



New connection on: : 13-10-2018 : 05:59:21 - Last disconnection on: : 11-10-2018 : 23:03:20

V 4.0.0.44358(LP,U,linux) (Rev:43856 2017-04-27 09:03:29 +0200#(D201802)) (RPM D201802)

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 Database: EPODOC

[EPODOC: SS 1] rail and guide+

Results in EPODOC **239.575**

[SS 2] vehicle+ and turnout

Results in EPODOC **335**

[SS 3] 1 and 2

Results in EPODOC **41**

[SS 4] center

Results in EPODOC **1.532.697**

[SS 5] 3 and 4

Results in EPODOC **2**

[SS 6] 3

Results in EPODOC **41**

[SS 7] ..v

[EPODOC: SS 7] ..li



1/41 © EPODOC / EPO

PN - [MX2017015652](#) A 20180619

PR - EP20150382294
20150605; WO2016ES70415
20160603

AP - MX20170015652 20160603

DT - I

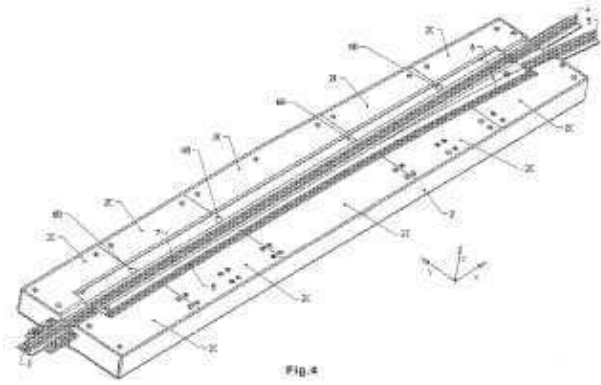
CCI - [E01B25/28](#)

CUI - [B61L5/10](#)

PA - JEZ SIST FERROVIARIOS S L [ES]

TI - OPERATING AND LOCKING
MECHANISM FOR TURNOUTS
OFCENTRAL **RAIL-GUIDED**
VEHICLES.

AB - An operating and locking
mechanism for turnouts of
central **rail-guided vehicles**,
where the mechanism at the
entrance of the **turnout**
comprises: - a **guide** block
(10) fixed to a fixed part (2)
comprising two **guide** grooves
(10A, 10B), - two shafts (12A,
12B) fixed to a moving panel
(6), - a moving rocking lever
(14) which pivots around a
shaft (14A) attached to the
fixed element (2) and
centered with respect to
the **guide** block (10) and
perpendicular to the main
plane thereof, where said
rocking lever (14) comprises
grooves (14B, 14C) located on
the main plane of the rocking
lever (14) within which
rollers (12E, 12F) which are
at a higher level (Z) with
respect to the rollers (12C,
12D) of the shafts (12A, 12B)
can be moved and rolled, and
where the mechanism at the
exit of the **turnout** comprises:
- a **guide** block (11) fixed to
the fixed part (2) comprising
two **guide** grooves (11A, 11B),
- two shafts (13A, 13B) fixed
to the moving panel (6), - a
moving rocking lever (16)
which pivots around a shaft
(16A) attached to the fixed
element (2) and centered with



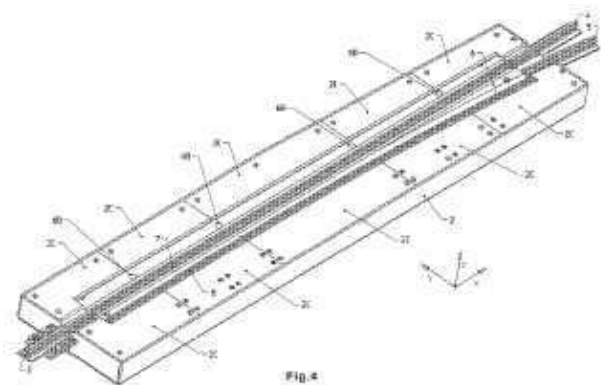
respect to the **guide** block (11) and perpendicular to the main plane thereof, where said rocking lever (16) comprises grooves (16B, 16C) located on the main plane of the rocking lever (16) within which rollers (13E, 13F) which are at a higher level (Z) with respect to the rollers (13C, 13D) of the shafts (13A, 13B) can be moved and rolled.

2/41 © EPODOC / EPO

- PN - [CN108217452](#) A 20180629
- PR - CN201711476296 20171229
- AP - CN201711476296 20171229
- DT - I
- CNOI - [B66C7/12](#)
- PA - LINYI MINING GROUP CO LTD
- TI - Continuous towing **vehiclepneumaticturnout** device
- AB - The invention discloses a continuous towing **vehiclepneumaticturnout** device, which comprises a straight **rail** body and a curve **rail** body. The straight **rail** body is connected with a guard **rail**; a point **rail** inserting plate **guide** groove is formed in the straight **rail** body; a point **rail** is arranged between the straight **rail** body and the curve **rail** body, and is connected with a pneumatic guiding node; a point **rail** moving inserting plate is arranged on the left side of the pneumatic guiding node; a towing through slot is formed in the curve **rail** body. The invention relates to the continuous towing **vehiclepneumaticturnoutdevice**, and provides the towing **vehicleturnout** device with high efficiency and high practicability. The device can be used for guiding and protecting a towing steel wire rope in a curve **turnout**, so that the steel wire rope of a towing **vehicle** is not long-time rubbed with a point **rail** connecting part, a guard **rail** sharp surface, a withdrawing fork and the like during curve conveying, the wear degree of the towing steel wire rope is greatly reduced, and the service life of the towing steel wire rope is prolonged.

3/41 © EPODOC / EPO

- PN - [US2018163347](#) A1 20180614
- PR - EP20150382294
20150605; WO2016ES70415
20160603
- AP - US201615579691 20160603
- DT - **
- CCI - [E01B25/28](#)
- CUI - [B61L5/10](#)
- PA - JEZ SIST FERROVIARIOS S L
[ES]; VOESTALPINE VAE GMBH
[AT]
- TI - OPERATING AND LOCKING



MECHANISM FOR TURNOUTS
OF CENTRAL **RAIL-GUIDED**
VEHICLES

AB

- An operating and locking mechanism for turnouts of central **rail-guided vehicles**, where the mechanism at the entrance of the **turnout** includes: a **guide** block fixed to a fixed part comprising having two **guide** grooves, two shafts fixed to a moving panel, a moving rocking lever which pivots around a shaft attached to the fixed element and centered with respect to the **guide** block and perpendicular to the main plane thereof, where the rocking lever includes grooves located on the main plane of the rocking lever within which rollers which are at a higher level with respect to the rollers of the shafts can be moved and rolled, and where the mechanism at the exit of the **turnout** includes: a **guide** block fixed to the fixed part having two **guide** grooves, two shafts fixed to the moving panel, a moving rocking lever which pivots around a shaft attached to the fixed element and centered with respect to the **guide** block and perpendicular to the main plane thereof, where the rocking lever comprises grooves located on the main plane of the rocking lever within which rollers which are at a higher level Z with respect to the rollers of the shafts can be moved and rolled, where the rocking levers move in a synchronous manner and in the same direction by means of rods of the drive motor, generating a rotation of the moving panel around the pivoting point

such that the shafts simultaneously reach their locking positions through either the direct route or the diverted route.

4/41 © EPODOC / EPO

PN - [CN108138451](#) A 20180608

PR - EP20150382294
20150605; WO2016ES70415
20160603

AP - CN20168039986 20160603

DT - I

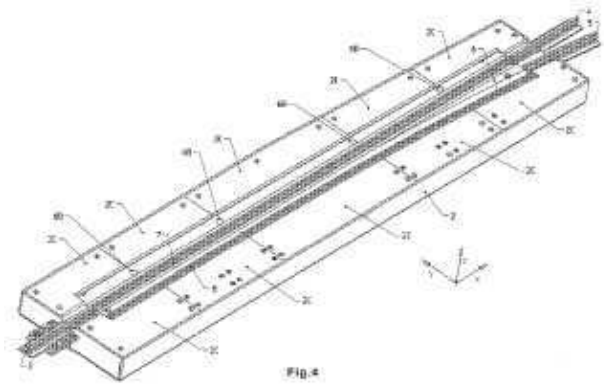
CCI - [E01B25/28](#)

CUI - [B61L5/10](#)

PA - JEZ SIST FERROVIARIOS S L;
VOESTALPINE VAE GMBH

TI - OPERATING AND LOCKING
MECHANISM FOR TURNOUTS
OF CENTRAL RAIL-GUIDED
VEHICLES

AB - The invention provides an operating and locking mechanism for turnouts of central **rail-guided vehicles**, wherein the mechanism at the entrance of the **turnout** comprises: - a **guide** block (10) fixed to a fixed part (2) comprising two **guide** grooves (10A, 10B), - two shafts (12A, 12B) fixed to a moving panel (6), - a moving rocking lever (14) which pivots around a shaft (14A) attached to the fixed element (2) and centered with respect to the **guide** block (10) and perpendicular to the main plane thereof, where said rocking lever (14) comprises grooves (14B, 14C) located on the main plane of the rocking lever (14) within which rollers (12E, 12F) which are at a higher level (Z) with respect to the rollers (12C, 12D) of the shafts (12A, 12B) can be moved and rolled, and where the mechanism at the exit of the **turnout** comprises:



- a **guide** block (11) fixed to the fixed part (2) comprising two **guide** grooves (11A, 11B),
 - two shafts (13A, 13B) fixed to the moving panel (6), - a moving rocking lever (16) which pivots around a shaft (16A) attached to the fixed element (2) and centered with respect to the **guide** block (11) and perpendicular to the main plane thereof, where said rocking lever (16) comprises grooves (16B, 16C) located on the main plane of the rocking lever (16) within which rollers (13E, 13F) which are at a higher level (Z) with respect to the rollers (13C, 13D) of the shafts (13A, 13B) can be moved and rolled.

