

COMMISSIONER'S DECISION

A system for calculating and displaying the value of an investment portfolio using a general purpose computer programmed in a particular manner is not patentable subject matter.

Patent application 178,570 was filed on August 10, 1973 for an invention entitled "Securities Valuation System". The Examiner wrote a Final Action on January 20, 1977 refusing to allow it to proceed to a patent. In reviewing the rejection the Patent Appeal Board held a hearing on May 26, 1982 at which Mr. James G. Fogo, assisted by Mr. John Roberts, represented the Applicant.

The purpose of the alleged invention is to compute and display the current value of an investment portfolio in view of the changing values of the holdings. The information is generated from a data base stored in a centrally located, general purpose computer which is available to the user on a time-shared basis. The computer is connected by telephone lines to a plurality of remote user terminals and the updated information is displayed there. In these time-sharing systems many unrelated data bases are stored in computer memory and the computer is available for other uses and different purposes. An overall control program controls timing operations between sub-programs and there are as many sub programs as there are data bases in memory.

The computer used in this system is a known I.B.M. Model 370/155 computer owned by the Service Bureau Corporation. The application describes a method of operating this general purpose computer when restricted to accessing by the system that Applicant calls the VALPORT system data base by means of its particular sub-program, and the computer system itself when so organised.

In the Final Action the Examiner rejected the entire application for lack of patentable subject matter within Section 2 of the Patent Act. Applicant, in his response dated July 20, 1977 to the Final Action, said in part:

Claim 1 presently asserted is drawn to physical structure and not to a computer programme per se or an algorithm or a set of instructions. The invention defined in claim 1 is not abstract. It comprises physical structure, including storage devices, terminals, means to compute and display, all configured to perform specified functions to achieve controlled results. The Examiner has not taken the position that the applicant's programmed system does not structurally differ from other apparatus. Further the examiner admits that the invention is new, non-obvious and useful.

It is the claims that define the invention and the invention as presently claimed does not appear to be barred by the terms of the Office Notice, nor by the provisions of Section 28(3) nor by any judicial decision. Existing authority would seem to favour the applicant. We would point out that it is open to Parliament to legislate generally that all avenues for obtaining patent rights over computer programming be closed - including the exclusion of programmed computers. The adoption of such a policy may be desirable or undesirable. But the Examiner must take the law as he finds it and the present law would not appear to exclude claims drawn to apparatus or methods, rather than a programme or algorithm.

At the hearing Mr. Fogo presented the Board with the following outline of his argument:

1. The Canadian Patent Act contains no special provision express or implied, so as to exclude inventions involving computers. Schlumberger Canada Ltd. v. Commissioner of Patents (1981) 56 CPR (2d) 204.
2. The terms "scientific principle" or abstract theorem in Section 28(3) should be equated to algorithm only if the latter term is interpreted as a procedure for solving a given type of mathematical problem. The adoption of an unduly broad definition of "algorithm" would exclude process patents as a class. Non-mathematical algorithms should not be categorized as unpatentable. Gottschalk v. Benson 175 U.S.P.Q. 673. Parker v. Flook 198 U.S.P.Q. 193.
3. The application in issue claims neither a scientific principle nor an abstract theorem either directly or indirectly and is therefore outside the exclusionary provision of Section 28(3) of the Act. The claims in issue are directed to a practical application to achieve a new and useful end.

4. To hold that for a process involving the use of a computer requires the utilization of "novel apparatus" to be patentable, imposes a standard which would not apply in the case of any other process employing apparatus and is inconsistent with the findings of the Court in the Schlumberger Case.
5. A claim to a non-mathematical step-by-step procedure for organizing or operating a computing machine system should be regarded as patentable. In Re Chatfield 191 U.S.P.Q. 370. In Re Freeman 179 U.S.P.Q. 471. Diamond v. Diehr 209 U.S.P.Q. 8.
6. A claim which, when considered as a whole, is directed to a method which is not a scientific principle or abstract theorem does not become unpatentable merely because in some step there is incorporated a calculation. Diamond v. Diehr supra.
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We will now consider these points in turn:

We agree with the first comment. Inventions involving computers are not excluded from patentability by the terms of the Patent Act. However, developments involving computers are not brought within the terms of the Patent Act simply because a computer is used in their implementation. This was made very clear in Schlumberger Canada Ltd. v. Commissioner of Patents 56 C.P.R.(2d) 204 where Pratte J., speaking for the Federal Court of Appeal, said:

The invention of the computer would then have the unexpected result of giving a new dimension to the Patent Act by rendering patentable what, under the Act as enacted, was clearly not patentable. This, in my view, is unacceptable.

In this case, we should point out, the objection made by the Examiner was not that the subject matter is related to computers but that it is not patentable subject matter within the terms of Section 2 of the Act.

