

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MICHAEL H. L. CHENG

Appeal 2008-4773
Application 11/285,740
Technology Center 3700

Decided: December 16, 2008

Before ERIC GRIMES, RICHARD M. LEBOVITZ, and JEFFREY N. FREDMAN, *Administrative Patent Judges*.

LEBOVITZ, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 36-38 and 40-46. Jurisdiction is under 35 U.S.C. § 6(b). We affirm.

STATEMENT OF THE CASE

The claims are directed to a golf club shaft that comprises three layers: an outer layer of a cloth in a resin, inner fiber reinforced layers, and metal fibers between the outer and inner layers. According to the

Specification, a golf club with fiber reinforced resin layers and metal fibers has increased “kick” and high elasticity (Spec. 2: 7-19).

Claims 36-38 and 40-46 stand rejected by the Examiner as follows:

1) Claims 36, 37, and 41-44 under 35 U.S.C. § 103(a) as obvious over JP ‘522 (JP 62-69522, English translation, Sept. 27, 1994) and Noguchi (US 5,385,767, Jan. 31, 1995) (Ans. 4);

2) Claims 38 and 40 under 35 U.S.C. § 103(a) as obvious over JP ‘522, Noguchi, and JP ‘175 (JP 54-123175, Sept. 25, 1979) (Ans. 5);

3) Claim 45 under 35 U.S.C. § 103(a) as obvious over JP ‘522, Noguchi, and Honma (US 5,049,422, Sept. 17, 1991) (Ans. 6); and

4) Claim 46 under 35 U.S.C. § 103(a) as obvious over JP ‘522, Noguchi, and Hogan (US 5,308,062, May 3, 1994) (Ans. 5).

Claim 36 is the only independent claim on appeal and is representative of the appealed subject matter. Claim 36 reads as follows:

36. A golf club shaft, comprising:
a plurality of fiber reinforced resin layers defining a tip, a tip section, a main body section, a grip section, a butt and a longitudinal axis;
an outer layer including a resin and a cloth within the resin; and
a plurality of longitudinally extending metal fibers located between the fiber reinforced resin layers and the outer layer.

ISSUE ON APPEAL

Does Noguchi “teach away” from a golf club shaft with an outer layer “including a resin and a cloth within the resin” as recited in claim 36?

PRINCIPLES OF LAW

To establish obviousness, the following factors must be taken into consideration: (a) the scope and contents of the prior art; (b) the differences between the prior art and the claimed subject matter; (c) the level of skill in the pertinent art; and (d) evidence of secondary considerations. *Graham v. John Deere*, 383 U.S. 1, 17 (1966).

Although common sense directs one to look with care at a patent application that claims as innovation the combination of two known devices according to their established functions, it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does. This is so because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known.

KSR Int'l Co. v. Teleflex Inc., 127 S. Ct. 1727, 1741 (2007).

For over a half century, the Court has held that a “patent for a combination which only unites old elements with no change in their respective functions . . . obviously withdraws what is already known into the field of its monopoly and diminishes the resources available to skillful men.” *Great Atlantic & Pacific Tea Co. v. Supermarket Equipment Corp.*, 340 U. S. 147, 152 (1950). This is a principal reason for declining to allow patents for what is obvious. The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.

...

For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill. *Sakraida* and *Anderson's-Black Rock*

are illustrative—a court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions.

KSR Int'l Co. v. Teleflex Inc., 127 S. Ct. at 1739-1740.

A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant. The degree of teaching away will of course depend on the particular facts; in general, a reference will teach away if it suggests that the line of development flowing from the reference's disclosure is unlikely to be productive of the result sought by the applicant.

...

... Although a reference that teaches away is a significant factor to be considered in determining unobviousness, the nature of the teaching is highly relevant, and must be weighed in substance. A known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use.

In re Gurley, 27 F.3d 551, 553 (Fed. Cir. 1994).

[C]ase law does not require that a particular combination must be the preferred, or the most desirable, combination described in the prior art in order to provide motivation for the current invention. “[T]he question is whether there is something in the prior art as a whole to suggest the *desirability*, and thus the obviousness, of making the combination,” not whether there is something in the prior art as a whole to suggest that the combination is the *most desirable* combination available. *See In re Beattie*, 974 F.2d at 1311 (internal quotation omitted; emphasis added). . . . [A] finding that the prior art as a whole suggests the desirability of a particular combination need not be supported by a finding that the prior art suggests that the combination claimed by the patent applicant is the preferred, or most desirable, combination.

In re Fulton, 391 F.3d 1195, 1200 (Fed. Cir. 2004).

