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(54) **CONCRETE SLAB RAILROAD TRACK SYSTEM AND METHOD OF INSTALLING SAME**

(57) Railroad track system on concreted slab that allows to adjust the height of the track, to align the rails (1) and to make them parallel at any time of the system assembly process, comprised of a bed (10), base or support on which are disposed the support means for the rails which consist of steel plates (2) set from rail to rail and

supported by bolts (3) placed on either side of the rails, preferably not opposite each other, while the rails are attached to the steel plates adjustable pieces that allow to align each rail and to make the rails parallel. This system allows placing an additional rail in order to adjust the track gauge.

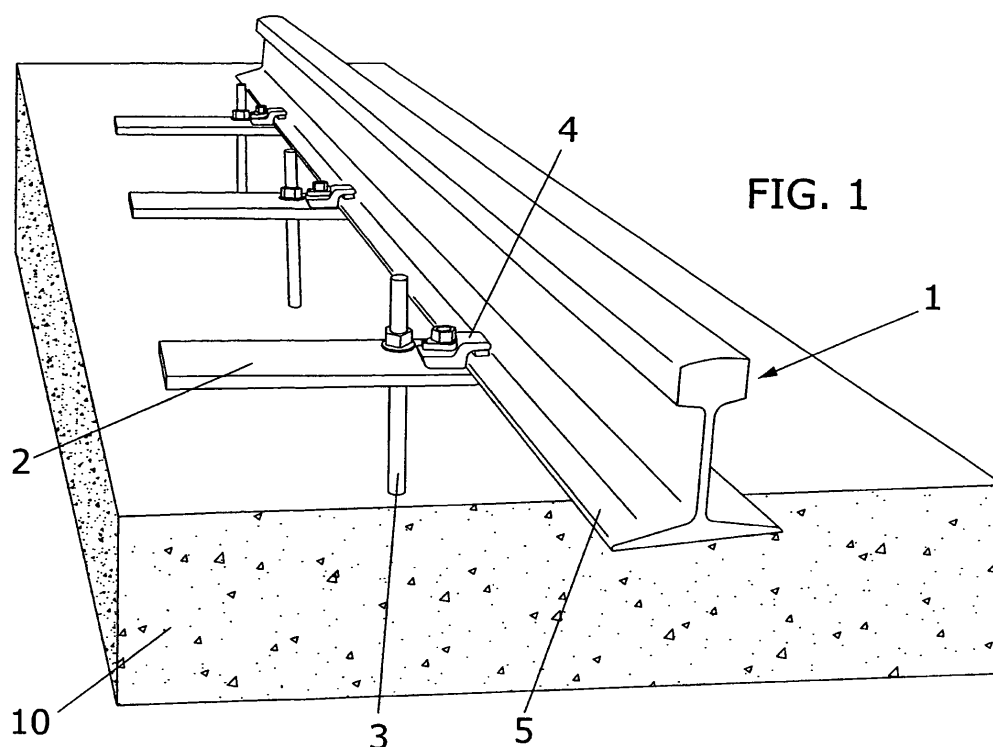


FIG. 1

Description

OBJECT OF THE INVENTION

[0001] The present invention relates to a railroad track system on concreted slabs, as well as to its installation procedure, which due to the elements constituting the track system allow at any time of the work to adjust the height of the tracks and to align them at any time, thereby ensuring that the rails are parallel.

[0002] In current railroad track systems on concreted slabs everything but the rail heads are covered in concrete.

[0003] The present invention is characterised by the elements used in the track system, whose constructive and technical characteristics are such that they allow adjusting the height, aligning each track and the parallel arrangement of the rails.

[0004] Thus, the present invention lies in the field of track systems covered by concrete except in the heads of the rails.

BACKGROUND OF THE INVENTION

[0005] Tracks on concreted slabs are well known and used mainly for railway access to shops, ports, hangars, sheds etc. where trains with great loads at slow speeds travel.

