

[54] TRACK AND METHOD OF LAYING TRACK ON A CONCRETE ROAD BED

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238/283**

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238/115, 114, 264

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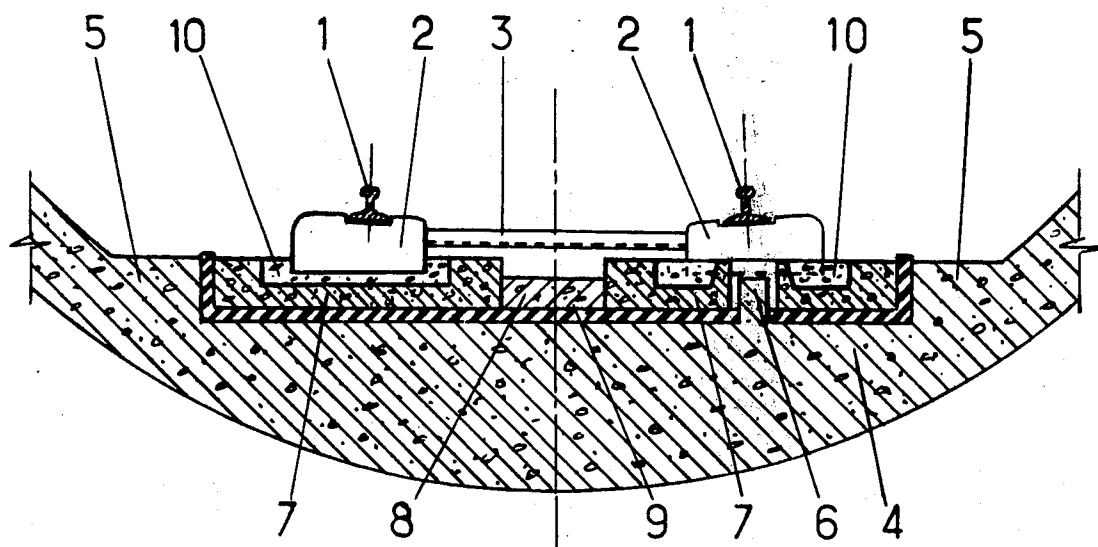
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[57] ABSTRACT

Track is layed on a concrete road bed by keying slabs to the concrète. Bearing members are positioned and anchored on the slabs. Antivibration material may be placed between the slabs and the concrete. A rolling guide system is mounted on the bearing members. Rubber wedges may be interposed between the rolling guide system and the bearing members.

