Commissioner's Decision #1230

Décision du commissaire #1230

TOPIC: J-10

SUJET: J-10

Application No: 2,084,989

(International Classification:G06F-007/548)

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C.D. #1230

COMMISSIONER'S DECISION SUMMARY

Non-statutory subject matter

The examiner rejected this application under the provisions of Sections 2 and 27(3) of the Patent Act on the basis that what is claimed is nothing more than a general purpose computer which is programmed to calculate inverse trigonometric functions. The Board determined that the application discloses and claims an apparatus which is specifically designed to carry out the applicant=s new method of calculating inverse trigonometric functions.

The application was returned to the examiner for further prosecution.

IN THE CANADIAN PATENT OFFICE

DECISION OF THE COMMISSIONER OF PATENTS

Patent application number 2,084,989, having been rejected under Rule 47(2) of the Patent Regulations, the Applicant asked that the Final Action of the Examiner be reviewed. The rejection has consequently been considered by the Patent Appeal Board and by the Commissioner of Patents. The findings of the Board and the ruling of the Commissioner are as follows:

Agent for Applicant

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This decision deals with the Applicant's request for a review by the Commissioner of Patents of the Examiner's Final Action dated January 25, 1995 on patent application number 2,084,989 (International Classification G06F-007/548) filed on June 24, 1991 and entitled "DEVICE FOR EVALUATING INVERSE TRIGONOMETRIC FUNCTIONS@. The Applicant is Motorola Inc., assignee of inventors Brett L. Lindsley and Darleen J. Stockley. In the Final Action, the Examiner rejected all of the claims of the application, as well as the whole application, for lack of patentable subject matter in view of Section 2 and Section 27(3) of the Patent Act. A hearing was held on November 26, 1997, at which time, the Applicant was represented by Mr Gary O=Neil of Gowling, Strathy & Henderson.

The application relates to a device which processes an input value to provide a determination of an output inverse trigonometric function value of the input value. Figure 1A appearing below shows a block diagram of a computer hardware implementation of the invention.

Claim 6, which is the broadest independent claim, reads as follows:

> **A device for converting an input value into at least one output value which is at least one inverse trigonometric function value of the input value, and which is a combination of an intermediate approximation value and at least one selected correction value, comprising:**
> **A) modification means responsive to the input value for determining an approximation value of the input value, wherein the approximation value is selected from a predetermined set of values that is a group of values predetermined by selected rounding algorithms;**
> **B) function generating means, including a first read-only memory (ROM), coupled to the modification means for determining an intermediate value;**

> **C) correction factor generating means responsive to the input value and coupled to the modification means for determining at least one correction value; and**
> **D) first combining means coupled to the function generating means and the correction factor generating means for combining the intermediate approximation and the at least one correction value such that at least one inverse trigonometric function value of the input value is obtained, wherein the first combining means includes at least fourth addition means for determining a fourth sum of the at least one intermediate approximation value and a signed third sum, that fourth sum being substantially at least one inverse trigonometric function value of the input value and wherein the fourth sum is substantially at least one of: an inverse sine value of the input value, an inverse cosine value of the input value, and an inverse tangent value of the input value.**

In his Final Action the Examiner rejected all of the claims as well as the application itself stating, in part, that:-

> **The refusal of all of the claims as well as the remainder of the application is maintained for lack of patentable subject matter in view of Sections 2 and 27(3) of the Patent Act.**
>
> **The application teaches a mathematical technique for the evaluation of inverse trigonometric functions.**
>
> **What is claimed is a computing apparatus with no novel features for it embodies nothing more than particular functions of a general purpose computer with the purpose of calculating inverse trigonometric functions.**
>
> **The fact that the Applicant presents the alleged invention in the form of dedicated computer hardware does not make the discovery any more patentable. The computer hardware embodiment is only one of several possible.**
>
> **.....**
>
> **It is obvious to anyone skilled in the art that what the alleged invention is teaching is a mathematical algorithm which is claimed as a device. It is this mathematical algorithm that the application teaches and which has in fact been discovered. The fact that it is claimed as a device - or possibly as a computer program - is irrelevant to the question A...what, according to the application has been discovered...@.**

In its reply to the Final Action, the Applicant has provided a detailed review of the development of the law with respect to the patentability of computer related inventions, as outlined in decisions of various United States courts. It was also stated that the only Canadian court decision with respect to computer related inventions, Schlumberger vs. The Commission of Patents 56 C.P.R. 2d (p. 204), is not relevant in the present case.

