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Bezeichnung der Erfindung: Method of removing residual toner from surface of photoconductive member for use in the electrostatic copying apparatus of the transfer type.
Title of invention:
Titre de l'invention :

Klassifikation / Classification / Classement : G 03 G 21/00, G 03 G 15/09

ENTSCHEIDUNG / DECISION

vom / of / du 3 October 1985

Anmelder / Applicant / Demandeur :

Patentinhaber / Proprietor of the patent / Titulaire du brevet : Mita Industrial Co., Ltd. (appellant)

Océ-Nederland B.V. (respondent)

Einsprechender / Opponent / Opposant :

Stichwort / Headword / Référence :

EPÜ / EPC / CBE Art. 52 (1), 56
Art. 104, Rule 63

"Inventive step"
"Costs incurred in oral proceedings"

Leitsatz / Headnote / Sommaire

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Case Number : T 80 /84

D E C I S I O N
of the Technical Board of Appeal 3.4.1
of 3 October 1985

Appellant : (Proprietor of the patent)
Mita Industrial Co., Ltd.
2-28, 1-chome, Tamatsukuri
Higashi-ku Osaka 540
Japan

Representative :
Dost, Wolfgang, Dr.rer.nat., Dipl.-Chem. et al.
Patent- und Rechtsanwälte
Bardehle-Pagenberg-Dost-Altenburg & Partner
Postfach 86 06 20
D-8000 München 86
Bundesrepublik Deutschland

Respondent : (Opponent)
Océ-Nederland B.V.
St. Urbanusweg 43
5914 CC Venlo
The Netherlands

Representative :
Patentanwälte
Dr. A. Kohler + M. Schroeder
Franz-Joseph-Str. 48
D-8000 München 40
Bundesrepublik Deutschland

Decision under appeal : **Decision of Opposition Division of the European Patent Office dated** 16 January 1984 **revoking European patent No.** 0 001 413 **pursuant to Article 102(1) EPC.**

Composition of the Board :

Chairman : O. Huber
Member : W. Oettinger
Member : P. Ford

Summary of Facts and Submissions

I. European Patent No. 1 413 comprising 5 claims was granted to the appellant on 5 August 1981 on European patent application No. 78 100 927.9 which had been filed on 18 September 1978 and claimed priority from a prior application in Japan dated 19 September 1977.

II. The European patent was opposed in due time and form by the respondent. Revocation of the patent was requested on grounds of lack of novelty and of inventive step. The citations relied upon were :
DE-A-2 644 521
US-A-3 884 572
DE-A-2 607 899
US-A-3 840 744 and
DE-A-2 424 350.

III. By a decision dated 16 January 1984 the Opposition Division revoked the European patent in accordance with Article 102(1) EPC on the ground of lack of inventive step having regard to DE-A-2 644 521, US-A-3 884 572, DE-A-2 607 899 and DE-A-2 424 350.

IV. On 23 March 1984, the appellant lodged the present appeal against this decision with simultaneous payment of the appeal fee. The Statement of Grounds was filed on 25 May 1984. The oral proceedings requested by both parties, held on 13 June 1985 and in which the Board informed the parties that it considered US-A-3 840 744 to be a relevant citation, were adjourned sine die for the purpose of giving a ruling whether an unauthorised person (a trainee patent attorney) accompanying the representative was entitled to present part of the case on behalf of the appellant. In the interlocutory decision dated 21 June 1985 the Board held that an unqualified and unauthorised person who is not

entitled to represent a party in accordance with the provisions of Articles 133 or 134 EPC, may not present part of the case of a party in oral proceedings even under the direct supervision of that party's authorised representative (cf. OJ 9/1985, 269).

V. During the resumed oral proceedings held on 3 October 1985, the appellant's representative requested that the decision under appeal be set aside and that the patent be maintained as granted (main request). As an auxiliary request he requested that the patent be maintained on the basis of the combination of Claims 1 and 2. He further requested that the respondent's application for costs be rejected.

Claims 1 and 2 as granted read as follows :

1. A method for removing residual toner from the surface of the photoconductive member of an electrostatic copying apparatus of the transfer type in which images of polarizable magnetic toner are electrostatically formed on the surface of the photoconductive member and thereafter transferred onto copy paper comprising the steps of charging the toner remaining on the surface of the photoconductive member after the transfer of a toner image, uniformly exposing the surface of the photoconductive member simultaneously with or after the charging step and thereafter removing the residual toner from the surface of the photoconductive member by a magnetic attraction, characterized in that the toner (20) remaining on the surface of the photoconductive member (4) after the transfer of a toner image is charged with the same polarity as the charge for sensitizing the surface of the photoconductive member prior to its image-wise exposure.

2. A method as defined in Claim 1, wherein the residual toner (2) is removed from the surface of the photoconductive member (4) by brushing the surface with a magnetic brush (21) magnetically formed of the toner.

