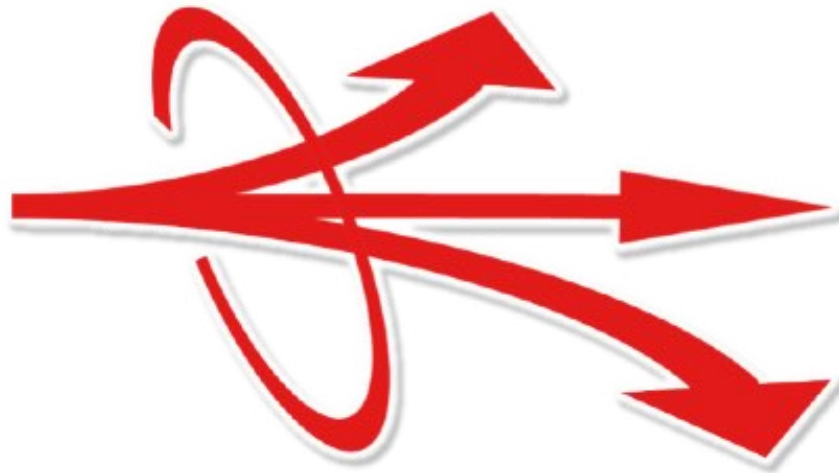




SpinSwitch

The Rotary Rail-Switch

Patent Portfolio

Patent family of the Rotary Rail-Switch invention
as of November 2024



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PATENT PORTFOLIO

PCT & Granted European Patent

<u>Jurisdiction</u>	<u>Application (nº, route)</u>	<u>Publication/Grant</u>
 PCT	PCT/EP2019/076928 (2019/10/4) EPO examination	WO2020070291 (2020/04/9)
 EUROPEAN PATENT	18382702.1 (2018/10/4) EPO examination	EP3486371 (2021/07/21) 44272-

Granted National Patents

<u>Jurisdiction</u>	<u>Application (nº, route)</u>	<u>Publication/Grant</u>
 CANADA	CA 3115168 (2021/04/1) PCT national phase	2020070291 (2020/04/9)
 CHINA	CN201980064987.4 (2021/04/2) PCT national phase	CN112789378A (2021/05/11) 44523-
 FRANCE	18382702.1 (EP) (2018/10/4) EP validation	EP3486371 (B8) (2021/07/21) 44272 (2038/10/4)
 GERMANY	18382702.1 (EP), 60 2018 014 030.1 (2018/10/4) EP validation	EP3486371 (B8) (2021/07/21) 44272 (2038/10/4)
 INDIA	202117017629 (2021/04/15) PCT national phase	IN202117017629 (2022/02/25)
 ITALY	18382702.1 (EP), 502021000058529 (2018/10/4) EP validation	EP3486371 (B8) (2021/07/21) 44272 (2038/10/4)
 JAPAN	2021-515069 (2021/05/12) PCT national phase	JP2022502585A (2022/01/11)
 KOREA	10-2021-7013084 (2021/04/29) PCT national phase	KR1020210057820 A (2021/05/21) 44565 (2039/10/4)



<u>Jurisdiction</u>	<u>Application (nº, route)</u>	<u>Publication/Grant</u>
 SAUDI ARABIA	SA521421546 (2021/03/23) PCT national phase	SA521421546
 SPAIN	18382702.1 (EP) (2018/10/4) EP validation	EP3486371 (B8) (2021/07/21) 44272 (2038/10/4)
 UNITED KINGDOM	18382702.1 (EP) (2018/10/4) EP validation	EP3486371 (B8) (2021/07/21) 44272 (2038/10/4)
 USA	17/272,357 (2021/03/1) PCT national phase	US2021340712A1 (2021/11/14)

Pending National Patents

<u>Jurisdiction</u>	<u>Application (nº, route)</u>	<u>Publication/Grant</u>
 Mexico	MX/a/2021/003220 (2021/03/18) PCT national phase	MX/E/2021/019778
 Philippines	1-2021-550493 (2021/03/9) PCT national phase	PH12021550493A1 (2021/10/4)
 Singapore	11202101840V (2021/02/24) PCT national phase	11202101840V (A) (2021/03/30)
 UAE	P6000475/2021, nº 6000475 (2021/03/29) PCT national phase	

Note: some other national patents have been granted, lapsed, and may still be recoverable.



