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**Datasheet for the decision  
of 1 July 2014**

**Case Number:** T 1120/10 - 3.4.02

**Application Number:** 02001647.3

**Publication Number:** 1231462

**IPC:** G01N23/22

**Language of the proceedings:** EN

**Title of invention:**

Method and system for identifying an object by use of decay characteristics of radioactivity of the same object

**Applicant:**

Yoshihisa, Hata

**Headword:**

**Relevant legal provisions:**

EPC Art. 83, 84

**Keyword:**

**Decisions cited:**

**Catchword:**



**Beschwerdekammern  
Boards of Appeal  
Chambres de recours**

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Case Number: T 1120/10 - 3.4.02

**D E C I S I O N**  
**of Technical Board of Appeal 3.4.02**  
**of 1 July 2014**

**Appellant:** Yoshihisa, Hata  
(Applicant) Room 102,  
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Aichi-ken (JP)

**Representative:** Appelt, Christian W.  
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**Decision under appeal:** **Decision of the Examining Division of the  
European Patent Office posted on 10 November  
2009 refusing European patent application No.  
02001647.3 pursuant to Article 97(2) EPC.**

**Composition of the Board:**

**Chairman** A. Klein  
**Members:** F. Maaswinkel  
D. Rogers

## Summary of Facts and Submissions

I. European patent application No. 02001647.3 relating to object identification by use of radioactivity decay characteristics was refused in a decision of the examining division on the ground that claim 1 of the main request and of the auxiliary request were objectionable under Article 84 EPC. In point 2.a) of the Grounds for the Decision it was objected that the feature in claim 1 "irradiating the object with a radiation ...to thereby produce identical radio nucleus in different objects" included a definition of the subject-matter in terms of the result to be achieved. According to the examining division, for producing identical radionuclides in different objects, the target material activated in each object must be identical.

Furthermore, according to the decision, in order to be able to identify an object amongst a plurality of different objects, both the initial radioactivity level and the shape of the radioactivity decay curve (decay constant  $\lambda$ ) of the objects must be known. Since, however, the parts to be irradiated may be "different in kind" (embodiment of figure 1, see page 15, lines 15-17 of the original description), for the identification of such parts the method cannot be carried out and the patent application did not meet the requirements of Article 83 EPC in that the invention was not disclosed in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

II. Against this decision the applicant (appellant) lodged an appeal. The appellant requested to set aside the decision under appeal and to grant a patent on the

basis of new claims filed with its letter of 18 March 2010. The appellant also requested that the appeal fee be reimbursed. Furthermore the appellant filed an auxiliary request for oral proceedings.

III. The wording of claim 1 reads as follows:

" A method for identifying an object, by specifying an identifier which has been assigned to a plurality of objects and which have not been indicated on the object themselves, is provided to include the steps of:

- sequentially irradiating under identical radiation conditions the plurality of objects with a radiation (S3) producing radioactivity in each object thereby having immediately after irradiation identical level of radioactivity in each object to thereby produce identical radio-nuclide in different objects wherein only one of the plurality of objects is irradiated with the radiation at the same irradiation time;
- storing in a storage separate from the objects, a correlation between the identifier and irradiation time (to) required for identifying each object;
- measuring a level of radioactivity of one object (s31; S51), when this object is required to be identified after an irradiation time at which this object was irradiated with the radiation by the execution of the irradiating step;
- calculating (*sic*) back (S33) the irradiation time (to), at least on the basis of:
  - the measured level of radioactivity;
  - a measurement time at which the level of radioactivity was measured; and
  - characteristics of a predetermined decay curve representing how the radioactivity of the objects decay as absolute or relative time elapses from the irradiation time (to);

- retrieving in the storage (S2) the identifier corresponding to the obtained information according to the correlation ".

The wording of the other claims is not relevant for the purpose of the present decision.

IV. In support of its request the appellant developed the following arguments in its grounds of appeal:

With respect to the issue of clarity (result to be achieved) the examining division had difficulties with the wording in claim 1 "to thereby produce identical radio nucleus in different objects". This feature is sufficiently clear without unduly restricting the scope of the claim. In case a person skilled in the art would like to tag an object of a certain composition he would first analyse this composition in order to find out the kind of atoms of the composition. In a second step the person skilled in the art would simply look at a chart of nuclides, which discloses all atoms and their respective energy levels and decays. Therefore, he understands under "predetermined decay curve" that a selection is made on the basis of the kind of material the object is made from, in particular that a suitable atom and an energy level should be selected having a half life time period long enough to obtain a signal during the identification of the object and short enough that the object does not radiate too much after leaving the factory.

According to the present application the simplest way of having identical radio nucleus is that all tagged objects are made out of identical material. This is implicitly disclosed on page 21, lines 25 - 26, i.e. the parts A, B and C have been irradiated at different

times (i.e. sequentially) under the same irradiation condition thereby resulting in the graph shown in figure 7. The wording "same irradiation condition" is to be construed that the parts have been under the influence of the same radiation type (e.g. X-rays), the same energy level (e.g. 150keV) and identical radiation time (1 min). Therefore, the parts A, B and C can only have identical initial radioactivity level  $a_0$  as shown in figure 7 in the case that these parts are made of the same material, i.e. have identical chemical compositions.

