

Internal distribution code:

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

D E C I S I O N
of 11 November 2002

Case Number: T 0972/99 - 3.2.5

Application Number: 92913714.9

Publication Number: 0587781

IPC: B29C 33/00

Language of the proceedings: EN

Title of invention:

Method and apparatus for making grids from fibers

Applicant:

THE UNITED STATES OF AMERICA as represented by the Secretary
United States Department of Commerce

Opponent:

-

Headword:

-

Relevant legal provisions:

EPC Art. 56

Keyword:

"Inventive step (yes)"

Decisions cited:

-

Catchword:

-



Case Number: T 0972/99 - 3.2.5

D E C I S I O N
of the Technical Board of Appeal 3.2.5
of 11 November 2002

Appellant:

THE UNITED STATES OF AMERICA
as represented by the Secretary United States
Department of Commerce
National Technical Information Service,
Office of Government Inventions and Patents.

5285 Port Royal Road
Springfield,
Virginia 22161 (US)

Representative:

Carpenter, David
MARKS & CLERK
Alpha Tower,
Suffolk Street Queensway
Birmingham B1 1TT (GB)

Decision under appeal:

**Decision of the Examining Division of the
European Patent Office posted 20 May 1999
refusing European patent application
No. 92 913 714.9 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: W. Moser
Members: P. E. Michel
W. Widmeier

Summary of Facts and Submissions

- I. The appellant (applicant) lodged an appeal against the decision of the Examining Division refusing European patent application No. 92 913 714.9.
- II. In the decision under appeal, it was held that the subject-matter of claim 1 lacks an inventive step.
- III. Claim 1 as filed on 4 July 1997, on which the decision of the Examining Division was based, reads as follows:

"1. A method of making an open cell fiber grid (16) having a plurality of integrally-molded bars (28) defining a plurality of open cells having axes aligned perpendicular to the plane of said grid, wherein the heights of said bars measured parallel to the axes of said cells define the thickness of said grid, comprising the steps of:

- providing a design specific porous carrier (18) with a surface which defines the plane of said grid;
- providing a plurality of elastomeric pads (20) located on said carrier (18);
- providing a carrier fluid containing the fiber to be used in forming the grid;
- forming a mat of fibers between but not overlying said pads including depositing fibers in the spaces between said pads (20) by applying said carrier fluid to at least partially fill only the spaces between said pads (20) with fiber, said carrier fluid exiting through the deposited fibers and through said carrier; and
- consolidating said deposited mat of fibers in directions both normal and parallel to the surface

of said carrier (18) to compress the bars (28) of said grid in both their thickness and height directions by applying pressure in a direction normal to said carrier (18) on said pads (20) on the ends thereof remote from said carrier to cause said pads to expand parallel to said carrier under conditions sufficient to impart substantially straight sides and substantially uniform thickness to at least the intermediate portion of said bars of said grid."

- IV. The arguments of the Examining Division may be summarised briefly as follows:

US-A-4702870 (D1) is the closest prior art. The subject-matter of claim 1 differs from the disclosure of this document insofar as the object to be made is an open cell grid rather than a panel having a substantially flat side and having webs extending from the opposite side. The object of the invention is to produce an open cell grid. It is thus obvious to omit the covering sheet of the product of document D1, leaving the webs which then form an open cell grid.

- V. The appellant requests that the decision under appeal be set aside and that the case be remitted to the Examining Division for further prosecution within the meaning of Article 111(1) EPC.

- VI. The appellant argues essentially as follows:

Document D1 discloses an imperforate panel reinforced by integral ribs. Document D1 is thus not the correct starting point for the consideration of the question of inventive step. It would not be expected that a method

similar to that disclosed in document D1 would be suitable for making an open cell grid. The Examining Division erred in considering the article of document D1 as being a grid with a covering sheet.

Reasons for the Decision

1. *Inventive step*

1.1 Closest prior art

The closest prior art is the method illustrated in Figures 1A and 1B of the application and discussed at page 3, lines 16 to 21, and at page 12, line 25 to page 13, line 2, in view of the fact that it relates to a method of making an open cell grid. Starting from a fibrous material, this method requires first the manufacture of paper, forming the paper into strips, glueing the strips of paper together at spaced points and then expanding the structure.