INVENTION SCOPE

Dual International Classification

The invention is exceptionally classified by WIPO¹ as belonging not to one but 2 primary IPC² categories:

(A) Human Necessities (A63G)

(E) Fixed Constructions (E01B)



(A)
Human
Necessities

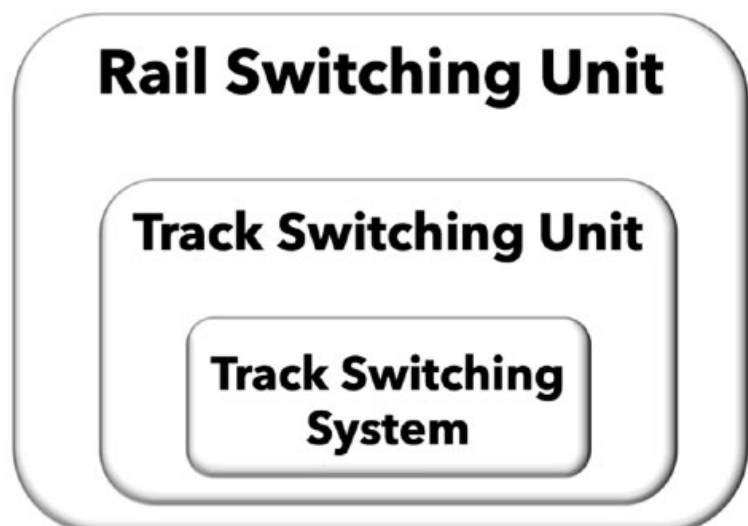


(E)
Fixed
Constructions

Triple Invention

Patents relate to 3 nested inventions presented via 3 independent claims:

- 1) a rail-switching unit
- 2) a track-switching unit
- 3) a track-switching system