We do not agree that the term "mere scientific principle or abstract theorem" in Section 28(3) of the Act should be restricted to the narrow reading advanced here by Applicant to exclude his subject matter from the proscription. To equate this term to "algorithm" only if the latter is interpreted narrowly as a procedure for solving only a given type of mathematical problem, as opposed to other problems, is to import into the section a severe limitation

which, in the view of the Board, is not justified. Section 28(3) covers any mere scientific principle and any abstract theorem (and we point out the word "any" is found in the section). That is the plain and ordinary meaning of the Section. If it had been intended to cover only mathematical formulas in the proscription of Section 28(3) then the section would say that. The Board also points out that in Schlumberger Mr. Pratte said:

A mathematical formula must be assimilated to
a "mere scientific principle or abstract theorem"

(emphasis added by the Board). We think Mr. Pratte indicated that he viewed mathematical formula as being like scientific principles and abstract theorems (or similar thereto) but he did not say that "mathematical formula" was just another way of saying the same thing as the expression and he did not thereby exclude anything else from the scope of Section 28(3). He simply did not pronounce on non-mathematical principles because the subject matter in the case before him was, in fact, mathematical.

We agree that the claims are not directed to an abstract theorem or to a scientific principle. They are, in form at least, directed to an apparatus (or system) expressed as a series of means-function statements, and to a method of using the system. We have no doubt that the "end" - the display of information - is useful and has commercial application. We are not so sure, though, that it is new in a patentable sense. The information conveyed is new in the same way that a newspaper page is new because the particular information it carries is "news". This does not mean, however, that every newspaper page is patentably different, one from another, and it does not mean that a newspaper's apparatus and method is new and patentable merely because it produces a page of new information. We think the same applies here. Recalculation of investment holdings to reflect changing values is not new and displaying recalculated values to a client is not new, even though the

actual information may be new, and we do not think that the use of a computer system can make this new. The Board, therefore, does not think the argued novelty of the end result can impart novelty and patentability to the apparatus or method.

The Board considers that the patentability of a process using a computer depends, as it does in every other type of process, on the particular kind of subject matter and not on the novelty or lack of novelty of the article or machine used in the process. Not every method is patentable subject matter. For example, methods of surgical treatment are not patentable (Tennessee Eastman Co. et al v Commissioner of Patents (1974) S.C.R.111) even though a device used may be patentable. Similarly a method of dividing land in a particular and potentially more valuable way has been held to be not patentable subject matter (J. Wyburn Lawson v Commissioner of Patents (1970) 62 C.P.R. 101) because it was outside the scope of the meaning of the words "art" and "process" found in Section 2.

In computer-related subject matter unless the actual physical aspects or embodiments used are patentable or unless the inherent capabilities of a computer have been combined with another system, which is already on its own merits within a statutory field of invention and thereby produce either a new tangible result or an improvement to a tangible result, then, the Board considers, it is very difficult to find a patentable invention. We take the view that a process or procedure for using a known computer to process information, without further integration of that information into some practical system, is not patentable subject matter within Section 2 of the Patent Act. To state what we understand from Schlumberger: this is why computers were invented.

For these reasons we disagree with Applicant's comment that a different (and higher) standard for invention is being imposed upon the process claimed here simply because it involves the use of computers. The Board believes the same standard is used for all processes and it is the standard set by the Courts in consideration of the patentability of processes.

We disagree with Applicant's argument that all non-mathematical procedures for organizing and operating computer systems should be patentable. Applicant appears to be suggesting that, since Schlumberger rejected mathematical procedures but not others, the non-mathematical procedures should be allowed. We do not agree. Schlumberger, in the opinion of the Board, dealt with mathematical procedures because the subject matter there was, in fact, a mathematical expression. But there was no suggestion in Schlumberger that a non-mathematical expression would have been found to be patentable; it was simply not dealt with. Whether the procedures are mathematical or otherwise is not, in the opinion of the Board, the issue here. The patentability of procedures, merely to regulate the functioning of a computer, in any language of expression is the issue before the Board.

Mr. Roberts, Applicant's agent in the United States, gave a brief account of the prosecution of the corresponding application before the United States Patent and Trademark Office. He urged the Board to consider the recent United States jurisprudence, in particular the Diehr case which, along with some others, caused the United States Patent Office to withdraw its objection to the application. We have taken the United States cases into consideration, especially the decision of the Supreme Court of the United States in the Diehr case (Diamond v Diehr, 450 U.S. 175; 209 U.S.P.Q.1, (1981)) and we do not think the judgement should affect our view of this case at all. It appears to the Board that the Diehr case was dealing with something entirely

different from the matters being considered here. In Diehr the subject matter was a chemical manufacturing process to produce a batch of rubber, clearly a patentable area. It was that process, not the computer's procedures, that was found to be patentable. The computer's inherent capabilities were being combined with other elements to make an improved process to yield a more consistent product. The use of a computer did not detract from the patentability of the subject matter, but it was not held that the computer or its own procedures had acquired patentability merely because of the new, special use.

