

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 20

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte THOMAS MALZBENDER

Appeal No. 1997-3223
Application 08/228,050¹

HEARD: JANUARY 10, 2000

Before THOMAS, RUGGIERO and GROSS, Administrative Patent Judges.

THOMAS, Administrative Patent Judge.

DECISION ON APPEAL

The appellant has appealed to the Board from the examiner's final rejection of claims 21-29, which constitute all the claims remaining in the application.

¹ Application for patent filed April 15, 1994.

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Representative claim 21 is reproduced below:

21. A method of displaying a structure that represents three-spatial dimensions using a computer, a data base that includes an image data set in which the structure is defined, and a display monitor, comprising:

analyzing the image data set with the computer to determine a set of medial axis points of the structure which extends through the three-spatial dimensions;

extruding a display data set using the computer, the display set being a subset of the image data set, by

defining an extrusion vector in the three spatial dimensions,

defining the display data set data to include data from the image data set that lies within a set of vectors that are both (a) parallel to the extrusion vector, and (b) that also pass through one of the medial axis points;

wherein both of the image data set and the display data set include data representing three-spatial dimensions, and

generating a display image from the display data set.

The following references are relied on by the examiner:

Tuy et al. (Tuy)	4,882,679	Nov. 21, 1989
Arnold et al. (Arnold)	4,922,915	May 8, 1990
Weng 1995	5,396,890	Mar. 14,
	(filed Sept. 30, 1993)	

Claims 21-29 stand rejected under 35 U.S.C. § 103. As evidence of obviousness, the examiner relies upon Tuy in view

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of Weng, further in view of Arnold.

Rather than repeat the positions of the appellant and the examiner, reference is made to the various briefs and answers for the respective details thereof.

OPINION

We reverse.

Each of independent claims 21 and 29 requires a computerized analysis of image data to determine a set of medial axis points, the definition of an extrusion vector in three spatial dimensions, and the definition of displayed data where the data is selected such that it lies within a set of vectors that both are parallel to the extrusion vector and also pass through one of the medial axis points. Stated more simply, the key point of these claims is that such medial axis must be computed in three dimensions from which is formed a surface including all vectors parallel to an extrusion vector which also pass through this medial axis.

The above medial axis required of each independent claim on appeal is not reasonably taught or suggested to the artisan, in our view, among the teachings and suggestions of

the references relied upon by the examiner.

The examiner places principal reliance upon this feature in Tuy at page 4 of the answer. The examiner asserts that this medial axis corresponds to curves disclosed at columns 11 and 12 of this reference. The examiner further develops this view at page 6 of the answer asserting that Figure 9 and the teaching at column 11, lines 16-32 and the teaching at lines 41-46 of column 11 indicate that there is a splitting of three dimensional data along a medial axis which amounts to a curve through the center of the spine. We are in agreement with the basic premise of appellant's position in the briefs that the Tuy reference at these locations does not teach or suggest such a medial axis. Figure 9 shows a 3-D image 100 but there is no clear indication there or from the discussion associated with these Figures 9-12 as a whole that any cutting or slicing of the image occurs along any medial axis or a center line path extending through three spatial dimensions. The discussion at columns 11 and 12 of a common vertex which may be present with respect to intersecting curves or planes associated with that 3-D image is not necessarily along the claimed medial axis.

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Finally, we note that the examiner admits at the bottom of page 8 of the answer, that the Figure 9 in column 11 reference does not explicitly state anything relating to the claimed medial axis. The examiner further goes on to urge again that the use of such a axis would have been obvious to the artisan. We do not agree. The examiner's position appears to read more into the teachings and suggestions and inferences that the artisan would have derived from the noted teachings in Tuy than we are willing to agree with from an artisan's perspective.

The other two patents to Weng and Arnold do not provide evidence of the claimed medial axis either. The examiner relies upon these references, as noted at page 8 of the answer, to provide evidence that it would have been obvious to automate the operation of specifying a location of the feature in a 3-D data set when the manual operation is known in the art. Again, the threshold question relating to the medial axis is not reasonably taught or suggested at all in Weng. On the other hand, Arnold teaches that the centers of reference sample images may be determined according to his teachings, but the relevance of this to the claimed invention has not

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been explained by the examiner nor can we discern it on our own. To the extent that Tuy and the other references may be construed in some way to teach or suggest the claimed medial axis, there is no apparent teaching or showing to us that the references would have displayed any resulting display data set such that it would pass through the claimed medial axis points, another feature recited in both independent claims 21 and 29 on appeal.

In view of the foregoing, it is apparent that the examiner has not established a prima facie case of obviousness of independent claims 21 and 29 on appeal. Therefore, we must reverse the rejection of these claims as well as dependant claims 22-28. The decision of the examiner is reversed.

REVERSED

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Administrative Patent Judge)	
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