Internal distribution code:

(A) [-] Publication in OJ
(B) [-] To Chairmen and Members
(C) [-] To Chairmen
(D) [X] No distribution

Datasheet for the decision of 22 January 2015

Case Number: T 0018/14 - 3.2.08

Application Number: 09161329.9

Publication Number: 2128279

IPC: C22B7/00, C22B7/04, B03B9/04, B03B9/06, B03C1/24, B03C1/247, B02C13/00

Language of the proceedings: EN

Title of invention:
Method for separating metal-containing fractions from dry slag and the use of this method for waste incineration slag.

Patent Proprietor:
Recco B.V.

Opponent:
Zweckverband Kehrichtverwertung Züricher Oberland (KEZO) /Böni Daniel

Headword:

Relevant legal provisions:
EPC Art. 114(2), 56
RPBA Art. 12(4)

Keyword:
Late submitted material - correct exercise of discretion (yes)
Late submitted material - public prior use admitted (no)
Late submitted material - document admitted (yes)
Inventive step - auxiliary request (yes)

Decisions cited:
G 0007/93

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern
Boards of Appeal
Chambres de recours

European Patent Office
D-80298 MUNICH
GERMANY
Tel. +49 (0) 89 2399-0
Fax +49 (0) 89 2399-4465

Case Number: T 0018/14 - 3.2.08

D E C I S I O N
of Technical Board of Appeal 3.2.08
of 22 January 2015

Appellant: (Opponent)	Zweckverband Kehrichtverwertung Züricher Oberland (KEZO) /Böni Daniel Wildbachstr.2 / Bäretsmoosstr. 11 8340/8180 Hinwil / Bülach (CH)
Representative:	AMMANN PATENTANWÄLTE AG BERN Schwarztorstrasse 31 Postfach 5135 3001 Bern (CH)
Respondent: (Patent Proprietor)	Recco B.V. Molenlei 7 1921 CX Akersloot (NL)
Representative:	EP&C P.O. Box 3241 2280 GE Rijswijk (NL)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 5 November 2013 rejecting the opposition filed against European patent No. 2128279 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman T. Kriner
Members: M. Foulger
D. T. Keeling

Summary of Facts and Submissions

I. The appellant (opponent) lodged an appeal against the decision of the Opposition Division, dispatched on 5 November 2013, rejecting the opposition against European patent EP 2 128 279 B1.

The notice of appeal and the statement setting out the grounds of appeal were filed within the given time limits.

II. Oral proceedings took place before the Board of Appeal on 22 January 2014.

III. The appellant requested that the decision under appeal be set aside and the patent be revoked.

IV. The respondent (patent proprietor) requested that the appeal be rejected. Alternatively that the patent be maintained in amended form according to the auxiliary request filed during the oral proceedings.

V. Claim 1 of the main request reads as follows:
"Method for the separation of metal-containing fractions (20) from slag comprising the successive steps of;
• supplying of the slag;
• processing of the slag into fractions;
• pre-separation of the fractions having a size of at most 5mm wherein iron-containing fractions are separated (24, 25);
• separation of non-ferrous metal-containing fractions (21) having a size of at most 5mm by using an eddy current separator (26, 27,25),
characterized in that the fractions (21) are kept dry when non-ferrous metal-containing fractions are

separated, wherein the eddy current separator (26, 27, 20) comprises a feed belt for the supply of the non-ferrous metal-containing fractions and a drum with therein a magnetic rotor, wherein the drum is positioned at the end of the feed belt wherein the magnetic rotor is rotated against the conveyance direction of the feed belt during operation."

Claim 1 of the auxiliary request was further restricted over the main request by the following features: "wherein the magnetic rotor of the eddy current separator is rotated at a speed of at least 4000 rpm wherein an eddy current separator with a magnetic rotor with at least 40 magnetic poles is used."

VI. The following documents cited in the appeal proceedings were filed within the nine-month opposition period according to Article 99(1) EPC:
E1: WO 02/066164 A
E2: Schubert, H.:"Handbuch der mechanischen Verfahrenstechnik", 2003, Wiley-VCH, Weinheim, pages 687-699.