5/41 © EPODOC / EPO

PN - [CN207468992U](#) U 20180608
 PR - CN201721163460U 20170912
 AP - CN201721163460U 20170912
 DT - I
 PA - QINHUANGDAO SHANHAIGUAN WORKS EQUIPMENT CO LTD
 TI - Five gauge mixed gage **turnout**
 AB - The utility model discloses a five gauge mixed gage **turnout**, including a set of railway switch and three group's stiff frogs, the railway switch includes two stock rails, two tip of a root rails and four **guide** rails, and two stock rails are a sharp stock **rail** and a curve stock **rail** respectively, and two tip of a root rails are a sharp switch blade and a curve switch blade respectively, and two tip of a root rails are connected in order to realize that coordinated control opens and shuts through a pull rod and a switch ware, four **guide** rails are first **guide rail**, second **guide rail**, third **guiderail** and fourth **guide rail** respectively, three group's stiff frogs include fixed curve high manganese steel frog of two groups and a set of fixed sharp high manganese steel frog, four sharp guardrails, and two side direction guardrails and ten **guide** rails, three group's stiff frogs are connected and are a whole. The utility model discloses can make multiple gauge **vehicle** pass through switch, a large amount of construction fund and a circuit station field land used is saved to the rate of utilization at furthest's improvement circuit station, and economic benefits is showing.

6/41 © EPODOC / EPO

PN - [CN107642008](#) A 20180130
 PR - CN201711044556 20171031
 AP - CN201711044556 20171031
 DT - I

PA - CN RAILWAY SIYUAN SURVEY & DES

TI - Flexible monorail **turnout** with high switch crossing speed

AB - The invention discloses a flexible monorail **turnout** with a high switch crossing speed, and belongs to the technical field of monorail turnouts. A positive wire **rail** beam, a positive fixed end and a lateral fixed end are arranged in a monorail line, a flexible beam body is arranged between the positive wire **rail** beam and the fixed end to communicate the positive wire **rail** beam with the fixed end, afixing device and a damping support device are arranged on the flexible beam body to effectively realize accurate connection and stable support of the flexible beam body, a **guided vehicle**, a **guide rail** and a driving device are matched to **guide** the flexible beam body in bending and abutting joint, and further smooth crossover of a train at the monorail **turnout** is realized. According to the flexible monorail **turnout**, smoothness of the **turnout** beam is effectively improved, interference and impact of the monorail train during beam replacement in a **turnout** zone are decreased, crossover comfort and safety of the monorail train are greatly improved, the crossover speed and the efficiency of the monorail train are effectively increased, the crossover cost of the monorail train is reduced, and application of monorail transportation is promoted.

7/41 © EPODOC / EPO

PN - [CA2988206](#) A1 20161208

PR - EP20150382294
20150605; WO2016ES70415
20160603

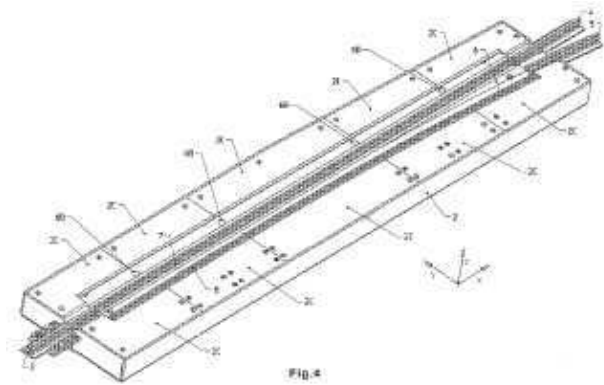
AP - CA20162988206 20160603

DT - I

CCI - [E01B25/28](#)

CUI - [B61L5/10](#)

PA - JEZ SIST FERROVIARIOS S L
[ES]; VOESTALPINE VAE GMBH
[AT]



TI - OPERATING AND LOCKING
MECHANISM FOR TURNOUTS
OF CENTRAL **RAIL-GUIDED**
VEHICLES

AB - An operating and locking
mechanism for turnouts of
central **rail-guided vehicles**,
where the mechanism at the
entrance of the **turnout**
comprises: - a **guide** block
(10) fixed to a fixed part (2)
comprising two **guide** grooves
(10A, 10B), - two shafts (12A,
12B) fixed to a moving panel
(6), - a moving rocking lever
(14) which pivots around a
shaft (14A) attached to the
fixed element (2) and
centered with respect to

the **guide** block (10) and perpendicular to the main plane thereof, where said rocking lever (14) comprises grooves (14B, 14C) located on the main plane of the rocking lever (14) within which rollers (12E, 12F) which are at a higher level (Z) with respect to the rollers (12C, 12D) of the shafts (12A, 12B) can be moved and rolled, and where the mechanism at the exit of the **turnout** comprises:

- a **guide** block (11) fixed to the fixed part (2) comprising two **guide** grooves (11A, 11B),
- two shafts (13A, 13B) fixed to the moving panel (6), - a moving rocking lever (16) which pivots around a shaft (16A) attached to the fixed element (2) and centered with respect to the **guide** block (11) and perpendicular to the main plane thereof, where said rocking lever (16) comprises grooves (16B, 16C) located on the main plane of the rocking lever (16) within which rollers (13E, 13F) which are at a higher level (Z) with respect to the rollers (13C, 13D) of the shafts (13A, 13B) can be moved and rolled.

8/41 © EPODOC / EPO

PN - [CN107352467](#) A 20171117

PR - CN20171815889 20170912

AP - CN20171815889 20170912

DT - I

CNOI - [B66F9/072](#) ; [B66F9/0755](#) ; [B66F9/07568](#) ; [B66F9/07586](#) ; [B66F9/08](#)

PA - SHANXI MAX INTELLIGENT TECH CO LTD

TI - **Turnout** rim-free **vehicle** wheel track-changing mechanism and track-changing method thereof

AB - The invention provides a **turnout** rim-free **vehicle** wheel track-changing mechanism and a track-changing method thereof. The **turnout** rim-free **vehicle** wheel track-changing mechanism comprises a linear **guide rail**, a **turnout guide rail**, an arc direction-diving **guide rail** and a rim-free **vehicle** wheel shelf, the arc direction-diving **guide rail** is arranged between the linear **guide rail** and the **turnout guide rail**, guiding wheel limiting mechanisms are arranged on both the linear **guide rail** and

the **turnout guide rail**, and a left marching mechanism and a right marching mechanism which are of the same structure are arranged at the two sides of the bottom of the rim-free **vehicle** wheel shelf respectively; the left marching mechanism comprises a front left guiding wheel, a rear left guiding wheel and a left electro-controlled electric cylinder; the right marching mechanism comprises a front right guiding wheel, a rear right guiding wheel and a right electro-controlled electric cylinder. According to the **turnout** rim-free **vehicle** wheel track-changing mechanism and the track-changing method thereof, by controlling rising and falling of the front guiding wheel and the right guiding wheel, the track-changing motion of the device is achieved, track changing is steadily conducted, the **turnout** rim-free **vehicle** wheel track-changing mechanism is convenient to install and east to control, the arrangement space of the equipment in a dense-type **rail** traffic is better saved, and the economic benefit is obvious.

9/41 © EPODOC / EPO

PN - [CN206521651U](#) U 20170926
 PR - CN201621394881U 20161219
 AP - CN201621394881U 20161219
 DT - I
 PA - HAOWENWEN
 TI - Light railway track and **rail** car become **rail** device
 AB - The utility model relates to an urban mass transit technology field specifically is a light railway track and **rail** car become **rail** device. Wherein, the cross sectional shape of the orbital track main part of light railway be the I shape, be the plate **rail** face with **rail** garage travelling wheel contact surface, the plate **rail** face sets up directly over the main part, outside an organic whole of plate **rail** face is connected with towards the edge of a wing of the salient of top, the edge of a wing is parallel with the track, its effect is exceeded orbit determination garage travelling wheel and is walked on the plate **rail** face to the **guided** way of **rail** device is become as the **rail** car. Through this track and **rail** car change **rail** device, can make switch roll of **rail** car from the integral type structure easily, the **turnout** structure of integral type structure is simple, and the security performance is high, and is with low costs, the **rail** car operation system design of a station arrival formula is reasonable, makes the through train of a plurality of two liang of websites move on same backbone, practices thrift the ground space, and just preceding rear **rail** car does not conflict mutually, the single -stop -type arrival of **rail** car, and save time, this patent scheme provides a neotype track system and operational mode, gives people the energy -conserving **vehicle** who brings a brand -new operation convenient and fast.

10/41 © EPODOC / EPO

PN - [CN107044078](#) A 20170815
 PR - CN20171013226 20170109
 AP - CN20171013226 20170109
 DT - I
 CNOI - [E01B25/12](#)
 CNOA - [E01B2202/02](#)
 PA - CHINA RAILWAY BAOJI BRIDGE GROUP CO LTD
 TI - Straddling type joint **turnout** beam-to-beam **guide** face or stable face transition device

AB - A straddling type joint **turnout** beam-to-beam **guide** face or stable face transition device is composed of connecting bolts, a flexible panel, a slide plate, a slide base plate and a fixing base. The connecting bolts penetrate through the fixed end of the flexible panel and the fixing base to be fixedly connected with the side vertical face of a first **turnout** beam. The slide base plate and the side vertical face of a second **turnout** beam are in bolt fit, and the upper side and the lower side of the outer end face of the slide base plate are provided with slide grooves. The slide plate is mounted in the slide grooves to freely slide through slide rails on the upper side and the lower side of the slide plate. The slide end of the flexible panel is fixedly connected with the outer end face of the slide plate through the connecting bolts to enable the flexible panel to be located between **guide** face or stable face connectors of the first **turnout** beam and the second **turnout** beam, and the outer vertical face of the flexible panel is flush with the **guide** faces or the stable faces of the first **turnout** beam and the second **turnout** beam. By adoption of the straddling type joint **turnout** beam-to-beam **guide** face or stable face transition device, the problem of mutual impact when a **vehicle** passes through the turnouts can be solved, traveling comfort and safety of the monorail **vehicle** are ensured, and the high-speed passing-through demand of a small-traffic-volume straddling type **rail** traffic system is met.

