(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 916 002 B1

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
25.09.2002 Bulletin 2002/39

(21) Application number: **97933979.3**

(22) Date of filing: **23.07.1997**

(51) Int Cl.[7]: **E01B 29/16**, E01B 29/02

(86) International application number:
PCT/SE97/01308

(87) International publication number:
WO 98/005821 (12.02.1998 Gazette 1998/06)

(54) **DEVICE FOR LAYING RAILS**

VORRICHTUNG ZUM SCHIENENLEGEN

DISPOSITIF SERVANT A POSER DES RAILS

(84) Designated Contracting States:
AT DE DK FI FR GB SE

(30) Priority: **05.08.1996 SE 9602921**

(43) Date of publication of application:
19.05.1999 Bulletin 1999/20

(73) Proprietor: **Jansson, Ulf**
710 41 Fellingsbro (SE)

(72) Inventor: **Jansson, Ulf**
710 41 Fellingsbro (SE)

(74) Representative: **Lindgren, Anders**
Dr. Ludwig Brann Patentbyra AB,
P.O. Box 1344,
Drottninggatan 7
751 43 Uppsala (SE)

(56) References cited:
EP-A- 0 699 802
AT-B- 337 749
CH-A- 544 846
FR-A- 1 159 359

EP 0 916 002 B1

Printed by Jouve, 75001 PARIS (FR)

Description

[0001] The present invention relates to a device for laying railway track. consisting of a mobile, self-correcting conveyer incorporating a roller mounted in a cradle, which is free to pivot in a base.

Background to invention

[0002] Rails are now available in considerable lengths (360 metres at present). When laying railway track, the rails are pulled out to the desired position on the roadbed prior to final mounting on the sleepers. This operation can be facilitated by the use of conveyers which permit the rail to move forward easily over the roadbed into the said position. The position of the rail relative to the run of the track must be controlled and, as required, corrected in the lateral direction. No equipment capable of meeting this requirement is available. The invention meets this need.

[0003] **AT, B1, 337749** describes a rail lifting implement where rails rest freely on supports which are raised by an upward pivotal movement of an arm. The rail can move in all directions because of balls that are freely rotatably mounted in cages on the supports.

[0004] **FR, B1, 1159359** discloses an arrangement consisting of rolls on which rails can be moved in a longitudinal direction. Said arrangement can be moved in transverse direction in relation to the railway line. This is possible as the arrangement itself is supported on rolls extending in the longitudinal direction thereby permitting transverse movements.

Purpose and most important characteristics of invention

[0005] The purpose of the invention is to make the laying of railway track simpler and more efficient. A number of devices in accordance with the invention is placed along the roadbed at equal intervals in the longitudinal direction of the rails. When the rail is then pulled out over these devices, its position relative to the sleepers is automatically controlled and, if necessary, corrected, which is of major importance to the achievement of fast and efficient tracklaying. Once the rail has been pulled out and is in the correct position relative to the sleepers, it can be transferred easily from the invention to the sleepers. The most important characteristic of the invention is that the roller over which the rail is drawn is free to turn relative to both the rail and the roadbed.

Description of drawings

[0006] Fig. 1 shows the invention in elevation and plan.

Description of embodiment

[0007] The invention consists of a roller (1) mounted in a cradle (2) provided with a journal (5), which is movably mounted in a base (7) provided with a carrying handle (6) and with twin stops (4), which limit the turning movement of the cradle and, therefore, that of the roller relative to the rail and the base, and in which the cradle arms (8) are either fixed, partly to prevent the rail from slipping off the roller and partly to permit the rail to pull the cradle with it in the direction of travel of the rail, thereby changing the direction of the centre line of the roller in relation to the longitudinal direction of the rail, an effect which is achieved if the cradle arms are semicircular in section, with the rounded part facing the roller, or can be lowered (3 and 3A) to facilitate removal of the rail from the roller.

