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**Datasheet for the decision  
of 24 November 2009**

**Case Number:** T 1971/07 - 3.2.03  
**Application Number:** 04101496.0  
**Publication Number:** 1469141  
**IPC:** E04F 15/08, E04F 13/08,  
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F21V 33/00, F21S 8/02,  
G02B 6/00

**Language of the proceedings:** EN

**Title of invention:**

Tile provided with a lighting element

**Patentee:**

KONINKLIJKE MOSA B.V.

**Opponent:**

INSTA ELEKTRO GmbH  
Lighting Partner B.V.

**Headword:**

-

**Relevant legal provisions:**

EPC Art. 54, 56

**Keyword:**

"Novelty (yes) - a disclosure does not include technical equivalents of features mentioned in document"  
"Inventive step (yes) - selection of appropriate starting point for assessment of inventive step"

**Decisions cited:**

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**Catchword:**

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Case Number: T 1971/07 - 3.2.03

**D E C I S I O N**  
of the Technical Board of Appeal 3.2.03  
of 24 November 2009

**Appellant OI:** INSTA ELEKTRO GmbH  
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**Decision under appeal:** Decision of the Opposition Division of the  
European Patent Office posted 16 October 2007  
rejecting the opposition filed against European  
patent No. 1469141 pursuant to Article 102(2)  
EPC.

**Composition of the Board:**

**Chairman:** U. Krause  
**Members:** G. Ashley  
J.-P. Seitz

## Summary of Facts and Submissions

- I. European patent EP-B1-1 469 141 concerns tiles that are provided with lighting elements, and was granted to Koninklijke Mosa B.V. (the Respondent in this case). Grant of the patent was opposed by Insta Elektro GmbH (Opponent OI) and Lighting Partner B.V. (Opponent OII), both opponents citing lack of novelty and/or inventive step as the grounds of opposition (Article 100(a) EPC). The Opposition Division came to the conclusion that these grounds did not prejudice the maintenance of the patent as granted, and hence decided to reject the opposition.
- II. The above decision, posted on 16 October 2007, was appealed by both Opponent OI (Appellant OI) and Opponent OII (Appellant OII). Notice of appeal was filed by Appellant OI on 4 December 2007 and the appeal fee was paid on the same day; a statement containing the grounds of appeal was received on 15 January 2008. Appellant OII filed its notice of appeal, the grounds of appeal and paid the appeal fee all on 10 December 2007.
- III. Oral proceedings were held on 24 November 2009 and were attended by Appellant OI and the Respondent; although duly summoned, no one was present on behalf of Appellant OII.
- IV. Requests
- Both Appellant OI and Appellant OII requested that the decision be set aside and that the patent be revoked in its entirety.

The Respondent requested that the appeals be dismissed.

V. Claims

Claim 1 of the granted patent reads as follows:

"1. Tile (1,7,13,18,24) fired from clay or made from glass, concrete or natural stone, to be embedded in larger patterns with other tiles (1,7,13,18,24) in a bed of mortar, cement, glue or the like, characterised in that the tile is provided with at least one recess (8,14) arranged in the rear side (3) of the tile (1,7,13,18,24), the tile comprising at least one lighting element (2,9,15,20,25) and energy supply means (4,16,23) connecting onto the lighting element (2,9,15,20,25), that the lighting element (2,9,15,20,25) is placed in the recess (8,14) such that the lighting element (2,9,15,20,25) and the energy supply means (4,23) protrude less than 3.0 mm relative to the rear side (3) of the tile (1,7,13,18,24) wherein the lighting element (2,9,15,20,25) is an electrical lighting source (2,9,15,20,25) and the energy supply means (4,16,23) are electrical wiring adapted to transport electrical energy, the electrical wiring lying on the rear side of the tile."

Independent claim 2 defines the protrusion of the energy supply means as being less than 2.0 mm.

Dependent claims 3 to 13 define preferred embodiments of the tiles of claims 1 and 2.

VI. Prior Art

The following documents, amongst others, were referred to in the contested decision:

D1: Extract from a brochure of Metten Stein+Design  
"Technik Verlegemuster und Einbauanleitungen 2002"  
pages 114 and 115, dated 2002.

