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D E C I S I O N
of 28 November 2000

Case Number: T 0460/96 - 3.3.6

Application Number: 89310678.1

Publication Number: 0367441

IPC: D06N 7/00

Language of the proceedings: EN

Title of invention:
Method for matting

Patentee:
NUFOX DEVELOPMENTS LIMITED, et al

Opponent:
OCS GROUP LIMITED
Walk Off Mats Limited

Headword:
-

Relevant legal provisions:
EPC Art. 56

Keyword:
"Inventive step (no) - obvious simplification of existing device"
"Inventive step (no) - alleged effect not proved"

Decisions cited:
T 0386/89, T 0020/81

Catchword:
-



Case Number: T 0460/96 - 3.3.6

D E C I S I O N
of the Technical Board of Appeal 3.3.6
of 28 November 2000

Appellant:
(Opponent II)

Walk Off Mats Limited
Cherrycourt Way
Leighton Buzzard
Bedfordshire LU7 8UH (GB)

Representative:

Raynor, Simon Mark
Urquhart-Dykes & Lord
Midsummer House
411C Midsummer Boulevard
Central Milton Keynes
Buckinghamshire MK9 3BN (GB)

Other party:
(Opponent I)

OCS GROUP LIMITED
79 Limpsfield Road
Sanderstead
Surrey CR2 9LB (GB)

Representative:

Tribe, Thomas Geoffrey
fJ Cleveland
40-43 Chancery Lane
London WC2A 1JQ (GB)

Respondents:
(Proprietors of the patent)

NUFOX DEVELOPMENTS LIMITED
William Street
Ashton-under-Lyne
Lancashire OL7 0RA (GB)

and

COLLIE CARPETS Limited
Causeway Mill
Express Trading Estate
Stone Hill Road
Farnworth Bolton
Lancashire BL4 9TP (GB)

Representative:

McNeight, David Leslie
McNeight & Lawrence
Regent House
Heaton Lane
Stockport
Cheshire SK4 1BS (GB)

Decision under appeal: Interlocutory decision of the Opposition Division of the European Patent Office posted 22 March 1996 concerning maintenance of European patent No. 0 367 441 in amended form.

Composition of the Board:

Chairman: P. Krasa
Members: L. Li Voti
J. H. P. Willems

Summary of Facts and Submissions

I. The appeal is from the interlocutory decision of the Opposition Division to maintain European patent No. 0367441 in amended form according to a set of three claims, filed at the oral proceedings on 4 March 1996, wherein independent claim 1 reads as follows:

"1. A method for making rubber backed matting comprising placing a rubber sheet/mat assembly between a hot platen and a pressure applying arrangement with the rubber sheet adjacent the fixed hot platen, wherein said pressure applying arrangement comprises a fluid pressure arrangement in the form of an air bag, characterised in that one wall of the air bag, which is supported by a fixed support, constitutes a flexible membrane (13) having a pressure applying condition in which it bears down towards the platen (11) whereby to compress together a rubber sheet/mat assembly (14) and, solely by exhaustion of air from the bag, a retracted condition in which it is raised sufficiently to permit the hot pressed, cured rubber sheet/mat assembly to be removed from between the membrane (13) and platen (11)."

Claims 2 and 3 refer to specific embodiments of the claimed method.

II. Two notices of opposition had been filed, both requesting revocation of the patent for lack of novelty and of an inventive step, based, *inter alia*, on

D0 = US-A-4447201.

III. In its decision, the Opposition Division found that the claimed subject-matter fulfilled the requirements of the EPC for patentability. In particular it held that the claimed process was novel and also involved an inventive step, since it amounted to a non-obvious simplification of the process of the closest prior art.

IV. In its notice of appeal the Appellant (Opponent 02) no longer disputed novelty of the claimed subject-matter, but argued that the claimed subject-matter lacked an inventive step.

