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Datasheet for the decision of 3 November 2016

Case Number: T 0351/13 - 3.2.06

Application Number: 05739043.7

Publication Number: 1769107

IPC: D01D5/04, D02G1/12

Language of the proceedings: EN

Title of invention:
CELLULOSE ACETATE TOW AND METHOD OF MAKING SAME

Patent Proprietor:
Celanese Acetate LLC

Opponent:
Solvay Acetow GmbH

Headword:

Relevant legal provisions:
EPC 1973 Art. 56

Keyword:
Inventive step - (yes)

Decisions cited:

Catchword:

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Case Number: T 0351/13 - 3.2.06

D E C I S I O N
of Technical Board of Appeal 3.2.06
of 3 November 2016

Appellant: (Patent Proprietor)	Celanese Acetate LLC 1601 West LBJ Freeway Dallas, TX 75234 (US)
Representative:	Schön, Christoph Dr. Schön, Neymeyr & Partner mbB Bavariaring 26 80336 München (DE)
Respondent: (Opponent)	Solvay Acetow GmbH Engesserstrasse 8 79108 Freiburg (DE)
Representative:	Trinks, Ole Meissner Bolte Patentanwälte Rechtsanwälte Partnerschaft mbB Widenmayerstraße 47 80538 München (DE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 5 December 2012 concerning maintenance of the European Patent No. 1769107 in amended form.**

Composition of the Board:

Chairman	M. Harrison
Members:	M. Hannam
	W. Ungler

Summary of Facts and Submissions

I. An appeal was filed by the appellant (proprietor) against the interlocutory decision of the opposition division in which it found that European patent No. 1 769 107 in an amended form met the requirements of the EPC.

II. The appellant requested that the decision under appeal be set aside and the patent be maintained as granted, in the alternative that it be maintained according to one of auxiliary requests 1 to 3 filed with the grounds of appeal dated 10 April 2013.

III. The respondent (opponent) requested that the appeal be dismissed.

IV. The following documents, referred to by the parties in their submissions, are relevant to the present decision:

D4 US-A-3 120 692
D8 US-A-5 520 601
D17 Carpenter Technical Article - 'A New Guide for Selecting Ferrous Alloys, Tungsten Carbides and Ceramics for Tooling', October 1999, pages 1 to 9.

V. The Board issued a summons to oral proceedings and a subsequent communication containing its provisional opinion, in which it indicated *inter alia* that the subject-matter of claim 1 of the main request appeared to lack an inventive step.

VI. Oral proceedings were held before the Board on 3 November 2016, during which the appellant withdrew its main request and its auxiliary request 1.

The appellant requested that the decision under appeal be set aside and the patent be maintained in the following version:
Description: pages 4, 6 and 7 of the patent specification; pages 2, 3, 5 and 8 as filed during the oral proceedings of 3 November 2016.
Claims: 1 to 3 of auxiliary request 2 as filed with letter dated 10 April 2013.
Figures: drawings 1 to 9 of the patent specification.

The respondent requested that the appeal be dismissed.

VII. Claim 1 of auxiliary request 2, the sole request, reads as follows:
"A process for making a cellulose acetate tow comprising the steps of:
- spinning a dope comprising a solution of cellulose acetate and solvent,
- taking-up the as-spun cellulose acetate filaments,
- lubricating the cellulose acetate filaments,
- forming a tow from the cellulose acetate filaments,
- crimping the tow by means of a stuffer box crimper comprising a pair of nip rollers adapted to engage the tow, one roller being made of a solid ceramic material, a pair of cheek plates juxtaposed to said pair of nip rollers adapted to keep the tow between said pair of nip rollers, a pair of doctor blades adjacent to an exit end of said pair of nip rollers adapted to prevent the tow from sticking to said pair of nip rollers, and a stuffer box having a stuffer channel adjacent said pair of doctor blades adapted to receive the tow into said channel from said pair of nip rollers, and a flapper located at a distal end of said channel adapted to bearingly engage the tow, wherein the stuffer box crimper further comprises said solid ceramic material

being selected from the group consisting of unhipped MgO stabilized zirconia, hipped MgO stabilized zirconia, unhipped yttria stabilized zirconia, or hipped yttria stabilized zirconia,
- drying the crimped tow, and
- baling the dried crimped tow."

