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(54) **PREASSEMBLED TRACK APPARATUS**

(57) The present invention relates to a preassembled track apparatus, which can be transported in a preassembled state, intended to be installed on track on a concrete slab and which, after a first verification in the workshop, does not have to be disassembled for transport, is light for transportation and reduces assembly times. The preassembled track apparatus (1) comprises at least two rails (2) equipped with a skid and has braced sleepers (3) comprising holes (10) separated at a distance in the longitudinal direction of the braced sleeper (3) and at different heights. The track apparatus comprises braces (11) able to be coupled to the holes (10) which fasten the position of the braced sleepers between them (3).

EP 3 770 323 A1

Description

OBJECT OF THE INVENTION

[0001] The present invention relates to a preassembled track apparatus, which can be transported in a preassembled state, intended to be installed on track on a concrete slab. The apparatus can be coupled to the rest of the track and has braced sleepers linked by means of braces which enable the prior consolidation of the track apparatus.

[0002] More particularly, the invention seeks to provide a preassembled track apparatus, which, after a first verification in the workshop, does not have to be disassembled for transport and assembled at the destination, which is light for transport and reduces assembly times.

BACKGROUND OF THE INVENTION

[0003] Currently, the track apparatuses for ballastless track is supplied as individual components and are assembled at the destination by means of different types of preassembly tools. A prior verification is done at the origin, it is disassembled for transport and reassembled at the destination.

[0004] In the state of the art, for example, document ES2264478 discloses a method for incorporating track changes in railway rails, as well as changing points in order to carry out this method, which can be partially transported in the preassembled state, with sleepers, with a point blade area, an intermediate rail area and a core area, with a device for the mobile point-changing parts, such as the point blade, servo drives and control installations.

[0005] However, this and other solutions known in the state of the art incorporate very heavy elements, for which reason the transport thereof is not feasible, since they require many additional levelling parts and very long changeover times are required. Finally, they are designed for tracks without concrete or ballast, so the requirements are different.

DESCRIPTION OF THE INVENTION

[0006] The present invention aims to solve some of the problems mentioned in the state of the art.

[0007] More particularly, the present invention discloses a preassembled track apparatus which can be transported in a preassembled state comprising at least two rails provided with a skid. The preassembled track apparatus has braced sleepers intended to be fastened on a track on a concrete slab and joining at least two rails, positioned transversely to the direction of the track, comprising an upper sector, limited by two lateral sectors, two seating slabs linked to the upper sector and at least one securing element linked to each seating slab and able to be coupled to the skid such that it retains the rails fastening the track width, a lower sector opposite from the upper sector.

[0008] The lateral sectors comprise holes separated at a distance in the longitudinal direction of the sleeper and at different heights, and the lower sector comprises cavities close to the holes. The preassembled track apparatus additionally comprises braces parallel to each other which link the braced sleepers, wherein the ends of each brace comprise a joining segment able to be coupled to the holes and the preassembled track apparatus has at least one joining element for each joining segment, which retain the braces in the holes fastening the position thereof.

[0009] In this manner, the track apparatus can be transported from the origin to the destination in the preassembled state. Thus, it is not disassembled for transport, saving construction time for the railway infrastructure. Additionally, the use of complex tools for levelling at the destination is avoided and electrical insulation is guaranteed.

[0010] The joining elements can be two or more for each joining segment. One joining element can be positioned inside the cavity and the other joining element close to the lateral sector. In this manner, the braces are better coupled to the special sleepers. The joining segments can be threaded, and the joining elements can be components with a thread complementary to the joining segment, thus ensuring the joining thereof and they are able to be easily coupled and decoupled.

[0011] The preassembled track apparatus may comprise intermediate sleepers having rods able to be coupled to the track on a concrete slab. These intermediate sleepers can be preassembled as required.