¹ World Intellectual Property Organization

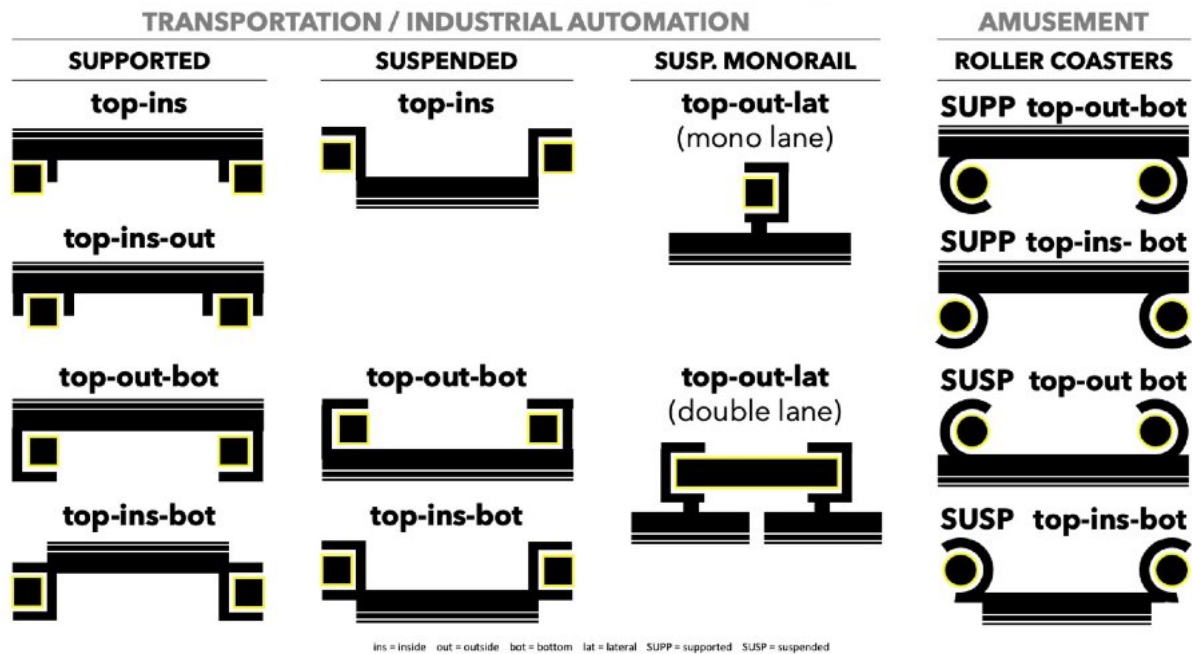
² International Patent Classification



APPLICATIONS

Summary

(Vehicle-Rail Profiles)



TRANSPORT (supported, bi-railed)

System ¹	Applications ²	Layout ³	Ways ⁴	Key Advantages ⁵	Considerations
SUPP top-ins 	Standard Railway Industrial	Horiz	2/3	• Speed • 3 ways option	- if 2-ways and rotation above guide, solid switch-rail closings - if 3-ways, rail crossing solved by standard guideway - if 3-ways, below-guide rotation and curved switch-rail closings with reaffirming mechanism
SUPP top-ins-out 	Industrial	Horiz	2	• Speed	if rotation above guide, solid switch-rail closings
SUPP top-out-bot 	MagLev HyperLoop PRT	Horiz	2	• Speed • Space	if rotation above guide, solid switch-rail closings
SUPP top-ins-bot 	MagLev HyperLoop PRT	Vert	2/3	• Speed • Space • 3 ways option	- if 2-ways, solid switch-rail closings - if 3-ways, straight switch-rail closing with reaffirming mechanism and better with longer-than-switch vehicles with over 4 points of support

¹ vehicle-rail section/wrap ² possible applications ³ orientation of curved switch-rail closing plane ⁴ n° of alternative directions enabled by SpinSwitch ⁵ vs standard 2-ways linear switch



TRANSPORT (suspended, bi-railed)

System ¹	Applications ²	Layout ³	Ways ⁴	Key Advantages ⁵	Considerations
SUSP top-ins 	PRT Industrial	Vert	2/3	• Speed • Space • 3 ways option	• if 2-ways, solid curved switch-rail closings • if 3-ways, straight switch-rail closing with reaffirming mechanism and better with longer-than-switch vehicles with over 4 points of support • up/down accelerations
SUSP top-out-bot 	MagLev	Horiz	2	• Speed • Space	• solid switch-rail closings • if mono-beam, beam divided at switch
SUSP top-ins-bot 	MagLev PRT	Vert	2/3	• Speed • Space • 3 ways option	• solid curved switch-rail closings • if 3-ways, straight switch-rail closing with reaffirming mechanism and better with longer-than-switch vehicles with over 4 points of support • up/down accelerations

¹ vehicle-rail section/wrap ² possible applications ³ orientation of curved switch-rail closing plane ⁴ n° of alternative directions enabled by SpinSwitch ⁵ vs standard 2-ways linear switch

TRANSPORT (suspended, mono-railed)

System ¹	Applications ²	Layout ³	Ways ⁴	Key Advantages ⁵	Considerations
SUSP top-out-lat (mono lane) 	Monorail Industrial PRT	Horiz	2	• Speed • Space	• solid curved switch-rail closing
SUSP top-out-lat (double lane) 	Monorail Industrial PRT	Horiz	2	• Speed • Space	• solid curved switch-rail closing

¹ vehicle-rail section/wrap ² possible applications ³ orientation of curved switch-rail closing plane ⁴ n° of alternative directions enabled by SpinSwitch ⁵ vs standard 2-ways linear switch