[0008] The mobile, self-correcting device is used in the following way: an unspecified number of devices is placed in advance at equal intervals along the stretch of a roadbed over which new or used rails are to be pulled, each such device being provided with a roller which, in addition to its capacity to facilitate movement of the rail by turning freely, is free to pivot horizontally relative to both the longitudinal direction of the rail which is pulled over it and to the ground on which the device is placed, thereby enabling compensation to be applied for curvatures of different types in both the rail and ground, due to the fact that if the rail tends to move sideways when pulled forward and, as a result, moves outward towards either of the cradle arms, it will, for a short time, bear against and pull with it the said cradle arm in the direction of travel of the rail, whereupon the alignment of the centre line of the roller relative to the longitudinal direction of the rail will be changed, causing the rail to return towards the centre of the roller and, as a result, towards the centre of the device and remain there until another correction is required, an occurrence which cannot be predicted but which, due to the free movement of the roller relative to both the rail and the underlying surface, occurs automatically at all times as the rail is pulled over the device.

Claims

1. Mobile, self-correcting device, an unspecified number of which is placed at equal intervals along the stretch of a roadbed over which new or used rails are to be pulled, each such device being provided with a roller (1) mounted horizontally in a cradle (2) provided with a vertically oriented journal (5), which is pivotably mounted in a base (7) provided with a carrying handle (6) and with twin stops (4), which limit the turning movement of the cradle and, therefore, that of the roller relative to the rail and the base, and in which the cradle arms (8) are either fixed, partly to prevent the rail from slipping off the

roller and partly to permit the rail to pull the cradle with it in the direction of travel of the rail, thereby changing the direction of the centre line of the roller in relation to the longitudinal direction of the rail, an effect which is achieved if the cradle arms are semicircular in section, with the rounded part facing the roller, or in which the cradle arms are collapsible (3 and 3A) to facilitate removal of the rail from the roller.

2. Device according to claim 1, ***characterised in that*** the positions of the stops (4) on the base (7) form an angle (9) of between 0 and 180 degrees as measured from the apex, which is located in or around the hole provided in the base for the journal (5).

3. Device according to claim 1, ***characterised in that*** the base (7) is provided with a carrying handle (6) of wood, plastic, steel, wire, leather or hemp.

4. Device according to claim 1, ***characterised in that*** the arms (8 and 3) of the cradle (2) are provided with movable rollers or are designed with a semicircular cross-section, the rounded part of which faces the roller (1).

5. Device according to claim 4, ***characterised in that*** the cradle arm (3) may be lowered, as required, from a vertical to a horizontal position (3A).

6. Device according to claim 1, ***characterised in that*** the base (7) is made of alloy steel, unalloyed steel, aluminium, timber, reinforced concrete or plastic.

7. Device according to claim 1, ***characterised in that*** an unspecified number of devices is placed, in advance or in conjunction with tracklaying, at equal intervals along the stretch of roadbed over which new or used rails are to be pulled.

Patentansprüche

1. Mobile selbstkorrigierende Vorrichtung, von der eine nicht spezifizierte Anzahl in gleichen Intervallen entlang dem Verlauf eines Bahnkörpers angeordnet wird, worüber neue oder gebrauchte Schienen gezogen werden sollen, wobei jede derartige Vorrichtung mit einer Rolle (1) versehen ist, die in einem Gestell (2) horizontal montiert ist, das mit einem vertikal ausgerichteten Lagerzapfen (5) versehen ist, der auf einer Basis (7) schwenkbar montiert ist, die mit einem Traggriff (6) und mit Zwillingsstoppern (4) versehen ist, die die Schwenkbewegung des Gestells und daher diejenige der Rolle in bezug auf die Schiene und die Basis begrenzen, und worin die Gestellarme (8) beide fixiert sind, zum Teil um zu verhindern, dass die Schiene von der Rolle rutscht, und zum Teil um zu gestatten, dass die Schiene das Gestell mit sich in die Bewegungsrichtung der Schiene zieht, wodurch die Richtung der Mittellinie der Rolle in bezug auf die Längsrichtung der Schiene geändert wird, ein Effekt, der erzielt wird, falls die Gestellarme im Querschnitt halbkreisförmig sind, wobei der abgerundete Teil der Rolle zugewandt ist, oder worin die Gestellarme zusammenklappbar (3 und 3A) sind, um eine Entfernung der Schiene von der Rolle zu erleichtern.

2. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** die Positionen der Stopper (4) auf der Basis (7) einen Winkel (9) zwischen 0 und 180 Grad vom Scheitel aus gemessen bilden, der in oder bei dem in der Basis für den Lagerzapfen (5) ausgebildeten Loch liegt.

3. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** die Basis (7) mit einem Traggriff (6) aus Holz, Kunststoff, Stahl, Draht, Leder oder Hanf versehen ist.

4. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** die Arme (8 und 3) des Gestells (2) mit beweglichen Rollen versehen sind oder mit einem halbkreisförmigen Querschnitt gestaltet sind, dessen abgerundeter Teil der Rolle (1) zugewandt ist.

5. Vorrichtung nach Anspruch 4, **dadurch gekennzeichnet, dass** der Gestellarm (3) nach Bedarf aus einer vertikalen in eine horizontale Stellung (3A) abgesenkt werden kann.

6. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** die Basis (7) aus legiertem Stahl, nicht-legiertem Stahl, Aluminium, Nutzholz, Stahlbeton oder Kunststoff hergestellt ist.

7. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** eine nicht spezifizierte Anzahl Vorrichtungen vor oder in Verbindung mit einem Schienenlegen in gleichen Intervallen entlang dem Verlauf eines Bahnkörpers angeordnet wird, über den neue der gebrauchte Schienen gezogen werden sollen.

Revendications

1. Dispositif mobile, auto-correcteur, dont un nombre non-précisé de ce type est placé à intervalles réguliers tout au long de l'étendue d'une plate-forme de voie sur laquelle des rails nouveaux ou utilisés doivent être tractés, chacun de ces dispositifs étant muni d'un rouleau (1) monté horizontalement dans

un glissoir (2) muni d'un essieu (5) orienté verticalement, qui est monté de manière pivotante dans une base (7) munie d'une poignée de transport (6) et de deux butées symétriques (4), qui limitent le mouvement de rotation du glissoir et, de ce fait, celui du rouleau par rapport au rail et à la base, et dans lequel les supports du glissoir (8) sont chacun fixés, pour en partie empêcher le rail de glisser du rouleau et pour en partie permettre au rail de tracter le glissoir avec lui dans la direction de cheminement du rail, de ce fait changeant la direction de la ligne centrale du rouleau en fonction de la direction longitudinale du rail, un résultat qui est atteint si les supports du glissoir sont en section semi-circulaire, avec la partie arrondie faisant face au rouleau, ou dans lequel les supports du glissoir sont repliables (3 et 3A) afin de faciliter le déplacement du rail quittant le rouleau.

2. Dispositif selon la revendication 1, **caractérisé en ce que** les positions des butées (4) sur la base (7) forment un angle (9) compris entre 0 et 180 degrés comme mesuré à partir du sommet, qui est situé dans ou autour de l'orifice prévu dans la base de l'essieu (5).