11/41 © EPODOC / EPO

PN - [CN106480789](#) A 20170308

PNFP - CN106480789B B 20180413

PR - CN201611178205 20161219

AP - CN201611178205 20161219

DT - I

CT - || STSE (A)

[FR2845401](#) A1 20040409 [A] (COGIFER [FR])

[A] 1-10

* 全文 *;

[CN201826224U](#) U 20110511 [A] (JIANGUO GUO)

[A] 1-10

* 全文 *;

[CN202163447U](#) U 20120314 [A] (MINGXU YE)

[A] 1-10

* 全文 *;

[US8870128](#) B1 20141028 [A] (VOELKERDING DANIEL [US], et al)

[A] 1-10

* 全文 *;

[US2016144874](#) A1 20160526 [A] (ATMUR ROBERT J [US], et al)

[A] 1-10

* 全文 *;

[CN206521651U](#) U 20170926 [R] (HAO WENWEN)

[R] 1-8

* 权利要求1-8 *

CNOI - (A)

[B61F13/00](#) ; [E01B2/00](#) ; [E01B7/10](#)

PA - (A)

HAOWENWEN

TI - (A)

Light-duty railway track and **rail vehicle** track transfer device

AB	- (A) The invention relates to the technical field of urban rail transit, in particular to a light-duty railway track, and a carriage track transfer device and a rail vehicle system applied to the track. The novel track is designed with a guide flange structure; the track and the rail vehicle track transfer device can easily allow a rail vehicle to exit from a turnout with an integral structure; the turnout with the integral structure is simple, high in safety performance and low in cost; a one-stop rail vehicle operating system is reasonable in design; several direct vehicles between two stations can run on the same main track to save floor space; the front rail vehicle and the rear rail vehicle do not conflict; the rail vehicle is one-stop; the time is saved; a novel track system and an operation mode are provided; and a brand-new quick, convenient and energy-saving communication facility is brought to people.
12/41	© EPODOC / EPO
PN	- CN106049200 A 20161026
PR	- CN20161570851 20160720
AP	- CN20161570851 20160720
DT	- I
CT	- STSE (A) FI82506B B 19901130 [A] (INVENTIO AG [CH]) [A] 1-10 * 全文 *; CN201186825Y Y 20090128 [A] (MONGOLIA MAIGZ INVEST CONTROL [CN]) [A] 1-10 * 全文 *; CN201343366Y Y 20091111 [YX] (DALIAN START HI TECH DEVELOPIN [CN]) [Y] 3,7,9 * 说明书具体实施方式部分，附图1-2,4 * [X] 1-2,4-6,10; CN103420105 A 20131204 [Y] (GUANGXI MANCHEBISI AUTOMATION EQUIPMENT CO LTD) [Y] 3,7,9 * 说明书[0019]段，附图1 *; CN103587531 A 20140219 [A] (ZHONG YONGHONG, et al) [A] 1-10 * 全文 *; CN204078711U U 20150107 [A] (HUANGSHI ZHONGCHENG AUTOMATION TECHNOLOGY CO LTD) [A] 1-10 * 全文 *; CN205954417U U 20170215 [R] (CRRC CHANGJIANG VEHICLE CO LTD) [R] 1-10 * 权利要求1-10 *
CNOI	- E01B25/22 ; E01B25/26
CNOA	- E01B2202/025 ; E01B2202/048
PA	- CRRC CHANGJIANG VEHICLE CO LTD
TI	- Suspension type monorail vehicle turnout system
AB	- The invention discloses a suspension type monorail vehicle turnout system comprising a support, a suspension bracket, a drive unit, a linear guide rail , and an arc guide rail . The suspension bracket is arranged on the support movably. The drive

unit fixed on the support is used for driving the suspension bracket to move on the support. The linear **guide rail** and the arc **guide rail** that are suspended on the suspension bracket and can move with the support relative to the support are used for realizing docking with a transporting rack of an electric concentrated transportation dolly carrying a container, so that the electric concentrated transportation dolly carrying the container can pass by and can move linearly or make a turn in an arc mode. Therefore, full-automatic operation of a wharf is realized and transferring by the container truck is not needed, so that problems that the traffic pressure is high because lots of container trucks are need to transfer containers to other container logistics center and the environment is polluted by tail gas emitted by lots of container trucks can be solved.

13/41 © EPODOC / EPO

- PN - [CN105951539](#) A 20160921
- PNFP - CN105951539B B 20171212
- PR - CN20161450779 20160617
- AP - CN20161450779 20160617
- DT - I
- CT - || STSE (A)
[US2599599](#) A 19520610 [A] (AKERS HARRISON R)
 [A] 1-10
 * 全文 *;
[CN202164510U](#) U 20120314 [A] (XUANHUA IRON & STEEL GROUP LIABILITY CO LTD, et al)
 [A] 1-10
 * 全文 *;
[CN202766929U](#) U 20130306 [A] (SHANXI JINCHENG ANTHRACITE CM)
 [A] 1-10
 * 全文 *;
[CN203144846U](#) U 20130821 [A] (3RD RAILWAY SURVEY & DES INST)
 [A] 1-10
 * 全文 *;
[CN104480807](#) A 20150401 [A] (SHANDONG IRON & STEEL CO LTD)
 [A] 1-10
 * 全文 *;
[CN104875747](#) A 20150902 [A] (CHEN CHUANSHENG)
 [A] 1-10
 * 全文 *;
[CN205775651U](#) U 20161207 [R] (GUANGZHOU CRRC RAIL TRANSIT EQUIPMENT CO LTD)
 [R] 1-10
 * 权利要求1-10 *
- CNOI - (A)
[B61L5/065](#) ; [E01B7/20](#)
- CNOA - (A)
[E01B2202/025](#) ; [E01B2202/042](#) ; [E01B2202/08](#)
- PA - (A)
 GUANGZHOU ZHONGCHE RAILWAY VEHICLES EQUIPMENT CO LTD
- TI - (A)
 Train **turnout** protection device
- AB - (A)

The invention discloses a train **turnout** protection device which comprises a linear **guide rail**, a protection **rail**, a driving mechanism, a locking mechanism and a positioning mechanism. The protection **rail** is positioned between two rails and positioned above sleepers, the lower end of the protection **rail** is in sliding fit with the linear **guide rail**, the driving mechanism comprises a motor and a screw in threaded fit with the lower end of the protection **rail**, the locking mechanism comprises a locking arm, an electromagnetic switch and a lock tongue, the locking arm is positioned between each two adjacent sleepers and fixed to the protection **rail**, a locking portion is arranged at the upper end of the locking arm, and the electromagnetic switch is mounted on the sleepers and positioned above the locking portion; the positioning mechanism comprises two limiting switches and a triggering rod used for triggering the limiting switches, the limiting switches are both mounted on the side walls of the sleepers, and the triggering rod is positioned between the limiting switches. The problem that existing protection rails cannot be adjusted in position can be solved, and the train **turnout** protection device is suitable for **rail vehicles** various in inner side distance.

14/41 © EPODOC / EPO

PN - [WO2016193522](#) A1 20161208

PR - EP20150382294 20150605

AP - WO2016ES70415 20160603

DT - **

CT - [EP] ISR (A1)

[FR2755982](#) A1 19980522

[AD] (SPIE ENERTRANS [FR])

[AD] 1,4

* abstract *;

[FR2850983](#) A1 20040813

[AD] (COGIFER TF [FR])

[AD] 1,4

* abstract *;

[US2014190366](#) A1 20140710

[A] (MUKAI YASUYUKI [JP], et al)

[A] 1,4

* abstract *;

[WO2008009829](#) A2

20080124 [A] (LOHR IND [FR], et al)

[A] 1,4

* abstract *

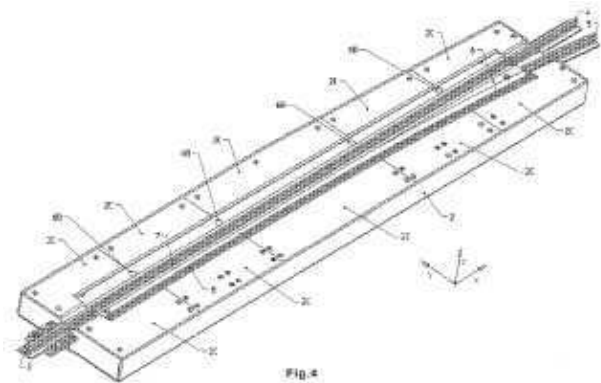
CCI - [E01B25/28](#)

CUI - [B61L5/10](#)

PA - JEZ SIST FERROVIARIOS S L
[ES]; VOESTALPINE VAE GMBH
[AT]

TI - OPERATING AND LOCKING
MECHANISM FOR TURNOUTS
OF CENTRAL **RAIL-GUIDED**
VEHICLES

AB - An operating and locking



mechanism for turnouts of central **rail- guided vehicles**, where the mechanism at the entrance of the **turnout** comprises: - a **guide** block (10) fixed to a fixed part (2) comprising two **guide** grooves (10A, 10B), - two shafts (12A, 12B) fixed to a moving panel (6), - a moving rocking lever (14) which pivots around a shaft (14A) attached to the fixed element (2) and centered with respect to the **guide** block (10) and perpendicular to the main plane thereof, where said rocking lever (14) comprises grooves (14B, 14C) located on the main plane of the rocking lever (14) within which rollers (12E, 12F) which are at a higher level (Z) with respect to the rollers (12C, 12D) of the shafts (12A, 12B) can be moved and rolled, and where the mechanism at the exit of the **turnout** comprises: - a **guide** block (11) fixed to the fixed part (2) comprising two **guide** grooves (11A, 11B), - two shafts (13A, 13B) fixed to the moving panel (6), - a moving rocking lever (16) which pivots around a shaft (16A) attached to the fixed element (2) and centered with respect to the **guide** block (11) and perpendicular to the main plane thereof, where said rocking lever (16) comprises grooves (16B, 16C) located on the main plane of the rocking lever (16) within which rollers (13E, 13F) which are at a higher level (Z) with respect to the rollers (13C, 13D) of the shafts (13A, 13B) can be moved and rolled.