D3: DE-A-100 13 496

D4: US-A-5 095 412

D6: WO-A-01/71122

VII. Submissions of the Parties

*Novelty*

(a) Document D1

Appellant OI argued that claim 1 defines both features of a tile and features concerning the use of the tile; all the features of claim 1 relating to the tile *per se* can be derived from D1.

In particular, D1 discloses paving stones or tiles that are laid on a layer of sand. Claim 1 states that the tile is to be embedded "in a bed of mortar, cement, glue or the like". The sand bed of D1 falls within the term "or the like", as the function of the sand is the same as that of the mortar of claim 1, namely to protect the wiring and provide a base for the tiles. In addition, the disputed patent itself refers to paving tiles, and since these are always laid on sand, it must be the intention that the claim includes this type of base material.

Claim 1 requires that the electrical wiring lies on the rear side of the tile, and protrudes less than 3 mm relative to the rear side, and this feature is inherent to the system of D1, which is based on LED lights; such lights are conventionally supplied by thin wiring less 3 mm in thickness.

In addition, the procedure described in D1 merely reflects the standard practice of laying paving tiles on a layer of sand. There is no requirement in D1 that the wiring must be buried down in the sand, particularly as this would pose some practical difficulties; the expression "im Sandbett" as used in the installation procedure in D1 simply indicates that the tiles must be laid within the sanded area rather than somewhere in the depth of the sand layer. Consequently, when the tiles of D1 are laid on the bed of sand, it is inevitable that the electrical wiring would lie within 3.0 mm of the rear side.

Notwithstanding the fact that the connectors shown in the figure of D1 could be positioned in the gaps between the tiles, claim 1 itself does not define any position for the connectors, hence these are not relevant in determining novelty. Irrespective of where the connectors of D1 are placed, the wiring lies on the rear side of the tile as required by claim 1.

The Respondent replied that the tiles of claim 1 are embedded in mortar, cement or glue, which are materials that harden and thereby protect the wiring, hence a material falling within the term "or the like" must be one that hardens. Since the sand bed of D1 does not

have this property, it cannot be considered as being the equivalent of the cited materials.

In fact the wiring of D1 is protected because, as expressly taught in D1, it is embedded within the sand layer; this means that the wiring does not lie within 3.0 mm of the rear side of the tile.

Also, the system of D1 is clearly intended for outdoor use, which implies that more substantial wiring is required rather than the thin gauge suggested by Appellant OI. The reason that thin wiring can be used in the disputed invention is that it is embedded in a hardened, protective layer.

A further indication that the wiring must be at a distance from the rear surface of the tiles is that the installation instructions require that any bend in the wiring must have a radius of at least 5 cm. Since the wires lie horizontally in the sand, they must be spaced further than 3.0 mm from in the rear surface, so that they may be bent into a vertical orientation for connection to the lights.

The presence of connectors beneath the tiles in the figure of D1 is yet another indication that the wiring does not lie within 3.0 mm of the rear surface of the tiles.

(b) Document D3

Appellant OI argued that D3 discloses tiles containing lights, the tiles being made from ceramic, wood, linoleum, plastic and natural or artificial stone. The

tiles are used for floors and walls, and as such, are normally fixed in place using mortar, cement, glue or the like. The energy supply means are arranged in a groove on the rear side of the tile, and hence lie within 3 mm of the rear side of the tile. The energy supply means of D3 is in the form of optical fibres, which is a technical equivalent of the electrical wiring; the skilled person would immediately recognise that the term "electrical wiring" as used in claim 1 would also extend to optical fibres. Consequently, all the features of claim 1 are disclosed in D3.

The Respondent submitted that D3 makes no reference to the material in which the tiles are embedded. That the alleged differences are merely technical equivalents results in the claimed subject-matter being novel.

*Inventive Step*

(a) Document D1

In the event the claimed tile was considered to differ from D1 in that the wiring does not protrude more than 3.0 mm relative to the rear side of the tile, Appellant OI submitted that the claimed subject-matter lacks an inventive step.

The relative position of the wiring with respect to the tile is a consequence of the way it is laid. The skilled person, being a tiler with knowledge of electrical wiring required for the lights, is aware that different laying techniques are used for different situations. If the tiles of D1 are used inside buildings, then they must be glued and it is clear that



the wiring would then be laid on the rear of the tile and embedded in the cement.