The appellant submitted during the procedure and the resumed oral proceedings substantially the following arguments :

An essential feature of the invention was the use of a polarizable magnetic toner, whereas in the method according to US-A-3 884 572 an unpolarizable nonmagnetic toner was used. This difference was of great importance. Charging the residual toner in the invention aimed at reducing the electrostatic force between the residual toner and the surface of the photoconductive member. On the other hand, the teaching of US-A-3 884 572 was intended to enhance the electrostatic force between the residual toner and the wiper roller by means of a neutralization of the free charge. Such a neutralization of charge could not be achieved when a polarizable toner is used. Therefore the teachings of the US-A-3 884 572 and the other references cited by the Opposition Division did not lead towards the invention but directly led away from the invention since they did not indicate that there might be an important interdependency between the different charges.

As to the auxiliary request, the appellant's representative pointed out that the additional feature of removing the residual toner by means of a magnetic brush having lowered the electrostatic attraction force was not obvious for a person skilled in the art. Conventional wisdom suggested that a charging of the residual toner with the same polarity as the charge for sensitizing the photoconductive member would create unwanted charge images by a transfer of toner from the brush to the surface of the photoconductive member.

As to the respondent's application for costs, the appellant argued that it was the first time that an unauthorized person had not been allowed to present part of a case to a Board of Appeal. The Board had the opportunity to continue the oral proceedings and to receive the submissions of the respondent. Therefore, there were no special circumstances such as improper behaviour which might make it equitable (Article 104(1) EPC) to award costs against the appellant.

VI. The respondent argued substantially as follows :
The claimed method was the result of simple considerations based on well-known fundamental electrostatic laws. The submissions of the appellant on the polarization of the used toner were irrelevant since every kind of toner was more or less polarizable. Furthermore, the claimed polarity of the charge of the remaining toner was known from US-A-3 840 744, col. 2, lines 53-57, where a triboelectrically charged toner was used. There were no reasons why the teaching of US-A-3 840 744 should not be applicable in conjunction with a polarizable magnetic toner.

The Board and the respondent had been prepared to deal with the case in the oral proceedings arranged on 13 June 1985. The authorized representative of the appellant who attended those proceedings had not been prepared to do so. He had intended to leave the detailed viva voce presentation of the appellant's case to another unqualified and unauthorized person. For this reason, the oral proceedings were adjourned sine die for the purpose of giving a ruling on the matter. Therefore, it was just that the costs incurred by the respondent in respect of the oral proceedings held on 13 June 1985 should be refunded by the appellant.

The respondent's representative requested that the appeal be dismissed. He further requested the costs incurred by the respondent in the oral proceedings held on 13 June 1985 should be paid by the appellant.

Reasons for the Decision

1. The appeal complies with Articles 106 - 108 and Rule 64 EPC. It is therefore admissible.

2. The subject-matter of the current version of Claim 1 according to the main and auxiliary request does not extend beyond the content of the application as filed. The requirements of Article 123(2) EPC are therefore met. Claim 1 according to the auxiliary request is a combination of the granted Claims 1 and 2. Therefore, this claim does not extend the protection conferred and thus conforms with the requirements of Article 123(3) EPC.

3. After a thorough examination of the documents relied on by the respondent in this appeal and in the foregoing opposition proceedings and those cited in the European search report the Board is satisfied that the method of removing residual toner from the surface of a photo-conductive member for use in electrostatic copying apparatus of the transfer type claimed in Claim 1 is novel. As the respondent has not alleged lack of novelty the Board finds it unnecessary to consider the matter further.

4. Now the question to be examined is whether the subject-matter of the respective Claims involves an inventive step.

4.1 Concerning the main request :

4.1.1 The preamble of Claim 1 is based on the method of removing residual polarizable magnetic toner from the surface of the photoconductive member of an electrostatic copying apparatus of the transfer type as described in DE-A-2 644 521, see Fig. 1, p. 6 (typewritten numbering) to p. 11, according to which however after transfer of the toner image a corona charge is applied of opposite polarity to that used for sensitizing the photoconductive member, see p. 9, lines 9-12, p. 10, lines 19-21, or in the form of an alternating field, see p. 15, lines 14-18. Therefore, the claimed method differs from that described in DE-A-2 644 521 in the polarity of the cleaning corona charger (characterising feature of Claim 1).

4.1.2 According to col. 1, lines 49-57 of European patent specification 1 413, the object of the invention is to provide a method of cleaning the surface of a photoconductive member in electrostatic copying apparatus of the transfer type in which a polarizable magnetic toner is used as a developer, the method being adapted to easily and reliably remove residual toner from the photoconductive surface after the transfer of toner images onto copy paper. This problem which is known from DE-A-2 644 521, see p. 3, para. 3, and DE-A-2 424 350, see p. 6, is solved by the characterising feature of Claim 1.

4.1.3 The claimed method like that described in DE-A-2 644 521 is based on reducing the electrostatic attraction force between residual toner and the surface of the photoconductive member. Assuming that the photoconductive layer (22) is negatively charged then, according to the teaching of Claim 1, a negative charge is deposited on the polarized residual toner particles (20) by the cleaning corona charger (7). This charge in cooperation with the sensitizing charge of the same polarity produces a repelling force acting upon the toner particles : cf. in the patent specification in suit, Figs. 2 and 3, and col. 4, lines 15-57.

