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D E C I S I O N
of 15 April 1994

Case Number: T 0365/92 - 3.5.2

Application Number: 83109901.5

Publication Number: 0131067

IPC: H01B 1/22

Language of the proceedings: EN

Title of invention:

Conductive synthetic resin molding material

Patentee:

Toshiba Chemical Corporation

Opponent:

Bayer AG, Leverkusen Konzernverwaltung RP Patente Konzern

Headword:

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Relevant legal norms:

EPC Art. 54(1)

Keyword:

"Novelty (yes, after amendment)"

"Remittal to Opposition Division for further prosecution"

Decisions cited:

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Catchword:

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Case Number: T 0365/92 - 3.5.2

D E C I S I O N
of the Technical Board of Appeal 3.5.2
of 15 April 1994

Appellant:
(Proprietor of the patent)

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Representative:

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Respondent:
(Opponent)

Bayer AG, Leverkusen
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Patente Konzern
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Representative:

Decision under appeal:

Decision of the Opposition Division of the
European Patent Office dated 13 February 1992
revoking European patent No. 0 131 067 pursuant to
Article 102(1) EPC.

Composition of the Board:

Chairman: R.E. Persson
Members: A.G. Hagenbucher
M.R.J. Villemin

Summary of Facts and Submissions

I. The Appellant contests the decision of the Opposition Division revoking the European patent No. 131 067 on the ground that the subject-matter of Claims 1 and 9 as granted was not novel in view of

D5: DE-A-3 248 658.

The objection during the opposition proceedings as to lack of inventive step based on a combined consideration of D5 and D6 (JP-A-5 159 944; translation D6') was not examined by the Opposition Division.

II. In response to communications of the Board of Appeal, the Appellant filed new Claims 1 to 8 to replace all former claims and a new part of the description instead of page 2, lines 43 to 50 of EP-B-131 067. He indicated that he wanted oral proceedings only if the novelty objection was not overcome by these new claims. He was prepared to accept a remittal to the Opposition Division for further examination as to inventive step.

III. The Respondent contested that the subject-matter of the claimed invention was patentable.

Claims 1 and 8 (which replace granted Claims 1 and 9) now read as follows:

"1. A conductive synthetic resin molding material comprising

- master pellets consisting of a cylindrical synthetic resin layer (1) and at least one bundle (2a) of metal fibers (2) filled inside said synthetic layer (1) in a longitudinal direction thereof, said at least one

bundle of metal fibers having a coating layer (3) of a titanate coupling agent, and
- natural pellets consisting of a synthetic resin.

8. A method of continuously forming master pellets according to Claim 1, comprising the steps of
- precoating a bundle of metal fibers (2) with a titanate coupling agent (11)
- passing said precoated bundle of metal fibers (2) through an extruder (12) for coating a synthetic resin layer around said bundle
- separately pressing said bundle coated with the resin for shaping the master pellets into a squeezed or flattened form and
- cutting the pressed bundle."

Claims 2 to 7 are appended to Claim 1.

Reasons for the Decision

1. The appeal is admissible.
2. Claim 1 has now been restricted by incorporating the features of Claim 2 of the patent. In view of granted Claim 4 it is clear that the word "bundle" in Claim 1 of the patent has to be interpreted in the sense of either a "bundle of metal fibers" or a "bundle of smaller bundles of metal fibers". Hence, neither the introduction of the feature "at least one bundle" in new Claim 1 nor the reference of new Claims 4 to 7 to new Claim 1 conflict with Article 123(3) EPC. The provisions of Article 123(2) and (3) EPC are satisfied.

3. *Novelty*

Document D5 relates to plastic articles containing electrically conductive fibres and discloses in particular a conductive synthetic moulding material based on master pellets (or grains) of a synthetic material containing metal fibres mixed with natural pellets of the same material (page 17).

According to Claim 31, feature (a) and page 18, line 7 of D5 the metal fibres are arranged to a large extent in parallel in one article (master pellet). According to Example 1 (page 23) of D5, an essentially round and untwisted bundle of metal fibres is impregnated by passage through a solution prepared by dissolving a low molecular weight polyester in trichloroethylene. Then the bundle is pulled out of the solution through a striping orifice, dried and sheath-coated with the same polyester in a wire-covering extruder having a round die opening. Afterwards the moulding material is cut into grains of a certain length whereby bending over or flattening of the ends of the fibres is avoided. These grains are then dry mixed with conventional pure synthetic thermoplastic pellets or granulate, prior to being extruded into a round thread. D5 does not disclose coating of the bundle of metal fibres of Example 1 obtained prior to be extruded into a round thread by means of a titanate coupling agent. The coating layer of a titanate coupling agent according to the present invention prevents the penetration of the cylindrical synthetic resin layer material into any spaces between the strands of the at least one bundle of metal fibres during extrusion coating. Examples 2 and 3 of the patent show that such material has good mechanical properties, a good shielding effect and otherwise good electrical properties.

According to D5 each strand of a bundle is embedded in a synthetic resin material, i.e. all spaces among said bundle are filled by said synthetic resin material because the wires are pulled out of the solution through an orifice in a subsequent step. When the wires are pulled through the orifice, polyester films on the outer surfaces of the wires are bonded to each other to form a cord consisting of bundled wires. Then the cord is coated with the same polyester through an extruder. Example 1 described on page 5, lines 15 to 22 and Controls 1 and 2 shown in Table 2 as Examples 1 and 2 of the present patent, show that such treatment without a titanate coupling agent has worse mechanical and electrical properties - including shielding effect - than the Examples 2 and 3 with a titanate coupling agent.

Since Claims 1 and 8 require precoating a bundle of metal fibres with a titanate coupling agent, the subject-matter is novel over the prior art shown in D5. The moulding materials of the dependent Claims 2 to 7 concern particular embodiments of the material defined in Claim 1 and are, therefore, also novel.

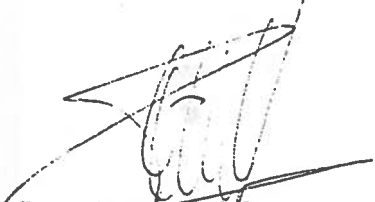
4. Thus, the novelty objection, on which the decision of the Opposition Division was based, has been overcome. It remains, however, to be considered whether the subject-matter covered by the new claims involves an inventive step. As appears from paragraph I above, the question of inventive step of the claimed invention was not dealt with at all by the Opposition Division. In order not to prevent the Appellant from the possibility of having this matter considered by two instances, the Board finds it appropriate to make use of its power under Article 111(1) EPC to remit the case to the first instance for further prosecution.

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 for further prosecution on the basis of new Claims 1 to 8 and the description as now amended.

The Registrar:



M. Kiehl

The Chairman:



E. Persson