5 Claims, 3 Drawing Figures



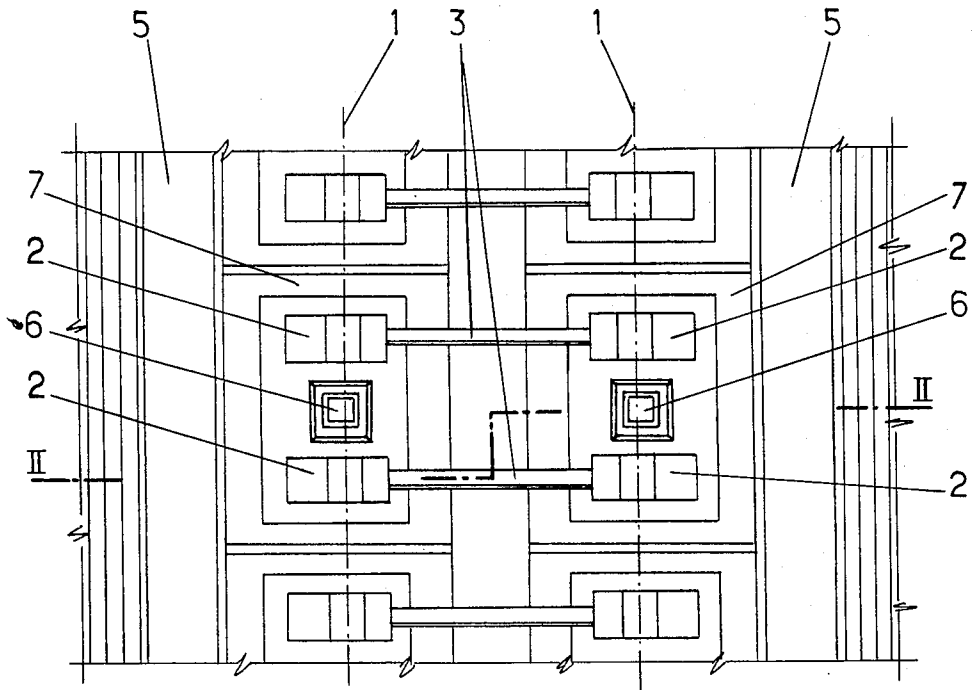


Fig. 1

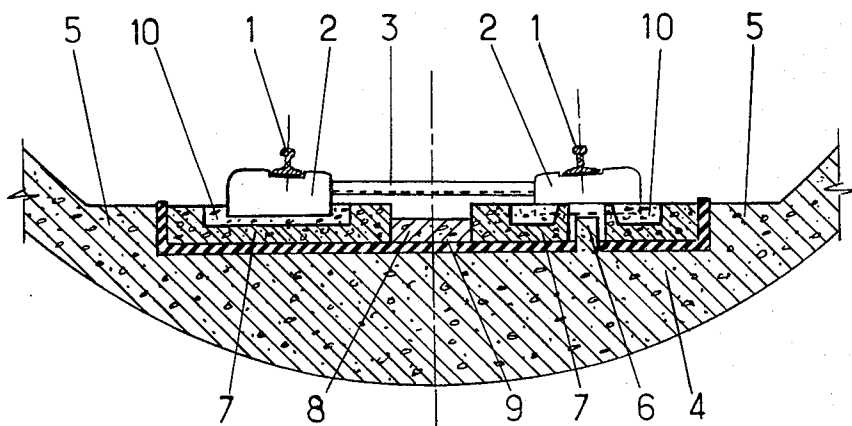


Fig. 2

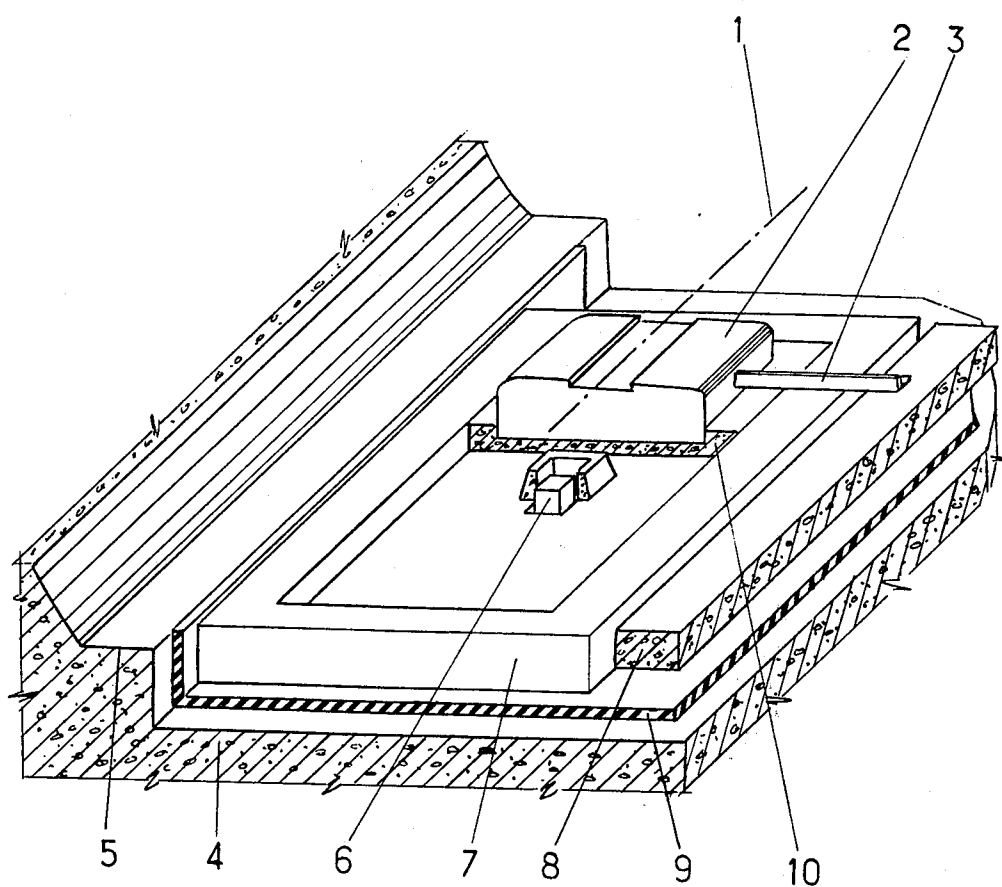


Fig. 3

TRACK AND METHOD OF LAYING TRACK ON A CONCRETE ROAD BED

BACKGROUND OF THE INVENTION

The present invention relates to tracks, for example to railway tracks, and to a method of laying the same.

It is known to lay railway tracks on ballast. This gives the track a definite degree of flexibility. Nevertheless, the substantial and recurring stresses which it has to undergo cause a definite degradation which must be counteracted by tamping, blasting or compacting operations. These operations must be repeated at relatively short intervals and cannot be performed unless the track is out of service. This is a serious disadvantage.

To eliminate the necessity for these operations, tracks have been laid direct on a concrete road bed. Little maintenance is required but the track loses some of its flexibility and transmits the vibrations to the surroundings. Moreover, any subsequent modification of the track, such as a change in camber or a correction of the track layout, is very difficult since a part of the road bed must then be removed and reformed.

SUMMARY OF THE INVENTION

According to a first aspect of the invention there is provided a method of laying a track on a concrete road bed comprising laying slabs on the road bed, keying the slabs to the latter, positioning bearing members on tie slabs so that a rolling guide system to be carried by them has the required geometry, and anchoring the bearing members to the slabs.

Preferably the slabs are prefabricated and produced of reinforced concrete.

According to a second aspect of the invention there is provided a track comprising at least one rolling guide system carried by bearing members imbedded in slabs laid on a road bed and keyed with respect to the latter.