The following document cited in the appeal proceedings was filed after expiry of the nine-month opposition period and was subsequently not admitted into the proceedings by the Opposition Division:
E3: ZHANG SHUNLI ET AL: "Investigation of separability of particles smaller than 5mm by eddy current separation technology, Part I: rotating type eddy current separators", MAGNETIC AND ELECTRICAL SEPARATION 1999 GORDON & BREACH SCIENCE PUBL INC, vol. 9, no. 4, 1999, pages 233-251

The following documents were submitted with the grounds of appeal:

E1.1: Priority application DE10108003.4 of E1
E8: IT-A-1284000
E8e: English translation of E8
E8.1: Extract from the Italian patent register
E8.2: Extract from espacenet
E9.1: Fax from SGM Gantry S.p.A. to ALUPRESS Srl dated 19 September 2003.
E9.1e: English translation of pages 1-8 of E9.1.
E9.2: Fax received and signed by ALUPRESS Srl.
E9.3: SGM Gantry S.p.A. for the eddy current separator type VIS 244
E9.3e: English translation of E9.3
E9.4: Fax from SGM Gantry S.p.A to ALUPRESS Srl dated 9 April 2004.
E9.4e: English translation of E9.4
E10: Affidavit from Mr Danilo Molteni
E11: List of patents from SGM Gantry SpA
E12: JP-A-2001-137827
E12e: English translation of E12
E12.1: Abstract of E12
E13: G.Schmelzer: "Separation of metals from waste incineration residue by application of mineral processing", Proceedings of the XIX International Mineral Processing Congress, vol. 4, Chapter 28, 1995, p.137-140.
E13.1: Magnetic and Electrical Separation, Vol. 7, pp 185-186, 1996 - "Conference Reports"

VII. The appellant argued essentially the following:

Regarding the late filed documents:

The Opposition Division should have admitted E3 into the proceedings because E3 was submitted as a response to the summons to oral proceedings issued by the Opposition Division. E3 was submitted within the time

limit under Rule 116 EPC set by the Opposition Division. Moreover E3 should have been regarded as being prima facie relevant because it disclosed the claimed particle sizes - which the Opposition Division had identified as not being known from E1. E3 should therefore be admitted into the appeal proceedings.

It was not possible to find E8 within the nine-month period of opposition because the document was published in Italian and without an abstract. The appellant had only been made aware of this document through a co-operation with the firm SGM Gantry SpA. Moreover this document was highly relevant because it disclosed that for small particles a counter rotation of the magnetic rotor of the eddy current separator produced the best results.

The public prior use, as shown by documents E9.1-E9.4, E10 and E11 was to be regarded as having been made available to the public because E8 showed that the equipment used was already publicly known. E11 showed that the reference in E10 to "our patent" clearly meant E8 as this was the only relevant publication on the list of E11. It was not possible to file E9 and E10 within the opposition period because the appellant had only been made aware of this prior use through a co-operation with the firm SGM Gantry SpA. The prior use had taken place many years before the priority date of the patent and so it must be regarded as having been publicly available. Moreover E9 was prima facie highly relevant.

E12 was prima facie highly relevant and dealt with slag in the broadest sense of the word.

E13 was also prima facie highly relevant and dealt with

a method for the separation of metal-containing fractions from slag. E13 belonged to the state of the art, as was shown by E13.1 which allowed a date for the congress to be established.

Main request - inventive step

E13 disclosed all features of claim 1 except that the magnet of the eddy current separator was rotated in the opposite direction to the belt. The problem to be solved could therefore be regarded as being to further improve the efficiency of the method of E13. E2 then taught for sorting fine particles that it could be useful to rotate the magnet in the opposite direction to the belt. In order to solve the above problem the skilled person would apply this feature to the method of E13 without the exercise of inventive skill.

Auxiliary request - inventive step

The speed and number of poles of the magnet were merely an arbitrary selection and were moreover suggested by E2, in particular by applying the equation (7.150) from page 693 of E2. This equation showed that a better separating effect could be achieved by increasing the magnetic rotor speed and the number of pole pairs. This would therefore lead the person skilled in the art to the subject-matter of claim 1 of the auxiliary request without any inventive activity being required.

VIII. The respondent argued essentially the following:

Regarding the late filed documents:

E3 was not admitted into the proceedings by the Opposition Division who had applied the correct

principles in considering this document not to be prima facie relevant.
E9.1 - the English translation (E9.1e) did not appear to correspond to the Italian original because the number of bullet points on page 2, first paragraph differed between the English and Italian versions. Furthermore the public availability of this prior use had not been established. Thus documents E9-E11 should not be admitted into the proceedings.
E8 related to processing of used food cartons and E12 related to processing of printed circuit boards. These documents were therefore not prima facie relevant because they did not deal with separating metal from slag as claimed.
E13 should not be admitted into the proceedings because it was not prima facie relevant inasmuch as it related to a method where the slag was quenched and then dried unlike the present invention where the slag is kept dry. Moreover E13 dealt with a process where the slag was subsequently vitrified. There was furthermore no link between E13.1 and E13 which would allow the publication date of E13 to be determined.
Therefore the documents filed after the nine-month opposition period should not be admitted into the proceedings.

