The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 45

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte MATS LEIJON

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Appeal No. 2002-2050
Application No. 08/973,019

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HEARD: Oct. 22, 2002

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Before THOMAS, LALL, and GROSS, Administrative Patent Judges.

LALL, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1-10, 12-21, 25, 27-32, 34, 36, 37 and 39-45. Claims 11, 26, 33, 35 and 38 have been canceled, and claims 22, 23 and 24 have been indicated by the examiner to contain allowable subject matter.

According to appellant (brief at page 2), the disclosed invention relates to a high-voltage rotating electric machine having an unconventional winding. The winding is shown in Figure 1 of the disclosure. This winding has a current-carrying

conductor 2. Surrounding the conductor 2 is an inner semiconducting layer 3 which, in turn, is surrounded by a solid insulation part 4. This part 4 is in turn surrounded by an outer semiconductor layer 5. The winding is used as a rotating electric machine winding as illustrated in Figure 2 of the disclosure. The following claim is further illustrative of the invention.

1. A high-voltage rotating electric machine, comprising:

a stator;

a rotor opposing said stator; and

a high-voltage stator winding including

a current-carrying conductor,

an inner layer having semiconducting properties surrounding and being in electrical contact with said current-carrying conductor,

a solid insulating layer surrounding and contacting the inner layer, and

an outer layer having semiconducting properties surrounding and contacting the solid insulating layer.

The examiner relies on the following references:

Siemens (UK)	468,827	Jul. 13, 1937
Shildneck	3,014,139	Dec. 19, 1961
Laurell et al. (Laurell)	3,487,455	Dec. 30, 1969
Elton et al. (Elton '116)	4,622,116	Nov. 11, 1986
Elton et al. (Elton '565)	4,853,565	Aug. 1, 1989

The admitted prior art.

Claims 1-6, 9, 10, 12, 14, 15, 17, 18, 21, 25, 27, 32, 34, 36, 37 and 43-45 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Shildneck in view of Elton '565.

Claims 7 and 39 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Shildneck in view of Elton '565 and Elton '116.

Claims 8, 13 and 16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Shildneck in view of Elton '565 and Laurell.

Claims 19 and 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Shildneck in view of Elton '565 and Siemens.

Claims 28-31 and 40-42 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Shildneck in view of Elton '565 and the admitted prior art.

Rather than repeat the arguments of appellant and the examiner, we make reference to the brief (Paper No. 36), the reply brief (Paper No. 38), the final rejection (Paper No. 34) and the examiner's answer (Paper No. 37) for the respective details thereof.

OPINION

We have considered the rejections advanced by the examiner and the supporting arguments. We have, likewise, reviewed the appellant's arguments set forth in the briefs.

We affirm.

At the outset, we note that appellant has elected to have all the claims on appeal stand or fall together with representative claim 1, see brief at page 3. Therefore, we consider the rejection of claim 1 in our analysis.

As a general proposition, in an appeal involving a rejection under 35 U.S.C. § 103, an examiner is under a burden to make out a prima facie case of obviousness. If that burden is met, the burden of going forward then shifts to the applicant to overcome the prima facie case with argument and/or evidence. Obviousness, is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. See In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992); In re Hedges, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); and In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976).

The examiner discusses the references to Shildneck and Elton '565 at pages 4 and 5 of the examiner's answer and concludes (id.) that "[i]t would have been obvious . . . to modify Shildneck's high voltage machine winding and provide a high voltage, electrical cable per Elton et al. with grounded inner and outer semi-conductors separated by an insulator since such a cable would have been desirable to prohibit development of corona discharge."

Appellant argues (brief at pages 5-16) that the examiner has not established a prima facie case as required by a rejection of 35 U.S.C. § 103 because appellant alleges that there is no reasonable expectation of success (id. at pages 6-10) and that there is no motivation to make the claimed combination (id. at pages 11-16). Appellant urges that a declaration by Mr. Aabo clearly shows that material disclosed by Elton '565 is too stiff and lacks flexibility to make the winding for the electric machine recited in the claims and that the winding of the cable required in Shildneck is not possible with the cable disclosed by Elton '565. Appellant argues that the Elton cable is made from a hardened pyrolyzed glass fiber and is therefore not amenable to bending which is required for accomplishing the winding in Shildneck.

The examiner responds (answer at pages 5 and 6) that the examiner has considered the disclosure of Elton '565 and that of Shildneck as well as the Aabo declaration from the point of view of the flexibility requirement for winding of the cable for an electric machine, as recited. The examiner quotes the disclosure of Elton '565 at column 8, lines 3-9 that the semi-conducting layer is a glass fiber which can be chopped, mixed with resin and molded, or blown on any complex-shaped substrate so that the layer can be placed in intimate contact with substantially all of the exterior surface of the insulator or housing, which suggests that the semi-conducting layer can be "molded" or "blown" onto a cable without causing cable rigidity.

Our own review of Elton '565 shows that it discloses (col. 5, line 67 to col. 6 line 4) that the insulated electrical windings 50 initially extend axially and then <u>bend</u> circumferentially so as to provide a connection between one bar and a second circumferentially disposed bar in the stator core. Therefore, consistent with the examiner's findings, we note that Elton '565 shows the manner of bending the winding in Figure 5, so that there is provided adequate flexibility that such a bend is contemplated in Elton '565. We agree with the examiner that the combination of Elton '565 and Shildneck would have made it

obvious to an artisan to reasonably bend the windings disclosed by Elton '565 to make them suitable for the requirements of winding in Shildneck for a stator in an electric machine.

