

**EUROPEAN PATENT APPLICATION**

Application number: 86201284.6

Int. Cl. 4: E01B 9/62, E01B 9/68,  
E01B 5/04, E01D 19/12

Date of filing: 21.07.86

Priority: 31.07.85 NL 8502169

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Date of publication of application:  
25.02.87 Bulletin 87/09

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Designated Contracting States:  
AT BE CH DE FR GB IT LI LU NL SE

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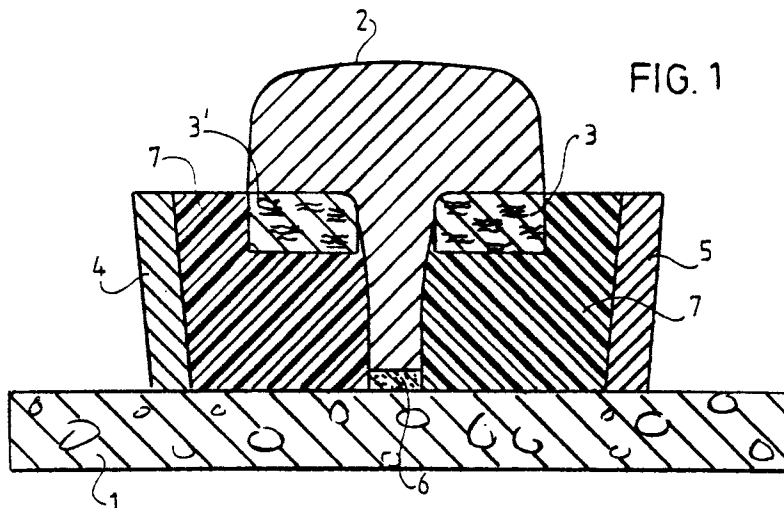
**Railway, in which rails find support via elastic supporting layers against rigid supporting surfaces, and method for laying such a railway.**

Railway, comprising rails (2) which find support via elastic supporting layers (3,3',6,7,) against supporting surfaces (1,4,5).

The supporting surfaces (1,4,5) are for instance artificial substructures.

The supporting layers (3,3') are formed of a synthetic resin, containing finely divided cells.

For obtaining a low construction the rail (2) has no foot and the supporting surfaces (4,5) are arranged in a recess in the artificial substructure.



**Railway, in which rails find support via elastic supporting layers against rigid supporting surfaces, and method for laying such a railway.**

The invention relates to a railway, in which rails find support via elastic supporting layers against rigid supporting surfaces, more particularly supporting surfaces which make up part of an artificial substructure, the supporting layers being formed of a moulded synthetic resin containing finely divided cells.

Such a railway is known from the Dutch patent application 77.01846.

In this known method the rail is embedded in a body of synthetic resin, which is cast between supporting surfaces welded onto the artificial substructure.

This known method has various drawbacks. Firstly, the construction on the artificial substructure becomes relatively high, which is a drawback, namely in tunnels and the like. In addition the damping properties of the elastic supporting layers are difficult to control, in view of the fact that the said supporting layers are cast into the structure. This damping characteristic is also influenced by the size and form of the space in which the synthetic resin is cast.

The invention aims to obviate these drawbacks.

This is achieved in accordance with the invention because the supporting layers support the rails with the interposition of a pre-fabricated strip of flexible material arranged under the head of the rail and because the rail has no foot.

Because the rails are supported under the head by means of a strip of pre-fabricated flexible material, the damping characteristic of the support can be controlled accurately. The synthetic resin cast into the structure is considerably less of a determinant for the damping characteristic than was the case in the known method. Because the rail has no foot, a considerably lower construction height is obtained, which holds great advantages. In view of the fact that the damping characteristic here is determined substantially by the strip of flexible material, the quantity and form in which the surrounding synthetic resin is cast are of less great importance, so that this quantity can be chosen so as to be as small as possible. This is advantageous in view of the fact that the synthetic resin is comparatively expensive. It moreover has the advantage that the reinforcement or the other force absorbing elements of the artificial substructure can be brought closer to the rails, which results in a more stable construction.

Furthermore it is simple to replace the rail, in view of the fact that the quantity of fixing synthetic resin is considerably reduced relative to the known method. In addition, no further nuisance is caused by a foot on the rails.