Main Request - Inventive step

E1 should be considered as closest prior art rather than E13 because E13 dealt with a process after which the slag was vitrified. Moreover even if the person skilled in the art would chose E13 as a starting point, then the person skilled in the art would have no reason to change the direction of the magnetic rotor.

E2 taught that below a certain critical size not enough

eddy currents would be generated in the scrap for it to be deflected, see page 695, first paragraph. E2 cited as an example 5mm. The skilled person would be dissuaded from combining the teaching of E2 with that of E13 because of this. Moreover E2, see page 699, related to the extraction of metals from clean scrap rather than from slag which on account of being less homogeneous was more difficult to separate.

Auxiliary Request - Inventive step

The features of claim 1 of the auxiliary request further improved the efficiency of separation. These features went against the teaching of E13 which taught a maximum magnetic rotor speed of 3000 rpm. Furthermore, Figure 7-148 of E2 showed a magnetic rotor rotating in the same direction as the feed belt. Thus the associated description including the equation 7.150 had to be read in the context of a co-rotating magnetic roller and not a contra-rotating roller as claimed.

Therefore the subject-matter of claim 1 involved an inventive step.

Reasons for the Decision

1. The appeal is admissible.

2. Late filed documents

2.1 Admission of E3 into the proceedings

E3 was not admitted into the proceedings by the Opposition Division. The Opposition Division considered (Grounds for the decision, paragraph 2) that E3 did not appear prima facie more relevant than the other

documents on file. According to decision G7/93 (see reasons 2.6) a Board of Appeal should only overrule the way in which a first instance department has exercised its discretion if it comes to the conclusion either that the first instance department in its decision has not exercised its discretion in accordance with the right principles, or that it has exercised its discretion in an unreasonable way, and thus exceeded the proper limits of its discretion.

The Board considers in the current case that the Opposition Division acted in accordance with the correct principles, i.e. basing its approach on the prima facie relevance of the late filed document, and in a reasonable way. The argument that the document was filed within the time limit set by the Opposition Division is not convincing because the final date according to Rule 116 EPC is for making written submissions - it is not to be taken as an invitation to file evidence which should have been filed in the nine-month opposition period laid down in Article 99(1) EPC.

2.2 Admission of documents E8-E13 into the proceedings.

These documents were filed after the nine-month opposition period. They were however filed with the statement setting out the grounds of appeal i.e. the earliest possible moment in the appeal proceedings. As in the present case the claims under consideration in the appeal proceedings do not differ from the granted claims, these documents could have been filed during the proceedings before the Opposition Division. Hence it is in the power of the Board to hold these documents inadmissible (Article 12(4) RPBA).

E8 is not prima facie relevant because it does not

relate to slag but rather to food containers (see E8e, page 3, 3rd paragraph). E12 is also not considered to be prima facie relevant because it relates to chopped up printed circuit boards rather than slag. The appellant argued that the term "slag" must be interpreted broadly because in the claim it is not further defined. This argument is however only convincing insofar as the interpretation remains within the confines of the English language. Clearly, printed circuit boards and food containers cannot be considered as "slag".

2.3 Relating to the documents E9-E11 concerning the alleged prior use, the Board is of the opinion that the English translation of E9 could not be considered to be accurate due to the differing number of bullet points on page 2 of E9.1e compared with the Italian language original E9.1. Moreover the public availability of the alleged prior use was also not proven.

2.4 Therefore the Board did not admit documents E8-E12 into the proceedings (Article 114(2) EPC and Article 12(4) RPBA).

2.5 Regarding E13, the Board was not convinced by the respondent's argument that there was no evidence that this document was publicly available because the date of the congress was given in E13.1. That it concerned the same lecture as described in E13 could be seen from the header on page 138 which reads "PROCEEDINGS OF THE XIX IMPC". E13.1 lists a lecture with the same title and author. It is therefore clear that E13.1 relates to the same lecture as E13. That E13 was publicly available can be derived from the statement on p.186 of E13.1 whereby "the proceedings consist of four volumes obtainable from the Society for Mining, Metallurgy and

Exploration Inc. (SME), USA". E13.1 was published in 1996 i.e. 12 years before the priority date of the patent. Therefore the Board considered E13 to be state of the art.

Regarding the relevance of E13, it is true that in E13 the slag is quenched and then dried whereas in the patent-in-suit the slag is not moistened (Patent, [0035]). The wording of claim 1, however, merely recites that the fractions are kept dry when non-ferrous metal-containing fractions are separated - it does not therefore exclude a prior quenching and drying step. It is also true that E13 relates to a process which is used as pre-stage of vitrification. However a subsequent vitrification is also not excluded by the wording of claim 1.