[0006] Traditionally track systems with concreted slabs have a concrete or dunnage bed on which the wooden or concrete sleeper is placed, to which the rail is attached and bolted. This system has several drawbacks:

- the use of sleepers, their adjustment and arrangement is not the most economically advantageous solution;
- in addition, this system does not allow height regulation during the work, with the resulting reduction of the traditional contour curve, which in some cases is a clear disadvantage;
- it also does not allow aligning the rails nor modifying the rail gauge at any time during the work, as well as subsequent technical inspections without uplifting the rail;
- it does not allow to incorporate additional rails for different gauges.

[0007] Therefore, the object of the present invention of a railroad track system on concreted slabs is to obtain a system that overcomes the above drawbacks, allowing to adjust the height, align each rail and ensure that they are parallel at any time during the work, by using an adjustable attachment piece, allowing to install a third rail while being maintenance free.

DESCRIPTION OF THE INVENTION

[0008] The railroad track system on concreted slabs of the invention consists of first providing a supporting bed or base on which they rest, and above it a structure to support the rails instead of the conventional sleepers.

[0009] The rail support structure consists of a rectangular steel plate placed under the rails in order to support them, so that the assembly formed by the plate and the rails is supported by adjustable bolts placed on either side of the rail, preferably not opposite each other.

[0010] In addition, the rails are attached by adjusting parts placed above the steel plates. Said adjusting parts allow aligning the rails to ensure that they are parallel, as well as absorbing the lateral loads of the system.

[0011] The assembly procedure for the track system object of the invention comprises the following steps:

- laying a base or bed on which the entire track system will rest;
- placing threaded bolts on said bed to support the steel plates set from rail to rail supporting said rails. Levelling is effected by turning the nut under the plate;
- attaching the rails to the plates with adjustable attachment clips that lock the rail in a lateral sense and absorb the lateral loads, so that the parallel arrangement of the rails is ensured over time;
- attaching the bolt to the system as far as the mid height of the bolt, allowing height adjustments;
- finishing the installation by aligning and verifying the parallel arrangement of the rails.

[0012] This railroad track system allows, as mentioned before, to adjust the height of the rails during the work by turning the nut placed under the plate, and to adjust the alignment of each rail and the parallel arrangement of rails at any time of the work before they are embedded in the concrete by adjustable attachment clips used to attach the rails to the steel plates.

[0013] The adjustable attachment clips are comprised of elements which, after the recommended tightening torque is reached, will ensure that the system is locked while allowing to adjust the lateral position of the adjustment parts, thereby providing the any required rail gauge.

[0014] Moreover, in addition to the resulting savings by replacing the conventional sleepers by a set of steel plates and bolts it allow to place additional rails in case the rail gauge must be changed.

[0015] With this track system no maintenance is required for the tracks, as the handling and adjustment can only be performed during the work, so that it is not possible to perform any repair work or maintenance after installation as the track would have to be uplifted, since everything but the rail heads will be covered in concrete.

DESCRIPTION OF THE DRAWINGS

[0016] To complete the description being made and in order to aid a better understanding of the characteristics of the invention, a set of drawings is accompanied whose figures, for purposes of illustration only and in a non-limiting sense, show the most significant details of the invention:

[0017] Figure 1 shows a representation of the elements composing the railroad track system on concreted slab before the assembly is concreted.

[0018] Figure 2 shows the previous figure after concreting to half the height of the bolts.

[0019] Figure 3 shows a detailed view of the attachment of the steel plates to the rails, the bolts and the adjustable attachment elements.

[0020] Figure 4 shows a detailed view of the construction of the disposition of an additional rail.

PREFERRED EMBODIMENT OF THE INVENTION

[0021] In view of the figures, a preferred embodiment of the invention disclosed is described below.

[0022] Figure 1 shows that the track system lies on a bed (10), according to the designer's specifications, which supports the entire system composed of a number of steel plates (2) set between the rails (1). On said plate (2) and on its ends and on both sides of the rail (1) are disposed anchoring and levelling bolts (3) that allow a height adjustment. Said bolts (3) support the steel plates (2), on which the rails (1) are attached.

