UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MOHAMED YAHIA BENSLIMANE and PETER GRAVESEN

Appeal 2006-2730
Application 10/415,631
Technology Center 2800

Decided: March 14, 2007

Before KENNETH W. HAIRSTON, HOWARD B. BLANKENSHIP, and ALLEN R. MACDONALD, *Administrative Patent Judges*.

MACDONALD, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134 from the Examiner's rejection of claims 11-18, 21, and 22. Claims 19 and 20 have been withdrawn from prosecution (Br. 2). We have jurisdiction over the appeal under 35 U.S.C. § 6(b).

STATEMENT OF THE CASE

Appellants invented an actuating member with a body of elastomeric material with an electrode disposed on opposite sides of the body. Specifically, the elastomeric material comprises a waved surface. The waved surface, among other things, improves transverse stiffness, longitudinal flexibility, and distributes electrical voltage uniformly over the entire surface of the body. Claim 11 is illustrative:

> 11. An actuating member comprising:
>
> an elastomeric body having generally opposed boundary surfaces, each boundary surface including an electrode arrangement thereon;
>
> at least a portion of at least one of the boundary surfaces having a waved area defined by extremes of height and depth extending approximately parallel to a transverse direction defined by the body, the waved area being at least partially covered by an electrode forming part of the electrode arrangement;
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> at least a portion of the extremes being fully covered by the electrode; and
>
> the electrode being continuous over the waved area,
>
> wherein the waved area is formed on the elastomeric body prior to the elastomeric body being at least partially covered by the electrode.

The Examiner relies on the following prior art reference to show unpatentability:

Pelrine	US 6,376,971 B1	Apr. 23, 2002 (filed Jul. 20, 2000)

The rejections as presented by the Examiner are as follows:

1. Claims 11-16, 21, and 22 are rejected under 35 U.S.C. § 102(b)[1] as being anticipated by Pelrine.
2. Claims 17 and 18 are rejected under 35 U.S.C § 103(a) as unpatentable over Pelrine.

Rather than repeat the arguments of Appellants or the Examiner, we refer to the Briefs and the Answer for their respective details. Only those arguments actually made by Appellants have been considered in this decision. Arguments which Appellants could have made but chose not to make in the Briefs have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(vii)(2004).

OPINION

It is our view, after consideration of the record before us, that the disclosure of Pelrine fully meets the invention set forth in claims 11-16, 21, and 22. We also conclude that the evidence relied upon and the level of skill in the particular art would have suggested to one of ordinary skill in the art the invention set forth in claims 17 and 18. Accordingly, we affirm.

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[1] Although the Examiner relies on § 102(b) as a basis for the anticipation rejection, the Pelrine reference actually qualifies as prior art under § 102(e) – not § 102(b). The present application is a national stage application filed under 35 U.S.C. § 371. Therefore, the filing date of this national stage application is Oct. 31, 2001 – the international filing date. *See* 35 U.S.C. § 363. *See also* MPEP § 1893.03(b). Since Pelrine was (1) published less than one year after the filing date of the present application, and (2) filed before this application's filing date, it qualifies as prior art under § 102(e). Nevertheless, we deem this procedural error harmless since it does not affect our assessment of the merits of the anticipation rejection.

We first consider the Examiner's rejection of claims 11-16, 21, and 22 under 35 U.S.C. § 102(b) as being anticipated by Pelrine. Anticipation is established only when a single prior art reference discloses, expressly or under the principles of inherency, each and every element of a claimed invention as well as disclosing structure which is capable of performing the recited functional limitations. *RCA Corp. v. Applied Digital Data Systems, Inc.*, 730 F.2d 1440, 1444, 221 USPQ 385, 388 (Fed. Cir. 1984); *W.L. Gore and Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1554, 220 USPQ 303, 313 (Fed. Cir. 1983).

The Examiner has indicated how the claimed invention is deemed to be fully met by the disclosure of Pelrine (Answer 2-3). Regarding independent claim 11, the Examiner indicates that the limitation calling for forming the waved area on the elastomeric body *prior to* the body being at least partially covered by the electrode is a product-by-process limitation that does not patentably distinguish over the structure of Pelrine (Answer 3; emphasis added).