The Appellant also requested the introduction into the proceedings of additional documents, such as

Haffner = FR-A-2055755,

since the claims had been amended at the oral proceedings before the first instance by incorporating features disclosed only in the description of the patent in suit.

V. Opponent 01 did not lodge an appeal and is party as of right to these proceedings in accordance with Article 107 EPC, second sentence. It maintained all the objections raised against the patent in suit before the first instance, but it communicated by letter that it would not attend the oral proceedings which took place on 28 November 2000 before the Board.

VI. The Appellant argued orally and in writing in essence

- that the patent application as filed concerned the problem of reducing the curing time in the manufacture of rubber-backed mats (see column 1, lines 13 to 20) and that the use of a fixed frame press was originally not seen to be a particular

advantage with respect to the prior art presses, which were only said to be "somewhat complicated affairs" (column 1, lines 30 to 34);

- that the closest prior art was represented by D0, referring to a method for manufacturing rubber-backed mats by using a pressure-applying arrangement consisting of a movable frame press with a lower fixed heated platen and an upper inflatable diaphragm, wherein the mat was introduced into the press with the rubber sheet adjacent the heated platen;
- that this method of the prior art differed therefore from the subject-matter of claim 1 of the patent in suit only insofar as the top part of the frame, carrying the inflatable membrane, was lifted to permit loading and unloading of the press;
- that the use of fixed frames (fixed daylight) presses for the vulcanisation of rubber products was known prior to October 1988, for example, from Haffner, which also highlighted the advantageous simplicity of such presses;
- that taking document D0 as starting point and considering that the only goal of the patent in suit was not to achieve a qualitatively better product, but only to provide a simpler and cheaper method so far as the required machinery was concerned, it was obvious for a skilled person to simplify the movable frame of document D0 by replacing it by a fixed frame, since fixed frame presses were already known in the art, the

simplicity of such presses was already suggested by Haffner and therefore no other solution - against which no prejudice existed - was possible for the skilled man.

VII. The Respondents (Proprietors) argued in essence

- that document D0 had already provided a simplified press for the preparation of rubber-backed mats and that therefore there was no incentive for a skilled person to try and simplify it further;
- that a fixed frame press as used according to the method claim of the patent in suit was not known in the prior art;
- that Haffner related in this respect to the thermobonding or ironing of fabrics and not to mat-making and was therefore not relevant for the assessment of an inventive step;
- that the Respondents had provided with its invention an efficient and highly cost-effective machine by going against the trend of the art towards more complexity;
- that, moreover, even though the obtained product was qualitatively equal to that obtainable by the process of D0, the claimed method provided an unexpected increase in throughput with respect to the known presses with movable frames.

VIII. The Appellant requested that the decision under appeal be set aside and that the European Patent No. 0 367 441 be revoked. The Respondents requested that the appeal be dismissed and that the patent be maintained.

At the end of the oral proceedings the chairman announced the decision of the Board.

Reasons for the Decision

Articles 123, 84 EPC and Novelty

1. The Board is satisfied that the claims of the patent as maintained in amended form by the opposition division comply with the requirements of Articles 123 and 84 EPC and that the claimed subject-matter is novel. Since neither the amendments to the claims, nor novelty were any longer disputed by the Appellant, there is no need to give detailed reasons for these findings.

Late filed documents

- 2.1 It remains therefore to decide whether the late filed document can be introduced into the procedure under Article 114 EPC and whether the claimed subject-matter involves an inventive step.
- 2.2 In the light of the fact that the claims in their present form have been substantially amended at the oral proceedings of 04 March 1996 by the introduction of the essential feature that the heated platen and the membrane support are fixed, and that Haffner is a document relevant to the present case (see point 3.6 hereinafter), the Board decides to allow the introduction of this document into the proceedings.