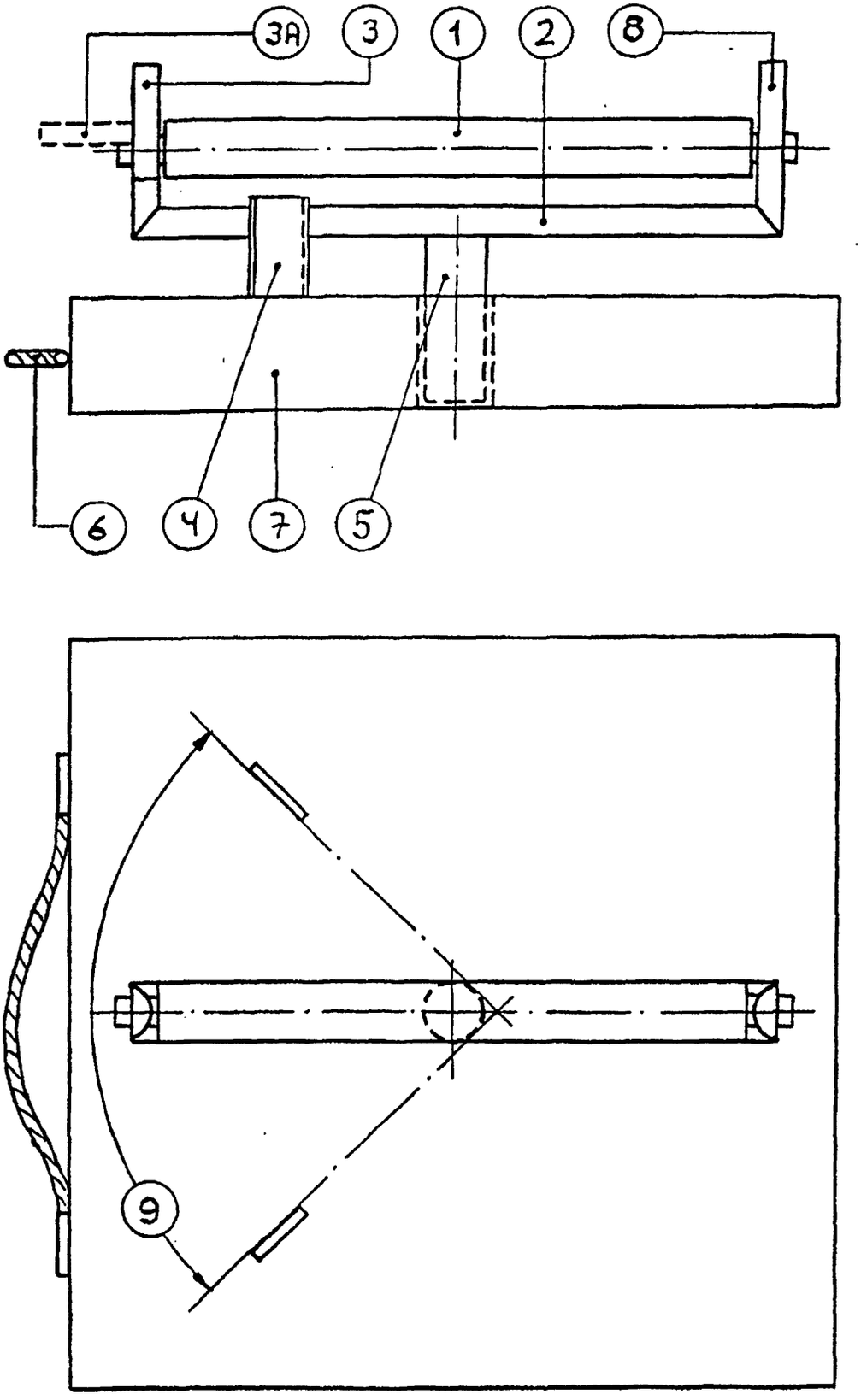
3. Dispositif selon la revendication 1, **caractérisé en ce que** la base (7) est munie d'une poignée de transport (6) en bois, plastique, acier, métal, cuir ou chanvre.

4. Dispositif selon la revendication 1, **caractérisé en ce que** les supports (8 et 3) du glissoir (2) sont munis de rouleaux déplaçables qui sont désignés avec une section transversale semi-circulaire, la partie arrondie de celle-ci faisant face au rouleau (1).

5. Dispositif selon la revendication 4, **caractérisé en ce que** le support (3) du glissoir peut être abaissé, comme demandé, d'une position verticale à une position horizontale (3A).

6. Dispositif selon la revendication 1, **caractérisé en ce que** la base (7) est fabriquée en alliage d'acier, acier pur, aluminium, bois, béton renforcé ou plastique.

7. Dispositif selon la revendication 1, **caractérisé en ce qu'**un nombre non précisé de dispositifs est placé, par avance ou en conjonction avec la pose des voies, à intervalles réguliers le long d'une étendue de la plate-forme de la voie sur laquelle des rails nouveaux ou utilisés doivent être tractés.



Figur 1