The Respondent argued that D1 relates to outdoor pavements, the tiles of which are not suitable for use indoors. In particular, the wiring has to be embedded in sand, the connectors have a thickness greater than 3 mm and the wires have to be bent with a radius greater than 5 cm, all of which indicate to the skilled person that the tiles of D1 are not suitable for fixing to a surface by means of cement as suggested by Appellant OI.

(b) Document D4 combined with either D3 or D6

Appellant OI referred to the problem set out in the introduction to the disputed patent, namely to provide a tile with which a greater variety of lighting effects can be achieved whilst maintaining traditional methods of working. Document D4 discloses wooden floor panels designed to provide a variety of effects and which can be easily laid, ie D4 is concerned with the same problem as the disputed patent and as such provides a starting point for the assessment of inventive step.

Figure 2 of D4 shows the wiring to be encapsulated in resin in channels on the rear side of the tiles, and hence within 3 mm of the rear side. The tile of claim 1 differs from that of D4 only in that it is made from glass, concrete or stone rather than from wood. These materials are well known for tiles containing lights, as is mentioned for example in D3 (paragraph [0001]) and D6 (page 1, first paragraph). Appellant OII, in the written procedure, argued that glass, concrete, stone

and wood are such well known materials for making tiles that novelty is in doubt. Should the claimed subject-matter nevertheless be considered new, then both Appellants submitted that the choice of one material over another cannot be associated with an inventive step.

In reply, the Respondent argued that D4 concerns wooden panels for portable flooring which are required to have different properties compared to the permanent tiling of the disputed patent. D4 therefore does not form a realistic starting point for discussing inventive step. The tiles of D4 are not embedded in an adhesive, and the document silent as to the positioning of the wiring relative to the tile. As the flooring of D4 is to be frequently assembled and dismantled, the wiring has to be rugged, ie it cannot be bent with a tight radius. In addition, the panels of D4 are intended for providing a dance floor, and hence cannot be laid on a hard surface, as the wiring underneath would lead to an unstable floor; it is clear from D4 (column 1, lines 10 to 14) that the panels are to be laid on a soft surface, such as grass or carpets. Consequently, D4 provides no indication that the wiring must be within 3 mm of the rear surface of the tiles.

### **Reasons for the Decision**

1. The appeal is admissible.

2. Novelty (Article 54 EPC)

2.1 Documents D3 and D4

2.1.1 Both Appellants have argued that the claimed subject-matter lacks novelty because *inter alia* a well known equivalent feature is disclosed in the prior art documents. Appellant OI argued that skilled person would easily recognise that the "electrical wiring" of claim 1 is equivalent to the optical fibres of D3, and Appellant OII argued that the wooden tiles of D4 are a well known equivalent for the tile materials listed in claim 1. However, it is well established case law of the boards of appeal (see Case Law of the Boards Appeal, 5th Edition, at I.C.2.5) that a strict approach to the concept of novelty is to be adopted, in which the disclosure of a prior document does not include equivalents of features mentioned in the document. It might well be true that the skilled person would readily understand that, in the sense of the disputed invention, wooden tiles are equivalent to ceramic tiles and that optical fibres are equivalent to electrical wiring, but this a matter that can only be taken into account when considering inventive step.

2.1.2 Consequently, the claimed subject-matter differs from D3 in that the energy supply means is in the form of electrical wiring, and from D4 at least in that the tiles are not made from wood. The claimed subject-matter is thus novel in light of D3 and D4.

2.2 Document D1

2.2.1 Document D1 is an installation guide for the "Luce e Luna Steinlicht-Program", and describes a lighting system for terraces, paths, streets, parking areas and general outdoor use (page 114, first paragraph).

The system comprises lights situated in recesses in tiles, and power is provided by wiring from a transformer plugged into a mains supply. According to the installation instructions (page 115), the components of the system must be securely laid in a bed of sand or fine gravel to prevent damage, and indeed the figure on page 114 shows the tiles to be laid on a bed of gravel ("Split") and the wiring, including the connectors, is embedded within the gravel layer.

2.2.2 Of dispute here is firstly, whether or not D1 discloses a tile to be embedded in a bed of "mortar, cement, glue or the like", and secondly, whether the electrical wiring protrudes less than 3.0 mm from the rear side of the tile.

2.2.3 Considering the first point, the Board agrees with the submission of the Respondent that the approach taken in the disputed patent to protecting the wiring is different from that described in D1.