Closest prior art

- 3.1 The patent in suit concerns the manufacture of rubber-backed mats, whereby a rubber sheet/mat assembly is placed into a press between a fixed hot platen and an

air bag borne on a fixed support which, by inflation, presses down onto the assembly. The rubber sheet is adjacent to the fixed hot platen. After curing the rubber, the air bag is exhausted in order to permit the removal of the assembly (claim 1 as amended in connection with column 1, lines 35 to 44 of the patent in suit).

A similar method for the manufacture of rubber-backed mats is known from D0.

The Board accepts this citation as the starting point for evaluating inventive step as suggested by the parties. This document refers to a simplified method for making rubber-backed mats by using a pressure-applying arrangement consisting of a movable frame press with a lower fixed heated platen and an upper inflatable diaphragm, which when inflated applies a uniform surface pressure over the whole flat side of the article placed between the pressing plates, wherein the mat is introduced into the press with the rubber sheet adjacent the heated platen.

When the product is moved into the press, the upper beam is lowered to a pre-set daylight opening, the pressure bag is inflated to the preset pressure and maintained in this position for the curing time after that the bag is deflated, e.g. by applying a partial vacuum, the upper platen is raised and the product moved out of the press (see column 1, lines 19 to 57 and column 4, lines 38 to 50).

Therefore, this method of the prior art differed from the subject-matter of claim 1 of the patent in suit only insofar as the top part of the frame, which carries the inflatable membrane, was lifted to permit loading and unloading of the press.

Technical problem

3.2 The advantages of the method of the patent in suit, as reported in the text of the patent, shall consist primarily in a reduction of the cycle time because of the faster softening of the rubber by virtue of its adjacency to the platen (column 1, lines 5 to 15 and column 3, lines 10 to 13); secondarily, the press used in the claimed method is simpler and thus cheaper than conventional presses, since the supports for the air bag and the platen have not to be moved apart for introducing and removing the rubber sheet/mat assembly (see column 1, lines 30 to 34 and column 2, lines 53 to 55).

Whereas the cycle time for the manufacture of the rubber-backed mat consists of the overall time consumed by all the steps of

- placing the rubber-sheet/mat assembly into the press,
- vulcanising the rubber, and
- removal of the rubber sheet/mat assembly from the press,

the parties agreed during oral proceedings that the decisive contribution to the cycle time comes from the vulcanisation step.

The curing times disclosed in D0 are in this respect of the same order of magnitude as those of the patent in suit or even lower:

- the known method of D0 provides, for example, a vulcanization at 180°C within 4 to 5 minutes depending on the chosen rubber (column 4, lines 50

to 58), which curing conditions are comparable with those disclosed in the patent in suit (column 2, lines 33 to 35).

Therefore, D0 already provided a short vulcanization time of the same order of magnitude as that according to the patent in suit.

Consequently, any other possible reduction of the cycle time would have to come from significant time savings in the other process steps.

- 3.3 The Respondents submitted during oral proceedings that the need to lift the upper frame of the press used according to D0 caused necessarily longer cycle times and that the claimed process provided an increased throughput with respect to a process as in D0.

However, the Board cannot accept this argument since with automatic presses using a conveyor belt as suggested in D0, the inflation of the air bag and the lowering of the upper frame as well as the deflation of the air bag and the lifting of the upper frame could be performed simultaneously, thus resulting in only minor time losses, if any (see column 3, line 64 to column 4, line 17; column 4, lines 23 to 50 and column 6, lines 53 to 56).

Moreover, the patent in suit does not mention anywhere this alleged specific advantage and no evidence was submitted by the Respondents in support of this effect.

It is well established jurisprudence of the Boards of Appeal that an alleged effect of a described feature (in the present case the use of a fixed frame press) cannot be taken into account when determining the problem underlying the invention for the purpose of

assessing inventive step, if it cannot be deduced by the skilled person from the application as filed considered in relation to the nearest prior art.

Therefore, a reduction of the cycle time cannot be taken into consideration when defining the technical problem (see T 386/89, point 4.3, not published in the OJ EPO; and, e.g. T 20/81, point 3 of the Reasons for the Decision, OJ EPO 1982, 217).

