

UNITED STATES PATENT AND TRADEMARK OFFICE

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Ex parte ANDREW E. GRUBER and MARK A. SPRAGUE

Appeal No. 2001-0529
Application No. 08/846,600

ON BRIEF

Before BARRETT, BARRY, and LEVY, *Administrative Patent Judges*.
BARRY, *Administrative Patent Judge*.

DECISION ON APPEAL

A patent examiner rejected claims 1, 3-9, 19, and 22. The appellants appeal therefrom under 35 U.S.C. § 134(a). We affirm.

BACKGROUND

The invention at issue on appeal concerns displaying three-dimensional objects. Video graphics circuits have evolved from providing text and two-dimensional images to providing three-dimensional images. Such evolution began with high-end computers, such as work stations, using "texture mapping." Texture mapping allows a rendering system to map a two-dimensional image (i.e., a texture map) onto a three-dimensional

shape thereby making the three-dimensional shape look more complex and realistic than the underlying geometry. (Spec. at 1-2.) The appellants opine, however, "a need still exists for a high-quality and economical three-dimensional graphics processor." (*Id.* at 2.)

By utilizing a floating point set-up engine with an edgewalker circuit, a texel¹ address generator, a texel fetch circuit, and a texel processor, the appellants assert, "an economical and high-quality video graphics processor may be achieved." (*Id.* at 26.) More specifically, the set-up engine receives vertex parameters and generates derivatives and Bresenham parameters therefrom. The derivatives and Bresenham parameters are provided to the edgewalker circuit, which produces a plurality of spans therefrom. The texel address generator, in turn, converts the spans into a set of texel addresses. Next, the texel fetch circuit receives the set of texel addresses and uses the addresses to retrieve a set of texels. The texel processor subsequently processes the set of texels to produce a filtered pixel. (*Id.* at 5.)

¹"A 'texel' is used to represent the coloration values of a corresponding texture plane area $\{R,G,B\}_t$ and it may also represent a corresponding blend factor $\{A\}_t$. for that area." U.S. Patent No. 5,798,762, col. 13, ll. 37-40.

A further understanding of the invention can be achieved by reading the following claim.

1. A three dimensional graphics processor comprising:

a setup engine operably coupled to receive vertex parameters and to generate [sic], therefrom, a plurality of derivatives and Bresenham parameters, wherein at least one of the vertex parameters and the plurality of derivatives are in floating point format;

an edgewalker circuit operably coupled to receive the plurality of derivatives and to generate, therefrom, a plurality of spans, wherein x and y starting points of the plurality of derivatives are of subpixel precision;

a texel address generator operably coupled to receive the plurality of spans and to produce, therefrom, a set of texel addresses for a particular point of one of the plurality of spans;

a texel fetch circuit operably coupled to receive the set of texel addresses and to retrieve, based on the set of texel addresses, a set of texels; and

a texel processor operably coupled to receive the set of texels and to filter the set of texels to produce a filtered pixel.

Claim 19 stands rejected under 35 U.S.C. § 102(e) as anticipated by U.S. Patent No. 5,831,637 ("Young"). Claims 1, 3-9, and 22 stand rejected under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 5,798,762 ("Sfarti") and Young.

OPINION

Our opinion addresses the rejections in the following order:

- anticipation rejection of claim 19
- obviousness rejection of claims 1, 3-9, and 22.

Anticipation Rejection of Claim 19

Rather than reiterate the positions of the examiner or the appellants *in toto*, we address the point of contention therebetween. The examiner finds, "Young further discloses . . . caus[ing] the processing device to generate a set of texel address for a particular point of one of the plurality of spans (col 3, lines 31-36). . . ." (Examiner's Answer at 5.) The appellants argue, "Young, et al. . . . does not teach generating a set of texel addresses for one particular point of one of the plurality of spans et al. [sic]" (Appeal Br. at 7.)