The supporting surfaces can form a part of a recess in the artificial substructure. The construction height is as a result also reduced. Between the body of the rail and a horizontal supporting surface lying beneath it can be arranged filler material, e.g. foam substance. This filler material has per se no supportive action. Elastomer, if required filled with finely divided cells, for example cork, can be used as material for the flexible strip. The elastomer can consist for example of rubber or polyurethane.

The invention also relates to a method for laying a railway, whereby the rails are first placed at the correct height and at the correct distance from each other and whereby subsequently a strip of flexible material is arranged under the head and filler material under the body, following which the synthetic resin is cast, which when it cures forms a firm connection with both the railway construction and the rigid supporting surfaces.

The sideways adjustment at the correct distance is carried out by a pre-fabricated wedge of elastic material which is positioned under the head of the rail and is fixed relative to the supporting surfaces by means of a wedge of rigid material.

The invention is elucidated with reference to the appended drawings, in which:

fig. 1 shows a sectional view of a railway construction according to the invention, and

fig. 2-4 show the method of laying a railway according to the invention.

On the artificial substructure 1 is placed a footless rail 2, which is supported under the head by strips 3, 3' of flexible material, e.g. of an elastomer, if required filled with finely divided cells, for example cork. The elastomer can consist of for example rubber or polyurethane. Under the foot is placed filler material 6, of for example foam substance. The whole is embedded in a moulding resin 7 which ensures a good attachment not only to the rigid supporting surfaces 1, 4 and 5 but also to the rail 2 and the strips of flexible material 3, 3'. The supporting surfaces 4 and 5 make up part of the artificial substructure 1. The space bounded by artificial substructure 1 and supporting surfaces 4 and 5 can be a recess in the artificial substructure 1 of, for example, concrete.

The damping characteristic of the rail 2 is determined substantially by the pre-fabricated flexible strip material 3, 3'. The contribution of the moulding resin is of lesser importance.

For the laying of a rail 2 according to the construction of the invention, the rails 2 are first positioned at the correct height by making use of pre-fabricated filler blocks 8, 8' and packing strips 11, 11'. The packing strips 11, 11' consist of a moulding resin of the type with which the space between the supporting surfaces 4, 5 is eventually filled (fig. 2).

As is apparent from the figures 3 and 4 the rail 2 is distance adjusted to the sides by means of two pre-fabricated wedges, of which the wedges 9, 9' are of elastic material while the wedges 10, 10' are of hard material. The elastic wedges 9, 9' are placed under the head of the rail 2 and positioned with respect to the rigid supporting surfaces 4, 5 by means of the wedges 10, 10' of hard material.

### Claims

1. Railway in which rails find support via elastic supporting layers against rigid supporting surfaces, more particularly supporting surfaces which make up part of an artificial substructure, said supporting layers being formed of a moulded synthetic resin containing finely divided cells, and said supporting

layers supporting said rails with the interposition of a pre-fabricated strip of flexible material arranged under the head of the rail characterized in that said rail (2) has no foot and that the supporting surfaces (4, 5) form a part of a recess in the artificial substructure (1).

2. Railway as claimed in claim 1, characterized in that between the body of the rail (2) and a supporting surface (4, 5) is arranged filler material - (6), e.g. foam substance.

3. Railway as claimed in claim 1, characterized in that the material is an elastomer or for example rubber or polyurethane.

4. Railway as claimed in claim 1, characterized in that the elastomer is filled with finely divided cells, for example cork.

5. Method for laying a railway according to one or more of the foregoing claims, whereby the rails are first placed at the correct height and at the correct distance from each other, characterized in that a strip of flexible material (3, 3') is subsequently arranged under the head and filler material (6) under the body, and that then a synthetic resin is cast.

6. Method as claimed in claim 5, characterized in that setting at the correct distance is carried out by a pre-fabricated wedge (9, 9') of elastic material which is positioned under the head of the rail (2) and is fixed relative to the supporting surfaces (4, 5) by means of a wedge (10, 10') of rigid material.