Appellants argue that the Examiner improperly declined to give patentable weight to this product-by-process limitation. Appellants contend that forming the waved area on the elastomeric body prior to applying the electrode implicitly imparts structural characteristics to the product that are distinct from Pelrine. According to Appellants, these structural distinctions include, among other things, a stress-free structure (Br. 5-6; Reply Br. 3-4).

Appellants further note that, unlike the claimed invention, corrugations in Pelrine's polymer arise after it has been pre-strained, attached with electrodes, and allowed to relax. Therefore, the shape, amplitude, and frequency of Pelrine's corrugations depend upon (1) the

materials and thickness of the polymer and the electrodes, and (2) the extent of pre-straining of the polymer (Br. 6).

We will sustain the Examiner's anticipation rejection of independent claim 11. Although forming the waved area on the elastomeric body prior to covering it with an electrode may produce a stress-free structure as Appellants argue, the claim nevertheless is fully met by Pelrine's pre-strained polymeric body and electrodes formed thereon.

In fact, Pelrine expressly teaches forming the waved area prior to covering the body with an electrode as claimed. Pelrine states that the surfaces on the pre-strained polymer are textured (i.e., a waved surface is formed) by either of two methods: (1) stretching and subsequently relaxing the polymer to buckle the surface, or (2) reactive ion etching (Pelrine, col. 27, l. 60 – col. 28, l. 8).

Significantly, Pelrine further explains that "[o]ne or more electrodes are *then* formed on the polymer…." (Pelrine, col. 28, l. 9; emphasis added). That is, the electrodes are applied *after* texturing the surface of the polymer. For example, a thin layer of gold may be sputter deposited on the textured surface formed by etching to provide a textured electrode (Pelrine, col. 28, ll. 9-12).

In short, Pelrine fully meets independent claim 11 including forming the waved area prior to covering the body at least partially with an electrode as claimed. Appellants' arguments regarding producing a stress-free structure with the claimed process are simply not commensurate with the scope of the claim which does not preclude Pelrine's pre-strained textured polymer that is made by the claimed process.

For at least the above reasons, we will sustain the Examiner's anticipation rejection of independent claim 11. Since Appellants have not separately argued the patentability of dependent claims 12-16 and 21, these claims fall with independent claim 11. *See In re Nielson*, 816 F.2d 1567, 1572, 2 USPQ2d 1525, 1528 (Fed. Cir. 1987). *See also* 37 C.F.R. § 41.37(c)(1)(vii).

Regarding claim 22, Appellants argue that the Examiner improperly declined to give patentable weight to the limitation calling for a molded wave surface of the elastomeric body. Appellants contend that a molded wave area is structurally distinct from a non-molded wave area. In this regard, Appellants contend that a molded wave area will have a different grain or flow pattern and different surface characteristics than a textured area formed by the pre-strained interaction of two materials as in Pelrine (Br. 7; Reply Br. 4).

At the outset, we note that the limitation calling for a "*molded* wave surface" (emphasis added) is a product-by-process limitation since the term "molded" merely recites how the wave surface was formed. It is well settled that reciting how a product is made does not further limit the structure of the product itself. *In re Thorpe*, 777 F.2d 695, 697, 227 USPQ 964, 966 (Fed. Cir. 1985) (citations omitted). But we also must consider structure implied by the recited process steps, especially where the (1) the product can only be defined by the process steps by which the product is made, or (2) the process steps would be expected to impart distinctive structural characteristics to the final product. *See, e.g., In re Garnero*, 412 F.2d 276, 279, 162 USPQ 221, 223 (CCPA 1969). *See also* MPEP § 2113.