"Analysis begins with a key legal question -- *what* is the invention *claimed*?" *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1567, 1 USPQ2d 1593, 1597 (Fed. Cir. 1987). In answering the question, "the Board must give claims their broadest reasonable construction. . . ." *In re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1668 (Fed. Cir. 2000). "Moreover, limitations are not to be read into the claims from the specification." *In re Van Geuns*, 988 F.2d 1181, 1184, 26 USPQ2d 1057, 1059 (Fed.

Cir. 1993) (citing *In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989)).

Here, claim 19 specifies in pertinent part the following limitations: "fourth means for storing programming instructions that, when read by the processing device, causes the processing device to generate a set of texel addresses for a particular point of one of the plurality of spans. . . ." Giving the claim its broadest, reasonable construction, the limitations require generating a set of texel addresses for a particular point of one of a plurality of spans.

"Having construed the claim limitations at issue, we now compare the claim[] to the prior art to determine if the prior art anticipates th[e] claim[]." *In re Cruciferous Sprout Litig.*, 301 F.3d 1343, 1349, 64 USPQ2d 1202, 1206 (Fed. Cir. 2002). "[A]nticipation is a question of fact." *Hyatt*, 211 F.3d at 1371, 54 USPQ2d at 1667 (citing *Bischoff v. Wethered*, 76 U.S. (9 Wall.) 812, 814-15 (1869); *In re Schreiber*, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1431 (Fed. Cir. 1997). "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987) (citing *Structural Rubber Prods. Co. v. Park Rubber Co.*, 749 F.2d 707, 715, 223 USPQ 1264, 1270

(Fed. Cir. 1984); *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548, 220 USPQ 193, 198 (Fed. Cir. 1983); *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 771, 218 USPQ 781, 789 (Fed. Cir. 1983)).

Here, Young discloses "[a] 3D graphics processing system," col. 1, l. 17, which includes a "graphics engine ASIC 22. . . ." Col. 3, l. 5. The graphics engine "takes vertex data from the graphics FIFO 21 and produces rendered spans of pixel data." *Id.* at ll. 6-8. In turn, "[t]exture processors 251-254 receive two types of **setup parameters from the graphics engine 22**: one type for triangles and one type for **pixel spans** within a triangle." Col. 6, ll. 29-31 (emphases added.) "**[T]he pixel span setup parameters consist of initial texture coordinates.**" *Id.* at l. 33-34 (emphasis added). The four texture processors shown in Figure 2 of the reference evidence that Young's texture coordinates, including its initial texture coordinates, comprise a red texture coordinate, a green texture coordinate, a blue texture coordinate, and an alpha texture coordinate.

Because the claimed addresses and the reference's coordinates both specify a location, and "[a] 'texel' is used to represent the coloration values of a corresponding

texture plane area," Sfarti,² col. 13, ll. 37-40, we find that each of Young's texture coordinate constitutes a texel address. Collectively, the reference's red, green, blue, and alpha texture coordinate constitute a set of texel addresses.³ Because the reference's texture coordinates are initial coordinates, we find that these represent a particular point (viz., an initial point) of one of its spans. Therefore, we affirm the rejection of claim 19 as anticipated by Young.

Obviousness Rejection of Claims 1, 3-9, and 22

"[T]o assure separate review by the Board of individual claims within each group of claims subject to a common ground of rejection, an appellant's brief to the Board must contain a clear statement for each rejection: (a) asserting that the patentability of claims within the group of claims subject to this rejection do not stand or fall together, and (b) identifying which individual claim or claims within the group are separately patentable and the reasons why the examiner's rejection should not be sustained." *In re McDaniel*, 293 F.3d 1379, 1383, 63 USPQ2d 1462, 1465 (Fed. Cir. 2002 (citing 37

²Although references cannot be combined for anticipation, additional references may be used to interpret an anticipatory "reference and to reveal what it would have meant to one of ordinary skill at the time the invention was made." *Studiengesellschaft Kohle, m.b.H.v. Dart Indus., Inc.*, 726 F.2d 724, 726-27, 220 USPQ 841, 842 (Fed. Cir. 1984). Here, we use Sfarti to interpret Young and to reveal what the latter reference would have meant to one of ordinary skill at the time the invention was made

³Sfarti confirms our interpretation of Young's red texel address, green texel address, blue texel address, and alpha texel address as constituting a set of texel addresses by disclosing that "[t]he general format of a texel is thus {R,G,B,A}." Col. 13, ll. 39-40.