According to the patent, the wiring is kept close to the rear surface of the tile, so that it is protected by the mortar, cement, glue or the like used to fix the tile to the underlying surface. Such protection is only achieved when the cement hardens; hence the expression "or the like" must refer to materials that are capable

of hardening. Although the patent refers to paving, as pointed out by Appellant OI, this must therefore only be in the context of paving tiles that are held in position by a hardenable material such as cement.

2.2.4 Regarding the second point, as mentioned above, both the instructions and the figure of D1 clearly teach the skilled person that the wiring of this system is protected by embedding it within sand or gravel, ie surrounded by the loose material that forms the base for the paving tiles; therefore the wiring of D1 needs to be away from the rear surface of the tile in order for it to be protected. The submission of Appellant OI that the wiring would be laid on the surface of the sand is contrary to the clear disclosure of D1. There is therefore no unambiguous disclosure in D1 that the wiring protrudes less than 3.0 mm relative to the rear side of the tiles.

2.2.5 In addition, as argued by the Respondent, the tiles of D1, together with their relatively bulky wiring and connectors, would be unsuitable for attaching to a surface using cement or glue, and conversely the tiles of claim would be unsuitable for laying on a sand surface, as required protection for the wiring could not be achieved.

2.2.6 Consequently, the claimed tile is novel over D1.

### 3. Inventive Step (Article 56 EPC)

3.1 In accordance with the problem - solution approach for evaluating inventive step, it is necessary to identify a piece of prior art that can provide a suitable

"springboard" towards the invention. Usually such a document should relate to the same technical field and address the same or similar technical problem as the disputed patent.

- 3.2 The disputed patent in the present case concerns tiles provided with lighting elements; the tiles are made from glass, concrete or stone, and are applied to floors or walls in a bed of mortar, cement, glue or the like (paragraphs [0001] and [0002] of the specification); this therefore defines the technical field of the invention. The problem underlying the invention is to provide tiles with which a greater variety of effects can be realised, whilst maintaining the traditional methods of working with the tiles (paragraph [0005]).
- 3.3 Document D1 discloses tiles for outdoor use (garden paths, streets, car parks etc). This type of tile is laid on a bed of sand or gravel rather than in a bed of cement. The wiring and connectors must be suitable for outdoor use and these are embedded in the sand or gravel beneath the tiles. As mentioned above, the lighting tiles of D1 are not suitable for attachment to a substrate by means of a hardenable compound.
- 3.4 Document D4 relates to portable, wooden flooring that can be easily assembled and dismantled; there is no intention that the tiles be permanently attached to a substrate by means of glue. These tiles are a different type and have a different purpose to those of the disputed invention. D4 is seen by Appellant OI as forming the closest prior art, as it is concerned with the same problems as addressed by the disputed

invention, namely the provision of an floor with different lighting effects that can be readily assembled using traditional techniques. However, even though the problems addressed by the disputed patent and D4 may be similar, this does not detract from the fact that the tiles of the patent and those of D4 are of a fundamentally different type.

3.5 Document D3 (or D6, which is a similar disclosure) concerns lighting tiles for floors and walls, and hence for attachment to a substrate using cement, glue or the like. The tiles are made *inter alia* from ceramics or stone, and are provided with wiring, albeit in the form of optical fibres, on the rear side. The tiles of D3 or D6 are more similar in type and purpose to those of the disputed patent than those of D1 or D4, and would seem to provide a more appropriate starting point for the assessment of inventive step.

3.6 In summary, however, D1 and D4 disclose different types of tiles to those of the disputed invention, and hence the skilled person would not consider these documents as providing a promising starting point for the assessment of inventive step.

Since D1 and D4 are not suitable starting points for the assessment of inventive step, any obviousness arguments based on these documents cannot be convincing, and thus a lack of inventive step cannot be concluded from the arguments of the Appellants relating to obvious modifications made by the skilled person to the tiles of D1, and to the flooring of D4 by considering the teachings of documents D3 and D6.

Contrary to the submissions of the Appellants, the claimed subject-matter has an inventive step in light of the disclosures of D1 and D4.

**Order**

**For these reasons it is decided that:**

The appeals are dismissed.

The Registrar:

The Chairman:

A Counillon

U. Krause