



New connection on: : 02-10-2020 : 17:16:21 - Last disconnection on: : 02-10-2020 : 17:15:42

V 4.0.0.44803(LP,U,linux) (Rev:43856 2017-04-27 09:03:29 +0200#(D201820)) (RPM D201820)

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[EPODOC: SS 14] bicycle and (parking 1d device)

Results in EPODOC 1.340

[SS 15] wheel 1d lock+

Results in EPODOC 15.324

[SS 16] 14 and 15

Results in EPODOC 53

[SS 17] ..li



1/53 © EPODOC / EPO

PN - [CN210793427U](#) U 20200619

PR - CN201921994955U 20191118

AP - CN201921994955U 20191118

DT - I

PA - UNIVGUANGDONGTECHNOLOGY

TI - **Bicycle parking device**

AB - The utility model discloses a **bicycle parking device** which comprises a parking frame, a front **wheel lock** and a lifting frame. Firstly, a **bicycle** is pushed, a front wheel of the **bicycle** enters the parking frame, and the **bicycle** is horizontally placed under the action of the parking frame; then, a front **wheel lock** is started, and the front **wheel lock** locks the **bicycle** front wheel on the parking frame; and finally, the lifting frame is started, the lifting frame lifts the parking frame fixedly connected with the lifting frame in the vertical direction, and the parking frame drives the front wheel of the **bicycle** to synchronously ascend in the vertical direction, so that the **bicycle** is vertically placed. Therefore, the **bicycle parking device** provided by the utility model can enable the bicycle to be vertically placed, so that the occupied space of the **bicycle** is reduced.

2/53 © EPODOC / EPO

PN - [CN209988034U](#) U 20200124

PR - CN201721874368U 20171228

AP - CN201721874368U 20171228

DT - I

PA - ZHEJIANG INST MECH & ELECTRICAL ENG

TI - **Bicycle vertical parking device**

AB - The utility model discloses a vertical **bicycle parking device**. The device comprises a mounting plate, a stand column, a first motor, a lead screw, a **wheel locker**, a guide rail and a car clamping plate. A stand column is arranged on the mounting plate; the lower end of the lead screw in the stand column is sleeved with a large gear. First motor is arranged on one side of the stand column, a pinionsleeved at the end part of a rotating shaft on the motor I is meshed with the gearwheel; the screw rod is sleeved with a nut in a matched manner; the nut penetrates through the lifting groove in the stand column to be connected to the side face of the **wheel locker**. A worm connected with a motor II arranged in the **wheel locking** device is meshed with the worm wheel; worm gear and drive gear meshing, side plates are arranged on two sides of the **wheel locker**; a bottom plate, a vehicle clamping plate and a protective plate are sequentially arranged on the **wheel locking** device; the **bicycle** clamping plate is slidably connected between the bottom plate and the protective plate in a sleeved mode, a push plate is installed in a U-shaped guide groove in the protective plate through a pressure sensor, bicycles are vertically parked, the bicycles are stably parked and prevented from toppling and being damaged, parking is conducted after automatic front wheels are clamped, standard parking is achieved, traffic is not disordered, traffic is not affected, and the parking space utilization rate is increased.

3/53 © EPODOC / EPO

PN - [CN110667742](#) A 20200110

PR - CN201911128746 20191118

AP - CN201911128746 20191118

DT - I

CI - B62H3/08 (CN)

PA - UNIVGUANGDONGTECHNOLOGY

TI - **Bicycle stopping device**

AB - The invention discloses a **bicycle** stopping device which comprises a stopping frame, a front **wheel lock** and a lifting frame. Firstly, a **bicycle** is pushed, a **bicycle** front wheel enters the parking frame, and the **bicycle** is horizontally placed under the effect of the parking frame; then the front **wheel lock** is started, and the front **wheel lock** is used for locking the **bicycle** front wheel to the parking frame; and finally, the lifting frame is started, the lifting frame lifts the parking frame fixedly connected with the lifting frame in the perpendicular direction, the parking frame drives the **bicycle** front wheel to synchronously ascend in the perpendicular direction, and the **bicycle** is placed in the perpendicular direction. Thus, by means of the **bicycle parking device**, the **bicycle** can be placed in the perpendicular direction, and therefore the occupied space of the **bicycle** is reduced.