AMUSEMENT RIDES (Roller Coasters)

System ¹	Applications ²	Layout ³	Ways ⁴	Key Advantages ⁵	Considerations
SUPP top-out-bot 	Roller Coasters	Horiz	2	• Speed • Space	• if rotation above guide, solid switch-rail closings
SUPP top-ins- bot 	Roller Coasters PRT	Vert	2/3	• Speed • Space • 3 ways option	• if 2-ways, solid switch-rail closings • if 3-ways, straight switch-rail closing with reaffirming mechanism and better with longer-than-switch vehicles with over 4 points of support
SUSP top-out bot 	Roller Coasters PRT	Horiz	2	• Speed • Space	• solid switch-rail closings
SUSP top-ins-bot 	Roller Coasters PRT	Vert	2/3	• Speed • Space • 3 ways option	• if 2-ways, solid curved switch-rail closings • if 3-ways, straight switch-rail closing with reaffirming mechanism and better with longer-than-switch vehicles with over 4 points of support

¹ vehicle-rail section/wrap ² possible applications ³ orientation of curved switch-rail closing plane ⁴ n° of alternative directions enabled by SpinSwitch ⁵ vs standard 2-ways linear switch



PATENT GRANT CERTIFICATES

Canada



Innovation, Sciences et
Développement économique Canada
Office de la propriété intellectuelle du Canada

Innovation, Science and
Economic Development Canada
Canadian Intellectual Property Office

Brevet canadien / Canadian Patent

3,115,168

*Numéro de brevet
Patent number*

Le commissaire aux brevets a accordé un brevet pour l'invention décrite dans le mémoire descriptif portant le numéro de brevet susmentionné. Le mémoire descriptif est accessible dans la Base de données sur les brevets canadiens sur le site Web de l'Office de la propriété intellectuelle du Canada.

The Commissioner of Patents has granted a patent for the invention described in the specification under the above-noted patent number. The specification is accessible in the Canadian Patents Database on the website of the Canadian Intellectual Property Office.

**Commissaire aux brevets
Commissioner of Patents**



(CIPO - 91) 2020-08-15

Titre de l'invention / Title of invention
UNITE D'AIGILLAGE

RAIL-SWITCHING UNIT

Breveté(s) / Patentee(s)
SPIN SWITCH TECHNOLOGIES, S.L.

Inventeur(s) / Inventor(s)
SAENZ LOBSACK, DANIEL

Date de l'octroi et de la délivrance du brevet /
Patent grant and issue date
2023-12-12

Date de dépôt de la demande /
Filing date of the application
2019-10-04

Date d'accessibilité au public /
Date application open to public inspection
2020-04-09

Canada



China

证书号第4812780号





发明专利证书

发明名称：铁轨转辙单元

发明人：丹尼尔·萨恩斯·洛萨克

专利号：ZL 2019 8 0064987.4

专利申请日：2019年10月04日

专利权人：斯平斯维奇技术有限责任公司

地址：西班牙马德里

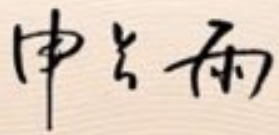
授权公告日：2021年11月23日 授权公告号：CN 112789378 B

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局长
申长雨





第1页(共2页)

其他事项参见续页



EUROPE



(11) **EP 3 486 371 B1**

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(51) Int Cl.:
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A63G 7/00 (2006.01) **A63G 21/14** (2006.01)

(21) Application number: **18382702.1**

(22) Date of filing: **04.10.2018**

(54) **RAIL-SWITCHING UNIT**
GLEISUMSCHALTEINHEIT
UNITÉ DE COMMUTATION DE RAIL

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**

(43) Date of publication of application:
22.05.2019 Bulletin 2019/21

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(56) References cited:
WO-A1-2006/133468 CN-A- 108 660 871
DE-U1- 9 302 337 GB-A- 1 404 648

