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File Number: T 283/89 - 3.2.3

Application No.: 85 103 171.6

Publication No.: 0 199 827

Title of invention: Composition for reinforcing asphaltic roads and reinforced roads using the same

Classification: E01C 11/16

DECISION
of 16 September 1991

Applicant: BAY MILLS LIMITED

Headword:

EPC Article 56

Keyword: "Inventive step (denied)"

Headnote



Case Number : T 283/89 - 3.2.3

D E C I S I O N
of the Technical Board of Appeal 3.2.3
of 16 September 1991

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Decision under appeal : Decision of Examining Division 2.3.03.105 of the
European Patent Office dated 30 November 1988
refusing European patent application
No. 85 103 171.6 pursuant to Article 97(1) EPC.

Composition of the Board :

Chairman : C.T. Wilson
Members : F. Brösamle
J. van Moer

Summary of Facts and Submissions

I. European patent application No. 85 103 171.6, filed on 19 March 1985 and published on 5 November 1986 under publication No. 0 199 827, was refused by a decision of the Examining Division dated 30 November 1988. The decision was based on Claim 1 filed with letter of 3 October 1988 and on Claims 1, 5 and 6 filed with letter of 14 September 1987.

II. The impugned decision is based on

(D1) : DE-A-17 59 133 and

(D2) : US-A-4 440 816.

The impugned decision comes to the conclusion that the independent claims of the application underlying this decision do not contain inventive subject-matter.

III. A notice of appeal against this decision was filed on 19 January 1989, the appeal fee being paid on the same day. In the Statement of Grounds of Appeal the Appellant (Applicant) argues that neither (D1) nor (D2) nor a combination thereof could render the claimed subject-matter obvious.

IV. In a communication pursuant to Article 11(2) RPBA dated 6 June 1991 the Board gave its provisional opinion of the case, referring inter alia to US-A-2 115 667 (D3).

V. With letter of 5 September 1991 the Appellant filed Claims 1 to 4 and gave reasons why these claims were considered to contain inventive subject-matter. Claim 1 thereof reads as follows:

"1. A prefabricated, elongated composite for reinforcing roadways, consisting of a reticular impregnated structure of filament fiberglass strands, characterized in that the structure is a semi-rigid open grid of continuous filament fiberglass strands, the grid having a weight of glass between 135 g/m² and 610 g/m² and having crosswise and lengthwise strands, said crosswise and lengthwise strands forming rectangular or square openings of 0.32 cm to 15 cm on a side and are fixedly connected before impregnation at their intersections, the open grid further being impregnated with an asphaltic resin, compatible with tack coat that can bond a roadway to be reinforced with a layer of asphaltic mixture and dried maintaining the openings in the grid such that a semi-rigid, open grid of asphaltic resin impregnated fiberglass, which can be rolled up and is resistant to displacement during installation is created."

VI. The oral proceedings before the Board held on 16 September 1991 were based on the above-mentioned Claims 1 to 4.

The Appellant essentially pointed to the grid openings, to the glass weight of the grids and to the words "semi-rigid" of Claim 1, which features of Claim 1 would lead to a composite which, in use, would be resistant to displacement during installation of the grid.

The Board held that "semi-rigid" would be comprised by (D1) and that (D1) would also give hints in the direction of choosing the claimed grid-openings and weight of the grid per m², so that no inventive step could be seen in the combination of features as defined by Claim 1.

After deliberation, the Board announced its decision to dismiss the appeal.

Reasons for the Decision

1. The appeal complies with Articles 106 to 108 EPC and Rule 64 EPC and is admissible.
2. Article 123(2):
 - 2.1 Claim 1 combines the features of originally filed Claim 1, page 4, lines 9 to 12 (grid weight), page 3, lines 34 to 37 (crosswise and lengthwise strands), page 4, line 21 (grid production before impregnation), page 4, lines 21 to 23 (asphaltic resin compatible with tack coat), page 4, paragraph 1 (overlayment bonded to underlying layer), ~~page 4, lines 25/26 (drying thereby maintaining the openings of the grid)~~ and page 5, paragraphs 2 and 3 (semi-rigid grid, that can be rolled up and is resistant against displacement during installation).
 - 2.2 Claim 2 is based on originally filed page 5, lines 8 and 9, Claim 3 on originally filed page 4, line 18 and Claim 4 on originally filed page 4, line 15.
 - 2.3 As a result of the foregoing, Claims 1 to 4 are not open to an objection under Article 123(2) EPC.
3. Starting point and object of the invention, solution of the object:
 - 3.1 Without any doubt (D1) is the nearest prior art document to be considered. In this document a prefabricated, elongated composite for reinforcing roadways with all the features set out in the pre-characterising clause of Claim 1 is known, which composite is semi-rigid and of continuous filament fibreglass strands having crosswise

