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Bezeichnung der Erfindung: Lost formwork for use when casting concrete floors
Title of invention:
Titre de l'invention :

Klassifikation / Classification / Classement : E04B 5/36, E04G 21/10

ENTSCHEIDUNG / DECISION

vom / of / du 2 August 1990

Anmelder / Applicant / Demandeur :

Patentinhaber / Proprietor of the patent / Titulaire du brevet : VM-Produkter I Skövde AB, and Mariestads Byggprodukter HB

Einsprechender / Opponent / Opposant : Nell GmbH Gleit- und Lagertechnik

Stichwort / Headword / Référence :

EPÜ / EPC / CBE Article 56

Schlagwort / Keyword / Mot clé : "Inventive step (denied)"

Leitsatz / Headnote / Sommaire

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Case Number : T 374/88 - 3.2.2

D E C I S I O N
of the Technical Board of Appeal 3.2.2
of 2 August 1990

Appellant : (Proprietors of the patent)
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Decision under appeal :
Decision of the Opposition Division of the European Patent Office dated 3 June 1988 revoking European patent No. 0 054 026 pursuant to Article 102(1) EPC.

Composition of the Board :

Chairman : G. Szabo
Members : P. Dropmann
L. Mancini

Summary of Facts and Submissions

I. European patent No. 0 054 026 comprising a single claim was granted on 18 January 1984 on the basis of European patent application No. 81 900 546.3 filed on 24 February 1981 as an international application No. PCT/SE81/00051 and published under the international publication No. WO 81/02600.

II. The patent was opposed on the ground of lack of inventive step in the light of the prior art reflected by the documents DE-A-1 684 389, CH-A-545 393, GB-A-480 259, DE-A-2 256 705, pamphlet "PERMABAN" dated 1982, US-A-2 428 562, SE-A-800, SE-A-26 504, SE-A-59 915 and DE-A-2 829 864. The Opponent also argued that a discrepancy existed between the description and the claim and that the prior art had been misleadingly described in the description.

III. By a decision dated 3 June 1988, the Opposition Division revoked the European patent. The reason given for this decision was that the subject-matter of the claim, as granted or proposed, did not involve an inventive step in accordance with Article 56 EPC.

IV. The Appellants (Proprietors of the patent) lodged an appeal against this decision on 28 July 1988, accompanied by the Statement of Grounds. The appeal fee was received on 27 July 1988.

V. In a communication dated 22 January 1990, the Board set out its provisional opinion about formal aspects concerning the single claim subsisting at that time and also pointed out that, even if the claim was amended such that it would no

longer give rise to formal objections, the subject-matter of such an amended claim would not appear to involve an inventive step in view of the teachings in GB-A-480 259 and CH-A-545 393 and the common general knowledge in the art.

VI. In response to this communication, the Appellants contesting the Board's arguments filed with letter dated 22 March 1990 an amended claim which reads as follows:

"A formwork for use when casting concrete floors against a hard base with the aid of surface vibrators for levelling and vibrating the concrete and consisting of rails in the form of longitudinal concrete bodies intended to be left in the final floor, which bodies have a cross-section with such a form that an upper horizontal surface (1) is a slide surface for carrying a vibrator, and a lower surface (2) being placed on a base and is a supporting surface for the formwork against said base, and an interconnecting part in which horizontal holes are provided for dowels or similar connecting devices, characterized in that the lower surface (2) is wider than the said upper surface (1), that the interconnecting part between the upper and lower surfaces (1, 2) consists of a continuous web having two vertical surfaces and being provided with one or more brackets (3) and that said bodies are reinforced for impact resistance using mesh and glass fibres."

VII. The Appellants request that the decision under appeal be set aside and further request by implication that the patent be maintained on the basis of the amended claim.

The Respondent (Opponent) requests that the appeal be dismissed.

Reasons for the Decision

1. The appeal is admissible.

2. **Formal aspects**

No formal objections arise in respect of the subsisting claim. In particular, the claim is admissible under Article 123(2) and (3) EPC and is clear and supported by the description as prescribed by Article 84 EPC, since it now specifies that the longitudinal concrete bodies are reinforced by mesh and glass fibres.