PR - CN20141343455 20140718

AP - CN20141343455 20140718

DT - I

CT - || STSE (A)
[US2005192720](#) A1 20050901 [A] (CHRISTIE W B [US], et al)
 [A] 1-4
 * 全文 *;
[CN201362268Y](#) Y 20091216 [A] (XIAMEN MINE COMM TECH CO LTD [CN])
 [A] 1-4
 * 全文 *;
[CN202551346U](#) U 20121121 [A] (YANAN WANG)
 [A] 1-4
 * 全文 *

CTNP - || STSE (A)
 [A] - 郑学明等, "“井下矿数字化综合监控系统的研究和实现”", 《冶金自动化》
 [A] 1-4
 * 全文 *
 [A] - 林科等, "“煤矿机车智能调度系统研究”", 《煤炭技术》
 [A] 1-4
 * 全文 *

PA - (A)
 DONGFANG MEASUREMENT & CONTROL TECHNOLOGY CO LTD

TI - (A)
 Method for achieving optimized scheduling of downhole locomotive operation

AB - (A)
 The invention relates to a method for achieving optimized scheduling of downhole locomotive operation according to the current manual scheduling condition of downhole mine locomotive operation. By means of a scheduling optimizing algorithm, the list of scheduling areas where a locomotive passes, and the current position information, the traveling directions, the **rail** occupying conditions and the predicted running times of other locomotives in the current scheduling area and the next scheduling area of the locomotive are obtained according to a work instruction application uploaded by a **vehicle**-mounted terminal installed on the locomotive, the position where the locomotive is currently located and the position of a destination where the locomotive is about to go in a map topological structure; the running and closing conditions of the locomotives and road segments are automatically and comprehensively planned through combination with the locomotive preferential marching scheduling rules about collision avoidance, priority and the shortest destination arrival time, automatic locomotive dispatching is achieved, and a **turnout** and the states of traffic lamps are automatically controlled. Drivers are **guided** to perform production operation, the transportation capacity of a mine area can be improved, transportation and operating cost can be reduced, transportation production efficiency and the scheduling management level of the downhole locomotives can be effectively improved, and a basis is laid for downhole locomotive unmanned driving.

16/41 © EPODOC / EPO

PN - [CN204415422U](#) U 20150624

PR - CN2015245922U 20150123

AP - CN2015245922U 20150123

DT - I

PA - XIANGTAN HENGXIN INDUSTRY CO LTD

TI - Braking device of **rail** transport device

AB - The utility model discloses a braking device of a **rail** transport device. An oil cylinder is installed on a support. A push rod and a **guide** rod are installed on the two sides of a piston of the oil cylinder respectively. A **guide** rod frame is installed on the upper side of the oil cylinder. A spring push plate is installed on the **guide** rod, and a spring is installed between the spring push plate and the inner side of the upper end of the **guide** rod frame. A pressing plate is installed at one end of the push rod. A braking rod is installed on the lower side of the pressing plate. Pressing rods are installed on the pressing plate. Rotating braking plate rotating shafts are installed on the support, and rotating braking plates are installed on the rotating braking plate rotating shafts. One end of each pressing rod abuts against the corresponding rotating braking plate. Reset spring installation rods are further installed on the support. One end of a reset spring is installed on each reset spring installation rod, and the other end of each reset spring is connected to the corresponding rotating braking plate. The braking device has the advantages that the structural design is reasonable and reliable, the top face and the two lateral sides of a **rail** can be braked at the same time, the braking speed is high, and the braking effect is good; as the rotating braking plates are unfolded towards the two outer sides and upwards lifted to the portion above the **rail** face in the non-braking state through the reset springs, the unfolding angle of the rotating braking plates is large, and passing of a braking **vehicle** through a **rail turnout** is not influenced.

17/41 © EPODOC / EPO

PN - [EP3101175](#) A1 20161207

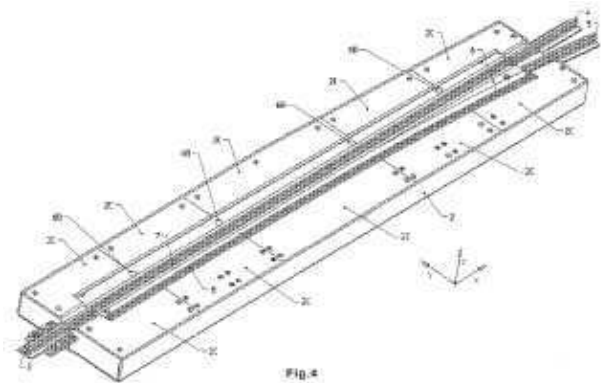
PNFP - EP3101175 B1 20180502

PR - EP20150382294 20150605

AP - EP20150382294 20150605

DT - *; Rep

CT - || STSE (A1)
[FR2755982](#) A1 19980522
 [AD] (SPIE ENERTRANS [FR])
 [AD] 1,4
 * abstract *;
[FR2850983](#) A1 20040813
 [AD] (COGIFER TF [FR])
 [AD] 1,4
 * abstract *;
[US2014190366](#) A1 20140710
 [A] (MUKAI YASUYUKI [JP], et al)
 [A] 1,4
 * abstract *;
[WO2008009829](#) A2
 20080124 [A] (LOHR IND [FR], et al)
 [A] 1,4
 * abstract *



CCI - [E01B25/28](#)

CUI - [B61L5/10](#)

PA	- (A1 B1) JEZ SIST FERROVIARIOS S L [ES]
TI	- (A1 B1) OPERATING AND LOCKING MECHANISM FOR TURNOUTS OFCENTRAL RAIL-GUIDED VEHICLES
AB	- (A1) An operating and locking mechanism for turnouts of central rail-guided vehicles , wherein the mechanism at the entrance of the turnout comprises a guide block (10) fixed to a fixed part (2) comprising two guide grooves (10A, 10B), two shafts (12A, 12B) fixed to a moving panel (6), and a moving rocking lever (14) which pivots around a shaft (14A) attached to the fixed element (2) and centered with respect to the guide block (10) and perpendicular to the main plane thereof, wherein said rocking lever (14) comprises grooves (14B, 14C) located on the main plane of the rocking lever (14) within which rollers (12E, 12F) which are at a higher level with respect to the rollers (12C, 12D) of the shafts (12A, 12B), and wherein the mechanism at the exit of the turnout comprises: - a guide block (11) fixed to the fixed part (2) and having two guide grooves (11A, 11B), - two shafts (13A, 13B) fixed to the moving panel (6), - a moving rocking lever (16) which pivots around a shaft (16A) attached to the fixed element (2) and centered with respect to the guide block (11) and perpendicular to the main plane thereof, where said rocking lever (16) comprises grooves (16B, 16C) located on the main plane of the rocking lever (16) within which rollers (13E, 13F)

which are at a higher level with respect to the rollers (13C, 13D) of the shafts (13A, 13B), wherein the rocking levers (14, 16) can move in a synchronous manner and in the same direction by means of tie rods (15A, 15C) of the control motor (15), generating a rotation of the moving panel (6) around the pivoting point (17).

18/41 © EPODOC / EPO

PN - [CN103806351](#) A 20140521

PNFP - CN103806351B B 20150909

PR - CN20121444012 20121108

AP - CN20121444012 20121108

DT - I

CT - || STSE (A)

[US4038928](#) A 19770802

[A] (DEGEN NORBERT)

[A] 1-13

全文

[WO2008059604](#) A1 20080522

[A] (MITSUBISHI HEAVY IND LTD

[JP], et al)

[A] 1-13

全文

[CN1557663](#) A 20041229 [A] (YU

JUN [CN])

[A] 1-13

全文

[DE3519683](#) A1 19861204

[A] (VERKEHRSWESEN

HOCHSCHULE [DD])

[A] 1-13

全文

[CN1640741](#) A 20050720 [A] (YU

JUN [CN])

[A] 1-13

全文

[DE2243910](#) B2 19770818 [A]

[A] 1-13

全文

[WO2004106135](#) A1 20041209

[A] (BLANCO MONTEJO

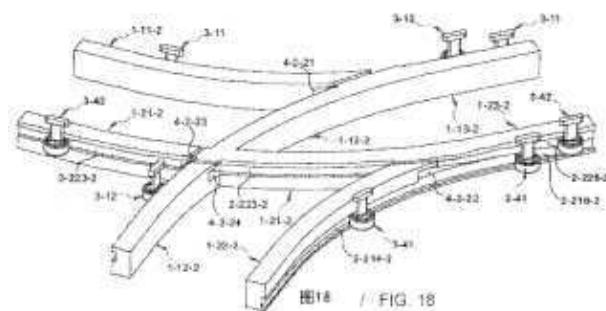
ROBERTO [ES])

[A] 1-13

全文

[CN1636812](#) A 20050713 [A] (YU

JUN [CN])



[A] 1-13

全文

CCI - [B61F9/00](#) ; [E01B25/28](#)

PA - (A)
YU JUN

TI - (A)
Rail and special **vehicle** for **rail**

AB - (A)
The invention discloses a **rail** and a special **vehicle** for the **rail**. By aiming at the condition that a **turnout** technology of an automatic traffic system cannot meet requirements of an automatic **vehicle** on high-efficiency and reliable steering, the characteristics of arranging **guide** wheel passages which are shaped like a Chinese character 'tu' and are matched up and down and high-and-low-position **guide** surfaces at interaction panel points of **rail** bars of various **turnout** zones of the **rail** are provided, so that the **vehicle** can smoothly, reliably and automatically transfer to a different **rail** and turn in various **turnout** zones only by action of ascending and descending in advance of **guide** wheels without any maneuvering control of the **rail**, and the aim of a fixed **turnout** which has higher practicality and is not provided with moving components is fulfilled. Moreover, a safer **guide** wheel shaft bracket, a **guide** wheel assembly and a bearing wheel assembly are arranged for the **guide** wheels of the **vehicle**, the safer **guide** wheel shaft bracket is of a vertical plate shape, and the **guide** wheel assembly and the bearing wheel assembly have a lifting-turning transposition function, so that the **vehicle** can reliably turn at a right angle at a

crossing **rail** switch.

19/41 © EPODOC / EPO

- PN - [CN203567718U](#) U 20140430
- PR - CN20122614618U 20121120; CN20132734755U 20131120
- AP - CN20132734755U 20131120
- DT - I
- PA - GE DALI
- TI - **Turnout** steering mechanism of suspended-type monorail bus rapid transit
- AB - The utility model discloses a **turnout** steering mechanism of a suspended-type monorail bus rapid transit. The **turnout** steering mechanism comprises a **rail**, a main **vehicle** frame and main **guide** wheels. The **rail** is composed of an upper **guide rail**, a lower **guide rail** and a **rail** support for connecting the upper **guide rail** and the lower **guide rail**. The main **guide** wheels slide on the lower **guide rail** and are installed on the main **vehicle** frame. A compartment is suspended on the main **vehicle** frame. An auxiliary **vehicle** frame is installed on the main **vehicle** frame and provided with auxiliary **guide** wheels and a magnetic attraction cup. When a **vehicle** passes through a **turnout**, attraction force is generated between the magnetic attraction cup and the upper **guide rail**, the auxiliary **guide** wheels slide on the upper **guide rail**, and a small gap is kept between the magnetic attraction cup and the upper **guide rail**. The **turnout** steering mechanism of the suspended-type monorail bus rapid transit has the advantages of being low in construction cost, simple in **rail** network, accurate in **turnout** separation, reliable in work and the like.