[0012] Preferably, the braced sleepers may be made of a plastic compound. Preferably, they are made of a light material in order to be able to be transported and which have hardness properties so that they are not damaged and hold up during transport. Furthermore, they must have a good behaviour against humidity and that they do not deteriorate during the transfer and the useful life thereof. Alternatively, the sleepers can be made of a ceramic material. The intermediate sleepers can be made of composite material, wood, concrete or another material suitable for supporting the rails. The braced sleepers can be made of a plastic material and the intermediate sleepers can be made of another of the indicated ones, without the combination affecting the properties of the preassembled track apparatus. The seating slabs can have an elastomer whereon the rail rests, the elastomer can be made of rubber and is placed between the rail and the main slab, in order to mitigate the excessive rigidity of the concrete slab.

DESCRIPTION OF THE DRAWINGS

[0013] As a complement to the description provided herein, and for the purpose of helping to make the features of the invention more readily understandable, in accordance with a preferred practical exemplary embod-

iment thereof, said description is accompanied by a set of drawings constituting an integral part of the same, which by way of illustration and not limitation, represent the following:

Figure 1 shows a perspective view of a preassembled track apparatus.
Figure 2 shows a detail view of a preassembled track apparatus.
Figure 3 shows a profile view of a preassembled track apparatus.

PREFERRED EMBODIMENT OF THE INVENTION

[0014] Figure 1 shows a perspective view of a preassembled track apparatus (1). The preassembled track apparatus (1) is intended to be placed on slab and ballastless railway tracks. The preassembled track apparatus (1) travels assembled from the origin and the shape and geometry of the preassembled track apparatus (1) remains practically unchanged until the destination thereof. Once positioned at the destination site, only horizontal levelling is performed since the position depends on the final point of the assembly.

[0015] The preassembled track apparatus (1) is equipped with rails (2), preferably consolidated from the origin, braced sleepers (3), braces (11) and joining elements (12). Alternatively, the rails (2) can be coupled at the destination, as required. At the installation site of the preassembled track apparatus (1), there is a concrete slab, whereon a truss is placed, the preassembled track apparatus (1) is levelled and concrete is poured around the braced sleepers (3).

[0016] Figure 1 shows at least two rails (2) equipped with a skid. Braced sleepers (3) are shown which are intended to be fastened on a track on a concrete slab and joining at least two rails (2), positioned transversely to the direction of the track. The braced sleepers (3) comprise an upper sector (5), limited by two lateral sectors (4), two seating slabs (7) linked to the upper sector (5), securing elements (8) linked to the seating slabs (7) and able to be coupled to the skid such that it retains the rails (2) and fastens the track width. Likewise, it comprises a lower sector (9) opposite from the upper sector (5).

[0017] Figure 2 shows a detail view of a preassembled track apparatus (1), wherein it can be seen that the lateral sectors (4) comprise holes (10) separated at a distance in the longitudinal direction of the braced sleeper (3) and at different heights. The lower sector (9) comprises cavities (13) close to the holes (10), and braces (11) are seen parallel to each other which have the possibility of linking the braced sleepers (3), wherein the ends of each brace (11) comprise a joining segment (6) able to be coupled to the holes (10) and the preassembled track apparatus (1) has at least one joining element (12) for each joining segment (6), which retain the braces (11) in the holes (10) fastening the position thereof.

[0018] In the embodiment shown in figures 2 to 3, intermediate sleepers (14) are seen which are transverse to the axis of the track, and which also support the rails (2). These intermediate sleepers (14) are preferably assembled at the destination, independently from the preassembled track apparatus (1). In another embodiment, these intermediate sleepers (14) are comprised in the preassembled track apparatus (1) and are preassembled at the origin. The intermediate sleepers (14) comprise rods (15) in order to be fastened in the slab. The intermediate sleepers (14) act as support for the rails (2), fastening and ensuring the position in relation to the height, inclination and separation.

[0019] Figure 3 shows a profile view of a preassembled track apparatus (1). The braced sleepers (3), transverse to the axis of the track, are seen. Linking each braced sleeper (3), braces (11) are seen positioned in horizontal planes at different heights. Each braced sleeper (3) has a cavity (13). In order to secure the position of each brace (11), the preassembled track apparatus (1) has joining elements (12). Figure 3 shows the braced sleepers (3).