VIII. The appellant's arguments may be summarised as follows:

The subject-matter of claim 1 involved an inventive step (Article 56 EPC). Starting from D4, this failed to disclose the specific zirconia ceramics possible in the solid ceramic roller, the drying and the baling of the tow. The objective technical problem relating to the zirconia ceramic rollers was to provide a suitable roller of sufficient wear resistance and increased chip resistance. The drying and baling of the tow did not contribute to the presence of an inventive step. The claimed solution was not obvious to the skilled person. The technical effect of sufficient wear life and increased chip resistance for the claimed zirconia ceramics was given in paras. [0030] and [0031] of the patent. D17 was directed to metal-working applications and also did not indicate chip resistance as an advantage of the disclosed ceramics. As regards D8, this failed to mention chip resistance as a quality of the zirconia rollers disclosed therein and also disclosed rollers of a dimensional tolerance inappropriate for nip rollers of a stuffing box crimper (see col. 2, lines 46 to 48).

IX. The respondent's arguments may be summarised as follows:

Paras. [0030] and [0031] of the patent failed to indicate that all claimed zirconia compounds provided

an improvement in wear and chip resistance over other possible roller materials; solely hipped yttria stabilized zirconia was so indicated. Established jurisprudence held that technical effects in relation to a feature can only support the presence of an inventive step if the effects are actually achieved. This was not the case here, the claimed zirconia ceramics failing to solve the objective problem of providing a roller of sufficient wear resistance and increased chip resistance. The claimed ceramics were also simply an arbitrary selection of possible ceramics, as indicated particularly on page 8 of D17 in relation to zirconia ceramics being highly effective in medium to low impact tooling applications. This document provided a general teaching for the use of ceramics in mechanical applications. D8 also provided a hint to the use of zirconia ceramics (col. 4, lines 14 to 15) which were disclosed as having a long service life. Thus, starting from D4, the subject-matter of claim 1 did not involve an inventive step in view of the teaching in D8 or D17.

Reasons for the Decision

Auxiliary request 2

1. Inventive step (Article 56 EPC 1973)

The subject-matter of claim 1 involves an inventive step over the cited prior art.

1.1 As also accepted by both parties, the Board finds that D4 discloses all features of claim 1 except for:

- one of the pair of nip rollers being made of a solid ceramic material being selected from unhipped MgO stabilized zirconia, hipped MgO stabilized zirconia, unhipped yttria stabilized zirconia, or hipped yttria stabilized zirconia;
- drying the crimped tow; and
- baling the dried crimped tow.

1.2 These three differentiating features do not contribute to a common technical effect, the solid ceramic roller contributing to wear and chip resistance of the roller, the drying and baling of the tow relating to the packaging of the tow. Partial objective technical problems are thus to be formulated on the basis of these differentiating features, namely:
- to provide a suitable roller of sufficient wear resistance and increased chip resistance; and
- to provide an appropriate packaging for the tow.

1.3 Regarding the provision of appropriate packaging for the tow, the solution in claim 1 of drying and baling the tow is commonplace in the art and is thus seen as obvious for the skilled person. In this respect the appellant indicated during the oral proceedings that it did not rely on these features in supporting the presence of an inventive step in the subject-matter of claim 1. The Board thus finds that the features relating to drying and baling the tow do not contribute to the subject-matter of claim 1 involving an inventive step.

1.4 As regards the further partial objective technical problem, formulated by the appellant, of providing a suitable roller of sufficient wear resistance and increased chip resistance, this was not disputed by the respondent. The Board also finds this to be objective

in view of the plausible technical effect of the claimed zirconia ceramics (see paras. [0030] and [0031] of the patent). The technical problem of a reduction in fly previously posed by the appellant with respect to claim 1 of the, now withdrawn, main request, was no longer pursued for the present request.

1.5 Regarding a solution to this partial objective technical problem none of the cited documents provides a hint to the skilled person for how to modify the process known from D4 in order to solve the objective technical problem and reach the claimed subject-matter.

1.6 The respondent's argument that paras. [0030] and [0031] of the patent offered no suggestion that all the claimed zirconia compounds solved the technical problem is not accepted. Both of these paragraphs commence by listing appropriate materials for the upper or lower nip rolls respectively. The listed zirconia ceramics are then indicated as being 'preferred' before the hipped yttria stabilized zirconia is identified as most preferred 'because it exhibits the best wear life and chip resistance'. Whilst it is accepted that these paragraphs, taken purely by themselves, offer no explicit indication that all the listed zirconia ceramics offer improved wear and chip resistance compared to the other metallic materials disclosed, this is however seen as implicitly disclosed to the skilled person in these paragraphs, particularly due to the skilled person's knowledge that wear resistance and chip resistance are both important factors for minimising damage to a transported tow (and thus generally reducing fly). The skilled person would therefore not only read in paras. [0030] and [0031] that hipped yttria stabilized zirconia offers the best wear and chip resistance, but also that the further