[0023] To attach the rails (1) to the steel plates (2) adjustable attachment clips (4) are employed to allow regulating the alignment of each rail as well as the parallel arrangement of the rails during the entire assembly process of the tracks. The adjustable attachment clips (4) are attached to the wings (5) of the rails (1).

[0024] Figure 2 shows the next stage of the system assembly in which concrete (6) or another material is added to the mid height of the bolts (3), at which point the height is adjusted, the rails are levelled and the rails are made parallel.

[0025] Figure 3 shows in greater detail the union of the various component parts of the system, showing how the bolts (3) are set on either side of the rail, preferably not opposite each other. The attachment and alignment clips (4) are also placed on both sides of the rail (1), on its wings (5), not opposite each other.

[0026] Figure 4 shows how the system allows placing an additional rail (7) in order to allow adjusting the rail gauge. In this case it can be seen that, in the space between the two rails (1) and the additional rail (7), one or more bolts (8) and corresponding auxiliary attachment and adjustment clips (9) are provided, so that the bolts (3) and the attachment and alignment clips (4) remain on the sides of the assembly formed by the two rails.

[0027] The essence of this invention is not affected by changes in the materials, shape, size and arrangement

of the component elements, described in a non-limiting manner so that it should allow its reproduction by an expert.

Claims

1. Railroad track system on concreted slab that allows to adjust the height of the track during the entire work process, as well as to align the rails and make them parallel at any time of the work, **characterised in that** it comprises a bed (10), according to the designer's specifications, on which are disposed the support and attachment means for the rails (1), wherein said support and attachment means consists of steel plates (2) set from rail to rail and supported by anchoring and levelling bolts (3), and **in that** the rails (1) are attached on said plates (3) by attachment clips (4) that allow adjusting and aligning the rails, ensuring that they are parallel.

2. Railroad track system on concreted slab, according to claim 1, **characterised in that** it allows placing an additional rail (7) in order to allow adjusting the track gauge, with the space between the two rails (1) and the additional rail (7) having one or more bolts (8) as well as corresponding auxiliary attachment and adjustment clips (9), such that the anchoring and levelling bolts (3) and the adjustable attachment clips (4) remain on the two sides of the assembly formed by the two rails.

3. Installation procedure for the railroad track system of the previous claims, **characterised in that** it comprises the following stages:

- laying a base or bed on which the entire track system will rest;
- placing threaded bolts on said bed to support the steel plates set from rail to rail supporting said rails. Levelling is effected by turning the nut under the plate;
- attaching the rails to the plates with adjustable attachment clips that lock the rail in a lateral sense and absorb the lateral loads, so that the parallel arrangement of the rails is ensured over time;
- attaching the bolt to the system as far as the mid height of the bolt, allowing height adjustments;
- finishing the installation by aligning and verifying the parallel arrangement of the rails.

