

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte HANS-GERD BRUNNEKE

Appeal 2008-1120
Application 11/121,865
Technology Center 3600

Decided: June 10, 2008

Before TERRY J. OWENS, LINDA E. HORNER, and DAVID B.
WALKER, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL

The Appellant appeals from a rejection of claims 1-10 and 18-24.
Claims 11-13 stand withdrawn from consideration by the Examiner, and
claims 14-17 have been canceled.

THE INVENTION

The Appellant claims a ball and socket joint. Claims 1 and 18 are illustrative:

1. A ball and socket joint for a chassis of a motor vehicle, the ball and socket joint comprising:

a ball and socket joint housing having a joint opening;

a bearing shell made of an insulating material arranged in said housing;

a ball pivot made of an electrically conductive material, said ball pivot having a joint ball and a pivot and being mounted with said joint ball rotatably and pivotably in said bearing shell and projecting with said pivot out of said ball and socket joint housing through the opening of the joint housing;

an electrode arranged in a wall of said bearing shell at a spaced location from said joint ball, said electrode and said joint ball being electrically insulated against each other via said bearing shell, said bearing shell wall between said joint ball and said ball and socket joint housing having at least two layers of said bearing shell located one after another, said electrode being arranged between said two layers.

18. A ball and socket joint comprising:

a ball and socket joint housing having a joint opening;

a bearing shell made of an insulating material, said bearing shell being arranged in said housing, said bearing shell comprising two layers located one after another;

a ball pivot made of an electrically conductive material, said ball pivot having a joint ball and a pivot, said joint ball being mounted in said bearing shell with said pivot projecting out of said housing through the opening of the joint;

an electrode arranged directly between said two layers in said wall of said bearing shell and disposed at a spaced location from said joint ball, said electrode and said joint ball being electrically insulated against each other via said bearing shell;

a duct extending from said electrode to outside of said bearing shell;
and

an electrical line provided in said duct and connected to said electrode as a sole electrical connection for said electrode.

THE REFERENCE

Urbach US 6,773,197 B2 Aug. 10, 2004

THE REJECTIONS

The claims stand rejected as follows: claims 18-20 under 35 U.S.C. § 112, first paragraph, written description requirement, and claims 1-3, 5, 6, 8, 9 and 23 under 35 U.S.C. § 102(e) over Urbach.¹

OPINION

We reverse the rejection under 35 U.S.C. § 112, first paragraph, affirm the rejection under 35 U.S.C. § 102(e) of claims 1, 8, 9 and 23, and reverse the rejection under 35 U.S.C. § 102(e) of claims 2, 3, 5 and 6.

¹ Rejections over French patent 2,833,321 of claims 1, 21, and 22 under 35 U.S.C. § 102(e), and claims 5, 7, and 10 under 35 U.S.C. § 103 are withdrawn in the Examiner’s Answer (Ans. 2-3). Because the rejection over the ‘321 French patent of claim 4 under 35 U.S.C. § 103 (Final Rejection mailed May 15, 2006, p. 9) is not maintained in the Examiner’s Answer, we consider that rejection also to be withdrawn.

Rejection under 35 U.S.C. § 112, first paragraph

A specification complies with the 35 U.S.C. § 112, first paragraph, written description requirement if it conveys with reasonable clarity to those skilled in the art that, as of the filing date sought, the inventor was in possession of the invention. *See Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64 (Fed. Cir. 1991).

The Examiner argues that the Appellant's original disclosure lacks written descriptive support for "a duct extending from said electrode to outside of said bearing shell" in claim 18 (Ans. 4). The Examiner argues that according to the Appellant's original disclosure, the duct (15) is not in the bearing shell (5) but, rather, is in the ball and socket joint housing (1) outside the bearing shell (Spec. ¶ 0037; fig. 1) (Ans. 6).

The Appellant relies (Reply Br. 1-2) upon Specification paragraph 0016 which discloses:

If the electrode does not project from the bearing shell, an opening, which extends from the outer side of the bearing shell to the electrode, may likewise be provided in it. The electric line for contacting the electrode can then be introduced into this opening.

The Examiner argues that "paragraph [016] [sic, 0016] does not mention a duct 15 but rather paragraphs [0037] and [0041]" (Ans. 6).²

The relevant definition of "duct" is "a pipe or tubular runway for carrying an electric power line, telephone cables, or other conductors".³ The Examiner interprets "duct" in the Appellant's claim 18 as being limited to

² Paragraph 0041 pertains to an embodiment wherein the duct is not required.