Although Appellants assert that a molded wave area is structurally distinct from a non-molded wave area, Appellants have provided absolutely no evidence to support this assertion. It is well settled that mere lawyer's arguments and conclusory statements, which are unsupported by factual evidence, are entitled to little probative value. *In re Geisler*, 116 F.3d 1465, 1470, 43 USPQ2d 1362, 1365 (Fed. Cir. 1997); *In re De Blauwe*, 736 F.2d 699, 705, 222 USPQ 191, 196 (Fed. Cir. 1984); *In re Wood*, 582 F.2d 638, 642, 199 USPQ 137, 140 (CCPA 1978); *In re Lindner*, 457 F.2d 506, 508-09, 173 USPQ 356, 358 (CCPA 1972).

In any event, on this record, we find no evidence that suggests a structural distinction between Pelrine's etched wave surface and a molded wave surface as claimed. Absent evidence to the contrary, we find that molding the wave member in lieu of etching it simply does not impart distinctive structural characteristics to the wave member. Moreover, Appellants' assertions regarding a molded wave area being structurally distinct from a textured area formed by a pre-strained interaction of two materials in Pelrine is not germane to Pelrine forming the waved area by an etching process. The Examiner's rejection of claim 22 is therefore sustained.

We now consider the Examiner's rejection of claims 17 and 18 under 35 U.S.C § 103(a) as unpatentable over Pelrine. In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. *See In re Fine*, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the Examiner must make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966). If that burden is

met, the burden then shifts to the Appellants 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).

The Examiner's rejection essentially finds that Pelrine teaches every claimed feature except for the waved area to have a rectangular profile. The Examiner, however, refers to a passage within Pelrine stating that the textured surface may comprise any non-uniform or non-smoothed surface topography (Pelrine, col. 10, ll. 24-25). In view of this teaching, the Examiner concludes that providing any shape for the waved area would have been within the level of the skilled artisan and therefore obvious (Answer 3-4).

Appellants argue that Pelrine forms the buckled surface by stretching the polymer, applying the electrode, and then relaxing the polymer. Appellants emphasize that even if this process were optimized as the Examiner suggests, a rectangular profile with straight edges and 90 degree corners would still not result (Reply Br. 5).

We will sustain the Examiner's rejection of claim 17. As we indicated previously, Pelrine forms the waved surface of the polymer by either (1) stretching and subsequently relaxing the polymer to buckle the surface, or (2) reactive ion etching (Pelrine, col. 27, l. 60 – col. 28, l. 8). Even if we assume, without deciding, that a rectangular profile would not result from stretching and relaxing the polymer as Appellants argue, this argument is unavailing regarding Pelrine's alternative process of forming the waved surface by reactive ion etching.

As is well known in the art, reactive ion etching involves forming etched grooves in a substrate using high-energy ions from a chemically-reactive plasma. Such high-precision etching methods typically form smooth sidewalls that are perpendicular to the substrate.[2] Given the ability of reactive ion etching to form smooth, perpendicular grooves in a substrate with precision, and (2) Pelrine's teaching that the polymer's textured surface can have any non-uniform or non-smooth surface topography as the Examiner indicates, we see no reason why the skilled artisan would not utilize Pelrine's reactive ion etching method to form a waved area with a rectangular profile.

For at least this reason, we will sustain the Examiner's rejections of claim 17. Since Appellants have not separately argued the patentability of dependent claim 18 with particularity, it falls with claim 17. *See In re Nielson*, 816 F.2d at 1572, 2 USPQ2d at 1528. *See also* 37 C.F.R. § 41.37(c)(1)(vii).

DECISION

In summary, we have sustained the Examiner's rejections with respect to all claims on appeal. Therefore, the decision of the Examiner rejecting claims 11-18, 21, and 22 is affirmed.

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[2] *See* U.S. Patent No. 4,925,813, at Figs. 1a-1f; col. 3, ll. 1-8 (noting object of manufacturing method using reactive ion etching step is to obtain "etching edges which are smooth and perfectly perpendicular to the substrate")*; see also* U.S. Patent No. 3,994,793, at col. 3, ll. 59-69 (noting that "nearly vertical etch steps are achieved" with reactive ion etching); *id.* at Fig. 2 and col. 6, ll. 5-6 (referring to the vertical sidewalls of strips 58 in Fig. 2).

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) (2006).

AFFIRMED

tdl/ce

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