An anti-vibration substance may be interposed between the slabs and the road bed. Moreover, an anti-vibration layer may equally be situated between the bearing members and the slabs, as well as between the rolling guide system and the bearing members.

For a track comprising two rolling guide systems such as rails or the like, which are secured on two rows of bearing members, the slabs may be arranged in two rows, and each slab may receive at least two bearing members of one and the same row. Moreover, the slabs may be held laterally by shoulders formed in the road bed and longitudinally by abutments integral with the road bed and penetrating into openings of the slabs.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will now be described in more detail, by way of example only, with reference to the accompanying drawings, in which:

FIG. 1 is a plan view of a railway track;

FIG. 2 is a sectional view along the line II—II of FIG. 1; and

FIG. 3 is a partially exploded perspective view of a portion of the track.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The railway track shown in FIG. 1 comprises two rails 1 installed on blocks 2. The blocks 2 are lined up in two rows and are interconnected in pairs between one row and the other by a bar 3 so as to form a sleeper.

The track is laid on a brickwork road bed 4. The profile illustrated in FIG. 2 corresponds to the case in which the site is a single-track tunnel.

The road bed 4 is provided with two shoulders 5 and with studs 6 which may either form part of the road bed 4 or be inset in the same.

Slabs 7 arranged in two rows rest on the road bed 4 and bear at one side against a shoulder 5. The slabs 7 of each row are held in abutment against the corresponding shoulder 5 by means of a wedging slab 8 inserted during the laying operation and filling the space between the two rows of slabs 7.