In this case, however, the process being claimed occurs entirely within the computer system and the end result is not a real change in a tangible thing, it is still, at the end of the claimed process, merely information. There is no further integration into a practical process as in Diehr.

We do not see, therefore, how the Diehr case assists Applicant. It points the other way.

Having considered the arguments advanced by Applicant and considered the prosecution of the corresponding United States and United Kingdom applications the Board will now view the application as we believe it should be seen, in the light of Canadian practice and precedent.

Claim 1 of this application is:

A stored program data processing system including a digital computer having memory and logic means for storing and retrieving and displaying information about investment securities, said system including

- (a) a plurality of input/output terminals operatively connected to said system;
- (b) a memory providing a plurality of data storage areas for data;
- (c) a first data storage area for system data, comprising records of data hereinafter termed priced securities;

- (d) a second data storage area for system data comprising records of data hereinafter termed unpriced securities;
- (e) a third data storage area comprising records of data hereinafter termed a user file;
- (f) each user file including an area reserved for the date of entry of the data, a numeric address indicative of each security and the amount of each security holding;
- (g) a first set of numeric address means for each of said priced security records;
- (h) a second set of numeric address means for each of said unpriced security records, said second set of numeric addresses differing from said first set;
- (i) means to access and edit each of said priced security records utilizing said first set of numeric addresses;
- (j) means to access and edit each of said unpriced security records utilizing said second set of numeric addresses;
- (k) an alphameric key for each of said priced and unpriced security records;
- (l) a plurality of conversion means for translation of a signal for one key into a signal for another key, including
- (m) a first conversion means for translating an alphameric key into a numeric address for a priced or unpriced security record;
- (n) a second conversion means for translating a numeric key representing a prior security identification into a current alphameric key representative of said security;
- (p) a fourth conversion means for converting the data in the amount field in a user file, based on its date of entry to data corresponding to the current amount of said holding;
- (q) means to retrieve a selected user file;
- (r) means to retrieve corresponding data from said priced and unpriced security file;
- (s) means to compute and display the current value of said selected portfolio of securities.

The other claims are directed to, essentially, a method of use of the computer system claimed in claim 1.

According to Schlumberger:

In order to determine whether the application discloses a patentable invention it is first necessary to determine what, according to the application has been discovered.

The Board has emphasised "discloses." If patentable subject matter has not been disclosed the mere form of the claims cannot make unpatentable subject matter into a patentable invention. When we look at page 5 of this application we find:

Using the new technique of computer "time-sharing" the invention makes use of the Service Bureau Corporation's National Time-Sharing System to centralize the securities data described above and the computer programs comprising the invention. (emphasis added by the Board)

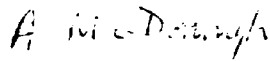
The Board can find no clearer statement, in this entire application, of the subject matter it contains. It is not an apparatus (the computer is admittedly old) and it is not a method, even though the claims are couched in the language of an apparatus and a method. The subject matter is computer programs.

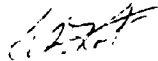
Whether the programs described are new, useful and unobvious is not material. The Board considers them to be not patentable subject matter as defined by Section 2 of the Act. If Applicant's arguments were accepted it would mean that the mere fact that a computer system is used, to perform what otherwise would be a series of mental operations and clerical procedures, makes the subject matter patentable because a novel program has been devised. The Board considers the Schlumberger case is the most relevant precedent in this matter and, as in Schlumberger, we are convinced that this subject matter does not come within Section 2 of the Patent Act. We are satisfied that the Examiner was correct to reject the application.

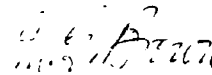
Although it was not an issue during the prosecution, we should comment on the statement on page 19 of the application:

The VALPORT system has been in actual operation at one of the nation's leading investment banking firms for over three years and has been used to produce thousands of portfolio schedules during that time.


It appears that Applicant's system was in use three years prior to the filing date of this application, which would be in August 1970. There are several references in the application, see pages 274, 287, 295 and 303, that the material was copyrighted in 1968, 1969 and 1970. All of these dates are more than two years before the application was filed. We merely point out here that the application may be objectionable under Section 28(1), (b) and (c). However, since we have already found that the application does not contain patentable subject matter, we cannot see any useful purpose in returning the application to the Examiner for further consideration of this matter.


A. McDonough
Chairman, Patent Appeal Board


S.D. Kot
Member


M.G. Brown
Member

I have reviewed the prosecution of this application and I agree with the recommendation of the Patent Appeal Board. Accordingly, under Section 42 of the Patent Act, I refuse to grant a patent on this application. Applicant may appeal to the Federal Court under Section 44 of the Act within six months of the date of this decision.


J.H.A. Gariépy
Commissioner of Patents

Dated at Hull, Québec
this 3rd. day of June 1983

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