention as a downhole device with a microelectromechanical switch (i.e., an activating mechanism) having “improved reliability and triggering characteristics” (Spec. 2: 17-18, 21-24).

4. Zavracky describes prior art microelectromechanical switches, exemplifying that these types of switches are well known (e.g., col. 1, ll. 16-34.). Zavracky describes an improved micromechanical (i.e., microelectromechanical) switch with an insulated connector for more reliable actuation of the switch (see, e.g., abstract; col. 2, ll. 59-67).

5. Zavracky describes some more advantages of a microelectromechanical switch:

Since the micromechanical switch of the invention operates at as much as one hundred times lower power consumption than an equivalently sized CMOS circuit, due to the smaller gate capacitances of the micromechanical switch, the micromechanical switch can also be used in applications requiring low power . . . The micromechanical switches are able to operate a [sic.at] frequencies above 1 MHz. The micromechanical switches further feature a small size, with the size ranging from less than 10 microns long to over 1 mm long, and are electrostatically actuated at between 5 volts and 200 volts. The micromechanical switches are also radiation hard, i.e., they are much less sensitive to radiation as compared to electronic devices. **Additionally, the micromechanical switches are inherently temperature insensitive, therefore making**

**them suitable for high or low temperature operation. Accordingly, the devices of the present invention can operate in a wide variety of environments, at less power, and at higher frequencies than prior art devices.**

(Zavracky col. 4, ll. 14-35; emphasis provided).

6. One of ordinary skill in the art would immediately appreciate that forming a well occurs in a wide variety of environments, including at both high and low temperatures.
7. Appellants base no argument upon objective evidence of nonobviousness, such as unexpected results.

#### ANALYSIS

Owens describes a downhole tool and a switch to activate same (FF

- 1). Indeed, one of ordinary skill in the art would readily appreciate that these elements are known in the prior art (FF 2)<sup>2</sup>. Zavracky describes microelectromechanical switches, which Appellants do not dispute, and their advantages (FF 4-5).

Appellants contend, however, that there is no motivation or suggestion to combine the teachings of Owens and Zavracky (App. Br. 5-8; Reply Br. 2-3). In particular, Appellants contend that Owens does not

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<sup>2</sup> See *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1570 (Fed. Cir. 1988) ("A statement in a patent that something is in the prior art is binding on the applicant and patentee for determinations of anticipation and obviousness."); *In re Nomiya*, 509 F.2d 566, 571 n.5 (CCPA 1975) (It is a "basic proposition that a statement by an applicant, whether in the application or in other papers submitted during prosecution, that certain matter is 'prior art' to him, is an admission that that matter is prior art for all purposes . . .").

suggest the “desirability for size reduction” by “incorporating a microelectromechanical device” for the well tool of Owens (App. Br. 6), and “Zavracky does not provide any indication that its microelectromechanical device can be used with a downhole component” (App. Br. 8). We do not find these arguments persuasive of error in the Examiner’s rejection for the following reasons.

We are in complete agreement with the Examiner that a person having ordinary skill in the art would have found it obvious to modify the device of Owens by providing a microelectromechanical switch, such switches being known in the art, for their known advantage of actuating reliably, and thus arrive at Appellants' claimed invention as set forth in claim 1 (Ans. 5-9).

Further, one of ordinary skill in the art would have appreciated that one way to ensure a reliable switch for a downhole component would have been to use a microelectromechanical switch, as Zavracky teaches the microelectromechanical switch is particularly suitable for high or low temperature operation (FF 5, 6).

The “improvement” herein appears to be no more than the predictable use of a known switch for its known purpose, for the predictable result of a microelectromechanical switch. *See KSR*, 127 S. Ct. at 1739-40 (The question to be asked is “whether the improvement is more than the predictable use of prior art elements according to their established functions.”).

The improvement also appears to be within the capabilities of one of ordinary skill in the art. Appellants have presented no evidence that the inclusion of a microelectromechanical switch in the prior art assembly was “uniquely challenging or difficult for one of ordinary skill in the art” or

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“represented an unobvious step over the prior art.” *See, e.g., Leapfrog Enter., Inc.*, 485 F.3d at 1162 (citing *KSR*, 127 S. Ct. at 1741).

We have considered Appellants’ other arguments in the Appeal Brief and Reply Brief, but do not find any of them persuasive.

Thus, we sustain the Examiner’s § 103 rejection of claim 1, as well as not separately argued claims 2, 4, 16, 17, 19, 22, 24-26, 29, and 30, based on Owens and Zavracky.

#### CONCLUSION

Accordingly, based on our consideration of the totality of the record before us, we have weighed the evidence of obviousness found in the combined teachings of the applied references, with Appellants’ countervailing arguments for nonobviousness and conclude that the claimed invention encompassed by appealed claims 1, 2, 4, 16, 17, 19, 22, 24-26, 29, and 30 would have been obvious as a matter of law under 35 U.S.C. § 103(a).

The Primary Examiner’s decision 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)(1)(iv).

AFFIRMED

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