EP 3 486 371 B1

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[illegible]



Japan


特 許 証
(CERTIFICATE OF PATENT)

特許第7426014号
(PATENT NUMBER)

発明の名称
(TITLE OF THE INVENTION) レールスイッチングユニット

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出願番号
(APPLICATION NUMBER) 特願2021-515069

出願日
(FILING DATE) 令和 1年10月 4日(October 4, 2019)

登録日
(REGISTRATION DATE) 令和 6年 1月24日(January 24, 2024)

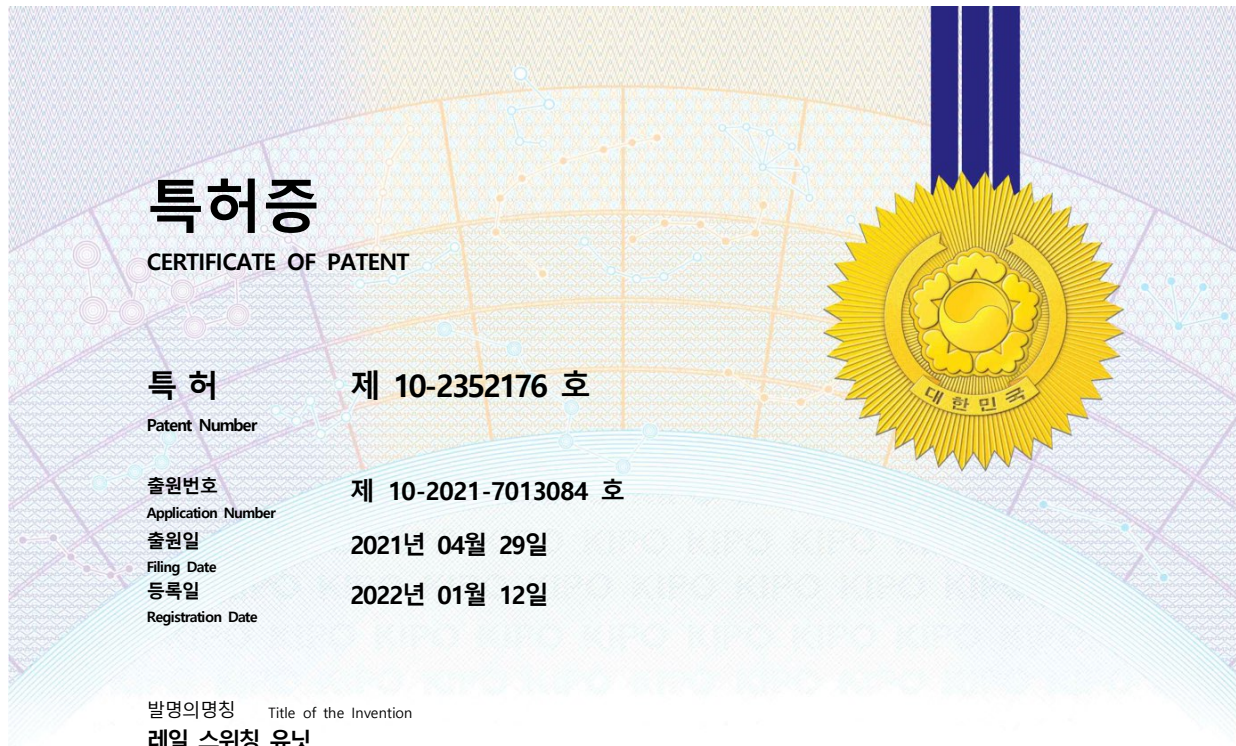
この発明は、特許するものと確定し、特許原簿に登録されたことを証する。
(THIS IS TO CERTIFY THAT THE PATENT IS REGISTERED ON THE REGISTER OF THE JAPAN PATENT OFFICE.)