4/53 © EPODOC / EPO

PN - [CN209924527U](#) U 20200110

PR - CN201920171605U 20190131

AP - CN201920171605U 20190131

DT - I

PA - UNIVZHEJIANGTECHNOLOGY

- TI - **Bicycle** hanging device
- AB - A **bicycle** hanging device comprises a double-rocker mechanism and a **bicycle** locking mechanism installed on a connecting rod of the double-rocker mechanism, and the double-rocker mechanism is composed of two driving rods, two connecting rods, two driven rods, four hinge supports for fixing one ends of the driving rods and one ends of the driven rods to the ground and four cylindrical pins for connecting all the rods. The **bicycle** locking mechanism installed on a connecting rod of the double-rocker mechanism is composed of a **bicycle parking handle device** and a **bicycle wheel parking device**. The handlebar **parking device** is composed of two horizontally-parked handlebar supports, two sleeve components arranged on the handlebar supports in a sleeving mode, two cylinders capable of moving relatively in the sleeves and two horseshoe locks installed on the cylinders and used for locking handlebars. The wheel **parking device** is composed of a horizontally-parked wheel support, a sleeve component arranged on the wheel support in a sleeving mode and a horseshoe lock arranged on a sleeve and used for **locking a wheel**. The utility model provides a **bicycle** hanging device which can save space and is simple.

5/53 © EPODOC / EPO

- PN - [CN209413376U](#) U 20190920
- PR - CN201821858255U 20181101
- AP - CN201821858255U 20181101
- DT - I
- PA - UNIV QIQIHAR
- TI - Intelligent underground parking system for shared bicycles
- AB - An intelligent underground parking system for shared bicycles belongs to the field of municipal public facilities and mainly comprises an intelligent control device, an overground parking and picking-up garage, a **parking device** and a power supply device. An underground parking space is arranged below the overground parking and picking-up garage. A star-shaped track is laid by taking the overground parking and picking-up garage as the center; eight parking devices are distributed on the rail; a hydraulic lifting rod is arranged above the **parking device**, an electric rotating device fixed through welding is arranged on the hydraulic lifting rod, a parking disc is arranged above the electric rotating device, a fixed parking groove is formed in the parking disc, the parking pile is located in the center of the **parking device**, a groove is formed in the side face of the parking pile, and a **wheel locking** device and a sensing device are arranged in the groove. By means of the design, the problems that inconvenience is caused due to the fact that people park shared bicycles at will and occupy ground resources, and fixed parking places of the shared bicycles are difficult to find are solved. For shared **bicycle** enterprises, the device solves the problems that the failure rate is too high and supervision is difficult due to the fact that shared bicycles are exposed to the sun and rain for a long time.

6/53 © EPODOC / EPO

- PN - [CN209274779U](#) U 20190820
- PR - CN201821991532U 20181129
- AP - CN201821991532U 20181129
- DT - I
- PA - HEBEI COLLEGE IND & TECH
- TI - Non-motor vehicle parking wheel **parking device**

AB - The utility model provides a non-motor vehicle parking wheel **parking device**. The utility model belongs to the technical field of non-motor vehicle parking equipment. Wherein the baffles are located on the two sides of a wheel, and the **wheel locks** are arranged on the baffles. The **wheel lock** comprises two lock rods hinged through a hinge shaft, lock teeth arranged at the two ends of the lock rods respectively, and lock pieces. And a spring, the lock teeth protrude out of the inner wall of the lock rod; the spring and the locking pieces are located on the same side of the locking rods, the two ends of the spring are connected with the two locking rods respectively, the two ends of the hinge shaft are fixedly connected with the baffle through connecting rods, the baffle is provided with an electromagnetic lock matched with the locking holes, and the controlled end of the electromagnetic lock is connected with the control end of the controller. The non-motor vehicle parking wheel **parking device** provided by the utility model can be suitable for parking various non-motor vehicles, so that a rider does not need to carry a **bicycle** lock.

7/53 © EPODOC / EPO

PN - [CN209112338U](#) U 20190716 .