“[A] reference may teach away from a use when that use would render the result inoperable.” *In re ICON Health and Fitness Inc.*, 496 F.3d 1374, 1381 (Fed. Cir. 2007).

FINDINGS OF FACT (“FF”)

Scope and content of the prior art

In making an obviousness determination, we must first ascertain the scope and content of the prior art. *Graham v. John Deere Co.*, 383 U.S. at 17. The following numbered findings of fact (“FF”) summarize the prior art relied upon by the Examiner in setting forth the basis of the rejection of claim 36 and others (Ans. 4):

The JP ‘522 patent

1. JP ‘522 describes a golf club shaft comprising:
2. (1) multiple reinforcing layers made by impregnating synthetic resin in reinforcing carbon fibers (“5a-5c”) (JP ‘522, ¶¶ 10, 20, 21, and Fig. 1; Ans. 4);
3. (2) an outer layer covered with glass prepreg sheets made by impregnating heat-curable resin in transparent glass fibers (“glass prepreg sheet 8”) (JP ‘522, ¶¶ 11, 25, 32; Ans. 4); and
4. (3) a plurality of longitudinally parallel extending metal fibers (“metal microwires 7”) between the carbon fiber reinforced layers and the outer layer (JP ‘522, ¶¶ 10, 20, 21, and Fig. 1; Ans. 4).
5. Figure 1 of JP ‘522 shows the inner carbon fiber reinforced layers (5a to 5c), outer layer comprising resin and glass (8), and metal microwires (7) between fiber reinforced layers (5a-5c) and outer layer (8).

The Noguchi patent

6. In its description of the prior art, Noguchi states:

Recently, golf clubs provided with shafts made of fiber reinforced synthetic resin or synthetic resin have been developed, such as the one described in Japanese Utility Model Laid-open No. 63-46169.

(Noguchi, at col. 1, ll. 12-16.)

7. Noguchi describes the outer layer **17** of conventional golf clubs as comprising “fiber and matrix which become transparent after curing, for example sheets of glass cloth.” (Noguchi, at col., 1, ll. 25-28.)

8. According to Noguchi, the “conventional club shaft as described above has layers in good condition until the outer layer **17** is wound, but suffers zigzag A or wrinkles B on the string member **15** or mesh fiber **19** which forms the outer layer **17**, after taping or curing.” (Noguchi, at col. 1, ll. 29-33.)

9. Noguchi also states:

Another problem is sagging or whitening, which hides the braiding pattern formed by the string member **15** In addition, when the surface of the outer layer **17** is polished, texture of the fiber **19** in the outer layer **17** can be seen depending on the direction of light, which results in defective appearance and sometimes declined strength.

(Noguchi, at col. 1, ll. 35-41.)

10. Noguchi asserts to have “studied the above problems for solution”, found their cause, and to have provided a solution (Noguchi, at col. 1, ll. 44 to col. 2, l. 2).

Difference between the prior art and the claimed invention

Once the scope and content of the prior art has been determined, the next step is to identify the differences between the prior art and the claimed

invention. *Graham*, 383 U.S. at 17. The following numbered findings of fact are pertinent to this issue:

11. Claim 36 is directed to a golf club shaft comprising three layers: (1) a plurality of fiber reinforced resin layers; (2) an outer layer comprising “a resin and a cloth within the resin”; and (3) “a plurality of longitudinally extending metal fibers” between the (1) fiber reinforced layers and (2) outer layer.

12. Appellant does not dispute the Examiner’s finding that JP ‘522 describes a golf club shaft having (1) a plurality of fiber reinforced layers and (3) longitudinally extending metal fibers as in claim 36 (Ans. 4-5; FF2, 4, 11). *See* reinforcing layers 5a-5c and metal microwires 7, respectively, as described in JP ‘522 (FF2, 4, 5).

13. The JP ‘522 patent, however, describes an outer layer with glass fibers in resin (FF3), not “a resin and a cloth within the resin” as required by claim 36 (FF11). Thus, JP ‘522 does not disclose element (2) of claim 36.

Reason to combine the prior art

After ascertaining the differences between the prior art and the claimed invention, the next step is to identify a reason why persons of ordinary skill in the art would have been prompted to combine the prior art to have made the claimed invention. *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. at 1741. The following finding, which is supported by the preponderance of the evidence, is relevant to this determination:

14. “In view of the patent of Noguchi it would have been obvious to modify the shaft of [JP ‘522] to have an outer layer including cloth in order to utilize a structure for the glass fiber used in the market place for transparent resin and glass layers” (Ans. 5).