³ Webster's New Collegiate Dictionary 352 (G. & C. Merriam 1973).

duct 15 discussed in Specification paragraph 0037 and shown in figure 1 as extending from one side to the other of ball and socket joint housing 1 (Ans. 6). The Appellant's claim 18 is not limited to that duct. The duct in claim 18 must extend to outside of the bearing shell, and that portion of the duct is met by duct 15, as shown in figure 1. The duct in claim 18 must also extend from the electrode. That part of the duct is the opening disclosed in Specification paragraph 0016 extending from the electrode to the outer side of the bearing shell (fig. 1).

The Appellant's original disclosure, therefore, shows possession of a duct that extends from the electrode to outside the bearing shell.

Accordingly, we reverse the rejection under 35 U.S.C. § 112, first paragraph.

Rejection under 35 U.S.C. § 102(e)

Claim 1

“Anticipation requires that every limitation of the claim in issue be disclosed, either expressly or under principles of inherency, in a single prior art reference.” *Corning Glass Works v. Sumitomo Elec. U.S.A., Inc.*, 868 F.2d 1251, 1255-56 (Fed. Cir. 1989).

Urbach discloses a ball and socket joint having a vibration dampening layer comprised of an electrical circuit matrix (130) molded into a bearing layer (110) such that the electrical circuit matrix is embedded in the bearing layer (col. 4, ll. 3-6). The electrical circuit matrix includes one or more piezoelectric crystals (132), each being electrically connected to a resistor and either a capacitor (136) or an inductor (138) (col. 4, ll. 7-10; figs. 3, 4). Vibration energy is dissipated through the conversion of mechanical

pressure variations in the piezoelectric crystal(s) to heat generated by electric current in the resistor(s) (col. 4, ll. 47-50).

The Appellant argues that Urbach's electrical circuit matrix is completely electrically isolated within the bearing layer and, therefore, does not operate as an electrode (Br. 12-13).

An electrode is "a conductor used to establish electrical contact with a nonmetallic part of a circuit".⁴ The Examiner relies upon the conductors in Urbach's electrical circuit matrix as corresponding to the Appellant's electrode (Ans. 7). As shown in Urbach's figures 3 and 4, those conductors are used to establish electrical contact with nonmetallic (piezoceramic or piezopolymer (col. 4, ll. 33-38)) piezoelectric crystal 132. Urbach's conductors in the electrical circuit matrix, therefore, are electrodes.

The Appellant argues that Urbach fails to teach or suggest an electrode arranged between two layers of a bearing shell but, rather, discloses an electrical circuit matrix molded in a single bearing shell layer (Br. 12).

During patent prosecution, claims are to be given their broadest reasonable interpretation consistent with the Specification, as the claim language would have been read by one of ordinary skill in the art in view of the Specification. *See In re Zletz*, 893 F.2d 319, 321 (Fed. Cir. 1989); *In re Sneed*, 710 F.2d 1544, 1548 (Fed. Cir. 1983).

A layer is "one thickness, course, or fold laid or lying over or under another".⁵ Regarding the embodiment in the Appellant's figure 1, the

⁴ Webster's, *supra* note 3 at 366.

⁵ Webster's, *supra* note 3 at 652.

Appellant's Specification states that “[t]he bearing shell 5 has an outer layer 12 and an inner layer 13, wherein an electrode 14 is arranged between these two layers and is directly in contact with these” (Spec. 12:9-10). In the Appellant's figure 1 the crosshatching in bearing shell 5 is the same on both sides of electrode 14, and beyond the ends of electrode 14 the crosshatching is uniform across bearing shell 5. The crosshatching, therefore, indicates that the term “two layers”, as used by the Appellant, encompasses a single material that extends the full length of bearing shell 5 and has a thickness on each side of electrode 14. Similar crosshatching in bearing shell 5 is shown for the embodiment in the Appellant's figure 2. With respect to that figure the Appellant's Specification states that “[i]n the upper area 21 of the bearing shell 5, the two layers 12 and 13 directly adjoin each other and are connected with one another by a connection in substance” (Spec. 13:12-13). The uniform crosshatching across bearing shell 5 in figure 2 indicates that by “connection in substance” the Appellant means that a uniform layer extends across bearing shell 5. As shown in figure 2, that layer has a thickness on each side of electrode 14.

Hence, the Appellant's claim term “two layers”, when given its broadest reasonable interpretation in view of the Appellant's Specification, encompasses Urbach's bearing layer 110 having a thickness on each side of electrical circuit matrix 130.

For the above reasons we are not persuaded of reversible error in the rejection of claim 1.

Claims 2 and 3

Claim 2, which depends from claim 1, requires that “said electrode is designed as a metallic foil.” Claim 3, which depends from claim 2, requires that “said foil is bonded to a first of said two layers.”