The slabs 7 are thus held in position, laterally by the shoulders 5 and longitudinally by the studs 6 which prevent the well-known creeping action.

An intermittent layer 9 of anti-vibration material is interposed between the slabs 7 and the road bed 4.

The blocks 2 which bear the rails 1 are anchored by concrete castings 10 which fill recessed parts of the upper surface of the slabs 7.

The track is of special interest by virtue of the ease of laying it offers. The road bed 4 is prepared so as to receive the required number of rows of slabs between its shoulders 5 (two for a single track and four for a double track). The slabs are then placed in position and held there by means of the wedging slabs 8.

The positioning of the slabs 7 need not absolutely be accurate which simplifies the construction of the road bed 4. The precise laying of the track in position is performed with the sleepers formed by the two blocks 2 interconnected by a bar 3. These are first simply laid in the upper recessed part of the slabs 7 and positioned in perfect alignment. After this, the concrete filling 10 of this recessed part ensures permanent retention of the track in its correct position.

As the slabs 7 are preferably prefabricated, the quantity of concrete to be cast is reduced considerably since it may be limited to the filling of the recesses of the slabs for the anchoring of the blocks and to the production of the wedging slabs between the rows of slabs. This results in a reduction in cost and the possibility of rapid track laying which may also be mechanised by means of uncomplicated apparatus.

The track thus produced is firmly held to the base but is not integral with the latter. Thus, should it become necessary, as a consequence of track deterioration or of a need to modify the track geometry, to replace or displace a part of the track, it is sufficient to withdraw and replace only the interlinked slabs and blocks in question. This is not the case for a concrete track integral with the road bed since costly demolition jobs must then be carried out involving excavation.

Finally, another substantial advantage of the described track is the possibility of easily securing a satisfactory protection against vibrations. The layer of anti-vibration material 9 situated between the slabs and the road bed insulates the track from the surrounding site at all points. Moreover, the laying of the material 9 is not difficult, since the material consists of plates or panels or alternatively may be in the form of a paste.

The insulation may advantageously be combined with rubber wedges between the rails and the blocks, and rubber cushions around the part of the blocks which is imbedded in the concrete to still further increase the protection against vibration.

The advantage of easy laying with the possibility of subsequent modifications and of effective insulation

against vibrations has the result that a track of this nature is particularly appropriate for urban railway line sections. It is obviously necessary to limit the nuisance inflicted on those living alongside the track by the disturbances caused by passage of a train. Furthermore, with urban line sections often passing underground, it is of importance to adopt a laying method which reduces the amount of work on site and which practically eliminates maintenance while nevertheless allowing of subsequent modifications.

Initial tests rendered it possible to observe that attenuation of the vibrations of the order of 15 to 20 dB had been secured, or say vibrations amounting to 5 to 10 times less, as compared to conventional laying on ballast and within the range from 20 to 180 c/s.

What I claim is:

1. A method of laying a track on concrete roadbed comprising laying slabs on the roadbed, keying the slabs to the roadbed, positioning bearing members accurately on the slabs so that a rolling guide system to be carried by them has the required geometry, and fi-

nally anchoring the bearing members to the slabs.

2. A track, comprising two rolling guide systems fastened on two rows of bearing members embedded in slabs laid on a road bed held laterally by shoulders in the road bed and held longitudinally by studs integral with the roadbed and penetrating into opening in the slabs arranged in two rows, and each slab receiving at least two bearing members of the same row.

3. A track comprising at least one rolling guide system carried by bearing members imbedded in slabs laid on a roadbed and held laterally by shoulders in the roadbed and longitudinally by studs integral with the roadbed and penetrating into openings in the slabs.

4. A track as claimed in claim 1, comprising an antivibration material interposed between the slabs and the roadbed.

5. A track as claimed in claim 3, comprising two rolling guide systems fastened on two rows of bearers, the slabs being arranged in two rows and each receiving at least two bearing members of the same row.

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