[0020] The placement of the preassembled track apparatus (1) is performed on a track on a concrete slab, which is a type of railway track. It has a concrete slab which transmits the uniformly-distributed stresses to the platform. The preassembled track apparatus (1) is preassembled in units which fit in a gauge, is carried on a transport vehicle, preferably with the rails (2) assembled together with the braced sleepers (3), the braces (11) and the joining elements (12). Once positioned, the braced sleepers (3) are aligned, levelled and concreted to the ground.

Claims

1. A preassembled track apparatus (1), which can be transported in a preassembled state, comprising at least two rails (2) equipped with a skid, wherein the preassembled track apparatus (1) has:

    - braced sleepers (3) which are intended to be fastened on a track on a concrete slab and joining at least two rails (2), positioned transversely to the direction of the track, comprising:

        - an upper sector (5), limited by two lateral sectors (4),
        - two seating slabs (7) linked to the upper sector (5),
        - at least one securing element (8) linked to each seating slab (7) and able to be coupled to the skid such that it retains the rails (2) fastening the track width,
        - a lower sector (9) opposite from the upper sector (5),

    characterised in that,
    - the lateral sectors (4) comprise holes (10) sep-

arated at a distance in the longitudinal direction of the braced sleeper (3) and at different heights,
- the lower sector (9) comprises cavities (13) close to the holes (10),

and **in that** the preassembled track apparatus (1) additionally comprises:

- braces (11) parallel to each other which link the braced sleepers (3), wherein the ends of each brace (11) comprise a joining segment (6) able to be coupled to the holes (10) and,
- at least one joining element (12) for each joining segment (6), which retain the braces (11) in the holes (10) fastening the position thereof.

2. The preassembled track apparatus (1) of claim 1, wherein the joining elements (12), at least two for each joining segment (6), consisting of at least one joining element (12) positioned inside the cavity (13) and of at least one other joining element (12) close to the lateral sector (4).

3. The preassembled track apparatus (1) of claim 1, wherein the joining segments (6) are threaded, and the joining elements (12) are joining components with a thread complementary to the joining segment (6).

4. The preassembled track apparatus (1) of claim 1, wherein the braced sleepers (3) are made of plastic material.

5. The preassembled track apparatus (1) of claim 1, wherein the braced sleepers (3) are made of ceramic material.

6. The preassembled track apparatus (1) of claim 1, comprising at least two intermediate sleepers (14) having at least one rod (15) able to be coupled to the track on a concrete slab.