Apart from amendments under Articles 123 and 84 EPC and Rule 29(1) EPC, the subsisting claim corresponds to the claim which was considered by the Board in its communication dated 22 January 1990.

3. **Novelty**

The subject-matter of the claim is novel over the prior art documents mentioned during the proceedings, because none of the documents discloses a formwork comprising all the features specified in the claim. As to the differences between the subject-matter of the claim and the PERMABAN screed rail disclosed in the PERMABAN pamphlet dated 1982 and alleged by the Respondent as having been used before a patent was applied for, reference is made to the statements under point 6.5 below.

4. **Closest state of the art**

It is considered that GB-A-480 259 represents the state of the art document which is closest to the subject-matter of the claim. In fact, this document discloses a formwork which is suitable for use when casting concrete floors

against a hard base with the aid of surface vibrators for levelling and vibrating the concrete (cf. page 4, lines 98-101). The formwork consists of rails (A) in the form of longitudinal concrete bodies intended to be left in the final floor (cf. page 3, lines 39-41). The bodies have a cross-section with such a form that an upper horizontal surface can constitute a slide surface for carrying the vibrator, and a lower surface which is to be placed on the hard base and is a supporting surface for the formwork against the base (cf. Figures 1, 4 and 7). The bodies further comprise an interconnecting part having two vertical surfaces in which interconnecting part horizontal holes (F) are provided suitable for dowels or similar connecting devices (G).

5. **Problem and solution**

Considering document GB-A-480 259 as the starting point for the invention when assessing the inventive step, the objective technical problem to be solved over the closest prior art can be formulated. It is, as pointed out by the Appellants in their Statement of Grounds, to be seen in the provision of a screed rail which fulfils all the requirements set forth particularly by the industry producing large concrete surfaces for inside or outdoor use. This includes the requirement of improving the anchorage of the screed rail on the base as well as the guidance of the vibrating screed on the rail in a reliable manner.

The problem is solved by the features that the lower surface of the longitudinal concrete bodies is wider than the upper surface, that the interconnecting part between the upper and lower surfaces is a web and that mesh and glass fibres are used for reinforcement of the concrete bodies.

The formwork according to the claim differs from the prior art only in these respects. The feature that the web is provided with one or more brackets does not constitute a difference in view of the statement in GB-A-480 259 (cf. page 4, lines 18-23) that the lateral faces of the bodies may be formed with alternate tongues and recesses which tongues are "to form a key between the concrete slab and the preformed members" and can be considered as brackets suitable for the support of reinforcements. The apparent difference in terminology does not impart functional distinctions in this case. Similarly, the term "continuous" characterising the web cannot be considered as being a distinguishing feature, since the web of the claimed formwork is provided with holes and thus is just as continuous as the interconnecting part of the prior art formwork.

6. **Inventive step**

6.1 The primary question to be considered by the Board is whether, as contended by the Respondent, it was obvious to a person skilled in the art and faced with the problem indicated above to modify the formwork as known from GB-A-480 259 so as to arrive at the subject-matter of the claim of the patent in suit. In this respect, the following is observed.

6.2 The use of mesh and glass fibres for reinforcement of the concrete of the longitudinal bodies cannot, in the Board's opinion, be considered as involving an inventive step, since this kind of reinforcement of concrete belongs to the common general knowledge of the person skilled in the art. Thus, the replacement of the metal reinforcement provided in the prior art screed rail (cf. GB-A-480 259, page 4, lines 64 and 65) by other actual reinforcement, which is quite common in the art, does not constitute an inventive

step. It is pointed out in this context that the Appellants themselves have admitted in their Statement of Grounds that the improvement of the reinforcement of the concrete is not the problem to be solved.

6.3 As stated in column 3, lines 15-21 of the specification in suit, the characterising feature of the claim that the lower surface of the longitudinal body is wider than its upper surface serves the purpose of obtaining a sturdy anchorage of the body on the base. Such enlargement of the surface resting on the base is well known in the art as shown by CH-A-545 393. This document discloses a concrete screed rail for producing large concrete floors which rail has a cross-section in the form of an inverted T whose lower surface is wider than the upper surface therefore acting as means for improving anchorage and whose vertical section can have two vertical surfaces (cf. the main claim of this document). The use of this teaching in order to improve the screed rail as known from GB-A-480 259 with otherwise typical rail-like characteristics is obvious.