C.F.R. §1.192(c)(7) (2001)). "Merely pointing out differences in what the claims cover is not an argument as to why the claims are separately patentable." 37 C.F.R.

§ 1.192(c)(7) (2002). "If the brief fails to meet either requirement, the Board is free to select a single claim from each group of claims subject to a common ground of rejection as representative of all claims in that group and to decide the appeal of that rejection based solely on the selected representative claim." *McDaniel*, 293 F.3d at 1383, 63 USPQ2d at 1465.

Here, the appellants fail to satisfy the second requirement. Although they point out differences in what claims 3-9 and 22 cover, (Appeal Br. at 7-9, 14, and 15), this is not an argument why the claims are separately patentable. Therefore, claims 3-9 and 22 stand or fall with representative claim 1.

With this representation in mind, rather than reiterate the positions of the examiner or the appellants *in toto*, we address the point of contention therebetween. The examiner finds that Young "also calculates the initial values of each accessed [sic] addresses or coordinates (see Young: col 3, 5-67, col 6, 20-59)." (Examiner's Answer at 6.) The appellants argue, "Sfarti et al. does not disclose a texel address generator to receive a plurality of spans and to produce, therefrom, a set of texel addresses for a particular point of one of the plurality of spans." (Appeal Br. at 12.)

Turning to the claimed invention, claim 1 specifies in pertinent part the following limitations: "a texel address generator operably coupled to receive the plurality of spans and to produce, therefrom, a set of texel addresses for a particular point of one of the plurality of spans. . . ." Giving the representative claim its broadest, reasonable construction, the limitations require generating a set of texel addresses for a particular point of one of a plurality of spans.

Having determined what subject matter is being claimed, the next inquiry is whether the subject matter would have been obvious. The question of obviousness is "based on underlying factual determinations including . . . what th[e] prior art teaches explicitly and inherently. . . ." *In re Zurko*, 258 F.3d 1379, 1386, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966); *In re Dembiczak*, 175 F.3d 994, 998, 50 USPQ 1614, 1616 (Fed. Cir. 1999); *In re Napier*, 55 F.3d 610, 613, 34 USPQ2d 1782, 1784 (Fed. Cir. 1995)). "Non-obviousness cannot be established by attacking references individually where the rejection is based upon the teachings of a combination of references." *In re Merck*, 800 F.2d, 1091, 1097, 231 USPQ 375, 380 (Fed. Cir. 1986) (citing *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981)). "Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art."

Cable Elec. Prods., Inc. v. Genmark, Inc., 770 F.2d 1015, 1025, 226 USPQ 881, 886-87 (Fed. Cir. 1985) (quoting *Keller*, 642 F.2d at 425, 208 USPQ at 881).

Here, as explained regarding the anticipation rejection of claim 19, we have found that Young's graphics engine generates a set of texel addresses for a particular point of one of a plurality of spans. Therefore, we affirm the obviousness rejection of claim 1 and of claims 3-9 and 22, which fall therewith.

CONCLUSION

In summary, the rejection of claim 19 under § 102(e) and the rejection of claims 1, 3-9, and 22 under § 103(a) are affirmed. "Any arguments or authorities not included in the brief will be refused consideration by the Board of Patent Appeals and Interferences. . . ." 37 C.F.R. § 1.192(a)(2002). Accordingly, our affirmance is based only on the arguments made in the brief. Any arguments or authorities not included therein are neither before us nor at issue but are considered waived. No time for taking any action connected with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

LEE E. BARRETT
Administrative Patent Judge

LANCE LEONARD BARRY
Administrative Patent Judge

STUART S. LEVY
Administrative Patent Judge

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