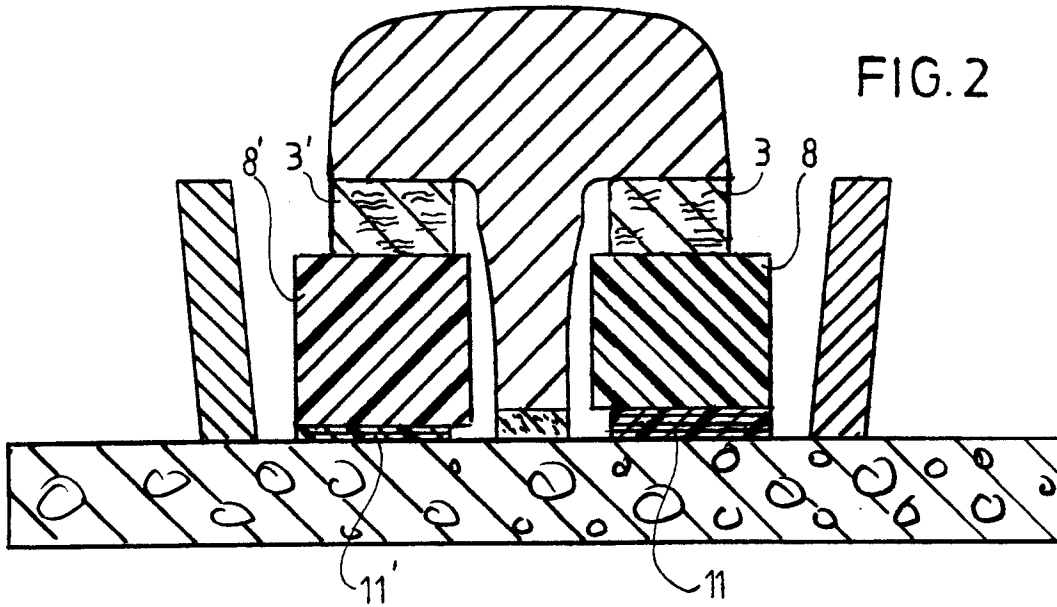
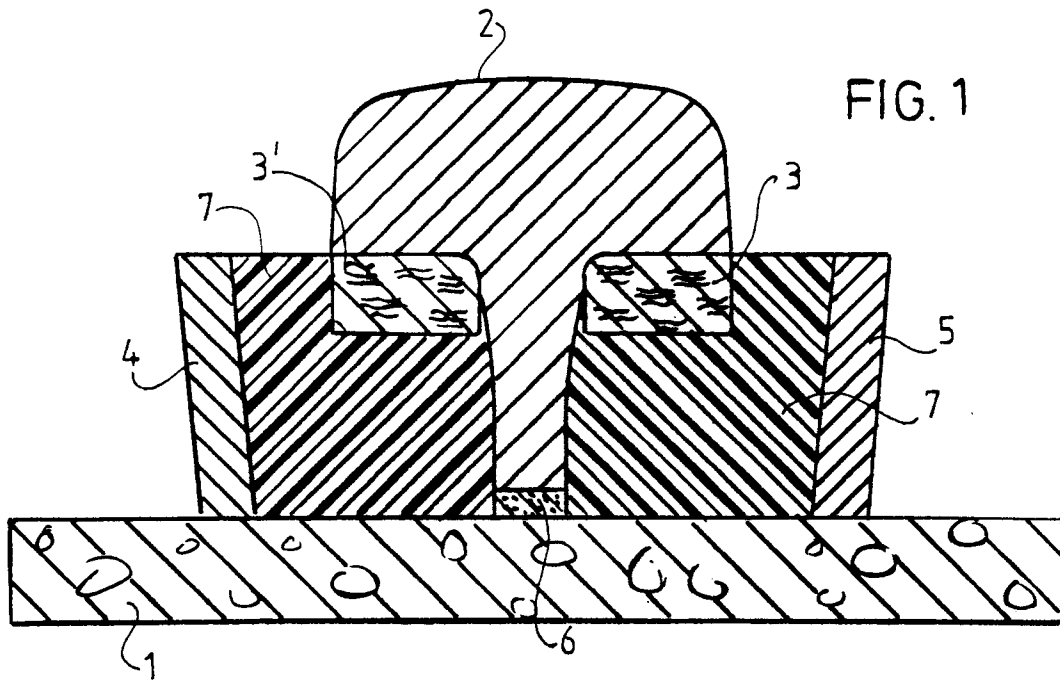
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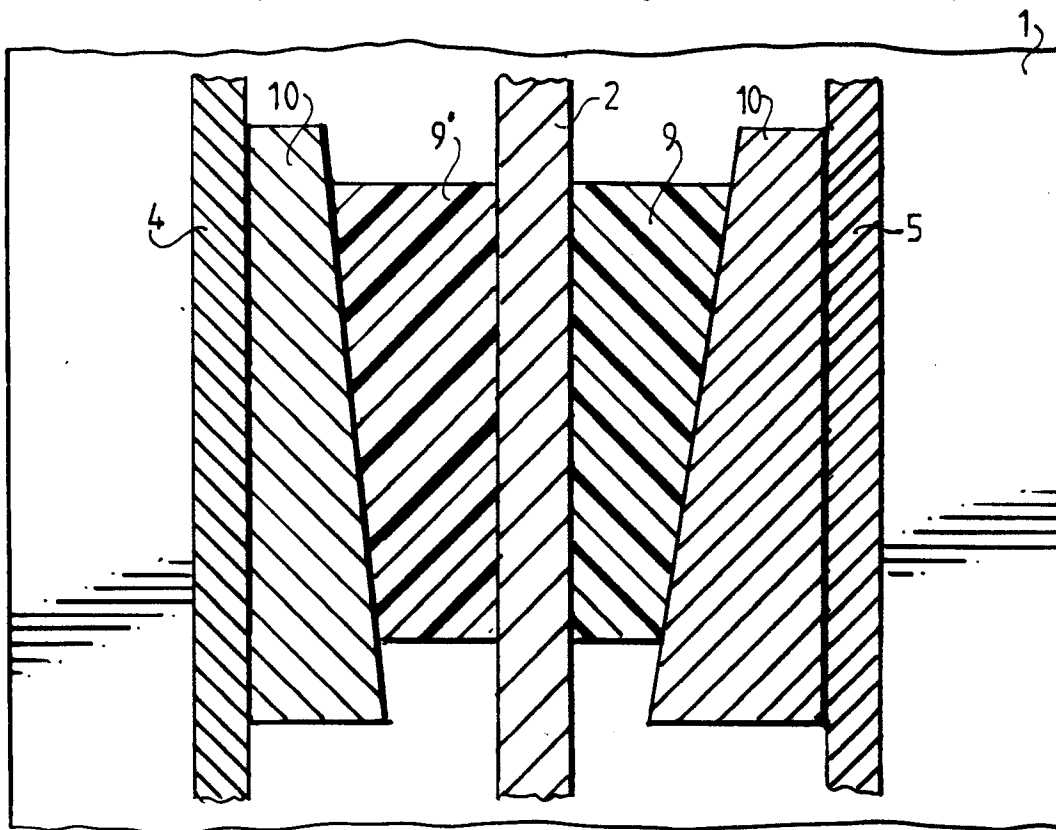
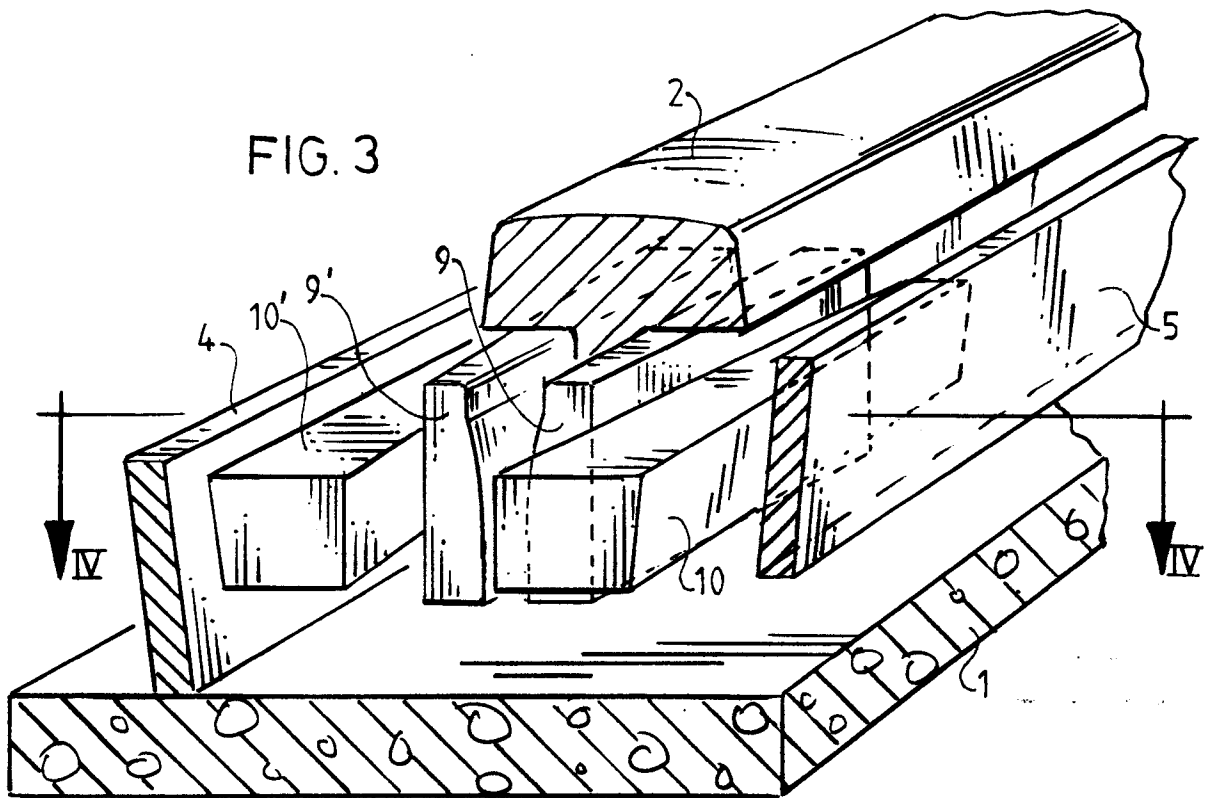
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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
Y	GB-A-1 155 075 (NIPPON KOKUYU TETSUDO) * Page 1, lines 13-28,49-70; page 2, lines 28-45; page 4, lines 30-50,59-65; figures 2A,2B *	1	E 01 B 9/62 E 01 B 9/68 E 01 B 5/04 E 01 D 19/12
Y	US-A-3 417 921 (MAYNIER) * Column 2, lines 8-18; column 6, lines 43-45; figure 1; column 2, lines 30-35; column 3, lines 24-50; column 4, lines 49-72; column 6, lines 30-40,50-54,74-75; figures 3,4,11 *	1	
A		6	