and lengthwise strands forming rectangular or square openings in a specific range, the strands being fixedly connected before impregnation at their intersections, whereby the composite is impregnated with an asphaltic resin and dried maintaining the openings of the composite such that a semi-rigid resin impregnated fibreglass is created, which can be rolled up and is resistant to displacement during installation.

3.2 In the Board's opinion Claim 1 does not reflect all known features in its pre-characterising clause, Rule 29(1)(a) EPC.

3.3 Starting from a known composite according to (D1) the "invention" aims at providing a cheap composite which can easily be placed on an underlayment without the creation of wrinkles etc.

3.4 This "object of the invention" is solved with all the features of Claim 1, whereby the characterising features - if Claim 1 were cast in a correct two-part form in the meaning of Rule 29(1)(b) EPC - which distinguish the subject-matter of Claim 1 from the teaching of (D1) would be:

- (a) the composite is a grid having a weight of glass between 135 and 610 g/cm²,
- (b) the openings on a side of the grid lie between 0.32 to 15 cm, and
- (c) a tack coat is used to bond the grid to a roadway whereby the tack coat is compatible with the impregnation of the grid.

4. Novelty

As a consequence of the above considerations, Claim 1 defines novel subject-matter. Since novelty was and is not under discussion, this issue does not need further arguments. The crucial question is therefore the question of inventive step.

5. Inventive step

5.1 Claim 1 is a product claim ("prefabricated, elongated composite") so that its features should be structural features to define the claimed product. This principle was, however, not followed when Claim 1 was cast, since it contains features defining a method, such as connecting, impregnating, drying, rolling up, installing the grid ..., which should not be contained in a product claim, Article 84 EPC.

It is moreover doubtful whether or not from the product it can be seen whether the connecting is carried out before impregnation or not, so that Claim 1 is again open to an objection under Article 84 EPC. This is also the case for the feature of Claim 1 defining a tack coat as a bonding agent for the composite, since bonding the composite to an underlayment per se has nothing to do with the definition of the grid.

The term "for reinforcing roadways" of lines 1/2 of Claim 1 has to be interpreted as "suitable for" and does not limit the scope of Claim 1 beyond this. The functional term at the end of the independent claim "such that ... is resistant to" is also not appropriate to define the composite as such, since the resistance to displacement, in use of the composite, is not only a question of the composite as such, but also a question of

the tack coat; the tack coat is, as stated above, not a feature defining the composite per se.

Summarising, the Board is of the opinion that Claim 1 is already open to objections apart from the requirements of Article 56 EPC; this opinion was clearly set out during the oral proceedings before the Board. Since the Board at that time was not convinced that Claim 1 defines inventive subject-matter this Claim 1 was dealt with as it was.

5.2 Returning to the aspect of inventive step Claim 1 has to be seen in the light of its structural features and especially in the light of its features distinguishing the claimed composite from the known composite according to (D1), see above remark 3.4.

5.3 The tack coat is per se known from (D3), see reference signs "3" and "4" in Figures 1 and 2 and column 2, lines 33/34 and lines 59 to 61.

Using a tack coat on the roadway to be reinforced makes necessary to apply a coating on the grid-strands which is compatible with the tack coat, so that it is quite logical for a skilled person to impregnate the open grid with a resin which is of an asphaltic type to get a good bonding. To use resins of this type in reinforcement composites used in processes to reinforce roadways is well known from (D2).

This document has been dealt with in detail in the impugned decision under II.6.2 and II.6.3 so that reference is made to these parts of the impugned decision.

5.4 The tack coat and its related effect (resistance of the composite against displacement on the underlayment) can therefore not contribute to the inventiveness of the

composite claimed in Claim 1, so that it has to be decided whether the features (a) and (b) according to the above remark 3.4 can make the composite inventive in the meaning of Article 56 EPC.

