NOTE: This disposition is nonprecedential.

United States Court of Appeals for the Federal Circuit

(Serial No. 10/988,358)

IN RE DAVID KRYZPOW, JAMES ELLIOTT, AARON ROOD, AND FREDERICK J. LISY

2010-1209

Appeal from the United States Patent and Trademark Office, Board of Patent Appeals and Interferences.

Decided: December 20, 2010

BRIAN M. KOLKOWSKI, Orbital Research Inc., of Cleveland, Ohio, for appellants.

RAYMOND T. CHEN, Solicitor, Office of the Solicitor, United States Patent and Trademark Office, of Alexandria, Virginia, argued for the Director of the United States Patent and Trademark Office. With him on the brief were FRANCES M. LYNCH and JANET A. GONGOLA, Associate Solicitors.

Before BRYSON, DYK, and MOORE, *Circuit Judges*.

MOORE, *Circuit Judge*.

David Kryzpow, James Elliott, Aaron Rood, and Frederick Lisy appeal the decision of the United States Patent and Trademark Office Board of Patent Appeals and Interferences (Board) concluding that claims 13-15 and 23 of U.S. Application No. 10/988,358 ('358 application) would have been obvious over U.S. Patent No. 6,415,619 (Kornrumpf) in view of U.S. Patent No. 7,032,302 (Schmidt) and U.S. Patent No. 4,763,660 (Kroll) and concluding that claim 16 would have been obvious over Kornrumpf in view of Schmidt and Kroll and further in view of U.S. Patent No. 6,259,939 (Rogel). We *affirm*.

BACKGROUND

The '358 application concerns an electrode harness used for taking biopotential measurements. The specification states that in one embodiment, the electrical pathways of the harness are shielded from large defibrillator voltages and smaller voltages, both of which would degrade the biopotential signal. J.A. 140.

The claims at issue all require an electrical pathway shielded from large defibrillator voltages. Claim 13 recites:

> 13. An electrode harness for physiological monitoring of a subject, the electrode harness comprising
>
> at least two dry electrodes; and
>
> material operable to interconnect the at least two dry electrodes, the material comprising an electri-

> cal pathway from at least one of the at least two dry electrodes, the electrical pathway being electrically shielded from large defibrillator voltages;
>
> wherein the at least two dry electrodes are attached to the material.

Claims 14-16, 19, and 23 all depend from claim 13. Claim 16 requires that the electrode harness include "a wireless transmitter or transceiver, which is electrically connected to the at least two dry electrodes." The other dependent claims add limitations not argued on appeal.

The examiner rejected claims 13-15, 19, and 23 over Kornrumpf in view of Schmidt and Kroll, and claim 16 further in view of Rogel. The examiner explained that Kornrumpf discloses a harness but does not disclose the use of dry electrodes or a shield layer. The examiner found that Schmidt disclosed the use of dry electrodes and stated that they could be used with a harness. J.A. 257-58. The examiner thus concluded that it would have been obvious to modify Kornrumpf's harness with Schmidt's dry electrodes to permit signal detection without the use of conductive gels or adhesives. J.A. 258. The examiner further found that Kroll disclosed a shield layer on an electrode belt device and concluded that it would have been obvious to one of skill in the art to modify the Kornrumpf harness with the shield in Kroll to permit superior signal detection. *Id.* The examiner also found that Rogel disclosed a wireless transmitter and concluded that it would have been obvious to modify the Kornrumpf harness with such a feature. *Id.*

In response, the appellants argued that

> Kroll only teaches of a shielding layer that "prevents interference from the device with other medical and diagnostic and therapeutic devices." Column 6 lines 19-20 . . . . Kroll does not teach or disclose an electrical pathway from the at least one electrode, the electrical pathway being shielded from *large defibrillator voltages*. Kroll only teaches of a shielding layer that "prevents interference". The claimed invention not only prevents interference from other devices, it protects the patient from potentially harmful currents, and likewise the connected electronics.

J.A. 269 (emphasis in original); *see also* J.A. 274.

The examiner again rejected the claims, reiterating the same arguments. The examiner did not respond to the appellants' argument presented above. Rather, the examiner stated: "Kornrumph et al fail to disclose a shield layer. Such a feature is disclosed by Kroll et al (see column 6, lines 17+, particularly lines 19-21)." J.A. 283.

In response, the appellants asserted that:

> Further, Kroll only teaches a shielding layer that "prevents interference from the device with other medical diagnostic and therapeutic devices." Column 6, lines 19-20. With respect to Claim 6, Kroll does not teach or disclose an electrical pathway from the at least one electrode, the electrical pathway being electrically shielded from large defibrillator voltages. Kroll only teaches of a shielding layer that "prevents interference." Column 6, lines 19-20. The claimed invention not only prevents interference from other devices, it protects the patient from potentially hazardous currents, and

> likewise protects the connected electronics. There is a large difference between electronic shielding for interference and electronic shielding of large defibrillator voltages, and a large difference for the type of structures required for such shielding. The Examiner has not yet explained why he believes that shielding for electronic interference and for large defibrillator voltages are the same nor provided a reference for disclosing such.

J.A. 291 (emphasis removed); *see also* J.A. 299.

The appellants filed a notice of appeal, and the examiner issued a "Supplemental" Office Action reiterating the previous rejection and further rejecting certain previously allowed claims. J.A. 306-15.