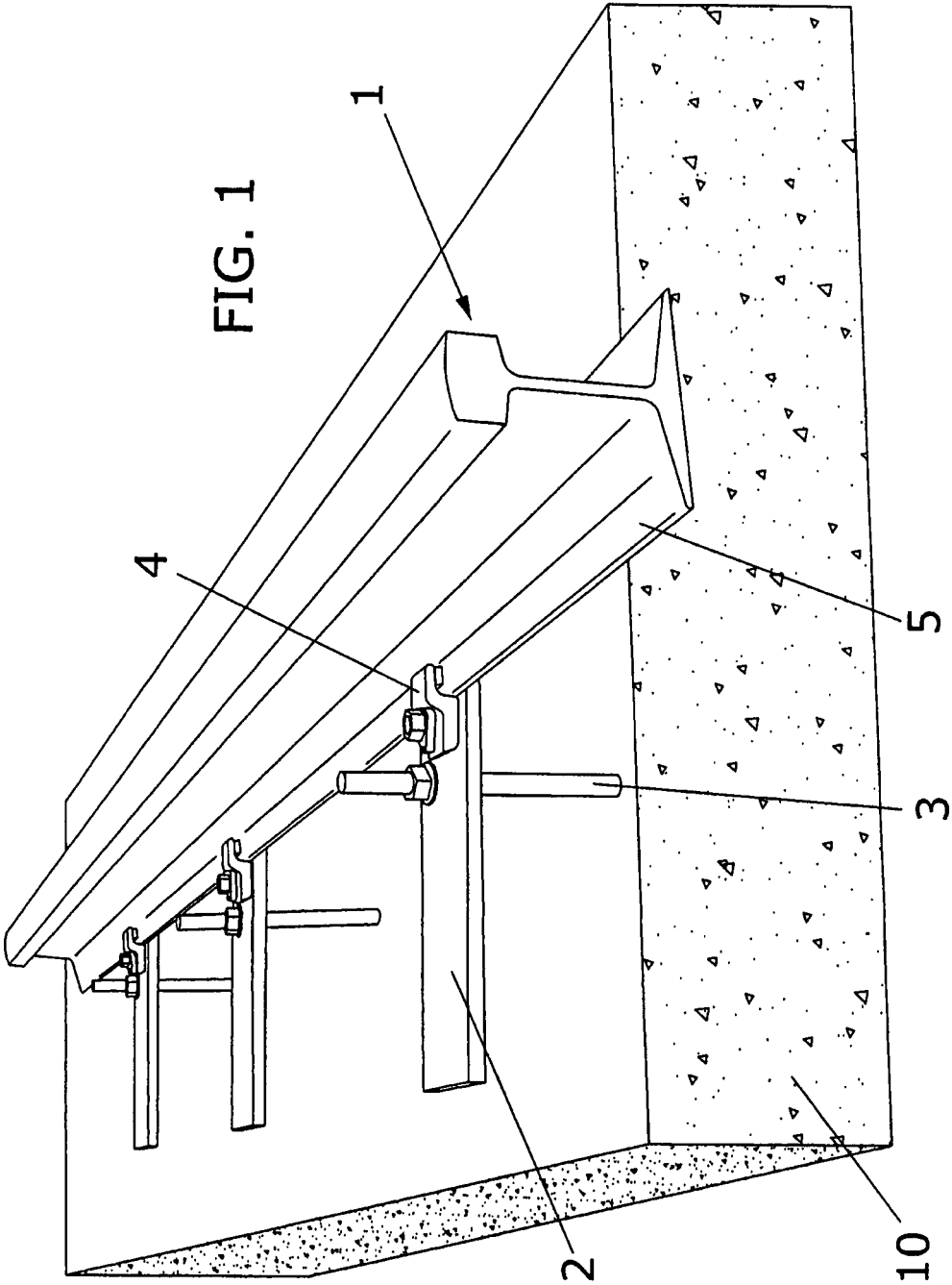