A	DE-A-3 345 388 (PHOENIX) * Page 1, paragraphs 1,3; page 2, paragraphs 1,2; figure 1 *	1-3	TECHNICAL FIELDS SEARCHED (Int. Cl.4) E 01 B E 01 D
A	US-A-2 045 253 (SAURER) * Page 1, left-hand column, lines 34-51; page 1, right-hand column, lines 1-3,10-35; figures *	1,2,5	
A	FR-A-2 125 747 (MALTHE) * Page 1, lines 26-28,35-40; page 3, lines 18-23; page 5, lines 2-9 *	3,4	
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The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 08-10-1986	Examiner RUYMBEKE L.G.M.
<p><b>CATEGORY OF CITED DOCUMENTS</b></p> <p>X : particularly relevant if taken alone  Y : particularly relevant if combined with another document of the same category  A : technological background  O : non-written disclosure  P : intermediate document</p> <p>T : theory or principle underlying the invention  E : earlier patent document, but published on, or after the filing date  D : document cited in the application  L : document cited for other reasons</p> <p>&amp; : member of the same patent family, corresponding document</p>			



DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
A	US-A-3 383 043 (TEW)  -----	
The present search report has been drawn up for all claims		
Place of search THE HAGUE	Date of completion of the search 08-10-1986	Examiner RUYMBEKE L.G.M.
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CLASSIFICATION OF THE APPLICATION (Int. Cl.4)

TECHNICAL FIELDS SEARCHED (Int. Cl.4)