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Mr. John M Chowning
IRCAM
31, Rue St. Merri
Paris 75004
FRANCE

June 20, 1979

Dear John:

Following my letter of June 18, I am enclosing:

(1) Our attorney's report on the possibility of invalidness of FM patent, which I received yesterday, and

(2) my personal proposal of Terming of "complex FM", which I prepared so that we could avoid misunderstanding or confusion in our discussion or in our any future communication.

With regard to the latter, if you find my misunderstanding or any better idea, please tell me them. For the "cascade FM" which you already used in your letter, is it included in my proposal or not? I imagine it could be NESTING, is it right?

Alors, à bientôt encore, et mes salutations à Sigrun et à Marianne.

Amitiés,

Yohei Nagai

Manager,
Electronic Musical Inst.
Research Sect.

OUR FILE NO. 04I 008

CONFIDENTIAL

VALIDITY OPINION

United States Patent No. 4,018,121 issued April 19, 1977 on METHOD OF SYNTHESIZING A MUSICAL SOUND to John M. Chowning.

ATTORNEY-CLIENT CONFIDENTIAL

I.

SCOPE OF THE STUDY

This study was done at the request of Nippon-Gakki and was made to determine the validity of the United States Letters Patent No. 4,018,121 issued on April 19, 1977 for "METHOD OF SYNTHESIZING A MUSICAL SOUND" (hereinafter referred to as the Patent).

This study has been confined to United States Patent No. 4,018,121 and is based upon a review of the Patent, the Patent's file history and the parent application's file history of the Patent. Our office has not performed any searches to determine if any prior art exists which might invalidate the Patent.

II.

BACKGROUND OF THE PATENT

The parent application of the Patent was originally filed on March 26, 1974 and its Serial No. was 454,790. The Patent is a continuation-in-part of the parent application and was filed on May 2, 1975. Nippon Gakki presently has an exclusive license thereunder.

The Patent has 14 claims, all directed to the production of musical sound. Four of the claims are independent and the remainder of the 14 claims are dependent upon these 4 independent claims.

III.

ANALYSIS OF THE FILE HISTORY OF THE PARENT APPLICATION

A review of the parent application indicates that it was filed March 26, 1974. The first Office Action rejected all the claims. The rejections included an objection to the specification as failing to comply with 35 USC 112, first paragraph for failing to set forth a best, specific or enabling mode of the invention. The disclosure was further objected to under 35 USC 101 as being directed to non-statutory subject matter, i.e. a software computer program. The applicant responded to the Office Action by submitting an amendment which amended both the claims and the specification in an attempt to overcome the 35 USC 112, first paragraph rejection and the 35 USC 101 rejection, non-statutory subject matter.

The Examiner then submitted a final office action which rejected all the claims still under 35 USC 101, non-statutory subject matter, without mentioning the 35 USC 112, first paragraph rejection again. The applicant had an oral interview with the Examiner and attempted to submit a new set of claims for the original claims in the application. The response of the applicant further indicated that the Examiner had suggested certain amendments to the specification and the claims which should be made in a continuation application which would overcome the 35 USC 101, non-statutory subject matter, rejection. The Examiner refused to enter the new proposed set of claims.

IV.

ANALYSIS OF THE FILE WRAPPER OF THE APPLICATION

The continuation-in-part application was filed on May 2, 1975 before the parent application was allowed to go abandoned. The continuation-in-part application included all of the amendments made to the specification in the parent application and in addition all of that portion of the parent application after page 36, line 12 was rewritten and expanded. Furthermore, a new set of claims corresponding to the proposed claims in response to the Final Office Action in the parent case were provided.

In the first Office Action in the continuation-in-part application, the Examiner again rejected all of the claims under 35 USC 101, non-statutory subject matter. In response to the Office Action, the applicant argued that the application did contain statutory subject matter. The Examiner again issued an Office Action requiring amendments to the specification. In response to the Office Action, the applicant made the required changes to the specification and again argued that the continuation-in-part application contains statutory subject matter. In reply to the last communication from the application, the Examiner allowed the case and the patent was issued on April 19, 1977 as the United States Patent No. 4, 018,121.

V.