With respect to the objection of lack of sufficiency of disclosure, this must be assessed on the basis of the application as a whole, including the description, claims and drawings and not solely on the wording of claim 1 (cf Guidelines C-II,4.2). The invention is disclosed in the present application sufficiently clear and complete for it to be carried out by a person skilled in the art.

The idea of the invention is to tag several objects in order to differentiate between the tagged objects. How can an object be tagged? One way of tagging an object is simply sticking a bar-code on it. In the present application the objects to be tagged can consist of the same material. According to page 17, lines 13 only one object (i.e. part) is radiated at the same irradiation time. At time  $t_n$  object A is being radiated for example with X-rays with an energy value of 150keV in order to produce excited  ${}_{43}\text{Tc}^{99\text{m}}$ . This kind of irradiation condition is disclosed in general terms on page 17, lines 19ff. The maximum induced radioactivity level of the tagged object is  $a_0$  directly after the irradiation device 12 is turned off. At time  $t_{n+i}$  the next object B is being radiated by the irradiation device under the

same condition as object A. At a later time  $t_{n+2}$  the object C is being tagged. As illustrated in figure 7, the shapes of the decay curves of object A to C are identical and have the same maximum value of  $a_0$ , i.e.

- the objects A to C are radiated under the same conditions, see page 21, lines 25 to 26; and
- the decay curves of A to C have identical half life time periods.

The first step is tagging the objects by simply radiating the objects with very specific radiation conditions as outlined above.

In a later stage of production of the objects it can happen that the objects A and C underwent different types of production processes. At a specific production stage the production unit for example a drilling unit has to drill holes into object C but not into object A. Although object A has been tagged earlier than object C it can happen that object C passes the drilling unit earlier than object A. Therefore, it is essential in a second step to be able to differentiate between the tagged objects A, B and C. Assuming that object C passes the drilling unit at a time  $t_x$  the drilling unit measures the residual radioactivity which now has a level  $a_x$ . As object C is the only object having the radioactivity level of  $a_x$  at the time  $t_x$  there is a unique identification of the object C by simply looking back in time when this object has been tagged.

Therefore, the application is disclosed in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

- V. In a communication pursuant to Article 15(1) RPBA, dated 21 March 2014 and accompanying the summons to oral proceedings on 29 July 2014, the board expressed the following provisional opinion:

"1. *Main Request*

- 1.1 In the decision under appeal the patent application was refused on the grounds that the claims of the Requests then on file did not meet the requirements of article 84 EPC and that, furthermore, in the patent application the invention was not sufficiently clearly and completely disclosed for it to be carried out by a person skilled in the art (Article 83 EPC). According to page 7 of the decision, first two paragraphs, lack of sufficiency was apparent since the objects to be identified could have different chemical compositions.
  - 1.1.1 In the Grounds of Appeal in response of the objection of lack of sufficiency of disclosure (page 5/7, point IV), it is argued at page 6/7, lines 1 - 2, that the objects to be tagged can consist of the same material, in which case the shapes of the decay curves after tagging were identical (Figure 7).
  - 1.1.2 Similarly in "point III. Clarity", at page 3/7, penultimate paragraph, the appellant argues that "...the parts A, B, and C can only have identical initial radioactivity level  $a_0$  as shown in figure 7 in case the parts A, B, and C are made of the same material i.e. have identical chemical composition".
- 1.2 ...
- 1.3 Provisionally the Board has reservations as to whether the appellant's arguments in support of sufficiency (point 1.1.1 supra) have a fair basis in the original disclosure; also, with respect to the issue of clarity/essential features (point 1.1.2) it will be discussed



whether these assertions are reflected in technical features of the claims.

2. *Request for the reimbursement of the appeal fee*

2.1 At page 1 of the letter of 17 March 2010 containing the Grounds of Appeal it is requested "Refunding the Appeal fee".

2.2 It is noted that the conditions for a reimbursement of the appeal fee in Rule 103(1)(a) EPC (formerly Rule 67, first sentence, EPC 1973), require that the appeal be allowable. Notwithstanding this fact, the further condition requires the presence of a "substantial procedural violation". In the Letter of 17 March 2010 the Board has not found any arguments in support of the Request. Furthermore, at present, the Board does not see a justification for a refund."

VI. In a letter of 16 May 2014 the appellant announced that it would not attend the scheduled oral proceedings and withdrew its request for oral proceedings.

**Reasons for the Decision**

1. The appeal is admissible.

2. In the communication of the board, the appellant was informed of the board's provisional assessment with respect to the issue of sufficiency of disclosure (Article 83 EPC) and the provisions of Article 84 EPC. In particular, with respect to the objections under Article 83 EPC, the board had made reference to the reasoning in the decision at page 7, first two paragraphs. Also, with respect to the appellant's

argument that the parts to be irradiated have identical chemical composition, the board questioned that such a feature was included in present claim 1, which omission had also been identified in point 2.a) of the decision as missing in the claim.

3. The appellant made no substantive response to the board's communication. Having again considered its own reasoned objections as set out in that communication and making express reference thereto, the board sees no reason to deviate from the examining division's conclusion and from its own earlier assessment under Article 83 EPC. Consequently, the appellant's request must be refused.

## Order

**For these reasons it is decided that:**

The appeal is dismissed.

The Registrar:

The Chairman:



M. Kiehl

A. G. Klein

Decision electronically authenticated