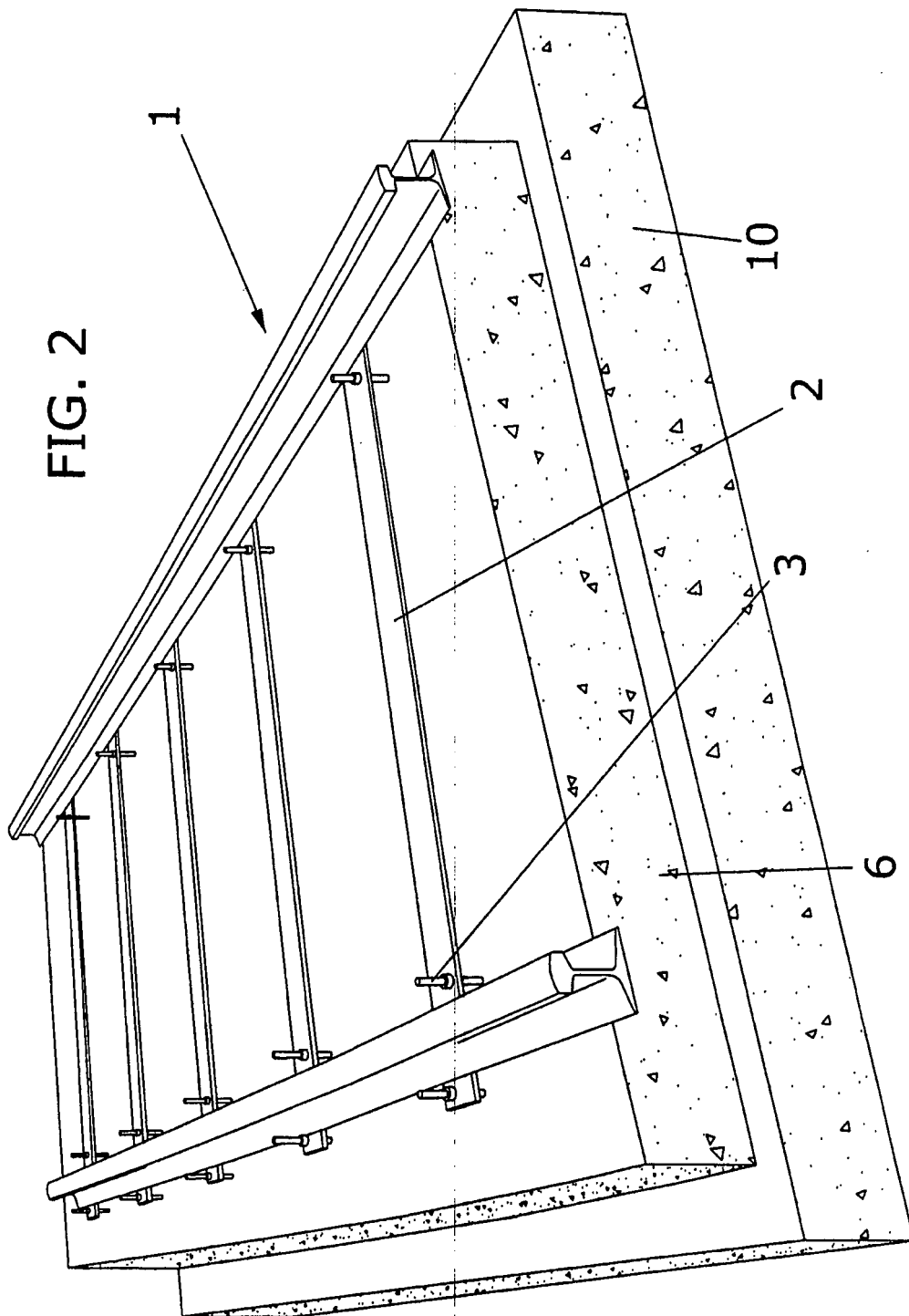