E13 was therefore considered by the Board to be of prima facie relevance and was consequently admitted into the proceedings (Article 12(4) RPBA).

3. Main Request - Inventive step

3.1 The Board considers E13 to be the most relevant prior art because unlike E1 it discloses the separation of non-ferrous metal-containing fractions having a size of at most 5mm by using an eddy current separator.

E13 discloses:
a method for the separation of metal-containing fractions from slag (see title) comprising the successive steps of;
• supplying of the slag; (Fig. 1- "Input")
• processing of the slag into fractions; (Fig. 1 - "sizing", page 138, paragraph [4] - the fine fraction has a size of at most 4mm i.e. less than 5mm as claimed

below)
• pre-separation of the fractions having a size of at most 5mm wherein iron-containing fractions are separated; (Fig. 1 "Magnetic Separator")
• separation of non-ferrous metal-containing fractions having a size of at most 5mm by using an eddy current separator (Fig. 1 "Eddy Current Separator"),
wherein the fractions are kept dry when non-ferrous metal-containing fractions are separated, (the ash is dried prior to processing - see fig. 1 & page 138, paragraph 4)
wherein the eddy current separator comprises a feed belt for the supply of the non-ferrous metal-containing fractions and a drum with therein a magnetic rotor, wherein the drum is positioned at the end of the feed belt (see fig. 2).

The method of claim 1 therefore differs from this known method in that the magnetic rotor is rotated against the conveyance direction of the feed belt during operation.

The problem to be solved may therefore be considered as being to improve the separation of the particles.

It is known from E2, p.690 "Trennprozess und ihn beinflussende Parameter", that for smaller particles it can be useful to reverse the direction of the magnetic rotor such that it is in the opposite direction to the feed belt. The skilled person would therefore apply the teaching of E2 to the method known from E13 in order to solve the above problem and would thereby arrive at the subject-matter of claim 1 without exercising inventive skill.

The argument that E2 teaches away from using an eddy

current separator for particles smaller than 5mm is unconvincing because E2, page 690, "Trennprozess und ihn beinflussende Parameter", i.e. the very passage which suggests the counter rotation of the magnetic roller, explicitly mentions a lower limit for eddy current separators of 1mm.

Therefore the subject-matter of claim 1 of the main request does not involve an inventive step in the sense of Article 56 EPC.

3.2 Auxiliary Request

3.2.1 Claim 1 of the auxiliary request consists of claim 1 as granted combined with dependent claims 4 and 5. The requirements of Article 123(2) and (3) EPC are therefore fulfilled. Moreover the admissibility of this request was not disputed.

3.2.2 Inventive step

The subject-matter of claim 1 differs from E13 in that:
the magnetic rotor is rotated against the conveyance direction of the feed belt during operation,
wherein the magnetic rotor of the eddy current separator is rotated at a speed of at least 4000 rpm
wherein an eddy current separator with a magnetic rotor with at least 40 magnetic poles is used.

The newly introduced features have the technical effect of improving the efficiency of separation of metals from the slag (see patent [0019] and [0020]).

These features are not obvious from E13 because according to E13, page 138, right hand column, 3rd paragraph, the maximum rotational speed of the magnetic

rotor is "3000 rpm, while a continuous rotational speed of 2500-2700 rpm is permissible". The claimed range is thus not only outside the normal operating range but also well outside the maximum allowable. Although E2, page 693 recommends increasing the number of poles and the speed of the magnetic rotor it gives no recommendations as to the actual preferred values. Moreover these recommendations relate to a magnetic rotor rotating in the same direction as the drum rather than against the direction of the drum as claimed. The extent to which these recommendations are applicable to a contra-rotating rotor is therefore not known. Thus the person skilled in the art, in order to arrive at the subject-matter of claim 1 starting from E13, would have to reverse the direction of rotation, increase the speed beyond the permitted range and decide on the number of magnet poles. The Board considers that in the absence of an unambiguous teaching in the prior art the person skilled in the art would not have made all these modifications without the exercise of inventive skill.

The subject-matter of claim 1 of the auxiliary request therefore involves an inventive step in the sense of Article 56 EPC.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the Opposition Division with the order to maintain the patent on the basis of the following documents:

- Claims 1 to 11 of the Auxiliary Request and pages 1 to 13 of the description as filed during the oral proceedings;

- Figures 1 to 4b as granted.

The Registrar: The Chairman:

V. Commare T. Kriner

Decision electronically authenticated