20/41 © EPODOC / EPO

- PN - [CN203049376U](#) U 20130710
- PR - CN20122586485U 20121108
- AP - CN20122586485U 20121108
- DT - I
- PA - YU JUN
- TI - **Rail** and special **vehicle** for same
- AB - The utility model relates to a **rail** and a special **vehicle** for the same. Aiming at the condition that a **turnout** technology of an automatic traffic system cannot meet the requirements of an automatic **vehicle** on high-efficiency and reliable steering, the utility model discloses the characteristics of arranging **guide** wheel passages which are of a shape of Chinese work "Tu" and are matched up and down and **guide** surfaces at high and low positions at interaction panel points of **rail** bars of various **turnout** zones of a **rail**, so that the **vehicle** can smoothly, reliably and automatically transfer to a different **rail** and turn in various **turnout** zones only by action of lifting and descending in advance of **guide** wheels without any maneuvering control of the **rail** and the aim of a fixed **turnout** which has higher practicality and is not provided with moving components is fulfilled. Moreover, a safer **guide** wheel shaft bracket which is of a vertical plate shape and a **guide** wheel assembly and a bearing wheel assembly which have a lifting-turning transposition function are arranged for the **guide** wheels of the **vehicle**, so that the **vehicle** can reliably turn at the right angle at a crossing **rail** switch.

21/41 © EPODOC / EPO

- PN - [CN202989698U](#) U 20130612

PR - CN20122688385U 20121214
 AP - CN20122688385U 20121214
 DT - I
 PA - KUNMING CHINA RAILWAY LARGE MAINTENANCE MACHINERY GROUP CO LTD
 TI - Main line **turnout** stabilizing **vehicle**
 AB - The utility model discloses a main line **turnout** stabilizing **vehicle** which comprises a running cab, a power room, a performance cab, a main **vehicle** rack, a driving bogie, a driven bogie, stabilizing devices and automatic centering devices, wherein the automatic centering devices are arranged on two sides of each stabilizing device; driving mechanisms which can adjust the height are arranged on each group of stabilizing devices; a vibration generator, a loading driving device, band edge rollers, a horizontal **rail** supporting device and a **rail** clamping device are further provided; and **guide** plates which can move laterally and vertically are arranged on the automatic centering devices, the upper end of each **guide** plate is connected with an underpan of the main **vehicle** rack, and the lower end is also provided with a centering block which is attached to the outer side of a steel **rail**. The utility model further relates to an operation method for the main line **turnout** stabilizing **vehicle**. According to the main line **turnout** stabilizing **vehicle**, functions are expanded on the basis of an original **rail** power stabilizing **vehicle**, so that functions of stable **turnout** operation and automatic centering are added, the stable maintenance operation of a railway **turnout** area is achieved, and the problem of difficulties in curved retraction and extension of the stabilizing devices is solved thoroughly.

22/41 © EPODOC / EPO .

PN - [CN202705823U](#) U 20130130
 PR - CN20122355141U 20120720
 AP - CN20122355141U 20120720
 DT - I
 PA - CHONGQING CHUANDONG SHIPBUILDING HEAVY INDUSTRY CORP
 TI - Walking panel of beam section of flexible **turnout** beam
 AB - The utility model discloses a walking panel of a beam section of a flexible **turnout** beam. Two horizontal sides of the walking panel are broken-line-shaped or arc-shaped curves which are adaptive to the flexible deformation of two **guide** plates of the flexible **turnout** beam. The walking panel disclosed by the utility model is suitable for forcing a walking support in the flexible deformation by adopting broken-line-shaped or arc-shaped curve structures at the two horizontal sides which are adaptive to the flexible deformation of the two **guide** plates of the flexible **turnout** beam, the walking panel is adaptive to the two **guide** plates of the beam section of the flexible **turnout** beam when the two **guide** plates are in flexible deformation, deformation interference cannot be caused, the **guide** surface of the beam section of the flexible **turnout** beam can be in smooth transition, broken lines are facilitated to remove, thus the passage of a light-**rail** train is facilitated, the comfort performance and the safety performance of the running of the light-**rail** train can be ensured, the running noise of **vehicle** can be reduced, and the walking panel has a better environment protection performance.

23/41 © EPODOC / EPO .

PN - [CN202705821U](#) U 20130130
 PR - CN20122355185U 20120720

AP - CN20122355185U 20120720

DT - I

PA - CHONGQING CHUANDONG SHIPBUILDING HEAVY INDUSTRY CORP

TI - Rollable side support plate of rollable **turnout** beam

AB - The utility model discloses a rollable side support plate of a rollable **turnout** beam. The rollable side support plate comprises two **guide** plates which are arranged above a rollable beam main body of the rollable **turnout** beam and two stabilizing plates which are arranged below the rollable beam main body of the rollable **turnout** beam. The two **guide** plates form a **guide** face. The two stabilizing plates form a stabilizing face. The **guide** plates and the stabilizing plates can achieve arc-shaped deflection deformation along a horizontal direction along with the rollable beam main body. The rollable side support plate is suitable for a light **rail turnout** which is deformed in a deflection mode, the stabilizing face and the **guide** face can achieve transition smoothly when being combined with a track changing way in a connecting mode, broken lines of the stabilizing face and the **guide** face are removed, the stability of traveling on a light **rail** can be guaranteed, and accordingly comfort and safety during traveling on the light **rail** are guaranteed, the structure is greatly simplified compared with an existing **turnout** support structure, manufacturing cost is lowered, manufacturing period is shortened, service life is long, using and maintaining cost is saved, the comfort and the safety during traveling on the light **rail** can be guaranteed, traveling noise of **vehicles** is lowered and good environmental protection property is achieved.

24/41 © EPODOC / EPO

PN - [CN102817289](#) A 20121212

PNFP - CN102817289B B 20150902

PR - CN20121253584 20120720

AP - CN20121253584 20120720

DT - I

CT - || STSE (A)

[WO2009021638](#) A1 20090219 [A] (SEW EURODRIVE GMBH & CO [DE], et al)

[A] 1-10

全文

[DE4416820](#) C2 19990701 [Y] (BUTZBACHER WEICHENBAU GMBH [DE])

[Y] 1-10

说明书第3栏第2段至第4栏第6段及图1-4

[CN2771274Y](#) Y 20060412 [Y] (CHONGQING GEARBOX LLC [CN])

[Y] 1-10

说明书"具体实施方式"部分及图1-2

[GB875087](#) A 19610816 [Y] (ALWEG FORSCHUNG GMBH)

[Y] 5-10

说明书第2页第1栏倒数第2段至第2栏第4段及图1-7

[CN2721476Y](#) Y 20050831 [A] (CHONGQING GEAR BOX CO LTD [CN])

[A] 1-10

全文

[CN201250372Y](#) Y 20090603 [Y] (CHONGQING GEARBOX CO LTD [CN])

[Y] 2-10

说明书"具体实施方式"部分及图1-5,8

[CN2389912Y](#) Y 20000802 [A] (SPECIALIST DESIGN INST MINISTR [CN])

[A] 1-10

全文

	CN201721459U U 20110126 [Y] (QINGDAO HUAXUAN TRANSP EQUIPMENT TECHNOLOGY CO LTD) [Y] 9-10 说明书0013-0014段及图1-2
PA	- (A) CHONGQING CHUANDONG SHIPBUILDING HEAVY INDUSTRY CORP
TI	- (A) Flexible turnout beam section for saddle type single track traffic track
AB	- (A) The invention discloses a flexible turnout beam section for a saddle type single track traffic track. The flexible turnout beam section comprises a traveling support and a flexible beam body which deforms in a flexible manner along a horizontal direction. The traveling support comprises a traveling face and a flexible side supporting plate. The structure of the flexible turnout beam section is formed by a flexible turnout beam section which is flexibly deformed forcibly. Flexible deformation driven by external forces occurs when the flexible turnout beam section is jointed with the track which transfers. A guide face and a stable face of the flexible turnout beam section are in smooth transition, fold lines are eliminated, so that a light rail train can pass through. Compared with the conventional turnout beam structure, structure of the flexible turnout beam section for the saddle type single track traffic track is greatly simplified, manufacturing cost is lowered, manufacturing period is shortened, service life is longer, and use and maintenance costs are saved. Traveling comfort and safety of a light rail can be ensured and traveling noise of a vehicle is reduced, so that the flexible turnout beam section for the saddle type single track traffic track has a better environmental performance.