The Applicant stated, in part:

> **The Examiner makes reference to and apparently relies on the decision of the Federal Court of Appeal in Schlumberger vs. The Commission of Patents 56 C.P.R. 2d (p. 204). As will be set forth in more detail hereafter, this decision is considered to be irrelevant to the present case in that it relates merely to the issue of the patentability of a computer program per se.**

> .....
> .... The first and to date the only decision for guidance in this area (computer software related innovations) is the decision of the Federal Court of Appeal in Schlumberger vs. The Commissioner of Patents 56 C.P.R. 2d (p. 204). The Schlumberger application related primarily to the production of data useful in geological exploration. In carrying out the process, certain input measurements derived from test holes were recorded on magnetic tape and subsequently fed into a computer. The computer was programmed according to prescribed mathematical formulae, and the information was converted by the computer into useful information such as graphs or figures of tables which could be read by geologists.
>
> .....
>
> It is quite evident from the above that this case is diametrically opposed as far as its facts are concerned to the Schlumberger case referred to above wherein an attempt was made to obtain protection for a method of operating a computer in a selected manner to accomplish certain mathematical calculations, the end result being merely numbers useful in making certain decisions by skilled geologists. In contrast to Schlumberger, the present application describes and claims a device which, when considered as a whole, is new and useful as required by Section 2 and which is not a mere scientific principle or abstract theorem as prescribed by Section 27(3). Applicant=s claims do not pre-empt the use by others of any form of program or algorithm per se; they only seek to pre-empt the use of the device set forth in the claims.

The Board must therefore decide whether or not Applicant=s invention is directed to an invention which is patentable under Sections 2 and 27(3) of the Patent Act.

Invention is defined in Section 2 of the Patent Act as follows:

> .....any new and useful art, process, machine, manufacture or composition of matter, or any new and useful improvement in any art, process, machine, manufacture or composition of matter.

Subsection 27(3) of the Patent Act read at the time of the Final Action as follows:

> No patent shall issue for an invention that has an illicit object in view, or for any mere scientific principle or abstract theorem.

The Board has done a complete review of the application in order to determine exactly what has been discovered. According to the Applicant=s disclosure, the alleged invention is directed to a method and device for processing an input value to provide a fast and efficient determination of an output inverse trigonometric function value of the input value. During the prosecution, the application was amended to remove the word Amethod@ from the title and all of the claims are directed to a device.

From this review, the Board has determined that the Applicant has discovered an algorithm for use in calculating the inverse trigonometric function of a number, has converted this algorithm into a series of method steps and finally has developed a device to carry out this series of steps.

It is widely accepted that it is not possible to obtain a patent containing claims to an algorithm per se. Similarly, a method which does nothing more than set out the step needed to solve the algorithm is not patentable.

An apparatus claim which consists exclusively of a series of means-plus-functions statements is usually considered to be nothing more than a Adisguised@ method claim and if the method itself is not patentable, this type of apparatus claim is also not patentable.

As can be seen from the wording of claim 6, the apparatus disclosed and claimed in the instant application is more than just a series of means-plus-function statements. It includes, in section B), a read-only memory as a portion of the function generating means. This is a specific piece of computer hardware and, as such, this claim is necessarily limited to a specific configuration of at least one physical element as well as some elements which are ordinary components of a well-known digital computer which are programmed to carry out desired functions.

The Board has concluded that the Applicant has disclosed a device which is specifically adapted to carry out the method of solving the algorithm which the Applicant has developed. This device, while it does contain many means-plus-function statements, also includes at least one specific piece of computer hardware which is a real physical

element. As a result, the Board believes that the claims of this application go beyond being directed to a mere scientific principle or abstract theorem. The Applicant is not seeking to exclude others from using the algorithm itself but is seeking to exclude others from using the specific device which is claimed.

In summary, the Board recommends that the refusal of all of the claims as well as that application itself be withdrawn and that the application be returned to the examiner for further prosecution.

P.J. Davies
Chairman

M. Howarth
Member

M. Wilson
Member

I concur with the findings and the recommendation of the Patent Appeal Board. Accordingly, I return the application of the Examiner for further prosecution consistent with my decision.

S. Batchelor
Commissioner of Patents

dated at Hull, Quebec

this 3rd day of November/98