



**A Brief Analysis of the Reply to Office Actions Aimed at Claims of
“Product by Process” by Briefing a Re-examination Case**

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I. Introduction

A product claim should be defined by its own technical features as much as possible, for example, using a static structure (namely, the components and their locations as well as the connection relationship among them) to define the machinery equipment, using a molecular formula or structural formula to define a compound, or using components and content to define a composition. However, due to the technical complexity in each field and the fact that an invented product is sometimes hard or impossible to be clearly and concisely defined by its own structure, function or composition features, a product claim has to be presented in other forms, among which a claim of "Product by Process" is a representative that can be seen in more and more technical fields.

The object claimed by a claim of "Product by Process" is a product while the technical feature(s) in the claim is (are) a process, which is contradictory and inconsistent from the perspective of form. Therefore, it brings many special problems during the course of drafting, examination and patent protection of the claim. This article explores how to reply to Office Action (hereafter referred as "OA") targeted at the claim of "Product by Process" through a brief analysis of a patent reexamination case.

II. The regulations relating to the claim of “Product by Process”

It is stipulated in Article 3.1.1, Chapter 2, Part II of the *Guidelines for Patent Examination* (2010) that: where one or more technical features of a product claim cannot be clearly defined by either features of structure or features of parameter, it is allowed to define the technical features by virtue of features



of process. However, the subject matter of the product claim defined by the features of process is still the product, and the actual definitive effect of the features of process depends on what impact they may impose on the claimed product *per se*.

Regarding the examination standard for novelty of a product claim containing features of a preparation method, it is stipulated in Article 3.2.5(3), Chapter 3, Part II of the *Guidelines for Patent Examination* (2010) that: For this kind of claims, the examiner shall consider whether the feature of performance or parameters in a claim implies that the claimed product has a certain particular structure and/or composition. If the performance or parameters implies that the claimed product has a structure and/or composition distinct from that of the product disclosed in the reference document, the claim has novelty. On the other hand, if the person skilled in the art from the performance or parameters cannot distinguish the claimed product from that disclosed in the reference document, it can be presumed that the claimed product is identical with the product in the reference document and accordingly the claim does not have novelty, unless the applicant can, based on the application or prior art, prove that the claimed product having feature of performance or parameters is distinct from the product in the reference document in structure and/or composition.

It can be determined that the *Guidelines* adopt the special judgment method of presumption when examining the novelty of a claim of “Product by Process”. That is to say, the applicant shall bear the burden of proof, if he or she chooses to use a claim of “Product by Process”, to prove that the method features in the claim imply that the claimed product has a certain particular structure and/or composition which distinct from the prior art, otherwise the claim would be determined as lacking novelty.

III. Introduction to the case

1. Case Brief

The application relates to a technology of using a 2D coil which can be attached to a PCB to stimulate an eddy current field generated by a 3D coil. The claim of the application is as follows:



A 2D eddy current coil obtained by simulating a 3D eddy current coil which can inspect the eddy current on a test surface by using a first eddy current flow, the 2D eddy current coil generating a second eddy current flow with characteristics similar to those of the first eddy current flow generated by the 3D eddy current coil when arranged opposite to and parallel to the test surface ...

The reference document cited by examiner discloses a conventional 2D eddy current coil structure which is arranged opposite to and parallel to the surface of a metal component and generates eddy current on the surface of the metal component.

The focus of dispute of this case lies in that whether the feature “A 2D eddy current coil obtained by simulating a 3D eddy current coil which can inspect the eddy current on a test surface by using a first eddy current flow, the 2D eddy current coil generating a second eddy current flow with characteristics similar to those of the first eddy current flow generated by the 3D eddy current coil” exerts an actual restrictive effect on the claimed subject matter.

2. Examiner’s opinions

The examiner elaborated in the Decision of Rejection that: it is easy for a person skilled in the art to conceive the idea that the eddy current generated by the 2D eddy current coil disclosed in the reference document is corresponding to a first eddy current, which discloses a 2D eddy current coil that can generate the eddy current with characteristics similar to those of the first eddy current flow. Therefore, whether the 2D eddy current coil is obtained by stimulating a 3D eddy current coil or is obtained from other design intentions, the definition of the preparation method does not imply that the 2D eddy current coil has a certain particular structure and/or composition which distinct from that in the reference document. Objectively, the 2D eddy current coil in the reference document could also simulate a corresponding 3D eddy current coil, which has no structural difference from the 2D eddy current coil obtained by simulating a 3D eddy current coil having a certain eddy current.

3. The reply to Decision of Rejection



The patent attorney argued in the petition for reexamination in a way of sufficient reasoning below.