25/41 © EPODOC / EPO

PN	- CN102787536 A 20121121
PNFP	- CN102787536B B 20150805
PR	- CN20121253603 20120720
AP	- CN20121253603 20120720
DT	- I
CT	- STSE (A) CN2771274Y Y 20060412 [Y] (CHONGQING GEARBOX LLC [CN]) [Y] 1-10 说明书"具体实施方式"部分及图1-2 DE4416820 A1 19960201 [Y] (BUTZBACHER WEICHENBAU GMBH [DE]) [Y] 1-10 说明书第3栏第2段至第4栏第6段及图1-4 CN2721476Y Y 20050831 [Y] (CHONGQING GEAR BOX CO LTD [CN]) [Y] 4-10 说明书"具体实施方式"部分及图1-2,6 CN2764813Y Y 20060315 [Y] (CHONGQING JIESHUN RAILWAY TRAF [CN]) [Y] 5-10 说明书"发明内容"部分及图1-2 GB875087 A 19610816 [Y] (ALWEG FORSCHUNG GMBH) [Y] 6-10 说明书第2页第1栏倒数第2段至第2栏第4段及图1-7 CN201250372Y Y 20090603 [A] (CHONGQING GEARBOX CO LTD [CN]) [A] 1-10 全文

	CN102107668 A 20110629 [A] (CHONGQING RAIL TRANSIT DESIGN AND RES INST CO LTD) [A] 1-10 全文 CN2751059Y Y 20060111 [A] (CHONGQING GEARBOX CO LTD [CN]) [A] 1-10 全文 JP2011122387 A 20110623 [A] (HITACHI LTD) [A] 1-10 全文 JP2001213321 A 20010807 [A] (HITACHI LTD, et al) [A] 1-10 全文 JP2009144454 A 20090702 [A] (HITACHI LTD) [A] 1-10 全文
PA	- (A)
	CHONGQING CHUANDONG SHIP HEAVY INDUSTRY CO LTD
TI	- (A)
	Straddle type single rail traffic rail flexible turnout beam
AB	- (A)
	The invention discloses a straddle type single rail traffic rail flexible turnout beam, which comprises a flexible beam section and a flexibility driving assembly, wherein the flexible beam section is used for forming the flexible turnout beam, the flexibility driving assembly is used for driving the flexible turnout beam to generate the flexibility deformation, and the flexible beam section comprises a flexible beam main body and a walking supporter. The flexible turnout beam structure formed by the flexible beam section with forced flexible deformation is adopted, when the rail conversion joint is needed, the flexibility deformation is generated through external force driving, the stabilizing surface and the guide surface of the flexible beam section are respectively in smooth transition, broken lines are eliminated, the passing of light rail trains is favorably realized, in addition, the structure is greatly simplified through being compared with that of the existing turnout structure, the manufacture cost is reduced, the manufacture work period is shortened, the service life is longer, the use and maintenance cost is saved, the comfort and the safety of the light rail running can be ensured, the vehicle running noise is reduced, and better environment protection performance is realized.
26/41	© EPODOC / EPO
PN	- CN102787535 A 20121121
PNFP	- CN102787535B B 20150819
PR	- CN20121253583 20120720
AP	- CN20121253583 20120720
DT	- I
CT	- STSE (A)
	CN201250372Y Y 20090603 [XY] (CHONGQING GEARBOX CO LTD [CN]) [X] 1-4 说明书"具体实施方式"部分及图1-5,8 [Y] 5-9 CN2389912Y Y 20000802 [X] (SPECIALIST DESIGN INST MINISTR [CN]) [X] 1

说明书第2页最后一段及图1-2

[GB875087](#) A 19610816 [Y] (ALWEG FORSCHUNG GMBH)

[Y] 5-9

说明书第2页第1栏倒数第2段至第2栏第4段及图1-7

[CN201721459U](#) U 20110126 [Y] (QINGDAO HUAXUAN TRANSP EQUIPMENT TECHNOLOGY CO LTD)

[Y] 7-9

说明书0013-0014段及图1-2

[CN2336001Y](#) Y 19990901 [A] (YANGMAHE BRIDGE FACTORY CHINES [CN])

[A] 1-9

全文

[CN201400850Y](#) Y 20100210 [A] (CHINA RAILWAY ERYUAN ENG GROUP)

[A] 1-9

全文

[JP2011122387](#) A 20110623 [A] (HITACHI LTD)

[A] 1-9

全文

[DE4416820](#) A1 19960201 [A] (BUTZBACHER WEICHENBAU GMBH [DE])

[A] 1-9

全文

[WO2008061728](#) A1 20080529 [A] (FEIX RES & DEV GMBH & CO KG PR [AT], et al)

[A] 1-9

全文

[WO2009021638](#) A1 20090219 [A] (SEW EURODRIVE GMBH & CO [DE], et al)

[A] 1-9

全文

- PA - (A)
CHONGQING CHUANDONG SHIP HEAVY INDUSTRY CO LTD
- TI - (A)
Travelling support for flexible **turnout** beam section of straddle-type monorail traffic track
- AB - (A)
The invention discloses a travelling support for a flexible **turnout** beam section of a straddle-type monorail traffic track, which comprises a travelling side and a flexible side support board, wherein the flexible side support board comprises two **guide** boards which are positioned at the upper part and two stabilization boards which are positioned at the lower part. The travelling support which can be forcefully deformed flexibly is adopted to form the flexible **turnout** beam section and a flexible **turnout** beam structure, when a track is needed to be transferred and joined, flexible deformation is generated due to the drive of the external force, both the **guide** side and the stabilization side of the flexible **turnout** beam section are in smooth transition, fold lines are eliminated, the travelling of light rails is benefited; and moreover, compared with the existing **turnout** structure, the travelling support is more greatly simplified, the manufacturing cost is lowered, the manufacturing period is shortened, the service life is longer, the use and maintenance costs are saved, the comfortability and safety of the light **rail** can be ensured, the **vehicle** travelling noise is lowered, and travelling support has better environmental protection property.

27/41 © EPODOC / EPO

PN - [CN202482718U](#) U 20121010

PR - CN20112489754U 20111201; CN2012220065U 20120117

AP - CN2012220065U 20120117

DT - I

PA - XIAOWEI SUN

TI - Device for wholly moving railway **turnout**

AB - The utility model relates to a device for wholly moving a railway **turnout**, and aims to fundamentally solve the problems that the conventional method for replacing the railway **turnout** needs to use a **turnout rail** jack, a railcar and a **rail** crane for construction in a matching mode, the cost is high, transportation resources are occupied during **vehicle** operation, a lot of blocking time for trouble clearing during replacement is occupied, a lot of manpower and materials are needed, the construction process is not safe and the like. By the device for wholly moving the railway **turnout**, the whole pre-paved **turnout** is transversely moved to a position requiring replacement through slide rails, a plurality of **guide** slide rails are arranged in the transverse movement range of the pre-paved **turnout**, and the technical point is that the device comprises at least 5 to 15 groups of moving units, wherein each group of moving units is totally provided with two **turnout** replacing trolleys which are respectively arranged on two end slide rails of two adjacent **turnout** sleepers (preferably two **turnout** sleepers equal in length) of the pre-paved **turnout**, and each **turnout** replacing trolley consists of a hydraulic lifting device, a transverse movement pulley and a longitudinal adjustment pulley. The device for wholly moving the railway **turnout** has the advantages of economical efficiency, safety, convenience, quickness and the like.

28/41 © EPODOC / EPO

PN - [CN102535276](#) A 20120704

PNFP - CN102535276B B 20131120

PR - CN201110390519 20111201; CN20121013716 20120117

AP - CN20121013716 20120117

DT - I

CT - || STSE (A)
[CN202482718U](#) U 20121010 [R] (XIAOWEI SUN)
 [R] 1-6
 * 权利要求1-6 *;
[CN101195983](#) A 20080611 [A] (SECOND BUREAU OF CHINA S RAILR [CN])
 [A] 1-6
 * 全文 *;
[CN101208480](#) A 20080625 [A] (VAE GMBH [AT])
 [A] 1-6
 * 全文 *;
[CN200974948Y](#) Y 20071114 [A] (CHINA RAILWAY EIGHTH ENGINEERI [CN])
 [A] 1-6
 * 全文 *;
[CN201137021Y](#) Y 20081022 [A] (CHINA RAILWAY ERJU CO LTD [CN])
 [A] 1-6
 * 全文 *;
[KR20040049562](#) A 20040612 [A] (SAMPYOKRT CO LTD)
 [A] 1-6
 * 全文 *

PA - (A)
 XIAOWEI SUN

	- (B)
	SUN XIAOWEI
TI	- (A B)
	Integrally-moving device for railway turnout junctions
AB	- (A)
	The invention relates to an integrally-moving device for railway turnout junctions, which solves the problems that a turnout junction rail jack, a rail car and a rail crane are needed in the existing railway turnout junction replacement method, the cost is high, transportation resources are occupied when vehicles run, a great amount of blocking time is used during replacement in fault removal, a great amount of labor and material resources are needed and the construction process is unsafe. In the integrally-moving device for railway turnout junctions, a turnout junction to be laid is integrally moved to a position to be replaced by a sliding rail , and a plurality of guide sliding rails are distributed in a transversely moving range of the turnout junction to be laid; the technical points are as follows: the device at least comprises 5-15 groups of moving units, each group of the moving units are provided with two turnout junction replacement dollies which are respectively distributed on sliding rails at two ends of each of two adjacent switch ties (preferentially, two switch ties with equal length) of the turnout junction to be laid, and each turnout junction replacement dolly consists of a hydraulic pressure lifting device, a transverse moving device, a longitudinal adjusting device. The device has the advantages of economy, safety, convenience and rapidness and the like.

29/41 © EPODOC / EPO

PN	- CN202208869U U 20120502	.
PR	- CN20112255170U 20110720	
AP	- CN20112255170U 20110720	
DT	- I	
PA	- 3RD RAILWAY SURVEY & DES INST	
TI	- Symmetrical three-throw turnout for line rails of urban rail transit engineering	
AB	- The utility model provides a symmetrical three-throw turnout for line rails of urban rail transit engineering, which is arranged on a park line rail of an underground line of the urban rail transit engineering. The structure of the symmetrical three-throw turnout comprises a group of double rail switches, a group of middle frogs, two groups of rear end frogs and connection steel rails, wherein the group of the double rail switches are respectively connected with the middle frogs through the connection steel rails and then connected with the rear end frogs through the connection steel rails to form a pair of the three-throw turnout with one straight rail and two lateral rails to guide vehicles to three directions. The symmetrical three-throw turnout has the advantages of meeting requirements that metro and light rail vehicles can run safely between main lines and the park lines, meeting relative technical standards of the urban rail transit engineering and safety requirement, standing out safety and reliability, being convenient to manufacture, lay, construct and maintain and the like. The symmetrical three-throw turnout can save invest of turnouts, remarkably shortens the length of auxiliary line, greatly saves invest of building projects, reduces construction difficulty and reduces engineering risks.	

30/41 © EPODOC / EPO

PN	- KR20110082990 A 20110720	.
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PNFP - KR101151307B B1 20120608

PR - KR20100002979 20100113

AP - KR20100002979 20100113

DT - I

CNOI - (A)
[B61B13/04](#) ; [E01B25/12](#)

CNOA - (A)
[E01B2202/02](#)

PA - (A)
HAN SHIN CONSTRUCTION CO LTD [KR]

TI - (A)
MONORAIL **GUIDERAIL** BLOCK CONNECTING DEVICE AND MONORAIL **TURNOUT** USING THE DEVICE

- (B1)
Monorail **guide rail** block connecting device and monorail **turnout** using the device

AB - (A)
PURPOSE: A monorail **guide rail** block connecting device and a monorail **turnout** device using the device are provided to simply change the moving path of a monorail railway **vehicle** and enable easy repair and maintenance. CONSTITUTION: A monorail **guide rail** block connecting device comprises a pair of connecting elements (10) and a connecting rod(20). The connecting elements are fixed to a pair of adjacent **guide rail** blocks, respectively. The connecting rod connects the connecting elements by passing through the connecting elements in the direction vertical to the ground. One of the adjacent **guide rail** blocks is rotated around the connecting rod so the moving path of a monorail railway **vehicle** can be changed.