4.1.4 A method of removing residual toner, which differs from that claimed only in that, instead of a polarizable magnetic toner, a triboelectrically charged toner is used, is disclosed in US-A-3 840 744, see Fig. 1, col. 2, lines 14-64. In col. 2, lines 53-57, it is indicated that in the cleaning corona station (19) the surface (12) of the photoconductive member is "uniformly subjected to charges of a sign opposite to the sign of the charge on the toner particles (24)". This means that in compliance with the characterising feature of Claim 1 of the patent-in-suit the remaining toner is charged with the same polarity as the charge for sensitizing the surface (12) of the photoconductive member, since the polarity of the charge of the toner must be opposite to that of the surface (12). Even if in US-A-3 840 744 the physical phenomena occurring in the cleaning station (19) are not described in detail, it is clear for a person skilled in the art, from common sense considerations based on well known fundamental laws of electrostatics, that the charge applied by the cleaning corona (19) reduces the adhesive force between residual toner and the surface (12) of the photoconductive member, as in the present case.

In these circumstances, the operation of the cleaning station described in DE-A-2 644 521 employing a polarity known from US-A-3 840 744, which results in a method comprising all the features of Claim 1, is to be regarded as an obvious step for a person skilled in the art. There are no difficulties or obstacles which would prevent a practitioner from taking this step. In particular, the use of a polarizable toner is no problem, since for the deposition of the additional charge on the residual toner particles by the cleaning corona it is insignificant whether the particles adhere to the surface of the photoconductive member by means of a triboelectric charge on the particles (US-A-3 840 744) or a polarization effect (DE-A-2 644 521 and claimed method). Furthermore, every kind of toner is more or less polarized by the sensitizing charge on the photoconductive member, as the respondent has correctly pointed out. Finally, the cleaning method disclosed in DE-A-2 644 521, in which a cleaning charge of the opposite polarity is used, does not lead away from the claimed method. This known method is also based on a reduction of the electrostatic force between the residual toner and the photoconductive member, but in this case the charge of the member is neutralized by the cleaning corona which requires a polarity of the cleaning charge opposite to that of the sensitizing charge, see Claim 1, feature (b), p. 2, last paragraph, p. 3, 4 and 10, lines 19-21. This document only discloses one possibility for reducing the electrostatic attraction, namely modification of the charge of the photoconductive member, but does not deter a person skilled in the art from using the other method of reducing the attractive force, that is, modification of the charge of the toner, which can readily be deduced from US-A-3 840 744. Which may be the more effective

method depends also on the electric properties of the toner and the photoconductive layer, e.g. the electric conductivity and the electrical performance of the corona charger.

4.1.5 Thus the method of removing residual toner according to Claim 1 must be considered as the result of simple considerations based on well known electrostatic principles and falling within the scope of the normal non-inventive activity of a person skilled in the art (Article 56 EPC). Claim 1 therefore, cannot be allowed under Article 52(1) EPC.

4.2 Concerning the subsidiary request :

In the cleaning method known from DE-A-2 644 521 and forming the preamble of the granted Claim 1 the residual toner is also removed from the surface of the photo-conductive member by brushing the surface with a magnetic brush magnetically formed of the toner, see Fig. 1, reference number 32, and p. 13, second paragraph. Thus, this feature is part of the prior art and should be considered as contained in the preamble of Claim 1. The arguments set out above in paragraph 4.1 also apply to this claim in full. Claim 1 according to the auxiliary request is therefore not allowable.

5. The other claims (granted Claims 2 - 5 in the case of the main request; granted Claims 3 - 5 in the case of the auxiliary request) are all dependent on Claim 1. Since Claim 1 of the sets of claims is not allowable, the dependent claims of the sets are not allowable either.

6. The respondent's representative's request that the costs incurred by the respondent in the oral proceedings held on 13 June 1985 should be paid by the appellant is considered

to be justified, for reasons of equity. Neither the respondent nor the Board was made aware of the intentions of the appellant's representative with regard to the presentation of his client's case by an unauthorized and unqualified person until 13 June 1985. Had the appellant's representative notified the Registrar of the Boards of Appeal of his intentions prior to that date of the oral proceedings, the Board could have considered the procedural question in advance and any necessity for adjourning the proceedings could have been avoided. The Board agrees with the respondent that it was clear inter alia that the authorized representative who appeared on behalf of the appellant on 13 June 1985 was not prepared to present the appellant's case in detail himself. It was in fact subsequently presented by a different authorized representative. Adjournment was therefore necessary, in the interests of the appellant, for more than one reason, and no act or default on the part of the respondent caused or contributed to the need for adjournment. In these circumstances, the appellant must pay the respondent's costs incurred in the oral proceedings held on 13 June 1985.

ORDER

For these reasons it is decided that :

1. The appeal is dismissed.

2. The costs incurred by the respondent (opponent) in the oral proceedings held on 13 June 1985 shall be paid by the appellant (patentee).

The Registrar : The Chairman :

J. Rückerl O. Huber