ANALYSIS

Claims 36-38 and 40-46

The difference between JP '522 and claim 36 is that JP '522 does not describe an outer layer comprising “a resin and a cloth within the resin” as required by the claim (FF12-13). However, an outer layer with the claimed feature is described by Noguchi as existing in the prior art (FF7, i.e., “sheets of glass cloth”). The Examiner finds that persons of ordinary skill in the art would have had reason to utilize the prior art outer layer for its known utility as a golf club shaft outer covering (FF14).

The Examiner’s reasoning is sound. “The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. at 1739. Thus, in making an obviousness determination, we “must ask whether the improvement is more than the predictable use of prior art elements according to their established functions. *Id.* at 1740. In this case, the evidence supports the Examiner’s position that substituting the sheets of glass cloth described in Noguchi for JP '522’s outer layer is a predictable use of a prior art element for its established function.

Appellant states:

The Noguchi '767 patent is the only evidence in the present record concerning an “outer layer including a resin and a cloth within the resin” and the Noguchi '767 patent unambiguously states that such an outer layer results in “zigzag,” “wrinkles,” “sagging,” “whitening,” “defective appearance” and “declined strength,” and that something else should be employed in its place.

(Reply Br. 6.) For this reason, Appellant contends that Noguchi “*clearly teaches away*” from the use of an outer layer including a cloth with a resin” (App. Br. 7).

As a general principle, a “teaching away” from a claimed invention must be considered when making an obviousness determination. *See In re Gurley*, 27 F.3d at 553. “[I]n general, a reference will teach away if it suggests that the line of development flowing from the reference’s disclosure is unlikely to be productive of the result sought by the applicant.” *Id.* Here, Appellant argues that Noguchi teaches away from the prior art outer layer because Noguchi “unambiguously states . . . that something else should be employed in its place” (Reply Br. 7).

The facts in this case do not appear to be in dispute. Noguchi states that, when sheets of glass cloth are utilized as the outer layer for a golf club shaft (FF6), problems may arise in its outer appearance. However, simply because a composition is described as “inferior” in some respects does not by itself constitute a teaching away from using it. *In re Gurley*, 27 F.3d at 553. In *In re Gurley*, the claimed invention was to a printed circuit board having a substrate material “impregnated with epoxy.” The prior art Yamaguchi reference taught that circuit boards having an epoxy-impregnated fibrous substrate were inferior to circuit boards made with polyester imide-resins. *In re Gurley*, 27 F.3d at 553. The court considered Yamaguchi’s teaching but did not find it dispositive:

The facts in Gurley’s record are that this use of epoxy was known, the structure of these circuit boards was known, and epoxy had been used for Gurley’s purpose. We share Gurley’s view that a person seeking to improve the art of flexible circuit boards, on learning from Yamaguchi that epoxy was inferior to polyester-imide resins, might well be led to search beyond

epoxy for improved products. However, Yamaguchi also teaches that epoxy is usable and has been used for Gurley's purpose.

In re Gurley, 27 F.3d at 553.

The same rationale applies here. Impregnated glass sheet coverings for golf club shafts were known in the art (FF7). Admittedly, they were inferior under certain circumstances, but a finding that the prior art suggested their combination with JP '522 "need not be supported by a finding that the prior art suggests that the combination claimed by the patent applicant is the *preferred*, or *most desirable*, combination." *In re Fulton*, 391 F.3d at 1200 (emphases added). A teaching that a result would be inferior or less desirable is not a teaching away unless the use "would render the result inoperable." *In re ICON*, 496 F.3d at 1381; *see also*, *In re Gurley*, 27 F.3d at 553.

For the foregoing reasons, we affirm the rejection of claim 36. Claims 37 and 41-44 fall with claim 36 because separate reasons for their patentability were not provided. 37 C.F.R. § 41.37(c)(1)(vii).

Claims 38, 40, 45, and 46

Appellant did not identify any defect in the Examiner's reasoning for rejecting claims 38, 40, 45, and 46 over JP '522, Noguchi, and the additionally cited prior art, but relied on the same arguments as for claim 36 (*see* App. Br. 11). As the Examiner provided a logical and fact-based rationale for rejecting claims 38, 40, 45, and 56, we affirm the rejections for the reasons stated by the Examiner.

CONCLUSIONS OF LAW

The Examiner provided sound reason for concluding that the claimed golf shaft was obvious over the combination of JP '522 and Noguchi. As Noguchi does not “teach away” from a golf club shaft with an outer layer “including a resin and a cloth within the resin” as recited in claim 36, we affirm the obviousness rejection of claim 36. Different arguments were not provided for claims 37, 38, and 40-46; thus, we affirm their rejection.

TIME PERIOD

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

AFFIRMED

Ssc:

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