31/41 © EPODOC / EPO

PN - [CN102107662](#) A 20110629

PR - CN20091186809 20091225

AP - CN20091186809 20091225

DT - I

PA - TUSHENG ZHANG

TI - Unmanned **rail** electric **vehicle** and sky-train system

AB - The invention relates to an unmanned **rail** electric **vehicle** and a sky-train system. Regarding the **rail** electric **vehicle**, a lane is laid by **turnout**-free light rails and an anti-impact vertical **guide** pavement closed and laminate lane, and the **vehicle** runs on the railway, thus being named as sky-train; the **rail** electric **vehicle** adopts unmanned driving, and a destination is found through addressing codes by a vehicular computer system and through road infrared remote control information; a **rail** electric **vehicle** monitor center, an automatic indoor parking lot, a high-rise high-capacity indoor parking lot, an indoor platform and a waiting room are arranged; a bus-type **rail** electric **vehicle** ticket can be booked by a method which sends a short message via an internet mobile phone, and a taxi-type **rail** electric **vehicle** or a household **rail** electric **vehicle** can be reserved for pickup on time at a right station; a steering mechanism does not have a steering wheel, the **vehicle** steering can be completed by a main steering wheel and an auxiliary steering wheel through guiding pavement; and the **rail** electric **vehicle** can be a bus type, a taxi type, a household type and an online goods delivery and receiving type.

32/41 © EPODOC / EPO

- PN - [US2009259352](#) A1 20091015
- PNFP - US8234022 B2 20120731
- PR - WO2006JP322403 20061101
- AP - US20090373800 20090218
- DT - **
- CT - || STSE (B2)
[US3902431](#) A 19750902 [] (CONTINENTAL OIL CO)
[US4089272](#) A 19780516 [] (WESTINGHOUSE ELECTRIC CORP)
[US6237504](#) B1 20010529 [] (TOYOTA MOTOR CO LTD [US])
[US6477963](#) B1 20021112 [] (BOMBARDIER TRANSPORTAION GMBH [US])
[US7757608](#) B2 20100720 [] (MITSUBISHI HEAVY IND LTD [JP])
- || R141 (A1)
[US4183304](#) A [];
[US6520303](#) B1 [];
[US6364215](#) B1 [];
[US4089272](#) A [];
[US6237504](#) B1 [];
[US7757608](#) B2 [];
[US3902431](#) A [];
[US4223611](#) A [];
[US2006200280](#) A1 [];
[US6477963](#) B1 [];
[US3822648](#) A []
- CCI - [B61B10/04](#) ; [B61B13/04](#) ; [B62D1/265](#)
- PA - (A1)
MITSUBISHI HEAVY IND LTD [JP]
- (B2)
MORICHIKA SHUNJI [JP]; MORITA KATSUAKI [JP]; KONO HIROYUKI [JP]; MOCHIDOME HIROYUKI [JP]; YAMASHITA HIROSHI [JP]; YAMAGUCHI MASAHIRO [JP]; KATAHIRA KOSUKE [JP]; MITSUBISHI HEAVY IND LTD [JP]
- TI - (A1 B2)
TRACKTRANSPORTATIONSYSTEM
- AB - (A1 B2)
The essential feature of the present invention is the provision of a track transportation system in which a **vehicle** runs on a predetermined track, being automatically steered, having a simplified and lightweight structure so as to surely ensure a safety, and to be capable of carrying out efficient and high-speed operation. The track transportation system according to the present invention incorporates a steering mechanism for automatic steering by means of an M actuator, a protection **guide rail** laid on the track, protection **guide** wheels which travel together with the **vehicle** along the protection **guide rail** without making contact with the latter, and a control means for controlling automatic steering in accordance with a result of determination by a track data determining means for determining a straight portion, a curved portion, a **turnout** portion or the like of the track in view of **vehicle** position data, and steering caused by the protection wheels making contact with the protection **guide rail**.

33/41 © EPODOC / EPO

- PN - [CN201280673Y](#) Y 20090729

PR - CN20082135952U 20080926

AP - CN20082135952U 20080926

DT - I

PA - WANFU YUE [CN]

TI - Manganese steel active heart **rail** assembling frog

AB - The utility model relates to an assembled frog with a movable manganese steel point **rail**, which comprises a lead **rail** part, a point **rail** part and a liner plate part; wherein the lead **rail** part and the liner plate part are connected with a railway crosstie through bolts and spike dogs; the point **rail** part is inserted into the lead **rail** part; and the lead **rail** part and the point **rail** part are movable separate structures. The assembled frog is simple in structure, less in component parts and good in stability and is firm and wear-resistant. When a **vehicle** runs on a straight section, the point **rail** is tightly attached to the straight section of the lead **rail**, forming a straight line; when the **vehicle** enters a side section, the point **rail** is tightly attached to the side section of the lead **rail**, forming a curved line; neither the straight section nor the side section has a harmful space, thus improving the passing speed and running safety of the railway **vehicle**; and guard rails are arranged at the outer sides of the lead **rail** to prevent the wheels of the **vehicle** from entering the opposite sides or bumping the head of the point **rail** and to **guide** the wheels of the **vehicle** to enter the right direction. The assembled frog is little in maintenance workload and convenient to transport and install and is widely applicable on a railway **turnout** for connecting a railway main track and a bypass track.

34/41 © EPODOC / EPO

PN - [EP2045163](#) A1 20090408

PNFP - EP2045163 A4 20120321

PR - WO2006JP322403 20061101

AP - EP20060823277 20061101

DT - *; Rep

CT - || STSE (A4)

[JP2006205945](#) A 20060810 [XI] (MITSUBISHI HEAVY IND LTD)
[X] 1
* paragraphs [0008] , [0011]; figure -; claim - *
[I] 2-12;
[JP2006175962](#) A 20060706 [XI] (MITSUBISHI HEAVY IND LTD)
[X] 1
* paragraphs [0008] , [0011]; figure -; claim - *
[I] 2-12;
[JP2006205944](#) A 20060810 [XI] (MITSUBISHI HEAVY IND LTD)
[X] 1
* paragraphs [0007] , [0011]; figure -; claim - *
[I] 2-12;
[JP2006205946](#) A 20060810 [XI] (MITSUBISHI HEAVY IND LTD)
[X] 1
* paragraph [0011]; figure -; claim - *
[I] 2-12;
[EP1564614](#) A1 20050817 [A] (MITSUBISHI HEAVY IND LTD [JP])
[A] 1-12
* paragraph [0001]; figure -; claim - *;
[EP0990576](#) A2 20000405 [A] (TOYOTA MOTOR CO LTD [JP])

[A] 1-12

* paragraph [0001]; figure -; claim - *

CCI - [B61B10/04](#) ; [B61B13/04](#) ; [B62D1/265](#)

PA - (A1 A4)
MITSUBISHI HEAVY IND LTD [JP]

TI - (A1 A4)
TRACK-TYPE TRAFFIC SYSTEM

AB - (A1)
The essential feature of the present invention is the provision of a track transportation system in which a **vehicle** runs on a predetermined track, being automatically steered, having a simplified and lightweight structure so as to surely ensure a safety, and to be capable of carrying out efficient and high-speed operation. The track transportation system according to the present invention incorporates a steering mechanism 26 for automatic steering by means of an M actuator 36, a protection **guide rail** 14 laid on the track 01, protection **guide wheels** 40 which travel together with the **vehicle** 12 along the protection **guide rail** 14 without making contact with the latter, and a control means 82 for controlling automatic steering in accordance with a result of determination by a track data determining means 84 for determining a straight portion, a curved portion, a **turnout** portion or the like of the track in view of **vehicle** position data, and steering caused by the protection wheels making contact with the protection **guide rail**.

35/41 © EPODOC / EPO

PN - [US5114073](#) A 19920519

PR - US19910789440
19911106; US19890427781
19891027

AP - US19910789440 19911106

DT - *

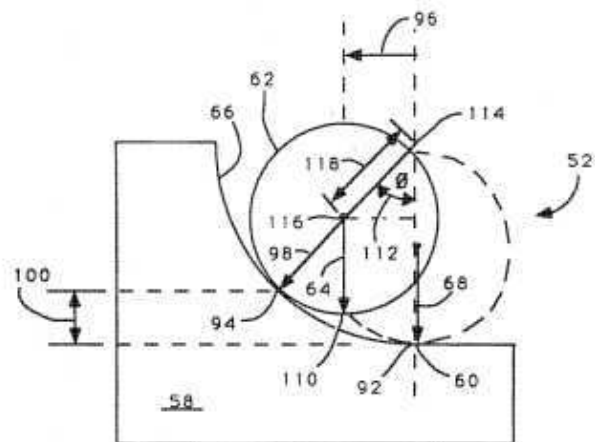
CT - [US1070248](#) A []; [US2046448](#)
A [];
[US3788233](#) A []; [US4212247](#)
A [];
[US4435829](#) A []; [FR9185](#) A [];
[FR728393](#) A []

CCI - [E01B5/14](#) ; [B60B17/00](#) ;
[B61C15/08](#)

PA - DEARIEN JR JOHN A [US]

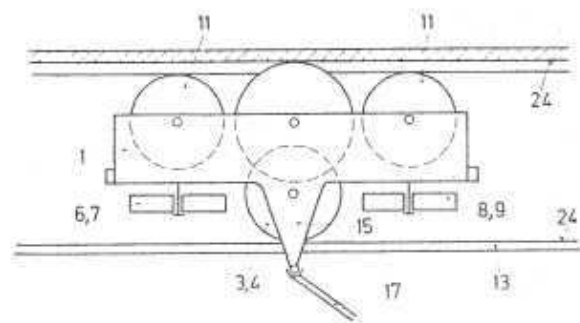
TI - Wheel and **rail** assembly

AB - A laterally stable and self-turning wheel and **rail** assembly. The curved rolling surfaces of the wheels bear against curved contact surfaces of the rails such that centrifugal force causes lateral translation of the wheels on the rails, thereby increasing the effective



rolling radius of an outside **rail** while decreasing or maintaining the same effective rolling radius of an inner wheel. The altered rolling radius causes the wheels to move along a curved path without slipping or sliding. Flanges are provided adjacent track turnouts so that **guide** members activated by a **vehicle** operator may contact the flanges to either maintain the **vehicle** in the same set of tracks, or switch the **vehicle** through the **turnout** onto a new section of track.