FIG. 2



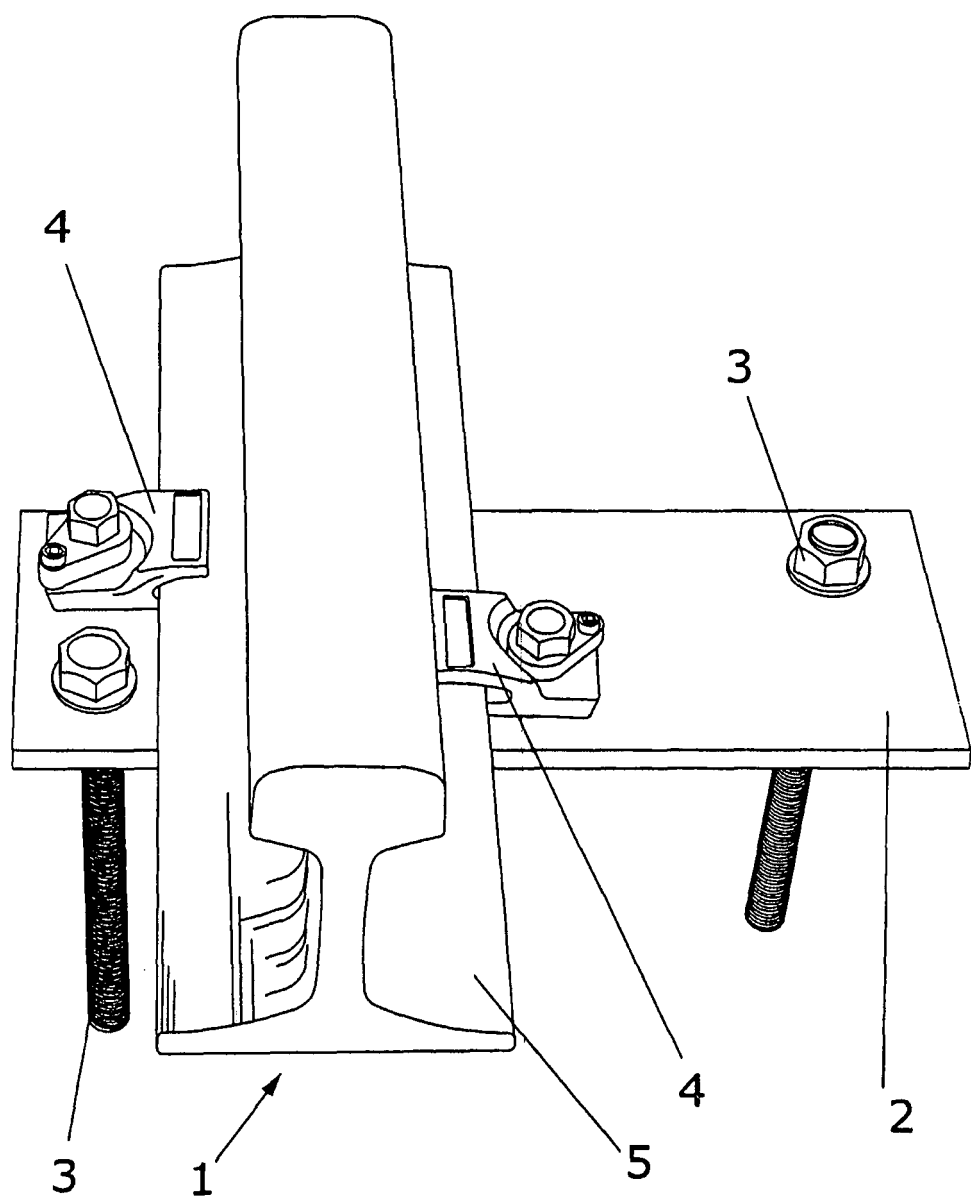
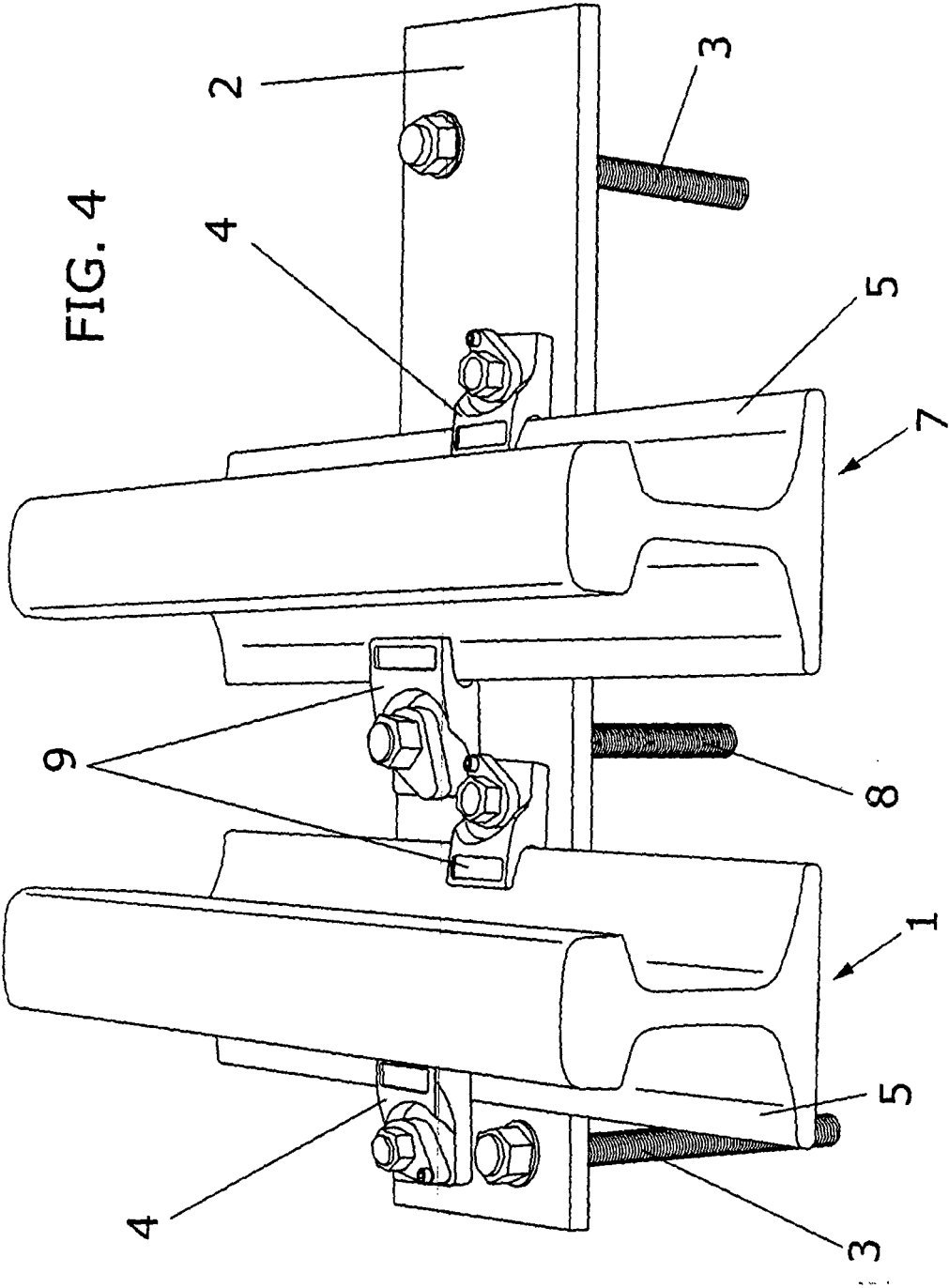