Before the Board, the appellants asserted that "electric shielding for interference and electronic shielding of *large* defibrillator voltages are drastically different." J.A. 341. The appellants further argued that "the type of structures required for shielding against interference are different from the type of structures required for shielding against damage that can be caused by large voltages." *Id.* After the parties exchanged briefing, the examiner filed a "Supplemental Examiner's Answer." J.A. 409-24. In this supplemental paper, the examiner for the first time stated that "the shield layer of Kroll et al would inherently offer at least some protection from the claimed [defibrillator] voltages." J.A. 420.

The Board affirmed the examiner's rejection of claims 13-16, 19, and 23 over Kornrumpf in view of Schmidt and Kroll, and, for claim 16, further in view of Rogel. The Board found that Kroll teaches a belt shielded from outside interference by a shielding layer. J.A. 18. The

Board further found that "[a]lthough Kroll does not specifically state that the shielding layer is sufficient to shield the electrical pathways of the device from large defibrillator voltages (Fact 14), Kroll expressly suggests that the shielding layer can be modified in order to provide additional shielding (Fact 13)." *Id.* The Board found that the "[a]ppellants d[id] not identify any specific structure in the Specification or in the claims that specifically enables shielding from large defibrillator voltages." *Id.* The Board concluded that "[s]electing an appropriate amount of shielding based upon the expected outside interference that the device may encounter is a detail of construction that does not patentably distinguish the invention from the prior art." *Id.* The Board found that "Kroll itself suggests that incorporating more shielding layers will produce more shielding." J.A. 18-19. As to claim 16, the Board applied the same reasoning and further concluded that "[i]incorporating Rogel's wireless transmitter into the device of Kornrumpf amounts to using a known technique, to improve a known device, in order to achieve the predictable result of enabling cordless operation of the device and making it simpler to manufacture." J.A. 20.

The appellants appealed. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(4)(A).

DISCUSSION

We review the Board's ultimate determination of obviousness de novo and the Board's underlying factual findings for substantial evidence. *In re Kotzab*, 217 F.3d 1365, 1369 (Fed. Cir. 2000).

The appellants argue that the Board erred in its obviousness determination by equating a shield that protects

against interference with the claimed shield, which protects against large defibrillator voltages. The appellants further elaborate on the two types of shielding, explaining that "interference is shielded to improve the physiological signal quality or prevent noise in the signal." Appl. Br. 21. The appellants assert that equipment found in a medical environment, such as computers, monitors, and power lines, create interference. *Id.* at 22. The appellants assert that a skilled artisan would understand that "[d]efibrillators involve the discharge of direct current (DC) at high voltages across a patient to treat life threatening cardiac arrhythmias, ventricular fibrillation and pulseless ventricular tachycardia. Thus, direct current *is not a source of interference*." *Id.* The appellants assert that the Board erred by not defining the level of skill in the art or taking the skilled artisan's knowledge of this type of information into account.

The appellants also argue that Kroll's shield would not protect against large defibrillator voltages, even if additional layers were added. The appellants explain that Kroll's shield is located in one of the outermost layers of the harness. The appellants assert that Kroll does not teach or suggest providing a shield between the electrical pathways and the patient; rather, the shield of Kroll protects the device and its electrical pathways from outside (external) interference sources. The appellants thus contend that Kroll's shield does not protect the electrical pathways against any voltages passed through the patient's body and leaked into the harness through contact with the patient's skin. By contrast, the appellants explain that their specification describes an embodiment in which the electrical pathways are shielded from large defibrillator voltages. In this embodiment, the electrical pathways "are longitudinally enclosed with a conductive layer of shielding, such as metal or foil, ex-

tending from the electrode connector to the output plug at the opposite end of the harness. Each individual electrical pathway is shielded." J.A. 140.

The government responds that "[t]he fact that Kroll's specific embodiments only depict shielding on one side of the harness is of no moment." Gov't Br. 15. The government asserts that based on an understanding of interference and direct currents, the appellants' skilled artisan "surely would know exactly where and how to shield." *Id.* The government further asserts that Kroll's shield is capable of protecting against large defibrillator voltages. The government explains that the shield described in the '358 application is made of metal, and the appellants acknowledge that the shield in the '358 application protects against large defibrillator voltages. The government thus argues that "there is more than a reasonable basis to conclude that Kroll's shielding layers are capable of full or partial shielding from large defibrillator voltages because they, too, are metallic." Gov't Br. 16. Next, the government asserts that the Board did not base its decision on a finding that Kroll's shield inherently protected against large defibrillator voltages. Rather, according to the government, the Board relied on Kroll's express disclosure that "the shielding layer can be modified in order to provide additional shielding." Gov't Br. 17.[1]

We conclude that the Board did not err when it determined that the asserted references rendered these claims obvious. All of the claims at issue require an electrical pathway that is "electrically shielded from large defibrillator voltages." Giving this claim term its broad-

[1] The government also argues that appellants waived their arguments regarding the structure of the shield. Given our discussion below, we do not reach the waiver argument.

est reasonable interpretation, it could apply to shielding on either side of the pathway. Kroll discloses a top-side shield that may be modified for additional shielding. Given this construction and the teachings of the references, we conclude that the Board did not err by determining that these claims would have been obvious over the cited references.

Although we affirm the Board's rejection of the claims on appeal, there are claims in this case that remain pending at the Patent Office. The applicant may amend pending claims or submit new claims to clarify that this shielding is disposed between the patient's body and the pathway, rather than on top of the pathway as in Kroll. We express no opinion about the allowability of these potentially amended claims and the Patent Office should consider them in the first instance.

CONCLUSION

For the foregoing reasons, we affirm.

AFFIRMED