Moreover, in view of the prior art known from CH-A-545 393, no inventive step can be seen in modifying the T-shaped cross-section merely by enlarging the upper horizontal surface appropriately if there is a need to make the slide face for the vibrating screed sufficiently wide to ensure that the screed is carried in a reliable manner (cf. column 3, lines 11-15 of the specification in suit), thus leading to a cross-section having a web. Such a modification lies well within the realm of a skilled person being familiar with the prior art as cited above.

6.4 It follows from the preceding statements that the modifications of the formwork known from GB-A-480 259 are based on common general knowledge including prior art known from document CH-A-545 393.

Since each of the features serving to solve the problem is obvious, an invention can be seen in the combination of features only if there is a functional interrelationship between the features, i.e. if the features support each other in their effects to such an extent that a new and surprising technical result is achieved.

In the present case, however, the features function in their normal way and do not produce any non-obvious functional interrelationship or synergistic effect. The overall effect of the combined features is merely the sum of the effects of the single features. Thus, the claims are directed solely to a juxtaposition of features and not to a true combination.

6.5 The Appellants argue that the commercial success of the screed rail according to the contested patent indicates the existence of an inventive step. They consider the present product, PERMABAN, brought on the market, as a specific embodiment of the claimed structure in which the brackets have been integrated with the lower part of the rail (cf. letters dated 14 March 1985, 9 April 1987 and 18 December 1989).

However, the Board does not share the Appellants' opinion that the screed rail PERMABAN as depicted in the PERMABAN pamphlet dated 1982 falls within the scope of the present claim for the following reason. The claim specifies that the web is provided with one or more brackets. According to the Appellants' statements in their letter dated 18 December 1989, the term "web" means "something narrower than the surroundings" and "the central section of an I-beam or H-beam that joins the two flanges", in other words, the web is the interconnecting part between two flanges. Hence, the feature of the claim that the web is provided

with brackets means that there are brackets in addition to the flanges. No other interpretation of the disclosure of the original application is possible. Thus, the brackets and the lower flanges cannot be identical or, using the Appellants' words, the brackets cannot be integrated with the lower part of the rail. Moreover, the screed rail PERMABAN does not fall within the scope of the claim, because the PERMABAN rail does not have two vertical surfaces for arrangement of the brackets.

Hence, since the PERMABAN screed rail does not constitute an embodiment of the claimed structure, the commercial success of the PERMABAN screed rail has nothing to do with the claimed invention and, therefore, cannot serve as an indication for the presence of an inventive step.

6.6 The Appellants' argument that, if the present invention had been obvious, the rail would have been produced long before 1980 because GB-A-480 259 had been known since 1937, is not convincing. It has to be borne in mind that document CH-A-545 393, which was the first to indicate a concrete screed rail having a non-rectangular cross-section, was published in 1974, i.e. only six years before the priority date of the contested patent, which period is considered to be normal for technical developments.

6.7 The Appellants are of the opinion that the statement in GB-A-480 259, page 4, lines 18-23, that the lateral faces of the longitudinal bodies may be formed with alternate tongues and recesses, which tongues have been considered by the Board as brackets, refers to the embodiment shown in Figure 2 of said specification. However, this interpretation is not justified since said statement expressly (cf. page 4, line 18) concerns a further modified form, different from the embodiments described on page 3, line 86 to page 4, line 17 and depicted in Figures 1 to 3 and 4 to 6, respectively.

Regarding the Appellants' further argument in their letters dated 27 July 1988 and 22 March 1990 that the tongues and recesses of the embodiments described in the GB specification will give rise to cracking either in the screed rail or in the concrete floor, it is noted that, since the patent in suit just shows a cross-section of the screed guide and is silent as to the shape of the brackets in the longitudinal direction of the guide, these protruding brackets can have a shape leading to the same negative effect as the tongues of the prior art structure. Thus, there is no hint in the direction of any possible inventive step.

7. In view of the preceding statements, the present claim relates to subject-matter which lacks an inventive step and is therefore not allowable under Articles 52(1) and 56 EPC.

Order

For these reasons, it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

N. Maslin G. Szabo

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