Document D1 cannot be considered to be the closest prior art, since the disclosure of this document does not relate to a method of making an open cell grid. There is, moreover, nothing in the disclosure of document D1 which would suggest to the skilled reader that the method disclosed therein would be suitable for making an open cell grid or could be adapted so as to make an open cell grid. Thus, as stated at column 2, lines 44 to 49, of document D1, "The invention concerns itself with the production of a certain class or definition of three-dimensional objects. These are characterized by having one flat surface and having the opposite surface including three-dimensional features, such as webs and flanges, which extend away from the

plane of the flat side."Insofar as the decision of the Examining Division refers to the article as being a grid with a covering sheet, this is regarded as ex post facto analysis made with the disclosure of the application in mind. As may be seen from Figure 12, and as described at column 6, line 54, the finished article of document D1 is an integral "waffle-like panel".

In the method disclosed in document D1, pressing is carried out in a first pressing step using a moving top mould (14) which exerts a force normal to the flat surface of the object, and in a second pressing step using a moving top mould (14A) which similarly exerts a force normal to the flat surface of the object. Fibrous material which forms the object after moulding is present between the top mould and mould inserts (12) and (12A). Whilst the disclosure of document D1 makes it clear that, by means of the mould inserts (12) and (12A), pressure is not only applied to the object in the direction normal to the flat surface of the object, but also in other directions, it is not suggested that the mould inserts could be in contact with the moving top mould, so that an open cell grid is produced.

1.2 Object of the invention

Starting from the method illustrated in Figures 1A and 1B of the application, the problem facing the person skilled in the art is to provide a simplified method of making an open cell grid from a fibrous material.

1.3 Solution

The method taught in document D1 does not offer a solution to this problem. As stated above in paragraph 1.1, document D1 relates to a method of making a panel having a substantially flat side and having webs or ribs extending from the opposite side.

As shown in Figure 4 of document D1, a mass of fibres and transporting fluid is supplied to a first set of moulds, and pressure is applied to the mass of fibres and transporting fluid by a moving top mould (14), the fluid being squeezed out of the mould through a porous carrier. As shown in Figures 5 to 7 of document D1, the partially formed object is then placed in a second set of moulds, where pressure is again applied to the mass of fibres and transporting fluid by a moving top mould (14A). Figures 9 to 11 show variations of the method, and it is disclosed that the moulding could be carried out in a single stage rather than in two stages.

In the method of the application as defined in claim 1, in order to form an open cell grid, the mat of fibers does not overlies the pads. Pressure is thus exerted on the mass of fibres by applying pressure in a direction normal to the porous carrier (18) on the ends of the pads "remote from said carrier to cause said pads to expand parallel to said carrier under conditions sufficient to impart substantially straight sides and uniform thickness to at least the intermediate portion of said bars of said grid".

It is thus not obvious from the disclosure of document D1 that pressure can be applied to a mat of fibers which does not overlies the pads, so that pressure is exerted by the moving mould part not only

on the fibres but also directly on the pads, and thereby make an open cell grid. It is therefore not obvious that the method of document D1 could be adapted so as to solve the above problem.

In addition, document D1 does not hold out the promise of being able to form a grid having bars whose intermediate portions have "substantially straight sides and substantially uniform thickness". As shown in Figures 5, 8, 11, 12 and 13 of document D1, the reinforcing ribs have curved sides and taper continuously to their free ends.

The subject-matter of claim 1 thus involves an inventive step.

2. It is noted that the question of whether or not the subject-matter of independent apparatus claim 16 involves an inventive step is not considered in the decision under appeal. It is accordingly not appropriate to consider this matter in the present decision. The Board accordingly exercises its discretion under Article 111(1) EPC, and remits the case to the Examining Division for further prosecution.

Order

For these reasons it is decided:

1. The decision under appeal is set aside.
2. The case is remitted to the Examining Division for further prosecution.

The Registrar:

The Chairman:

M. Dainese

W. Moser

