

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 13

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JOHN R. GRANT

Appeal No. 94-2926
Application No. 07/777,045¹

ON BRIEF

Before HAIRSTON, FLEMING, and TORCZON, Administrative Patent Judges.

HAIRSTON, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1 through 3 and 5. In an Amendment After Final (paper number 5), claim 5 was canceled, and claim 1 was rewritten in a Jepson-type format. Accordingly, claims 1 through 3 remain before us on appeal.

¹ Application for patent filed October 6, 1991.

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The disclosed invention relates to a computerized method for determining the velocity field of a three-dimensional fluid flow over a submerged body by determining vorticity strength distribution at the surface of the submerged body in terms of a plurality of finite volume elements.

Claim 1 is the only independent claim on appeal, and it reads as follows:

1. In a computerized method for determining the velocity field of a three-dimensional fluid flow over a submerged body by determining vorticity strength distribution at the surface of the submerged body, the improvement comprising the step of representing vorticity distribution of the fluid flow at the surface geometry of the body in terms of a plurality of finite volume elements.

Claims 1 through 3 stand rejected under 35 U.S.C. § 101 as

being directed to nonstatutory subject matter. According to the examiner (Supplemental Answer, page 4):

9C. The claimed invention sets forth a series of steps to be performed on a computer. There are no steps recited which could be characterized as pre- or post-computer activity (i.e. steps performed outside of the computer). The claimed method solves a mathematical problem in the field of computational fluid dynamics without a claimed limitation to a practical application. One could also reasonably argue that the claimed invention is drawn to an abstract idea in that the method involves [sic, involved] characterizes phenomena found in nature,

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i.e. fluid dynamic properties in general. Nonetheless, the claims appear to be drawn to solving a mathematical problem and must be further analyzed to determine if the claims merely manipulate numbers (i.e. "Freeman-Walter-Abele test").

The examiner's analysis of the claimed invention concludes with the observation (Supplemental Answer, page 7) that "when the claimed subject matter is viewed as a whole, it is directed toward an improved method of solving a given mathematical algorithm in fluid dynamics and is thus non-statutory."

Appellant argues (Brief, page 5) that "a three-dimensional fluid flow is a physical thing," and that "a three-dimensional fluid flow's velocity field is not an abstract number, but is related to the fluid's activity."

Reference is made to the brief and the answers for further positions of the appellant and the examiner.

OPINION

The nonstatutory subject matter rejection is reversed.

With respect to the examiner's reliance on the so-called Freeman-Walter-Abele test, the Court recently stated in State St. Bank & Trust Co. v. Signature Fin. Group Inc., 149 F.3d

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1368, 1373-74, 47 USPQ2d 1596, 1601-1602 (Fed. Cir. 1998)

that:

After *Diehr* and *Chakrabarty*, the Freeman-Walter-Abele test has little, if any, applicability to determining the presence of statutory subject matter. As we pointed out in *Alappat*, 33 F.3d at 1543, 31 USPQ2d at 1557, application of the test could be misleading, because a process, machine, manufacture, or composition of matter employing a law of nature, natural phenomenon, or abstract idea is patentable subject matter even though a law of nature, natural phenomenon, or abstract idea would not, by itself, be entitled to such protection. The test determines the presence of, for example, an algorithm. Under *Benson*, this may have been a sufficient indicium of nonstatutory subject matter. However, after *Diehr* and *Alappat*, the mere fact that a claimed invention involves inputting numbers, calculating numbers, outputting numbers, and storing numbers, in and of itself, would not render it nonstatutory subject matter, unless, of course, its operation does not produce a "useful, concrete and tangible result."

We agree with the examiner that the claimed invention "solves a mathematical problem in the field of computational fluid dynamics," and that the claimed invention is drawn to an "abstract idea" (i.e., a mathematical algorithm). We do not, however, agree with the examiner's conclusion that the claimed method is "without a claimed limitation to a practical application." The claimed method uses the mathematical

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algorithm in a "practical application" or useful result of "determining the velocity field of a three-dimensional fluid flow over a submerged body by determining vorticity strength distribution at the surface of the submerged body." Even if the claimed useful result is expressed in numbers, those numbers have practical utility. Thus, the claims are directed to statutory subject matter.

DECISION

The decision of the examiner rejecting claims 1 through 3 under 35 U.S.C. § 101 is reversed.

REVERSED

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KENNETH W. HAIRSTON)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
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DECISION: **REVERSED**
Send Reference(s): Yes No
or Translation (s)
Panel Change: Yes No
Index Sheet-2901 Rejection(s): **101**

Prepared: July 19, 1999

Draft Final

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OB/HD GAU

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