(1) The technical conception of the present application is to obtain a 2D eddy current coil by simulating a 3D eddy current coil, the 2D eddy current coil having eddy current flow characteristics similar to those of the stimulated 3D eddy current coil. In the present application, the 2D eddy current coil is constructed in the following specific way: predetermining the 3D eddy current coil to be stimulated and the eddy current flow characteristics relating to the 3D eddy current coil, then, in the case where the 2D eddy current coil is arranged opposite to and parallel to the test surface, the 2D eddy current coil generating a second eddy current flow with characteristics similar to those of the first eddy current flow generated by the 3D eddy current coil.

On the contrary, the reference document involves a conventional 2D eddy current coil where there is no concept of obtaining a 2D eddy current coil by simulating a 3D eddy current coil. This determines that when producing the 2D eddy current coil in the reference document: ① it is unnecessary to predetermine the 3D eddy current coil to be stimulated and its eddy current flow features; ② there does not exist the simulation of 3D eddy current coil; and ③ the pattern, winding direction and the eddy current flow characteristics of the 2D eddy current coil in the reference document are not predetermined by the 3D eddy current coil to be stimulated.

(2) There are substantive differences between the present application and the reference document in the construction principle and the specific production process. By stimulating a 3D eddy current coil, the 2D eddy current coil obtained in the present application possesses specific eddy current flow characteristics, which shows that the structure and/or the composition of the 2D eddy current coil obtained by simulation are different from the eddy current coil 46 in the reference document 1. Consequently, the underlined features mentioned above have an actual restrictive effect on the subject matter of claim 1.

4. The opinions of the Collegial Panel



In the Decision of Reexamination, the collegial panel finally agreed with the patent attorney's arguments and provided the following comments.

In the present application, the 2D eddy current coil is obtained by simulating a 3D eddy current coil and has the eddy current flow characteristics similar to those of the 3D eddy current coil. This inevitably makes the 2D eddy current coil in the present application have a different structure from a common 2D eddy current coil, because a common 2D eddy current coil cannot have eddy current flow characteristics similar to those of a 3D eddy current coil. The 2D eddy current coil's simulation of the 3D eddy current coil can reduce the production costs and the volume of the conventional 3D eddy current coil.

However, the reference document only discloses a 2D eddy current coil, without mentioning the concept of producing a 2D eddy current coil by simulating a 3D eddy current coil, and whether the eddy current flow generated by the obtained 2D eddy current coil is similar to the eddy current flow generated by the 3D eddy current coil or not is unpredictable.

Taking these facts into consideration, the panel revoked the decision of rejection made by the examiner.

IV. Conclusion

1. Inspiration for replying Office Actions aimed at claims of "Product by Process"

When replying to the Office Actions aimed at claims of "Product by Process", the feasible reply strategies include but not limited to the following ways.

(1) Providing effect data of comparison experiment to prove that the features of process indeed have a restrictive effect on the product

Generally, one option is to conduct a well-targeted comparison experiment between the application and reference documents, especially the technical effects of the qualitative or quantitative experiment



data recorded in the application documents, and the data obtained from the comparison experiment can clearly show the significant advantages the invention in a certain aspect or degree.

For example, when the technical effects of the preparation method of the invention could optimize the purity of the product, make a significant improvement of some physical and chemical properties of the product or improve the conversion rate, then it is advisable to provide the comparison experiment data to prove the differences between the application and reference documents in the purity of the product, product function, and conversion rate so as to provide strong evidence for novelty/inventiveness.

(2) Under the condition that there is no effective experiment data to serve as evidence, it is also feasible to make an argument based on the point that the method features have an actual restrictive effect on the product, i.e., elaborating that the method results in the differences between the structure and/or composition of the product of the application and that of the reference document from the perspective of the technical principles, specific embodiments and unexpected effects, or proving that the method brings the product of the application a function different from the function of the product in the reference document so as to prove the change of its structure and/or composition.

(3) When necessary, it is also acceptable to revise the claim of “Product by Process” as the preparation method of the product, or revise it as a product claim containing no features of process.

2. Inspiration for drafting the application documents

(1) Before drafting the application documents, predetermine whether the product to be defined by the features of process is a novel product or not. If it is a novel product, it is totally acceptable to draft the claim of “Product by Process”. If it is only an improvement or innovation of part of the preparation method or production method rather than a novel product, it would be better to change the claimed subject matter from product to process.



(2) To avoid the disadvantage of defining a product by only using the features of process, adding the features of the structure, function or composition of the product to the claim is a solution worthy of trying in order to get a patent right.