The Examiner argues that “the electrode **130** is designed as a metallic foil (metal strip between the electrical components)” (Ans. 5) and that the connectors in Urbach’s electrical circuit matrix “have been established as metallic foils since these connections are made of copper foil” (Ans. 8).

The Examiner does not point out, and it is not apparent, where Urbach discloses that the connectors are foils. Urbach discloses that the electrical circuit matrix may comprise one or more of the circuits illustrated in figures 3 and 4 in any combination, and that the circuits may be disposed at various locations around the perimeter of the ball portion (172) of the ball stud (170) (col. 4, ll. 50-54). Although Urbach discloses that the electrical circuit matrix is a layer (col. 4, ll. 4-5), Urbach does not disclose that the conductors within the layer have the shape of a strip or foil rather than having the shape of a wire that electrically connects the other components of the vibration dampening layer.

Hence, the Examiner has not established that Urbach necessarily or inherently discloses the metallic foil electrode required by the Appellant’s claim 2 and claim 3 that depends therefrom.

Claims 5 and 6

Claim 5, which depends from claim 1, requires that “said electrode is designed as a metal plating of a first of said two layers of bearing shell.”

Claim 6, which depends from claim 5, requires that “said metal plating consists of copper.”

The Examiner argues that copper strips are “commonly established to connect electrical components”, and that strips are metal plating (Ans. 9).

Even if strips commonly are used to establish electrical connections and can be formed by metal plating, that does not mean that Urbach’s conductors necessarily or inherently are strips rather than wires.

The Examiner, therefore, has not established a *prima facie* case of anticipation of the inventions claimed in the Appellant’s claim 5 or claim 6 which depends therefrom. Moreover, regarding claim 6, the Examiner has not established that Urbach discloses a copper conductor. The Examiner’s argument that “copper is normally used as an electrode” (Ans. 9) does not establish that Urbach’s conductor, the composition of which is not disclosed, necessarily or inherently is copper.

Claim 8

Claim 8, which depends from claim 1, requires that “said ball pivot is surrounded by a collar made of an electrically insulating material in a transition area between said joint ball and said pivot.”

Urbach discloses a boot seal (150), typically made from an elastomeric material such as rubber, which flexibly and sealingly engages both stud portion 174 of ball stud 170 and the upper portion 146 of socket 140 to prevent external objects from entering chamber 160 (col. 3, ll. 37-51; fig. 2). Urbach’s boot seal surrounds ball stud 170, which corresponds to the Appellant’s ball pivot (4), in a transition area between ball portion 172, which corresponds to the Appellant’s joint ball (2), and the ball stud (fig. 2).

The Examiner finds that rubber is an electrically insulating material (Ans. 6). Because the Examiner's finding is reasonable and the Appellant has not challenged it, we accept it as fact. *See In re Kunzmann*, 326 F.2d 424, 425 n.3 (CCPA 1964).

The Appellant argues that the purpose of Urbach's boot seal differs from the purpose of the Appellant's collar, which is to electrically insulate the transition area between the joint ball and the pivot (Br. 18).

The Appellant does not argue that there is any structural difference between Urbach's boot seal and the collar recited in the Appellant's claim 8. The Appellant, therefore, has not convinced us of reversible error in the rejection of that claim.

Claim 9

Claim 9, which depends from claim 1, requires that "said ball pivot is surrounded by electrically insulated material in an annular pattern at least at its end area facing away from said joint ball."

Urbach's electrically insulating boot seal surrounds stud portion 174 of ball stud 170 in an annular pattern at the stud portion's end area facing away from ball portion 172, which corresponds to the Appellant's joint ball 2.

The Appellants argue that "[a]t most, Urbach teaches a boot seal 150 for preventing external objects from entering the chamber 160, which is the equivalent of the sealing bellows in the present invention" (Br. 19-20).

The Appellant's argument is not persuasive even if it is correct, because the Appellant has not pointed out a structural difference between

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Urbach's boot seal and the electrically insulating material recited in the Appellant's claim 9.

Claim 23

Claim 23, which depends from claim 1, requires that "said electrode is a planar electrode extending substantially over a surface area of inner said bearing shell."

The Appellant's argument regarding claim 23 does not address the limitation in that claim (Br. 20-21). The Appellant, therefore, has not persuaded us of reversible error in the rejection of claim 23.

DECISION

The rejection under 35 U.S.C. § 112, first paragraph, is reversed. The rejection under 35 U.S.C. § 102(e) is affirmed as to claims 1, 8, 9 and 23, and reversed as to claims 2, 3, 5 and 6.

AFFIRMED-IN-PART

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