PRIOR PUBLICATION

In September, 1973, Mr. John M. Chowning had published an article in the Journal of the Audio Engineering Society entitled "The Synthesis of Complex Audio Spectra by Means of Frequency Modulation". In this article it describes an FM technique utilizing the same formula as is disclosed in the Patent and at Figure 10 it includes a figure which is identical to Figure 2 in the Patent. While the reference does describe a system substantially the same as is shown in the Patent, it does not disclose the specific implementation shown in Figure 5 and expanded in Figures 6 through 18 of the Patent.

VI.

PROBLEM AREAS

From our review of the file histories and the publication of Mr. Chowning, there appears to be several possible problem areas. These problem areas are:

1. Non-statutory subject matter;
2. Continuation-in-part vs. Continuation Application;
3. New matter; and
4. The publication of Mr. Chowning.

In the following paragraphs each of the above-mentioned problem areas will be discussed.

As to the non-statutory subject matter, the Patent itself may be directed towards non-statutory subject matter. In this respect, since the Patent could be characterized as a computer program for implementing a mathematical formula, it could be characterized as being directed towards non-statutory subject matter. In particular, as a result of the confused state of the law in the United States concerning computers and computer software, it is possbile that a court in the United States would decide that the Patent was directed towards non-statutory subject matter.

Referring to the continuation-in-part vs. continuation application problem, if the parent application was directed towards non-statutory subject matter and this rejection was only overcome by the amendments to the specification and claims which were made in the continuation-in-part application, then the continuation-in-part application is truly a continuation-in-part application and the claims may only be entitled to the benefit of the filing date of the continuation-in-part application and not the parent application. This becomes a problem relative to the publication of Mr. Chowning and will be discussed later.

As to the new matter rejection, there is no doubt that the addition to the specification which explains that the well-known boxes described in the specification are in fact circuits which can be found in a catalog is information which does not originally appear in the specification. However, it might be argued that those skilled in the art would know that

the boxes described in the specification could be devices such as those found in a standard catalog. Furthermore, it could also be argued that the addition of such information was new matter since it did not appear in the specification and there was no suggestion in the specification that the boxes described therein could be implemented from circuits found in a standard catalog.

As to the publication of Mr. Chowning, this only becomes a problem if the claims of the continuation-in-part application are not given the benefit of the filing date of the parent application. If the claims are not given the benefit of the filing date of the parent application, the filing date of the claims will be May 2, 1975 which is more than one year after the publication of Mr. Chowning's. Therefore, the claims would be invalid. However, it could be argued that since the publication of Mr. Chowning does not disclose the specific hardware implementation shown in Figures 5 through 18 of the Patent, the publication in fact is not a good reference as to the claims and would not invalidate the claims even if the claims were only given the benefit of the filing date of the continuation-in-part application.

VII.

CONCLUSION

Our review of the Patent and the file histories of the Patent and the parent application of the Patent indicates that the biggest problem is the non-statutory subject matter

problem. As a result of the unsettled state of the United States law in this area, it is difficult to porject which way a court in the United States would decide this issue. The next issue in order of importance is the continuation-in-part vs. continuation application problem. If it is determined that the non-statutory subject matter rejection in the parent application could only be overcome by a continuation-in-part application, then the claims would only find support in the continuation-in-part application and would only have the benefit of the filing date of the continuation-in-part application. The next issue in order of importance is the new matter rejection. If the new matter rejection under 35 USC 112, first paragraph was not overcome in the parent case and was only overcome by the filing of the continuation-in-part application, then under 35 USC 120, the continuation-in-part application is not entitled to the filing date of the parent application and therefore, it is subject to any statutory bars which might exist. The last problem area of any importance is the publication by Mr. Chowning. This problem area only becomes significant if one of the prior problem areas occurs. In particular, if the claims in the Patent are not given the benefit of the filing date of the parent application, then the Chowning reference may be a statutory bar to the Patent.

From our review of the Patent, file histories of the Patent and the parent application and our analysis of the problem areas, it is our conclusion that there exists a significant probability

that the Patent would be declared invalid in a court in the United States. It is further our conclusion that this probability of invalidity is less than fifty percent and is probably on the order of thirty percent.