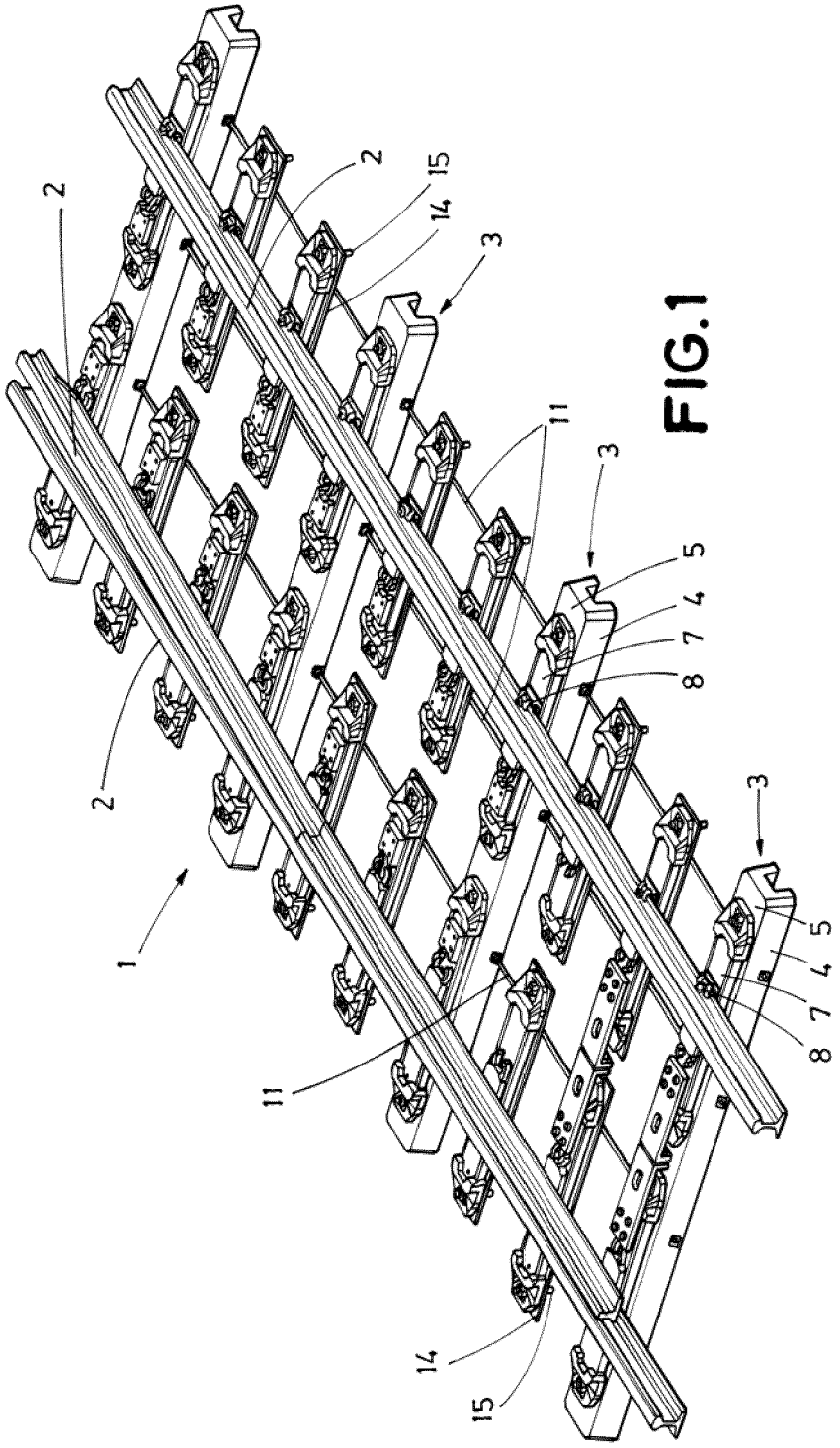

FIG.1

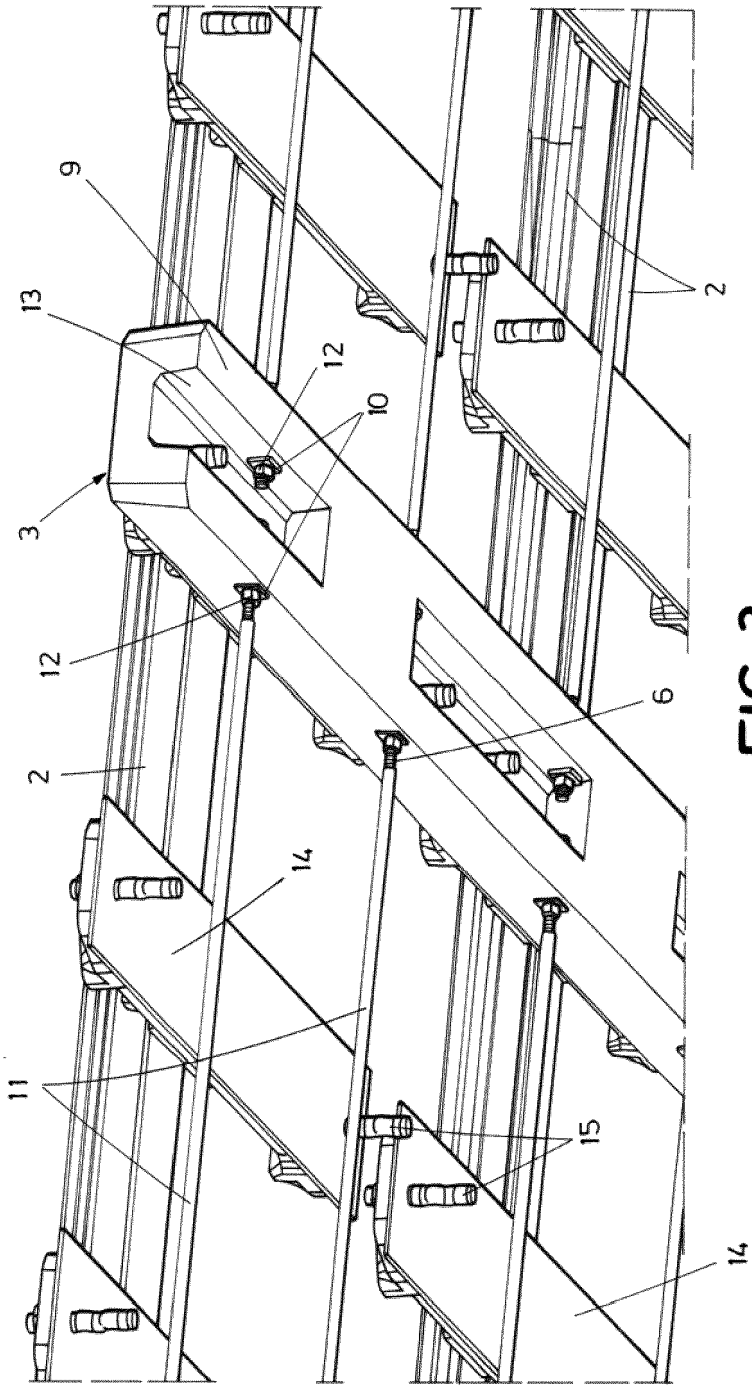

FIG.2

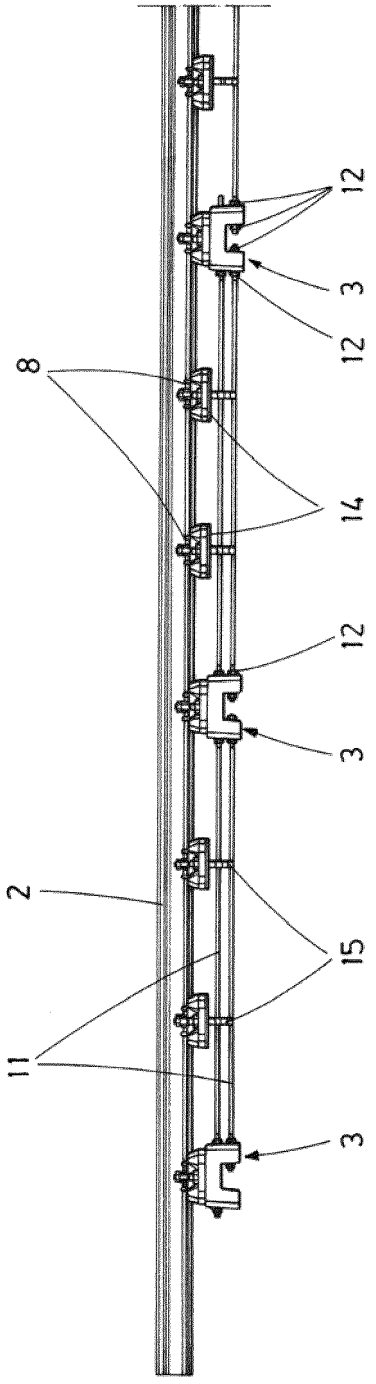

FIG.3

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EUROPEAN SEARCH REPORT

Application Number
EP 20 38 2661

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	US 3 442 222 A (OLSON PER-ERIK ET AL) 6 May 1969 (1969-05-06) * the whole document *	1-6	INV. E01B3/44 E01B29/02
A	WO 2005/103383 A1 (PLICA PETER [DE]; PLICA SEBASTIAN) 3 November 2005 (2005-11-03) * page 5; figures 1,2 *	1-6	
A	JP H10 195802 A (KUBOTA KK) 28 July 1998 (1998-07-28) * paragraphs [0008] - [0020]; figures *	1	
			TECHNICAL FIELDS SEARCHED (IPC) E01B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	16 October 2020	Movadat, Robin

CATEGORY OF CITED DOCUMENTS

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

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 20 38 2661

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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16-10-2020

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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