令和 6年 1月24日(January 24, 2024)

特許庁長官
(COMMISSIONER, JAPAN PATENT OFFICE)

濱野 幸一 

Korea



위의 발명은 「특허법」에 따라 특허원부에 등록되었음을 증명합니다.

This is to certify that, in accordance with the Patent Act, a patent for the invention has been registered at the Korean Intellectual Property Office.



2022년 01월 12일



QR코드로 현재기준
등록사항을 확인하세요

특허청장
COMMISSIONER,
KOREAN INTELLECTUAL PROPERTY OFFICE

김 용래





Saudi Arabia



براءة اختراع

إن الرئيس التنفيذي للهيئة السعودية للملكية الفكرية و بموجب أحكام نظام براءات الاختراع و التصميمات التخطيطة للدارات المتكاملة و الأصناف النباتية و النماذج الصناعية الصادر بالمرسوم الملكي رقم م/ 27 وتاريخ 1425/05/29هـ و المعدل بقرار مجلس الوزراء رقم 536 و تاريخ 1439/10/19هـ ، و لأئحته التنفيذية. يقرر منح :

دانيال سانش لوبسك
DANIEL SÁENZ LÖBSACK

بتاريخ : 1446/01/01 هـ
الموافق : 2024/07/07 م

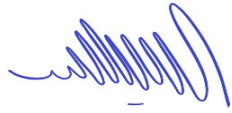
براءة اختراع رقم : SA 16593

عن الاختراع المسمى :

وحدة تحويل القضبان
Rail-Switching Unit

وفق ما هو موضح في وصف الاختراع المرفق، ولمالك البراءة الحق في الانتفاع بكامل الحقوق النظامية في المملكة العربية السعودية خلال فترة سريان الحماية.

الرئيس التنفيذي


د. عبدالعزيز بن محمد السويلم



USA

Bibliographic Data - Application - Patent Center - USPTO

12/11/24, 13:07

 An official website of the United States government [Here's how you know](#) ▾17/272,357 | GBTT001-X: RAIL-SWITCHING UNIT [PUBLIC VIEW](#)

Application #	Confirmation #	Attorney Docket #	Patent #	Filing or 371 (c) date	Status
17/272,357	4377	GBTT001-X	-	03/01/2021	Patented Case 11/06/2024

Application Data

Application data

Documents & Transactions	Application type Utility	Earliest publication # US 2021-0340712 A1	Intl. registration # (Hague) -
Continuity	Examiner CHENG XI LIN	Download PDF Text	Intl. registration publication date -
Patent Term Adjustment	Group art unit 3615	Earliest publication date 11/04/2021	
Foreign Priority	Class/subclass 238/012.000	Assignee for publication SPIN SWITCH TECHNOLOGIES, S.L. MADRID (ES)	
Fee payment history	AIA (first inventor to file) Yes	Confirmation # 4377	
Address & Attorney/Agent Information	Entity status Micro		
Supplemental Content			
Assignments	Correspondence address 199255 - Daniel Saenz Lobsack Cantalejo, 6. 3-C Madrid, - SPAIN	Inventors Daniel SÁENZ LÖBSACK MADRID (ES)	Applicants SPIN SWITCH TECHNOLOGIES, S.L. MADRID (ES)
Display References			



RELEVANT LINKS

<i>type</i>	<i>subject</i>	<i>link</i>	<i>comments</i>
WEBSITE	Spinswitch Technologies	https://www.spinswitch.tech	company website
VIDEO	Presentation by founder	https://youtu.be/u1z82AP15yU	audio in Spanish
VIDEO	General Presentation	https://youtu.be/ePJ5JnuFkHA?si=YKcvFJqRV-5g9Wug	audio in English, subtitles in Spanish
VIDEO	Accelerated soundless Presentation	https://youtu.be/BJn6YRvKllk	no audio
VIDEO	US Patent Grant	https://youtu.be/Mf5ZNzVOj24	no audio
VIDEO	China Patent Grant	https://www.youtube.com/shorts/MqVHZ0JE25s	no audio
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