listed zirconia ceramics in the paragraphs (which are those claimed in claim 1) would implicitly have these qualities improved relative to the remaining possible roller materials indicated in those paragraphs, even if to a lesser extent than the most preferred hipped yttria stabilized zirconia. As a consequence, the objective problem of increased wear and chip resistance is disclosed as being solved by all four zirconia ceramics included in claim 1 such that these present a purposive selection of materials which solve the problem. In this regard it should be mentioned that an 'increased' wear resistance over the rollers indicated in D4 cannot be ascertained, since the roller material there is unstated and no comparison can be made. However it is evident that a sufficient wear resistance must be obtained. Increased chip resistance is however recognised, as a characteristic of the particular set of ceramics defined in the claim.

1.7 As regards the respondent's argument that D17 provided a hint to the skilled person as to how D4 should be modified in order to reach the claimed subject-matter, this is not persuasive. D17 is directed to applications of ceramics in tooling (see title on page 1) and more specifically is directed to metal-working applications (see first paragraph on page 1). The chapter on page 7 entitled 'Ceramics' discusses drawing, roll forming, extrusion, crimping, cutting, forming and press tool applications. These all lie squarely in the field of metal-working such that the skilled person would not consider this document as providing a more general applicability of the information provided herein, particularly not to transporting of a cellulose acetate tow which requires gentle handling in contrast to metal-working applications. Whilst 'crimping' is mentioned in the list of applications for ceramic

tools, in the context of this document directed to metal-working applications, this cannot be understood as referring to the use of ceramics in crimping of a cellulose acetate tow. The respondent's further contention that D17 would be read by the skilled person as a general guide to the possible application of ceramics in mechanical engineering is also not accepted. The entire tenor of D17 is related to metal-working applications of tooling as is clear from the first paragraph of page 1 through all the discussion of ceramics from page 7 to the end of page 8. The suggestion that the skilled person would thus refer to D17 for hints regarding a suitable wear resistant material for the nip rolls of a stuffer box crimper processing cellulose acetate tow lacks any objective basis.

1.8 It is further noted as regards D17 that this provides no hint to the avoidance of chipping of a ceramic roller such that a hint to a solution to the posed objective problem is not to be found in D17. The skilled person would thus not be guided to finding a solution therein, even if the document were to be considered.

1.9 The respondent's argument that D8 disclosed zirconia ceramics with a long service life is also not persuasive with respect to denying the subject-matter of claim 1 of an inventive step. Whilst improved wear resistance is discussed in col. 4, lines 13 to 16 of D8 in relation to zirconia ceramics, no mention is made of chip resistance. The skilled person, looking for a solution to the objective technical problem of achieving an improvement in chip resistance while obtaining sufficient wear resistance, would thus not expect to find a solution in this document dealing

solely in wear issues. The ceramic rollers disclosed in D8 also exhibit a dimensional tolerance exceeding that acceptable for nip rollers of a stuffing box crimper (see col. 2, lines 46 to 48), this being a further factor dissuading the skilled person from taking the teaching from D8 into account in order to modify the process known from D4 and reach the claimed subject-matter. The issue of unacceptable dimensional tolerance was also not contested by the respondent.

1.10 In summary, when starting from D4 and wishing to solve the objective technical problem of providing a suitable roller of sufficient wear resistance and increased chip resistance, the skilled person would find no hint in D8 or D17 to lead him to the claimed subject-matter without exercising an inventive step. The subject-matter of claim 1 thus involves an inventive step over the cited prior art and the arguments presented by the respondent. The requirement of Article 56 EPC 1973 is therefore fulfilled.

1.11 An adapted description was submitted by the appellant in which *inter alia* the closest prior art, D4, was acknowledged. The respondent raised no objections to the adapted description, nor did the Board see any objections arising therefrom.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the department of first instance with the order to maintain the patent as amended in the following version:

   - Description: pages 4, 6 and 7 of the patent specification; pages 2, 3, 5 and 8 as filed during the oral proceedings of 3 November 2016;

   - Claims: 1 to 3 of auxiliary request 2 as filed with letter dated 10 April 2013;

   - Figures: drawings 1 to 9 of the patent specification.

The Registrar: The Chairman:

M. H. A. Patin M. Harrison

Decision electronically authenticated