FIG. 3



INTERNATIONAL SEARCH REPORT

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| Internat | Application No |
| | PCT/ES2005/070044 |

| A. CLASSIFICATION OF SUBJECT MATTER E01B1/00 | | |
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| According to International Patent Classification (IPC) or to both national classification and IPC | | |
| B. FIELDS SEARCHED | | |
| Minimum documentation searched (classification system followed by classification symbols) E01B | | |
| Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched | | |
| Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, WPI Data | | |
| C. DOCUMENTS CONSIDERED TO BE RELEVANT | | |
| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
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| X | DE 101 07 116 A1 (SCHRECK-MIEVES GMBH) 24 October 2002 (2002-10-24) paragraph '0021! - paragraph '0038!; figures | 1-3 |
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| <input type="checkbox"/> Further documents are listed in the continuation of box C. <input checked="" type="checkbox"/> Patent family members are listed in annex. | | |
| * Special categories of cited documents : * A* document defining the general state of the art which is not considered to be of particular relevance * E* earlier document but published on or after the international filing date * L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) * O* document referring to an oral disclosure, use, exhibition or other means * P* document published prior to the international filing date but later than the priority date claimed * T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention * X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone * Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. * &* document member of the same patent family | | |
| Date of the actual completion of the international search 17 November 2005 | | Date of mailing of the international search report 24/11/2005 |
| Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016 | | Authorized officer Movadat, R |

INTERNATIONAL SEARCH REPORT

Information on patent family members

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