Appellant further argues the lack of a prima facie case because there is no motivation to make the claimed combination. Appellant argues (brief at pages 11 and 12) that Shildneck is not a high voltage device and that Shildneck does not correct the problem of having a corona discharge problem corrected by appellant in the instant invention. Appellant cites a declaration by Mr. Fenton for supporting this argument.

The examiner responds (answer at pages 7, 8 and 9) that the term high voltage as defined by appellant's own disclosure (for example, page 17, lines 10-13, and page 21, lines 7-8) is defined to be any voltage exceeding 10 kV. The examiner also notes (id. at page 8) that Mr. Fenton's declaration states that Shildneck's generator operates from 10 kV to 15 kV. Thus, the examiner concludes that, by appellant's own admissions, the apparatus disclosed by Shildneck is indeed a high voltage apparatus as defined in the specification. Regarding the corona discharge problem, the examiner responds that Elton '565, which forms a part of the combination for the rejection along with Shildneck,

does show the recognition and the suppression of corona discharge in high voltage systems (col. 1, lines 63-68).

Our own study of Elton '565 shows that the winding structure illustrated in Figures 1-7 is indeed disclosed to be suitable for windings in a dynamoelectric machine (abstract, lines 4-8). Elton '565 further discloses at col. 7, lines 23-37, that it is to be understood that cable 100 (Figure 7) could utilize internal grading layer 104 without utilizing semi-conducting layer 110 or cable 100 could utilize semi-conducting layer 110 without including internal grading layer 104. However, Figure 7 shows that cable 100 can also be made with both internal semi-conductor layer 104 and the external semi-conducting layer 110. It is further disclosed that Figure 7 is an alternative embodiment to Figures 1-6 which are shown to be suitable for windings on a stator in a dynamoelectric machine, see also column 8, lines 26-38. Therefore, we agree with the examiner that the combination of Elton '565 and Shildneck does disclose the problem of dealing with corona discharge at high voltages and that the cable disclosed by Elton '565 is indeed flexible enough to be made in the shape of winding for a dynamoelectric machine as shown in Figure 5 of Elton '565, contrary to the assertions made by appellant.

Appellant further urges the consideration of secondary considerations in the determination of nonobviousness at pages 17-22 of the brief and at pages 13-15 of the reply brief.

Appellant argues (brief at page 19) that "Mr. Fenton note[s] the present invention to be a 'game changer' that successfully challenged longtime accepted basic precepts in the art." Likewise, appellant relies (id. at page 20) on the declaration of Mr. Hirt paragraphs of which "each indicate the praise associated with various magazines articles and the cover story status of the inventive technology of the present application." The examiner responds to the declarations and consideration of opinion evidence at pages 9-15 of the examiner's answer in great detail. Particularly, in addition to responding to Mr. Aabo's declaration regarding the stiffness of the cable and the lack of motivation for the combination for the rejection discussed at pages 9-12 of the examiner's answer, the examiner responds to Mr. Fenton's declaration and Mr. Hirt's declaration at pages 12-15. Specifically, the examiner states (id. at page 14) that:

> [t]he examiner acknowledges Mr. Fenton's description of the invention as being a "game changer" and a "paradigm shift" . . . as well as Mr. Hirt's June 26, 2000 Declaration which discusses ABB's "Powerformer" generators, evidence of commercial success and evidence of activity by competitors. The examiner notes, however, that the "high voltage" machine Mr. Fenton describes operating at levels significantly greater

> than 30 kV is different from the broad "high voltage" machine described and claimed in the application. Similarly, the Powerformer generators Mr. Hirt describes operate in the range of hundreds of kilovolts, rather than tens of kilovolts (paragraphs 10-13); and Kliman's generator (US 6,278,217) operates at transmission line levels of 45-750 kV (c.1, lines 12-14).

We agree with the examiner that the devices described in the declarations by Mr. Fenton and Mr. Hirt are clearly operating at a voltage higher than the voltage recited in the claims. Therefore, the declarations are not commensurate with the scope of the claim.

Appellant further argues (brief at page 22) that "[t]here is also evidence here of copying the solution to the high voltage generator problems of the present invention as to the U.S. Patent and PCT Patents attached to the . . . declaration of Mr. Hirt." The examiner responds (answer at page 15) that:

> the scope of claim 1 as defined by the specification includes machines operating at voltages exceeding 10 kV, of which Shildneck and Elton are a subset. The showing of commercial success must be commensurate in scope with the claims. The term "high voltage" in the specification and claims does not correspond to the more narrow definition contemplated by Mr. Fenton and Mr. Hirt, and thus these secondary considerations are not deemed probabive [sic] of unobviousness and have not been given weight sufficient to overcome the rejection.

We are persuaded by the examiner that this evidence establishes no nexus between commercial success of the device and the

claimed invention and is not probative of non-obviousness. In re Vamco Machine & Tool, Inc., 752 F.2d 1564, 1577 n. 5, 224 USPQ 617, 625 n. 5 (Fed. Cir. 1985).

Since all the claims on appeal have corresponding limitations, and are not argued separately, we sustain the rejection of all the claims on appeal.

The decision of the examiner under 35 U.S.C. § 103(a) is affirmed.

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

AFFIRMED

James D. Thomas Administrative Patent Judge	)	
Parshotam S. Lall Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
Anita Pellman Gross Administrative Patent Judge	)	

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