- 36/41** © EPODOC / EPO
- PN - [US3854409](#) A 19741217
- PR - AT19710003241
19710416; AT19710009692
19711110
- AP - US19720242178 19720407
- DT - **
- CT - [US3628462](#) A []; [US3760739](#)
A []
- CCI - [B62D1/26](#) ; [B61L23/002](#) ;
[E01B25/00](#)
- PA - SIG SCHWEIZ INDUSTRIEGES
- TI - **GUIDESYSTEM FOR VEHICLE CARRIAGES**
- AB - A system for guiding wheel carriages through the branching sections of closed rails. The carriages have a plurality of wheels or rollers mounted on fixed axes, the rollers engaging the sides of the **rail** under normal travel conditions. The system includes means for selecting the desired branch section **turnout** located in the vicinity of the branch section, which means acts on the carriage independently of the rollers and the other masses of the **vehicle**.



37/41 © EPODOC / EPO

- PN - [JP2005002746](#) A 20050106
- PR - JP20030170410 20030616
- AP - JP20030170410 20030616
- DT - I
- FI - B61B13/00&Q; B61L5/00&C; E01B25/28&B
- FT - 2D056/GB05; 3D101/BA08; 3D101/BA09; 3D101/BC02; 3D101/BC07; 3D101/BC08; 3D101/BD05
- PA - MITSUBISHI HEAVY IND LTD
- TI - **RAIL TURNOUT FOR GUIDETRACK VEHICLE**
- AB - PROBLEM TO BE SOLVED: To provide a **rail turnout** for a **guide track vehicle**, in which moment applied to the movable blade of the **turnout** is reduced to simplify its structure and dispense with welding work during its installation work.
- SOLUTION: An attachment plate 41c extends upward from the side end of a support plate 41b, a screw hole (not shown) is opened in the plate 41b and a stopper screw 46 is screwed into this screw hole. A movable blade 21 slides over the upper surface of a sliding plate 44, and its sliding limits are controlled with the stopper screw 46. Its left and right movement limits are set up by the stopper screws 46 fixed with lock nuts 47. At the stop position of the movable blade 21, the stopper screw 46 comes into contact with the side of movable plate 21.
- COPYRIGHT: (C)2005,JPO&NCIPI

38/41 © EPODOC / EPO

- PN - [JP2002146701](#) A 20020522
- PNFP - JP3433317B B2 20030804
- PR - JP20000378131 20001108
- AP - JP20000378131 20001108
- DT - I
- FI - B60L13/04&G; B60L13/10&A; E01B25/34
- FT - 2D056/DB00; 5H113/BB02; 5H113/BB06; 5H113/DA01; 5H113/DA02; 5H113/DB03; 5H113/DB14; 5H113/DC03; 5H113/DC14; 5H113/GG08
- PA - (A)
TAKAYAMA TOSHIO
- TI - (A)
TURNOUTSYSTEM FOR ULTRA-HIGH SPEED RAILWAY
- AB - (A)
PROBLEM TO BE SOLVED: To provide a **turnout** system for an ultra-high speed linear motor car railway having a mechanism suitable for shifting or automation during high speed running without shifting routes by mechanical operation by the workers or without performing the mechanical shift of a **guide rail** or a trackway made of heavy matters. SOLUTION: A crossing over from one main line to other main line is carried out via a branch line, the route is formed to a double-tracked railway line in an up-down direction in a section shifting from the main line to the branch line and in a section shifting from the branch line to the other main line, thereby performing the crossover in the up-down direction. A trackway for the main line driving having side walls at opposite positions sandwiching an opening wider than the width of a motor **vehicle** is provided; inside of this opening, a reversed T-shaped trackway for

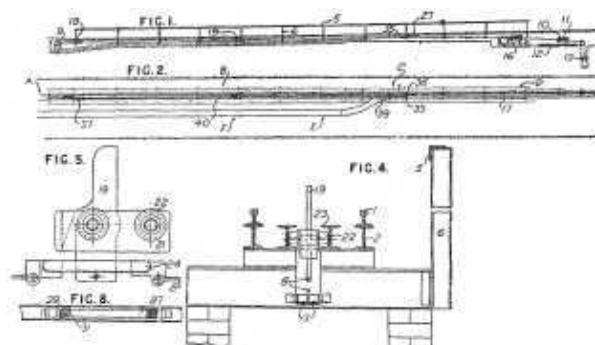
branch line running is provided; a first expansion mechanism and a second expansion mechanism equipped with expandable arm portions are provided in the lower section of the motor **vehicle**; a portion of the work is allotted to each of a means of the main line running and a means of the branch line driving by the cooperative work of the trackway for the main line driving and the trackway for the branch line running; in this way, the crossing over and automation are made possible during the high speed traveling.

39/41 © EPODOC / EPO

- PN - [JP2000043722](#) A 20000215
- PR - JP19980228639 19980728
- AP - JP19980228639 19980728
- DT - I
- FI - B61J1/10&B
- PA - KITAKEN KK; TAISEI CORP
- TI - **TURNOUT DEVICE FOR TRACK VEHICLE**
- AB - PROBLEM TO BE SOLVED: To provide a **turnout** device for a track **vehicle** not requiring the new forming of a cave in a pit in addition to the **turnout** space of the **vehicle** and entirely not requiring a cut off part on the way of the track, in the **turnout** position of the **vehicle** such as the mine car passing the track provided in the pit of a drain.
SOLUTION: A **turnout** device for sheltering a track **vehicle** 12 from the same **rail** 11 on which plural track **vehicles** 12 travel is provided with a claw member 4b insertable to the space between the **rail** 11 and track **vehicle** 12, vertically moving **guide** frame 3 for supporting the claw member 4b vertically and horizontally movably, a laterally moving **guide** frame 2, arranged on the lowerside of the **rail** 11, for supporting the vertically moving **guide** frame 3 horizontally movably, hydraulic cylinder 5 for vertically moving the claw member 4b and multi-stage hydraulic cylinder 6 for horizontally moving the vertically moving **guide** frame 3.

40/41 © EPODOC / EPO

- PN - [GB781461](#) A 19570821
- PR - GB19540001008 19540113
- AP - GB19540001008 19540113
- DT - *
- CCI - [B61J3/08](#)
- PA - COAL INDUSTRY PATENTS LTD
- TI - Improvements in or relating to means for marshalling **rail vehicles** such as mine cars or tubs
- AB - 781,461. Rope railways. COAL INDUSTRY (PATENTS), Ltd.
April 13, 1955 [Jan. 13, 1954], No. 1008/54. Class 104
(2). **Rail vehicles** are marshalled by an endless rope or chain arranged along a track or tracks to move a bogie or bogies running or



sliding in fixed **guides** beneath the **rail** level and carrying pivoted catches to engage and move a **vehicle** when moved in one direction, the catches being released when moved in the other direction. The catches 19 are pivotally mounted on trolleys 21 having flanged wheels 22 running on members 23 arranged between girders 2 supporting the main rails 1. The lower end of the catches 19, Fig. 5, engages a slot in a link member 24 connected to the endless rope 8 and the arrangement is such that when the rope 8 is moved in one direction the catch 19 abuts one end of the slot in the link 24 to be held in an upright **vehicle-engaging** position. When the rope 8 is moved in the reverse direction the catch 19 is moved to the inoperative position. A " cut of cars or tubs " is moved by a rearward catch 18 along a section A to a section B and then by catch 19 past a **turnout** C to a section D from which the " cut of cars returns by gravity through the **turnout** C to a section E which passes through a loading station F. The track is slightly upwardly inclined from the left to right of Fig. 1. Gravity catches 40 at section B hold the last car of the " cut of cars " to be moved to point D and the first car of the " cut of cars " to be moved by the catch 18 during the uncoupling operation. The rope 8 passes over wheels 9, 10 and is supported along its length by pulleys 7. The rope 8 is kept taut by the wheel 10 which is mounted on a trolley 11 running on a short length of track 12 and held in the

outward position by a suspended weight 13. The rope 8 is driven by an electric, compressed air or like reversible motor 16 through a drum 17. Spring-loaded buffers 27 mounted each end of the run between members 23 limit the movement of the catches 18, 19. The head of the buffers 27 is supported on rollers 29 running on the members 23 and is held in the outward position by a compression spring 31. Limit switches 35, 37 are secured to the members 23 at each end of the run. A second limit switch 36 mounted on the members 23 just beyond the limit switch 35 reverses the motor 16. An additional endless rope and catches may be provided to move the cars or tubs away from the loading point F. The chain in this case being driven by a wheel mounted on the same shaft as the wheel 9. A hub **guide** 5 is supported adjacent the track by posts 6. The **turnout rail** is formed with a slot 39 where it passes over the member 23 to permit the passage of the catch 19.

41/41 © EPODOC / EPO

PN - [CN200988937Y](#) Y 20071212

PR - CN2004205875U 20040308

AP - CN2004205875U 20040308

DT - I

PA - HONGLI GU [CN]

TI - Regenerating point **rail**

AB - The utility model discloses a recycling point **rail** that can cooperate with a **turnout** effectively and **guide vehicles** to enter different tracks, which is characterized in that: the recycling point **rail** is made of wasted point rails; the **rail** head in the front part of the point **rail** takes the tendency of becoming more narrow gradually; the **rail** middle is wide while the bottom of the **rail** is of a dwarf special sectional structure with long and short legs; common steel **rail** sectional structure is arranged at the back part of the point **rail**; the middle section is of a transitional structure between the structure

of the front part and that of the back part; further more, the front part of the recycling point **rail** is made of wasted point rails with the tip of the rails cut; the back part of the recycling point **rail** is made of common steel rails welded and processed; the section welded gap is of the structure of a common steel **rail** section. Moreover, a piece of plywood is arranged on each side of the welding gap.