5.5 From (D1), see particularly page 5, paragraph 2, it is known that the term "Netze" has to be understood in a broad sense and that the glass fibres can be bundled or twisted and that strands can be used, whereby it is possible to knot, to twist or to fix the filaments on their intersections only by the impregnation. In page 2, last paragraph of (D1) it is pointed out that impregnated mats of glass fibres are known; there can be no doubt that the term "Glasfasermatten" of (D1) covers also the claimed "grid" i.e. a structure comprising crosswise and lengthwise strands. Seen as a whole, (D1) as the nearest prior art document already contains hints towards a composite in the form of a grid and this without inadmissible hindsight of (D1), since it is absolutely not necessary to know the application in suit to come to that conclusion.

5.6 It is obvious that a grid can either be defined by its glass weight per m^2 or the diameter of the glass fibres and by the definition of the openings of the grid. With the parameters glass weight of 135 to 610 g/m^2 and an opening on a side of the grid of 0.32 to 15 cm according to the characterising clause of Claim 1 nothing else than "Maschenweite" and "Stärke", see page 3, lines 8 to 10 and page 5, lines 7 to 9 of (D1) is to be understood, whereby in (D1) it is literally expressed that these parameters can be suitably adjusted to the requirements. Concerning the grid opening in (D1) a range of 1 to 50 cm is taught, see page 5, line 7 thereof.

5.7 The claimed values for the grid openings are thus nearly completely comprised by the range disclosed in (D1).

Concerning the weight per m² claimed in Claim 1 it is immediately clear that in this respect only the principles taught in (D1) had to be followed for obtaining the most appropriate fibre diameter in every specific case.

- 5.8 Features (a) and (b) according to above remark 3.4 do not achieve any effect other than that disclosed in (D1), see page 3, lines 4 to 6 and lines 10 to 12 and also page 5, lines 18 to 21, i.e. that the glass fibres are embedded by the overlayment and that the overlayment is bonded to the underlayment by penetrating the grid openings.
- 5.9 In view of the above considerations the Board comes to the conclusion that features (a) to (c) according to above remark 3.4 cannot render the known composite inventive in the meaning of Article 56 EPC.
- 5.10 The Appellant argued for the existence of surprising unexpected effects in combination with the composite defined in Claim 1.

The Board cannot see, however, any surprising or unexpected effect for the following reasons:

- 5.11 "Semi-rigid" of Claim 1 has to be seen in the light of the originally filed application, see page 2, last two lines and page 3, first five lines as well as page 5, lines 8/9. It is there stated that a "rigid" grid cannot be continuously unrolled, respectively that a "semi-rigid" grid can be rolled-up on a core. "Semi-rigid" has to be seen therefore as a grid which can be rolled-up and can be unrolled in use and should not be interpreted in a more limited way.

For example, the Board can find no support for interpreting "semi-rigid" as having anything to do with the property of the grid to avoid displacement on the underlayment when in use.

That impregnated composites can be rolled-up and can be unrolled is, however, known from (D1). It is therefore justified to suppose that the known composite is also "semi-rigid", as done in above remark 3.1 (Rule 29(1)(a) EPC).

- 5.12 From page 2, paragraph 3 of (D1) it can be seen that the net is produced first and that it is impregnated afterwards, so that any properties of the net linked to its impregnation are already comprised by the nearest prior art so that the argument of the Appellant that this method step of Claim 1 ("firstly connected before impregnation at their intersections") largely contributes to the capability of the grid to withstand, in use, displacements of the grid on the underlayment has to be rejected, since it is comprised already by the known composite.
- 5.13 The Appellant has pointed to a combinatory effect and to the fact that the claimed features would constitute a "glücklicher Griff" i.e. a stroke of luck. In this context it has, however, to be observed that -apart from the tack coat - the nearest prior art document (D1) itself pushes the reader to the importance of the size of the openings of the composite respectively to the fibre diameter i.e. glass weight per m². The skilled person when confronted with the problem to be solved when starting from (D1) was therefore faced with a one-way situation in which only the circumstances of the specific case had to be studied and the line given in (D1) to be followed by choosing the most appropriate grid-parameters for that specific case ("trial and error").

- 5.14 Summarising, the Board comes to the conclusion that Claim 1 is not based on an inventive step in the meaning of Article 56 EPC so that this claim is not allowable.
- 5.15 The appendant claims fall with the non-allowable independent claim.
- 6. The arguments of the Appellant brought forward before filing Claims 1 to 4 dated 5 September 1991 were linked to other claims so that no detailed discussion of these arguments is necessary at this stage.

Order

For these reasons, it is decided that:

The appeal is dismissed.

The Registrar:



N. Maslin

The Chairman:



C.T. Wilson



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