3.4 The patent in suit points additionally to the fact that with conventional presses the platen and the support for the air bag have to be moved apart to introduce and remove the rubber sheet/mat assembly, which requires a complicated construction of the presses (column 1, lines 30 to 34). This holds also for the presses used according to D0.

Thus, the objective technical problem underlying the claimed invention amounts to the provision of a process making use of a simplified press, which would thus save costs.

The suggested solution as claimed is a process for the manufacture of rubber-backed mats differing from that of D0 only insofar as the top part of the frame, which carries the inflatable membrane, is fixed.

The Board has no reason to doubt that a process as specified in claim 1, i.e. making use of a press as specified here, solves the existing technical problem as defined.

Neither was this contested by the Appellant who confirmed that the use of a press with fixed frames would not have any bearing on the quality of the rubber-backed mats obtained.

Evaluation of inventive step

- 3.5 Striving to reduce the complexity and cost of existing devices is a common endeavour of any skilled person, if this has no detrimental influence on product quality. In the present case, the replacement of the movable frame of D0 with a fixed frame does not bring about a loss in quality of the product as agreed by all parties.

Therefore, it was an obvious desideratum for the skilled person to replace the press of D0 by a more simple one in order to save costs and there was no technical obstacle or prejudice, which would refrain the skilled person from undertaking this step.

- 3.6 Fixed frame presses were already known in the prior art, e.g. by Haffner. This document discloses a press for the thermobonding or ironing of textiles, wherein the pressing element consists of an upper hot platen and a lower pressing plate supporting an inflatable membrane, operable at temperatures of above 200 °C, i.e. at temperatures suitable for a rubber vulcanization process. According to this document the specific press not only provides equal pressure over the whole size of the treated material, but also is more simple than the presses of the prior art, since both pressing elements are fixed and thus no hydraulic or pneumatic system is required for their movement (see page 1, lines 1 to 11 and 21 to 31).

This document, though not dealing explicitly with the rubber-backing of mats, belongs to a very close technical field, that of thermobonding of textiles, which would be taken into consideration by the skilled person when attempting to simplify the movable press of D0.

Therefore, in the light of the teaching of Haffner, the skilled person would have not needed any ingenuity in replacing the movable frame of the press used in D0, which carries the inflatable membrane, with a fixed one as used in Haffner in order to achieve a simplification of the press and thus a reduction of the costs.

This conclusion cannot be refuted by the fact that the figure in Haffner shows that the inflatable membrane is placed on the lower part of the press and the hot plate on its upper part. This arrangement was considered in D0 as an equally valid alternative to a disposition with the air bag supported by the upper part of the frame and the hot platen placed on the lower part of the press (see column 5, lines 30 to 34 and column 6, lines 8 to 15). No evidence is moreover available that the use of the reversed position of the hot platen and of the air bag would bring about any difference in product quality or in cycle time.

During oral proceedings the Respondents maintained that an arrangement with the inflatable air bag positioned on the lower part of the press would create difficulties in loading the rubber sheet/mat assembly into the press. However, at least in an apparatus providing a conveyor belt for feeding the press as in D0 (column 5, lines 14 to 29 and column 6, lines 53 to 56), a solution also covered by claim 1 of the patent in suit and specifically referred to in its description (see Figure 2; column 1, lines 55 to 58 and the paragraph bridging columns 2 and 3), no such problems have to be expected, since any unevenness of the air bag would be compensated for by the conveyor belt. Therefore, no particular effect or advantage can be associated with the particular arrangement of the hot platen and air bag selected in claim 1 of the patent in suit.

It follows that it was obvious for a skilled person to apply the teaching of Haffner to the presses disclosed in D0 and that consequently the subject-matter of claim 1 of the patent in suit does not involve an inventive step.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:

The Chairman:


G. Rauh


P. Krasa