PR - CN201821676836U 20181016

AP - CN201821676836U 20181016

DT - I

PA - UNIV ZHAOQING

TI - Wheel clamping mechanism for modular vertical **bicycle parking device**

AB - The utility model belongs to the technical field of wheel clamping during vertical **bicycle** parking, and relates to a wheel clamping mechanism for a modular vertical **bicycle parking device**. The device comprises a supporting plate, clamping plates, a warping plate, a protection plate, pull rods and a supporting plate; the support plate is rigidly connected with the protective plate through a bolt group; the two clamping plates are symmetrically arranged on the left side and the right side of the supporting plate, and the left clamping plate is flexibly connected with the supporting plate through a positioning pin A and a torsion spring A; the right clamping plate is flexibly connected with the supporting plate through a positioning pin B and a torsion spring C; the warping plate is flexibly connected with the supporting plate through a positioning pin C and a torsion spring B; the protection plate, the pull rod and the supporting plate are in rigid connection through bolts. According to the **bicycle wheel locking device**, a **bicycle** wheel is automatically locked on the clamping mechanism, the **bicycle** wheel can be locked on the clamping mechanism without extending to the **bicycle** wheel, and the **bicycle wheel locking device** is energy-saving, environment-friendly, free of additional emission, convenient to park and take and convenient and simple to maintain in the later period.

8/53 © EPODOC / EPO

PN - [CN109812086](#) A 20190528 .

PR - CN201910159894 20190226

AP - CN201910159894 20190226

DT - I

PA - UNIV QIQIHAR

TI - Intelligent underground **bicycle** parking system

AB - The invention discloses an intelligent underground **bicycle** parking system, which belongs to the field of urban public facilities. The intelligent underground **bicycle**

parking system comprises solar power supply panels, a ground storage garage, an intelligent control device, an underground **parking device** and a power supply device; an underground parking space is arranged under the ground storage garage; the underground **parking device** is arranged in the underground parking space; an electric rotating disc capable of rotating for 360 DEG is arranged under the underground **parking device**; a parking pile is welded and fixed above the electric rotating disc; fifteen hydraulic lifting poles are vertically placed at the interior part of the parking pile and connected with a parking platform for controlling the elevation of the parking platform; **bicycle** fixing devices are arranged on the two sides of the **bicycle** parking platform; fixing grooves are formed in the platform and used for fixing the bicycles; and **wheel locking** devices and sensing devices are arranged in the grooves. The design is proposed to solve the defects brought by random **bicycle** parking and long-term outdoor parking, and the invention provides the intelligent underground **bicycle** parking system for saving ground resources and reducing **bicycle** maintenance cost.

9/53 © EPODOC / EPO

PN - [CN109797991](#) A 20190524
 PR - CN20191096632 20190131
 AP - CN20191096632 20190131
 DT - I
 PA - UNIVZHEJIANGTECHNOLOGY
 TI - **Bicycle** suspending device
 AB - A **bicycle** suspending device comprises a two-rocker mechanism and a **bicycle** locking mechanism mounted on two connection rods of the two-rocker mechanism. The two-rocker mechanism is composed of two driving rods, the two connection rods, two driven rods, four hinge supports fixing one ends of the driving rods and the driven rods onto the ground and four cylindrical pins connecting the rods, the **bicycle** locking mechanism is composed of a handlebar **parking device** and a wheel **parking device**, the handlebar **parking device** is composed of two horizontal handlebar parking supports, two sleeve components sleeving the horizontal handlebar parking supports, two cylinders capable of relatively moving in a sleeve and two horseshoe locks mounted on the cylinders to lock handlebars, and the wheel **parking device** is composed of a horizontal wheel parking support, a sleeve component sleeving the horizontal wheel parking support and a horseshoe lock mounted on a sleeve to **lock** a **wheel**. The **bicycle** suspending device can save space and is simple.

10/53 © EPODOC / EPO

PN - [CN208789825U](#) U 20190426
 PR - CN201820665936U 20180507
 AP - CN201820665936U 20180507
 DT - I
 PA - UNIVLONGYAN
 TI - Can sparingly park **bicycle parking device** in space
 AB - The utility model discloses a can sparingly park **bicycle parking device** in space, including floor and li tai, upright platform is installed to the top on floor, floor and li tai's junction is provided with the installation piece, stand the inside and a floor fixed connection of platform through the set screw insert the installation piece, mode through removing draw-in groove fixed wheels is with the front **wheel locking** of **bicycle** to control whole from train stability, realize placing of **bicycle**. Whole

operation process is the mechanical motion through the slider, drives the motion of **bicycle**, does not need extra electric drive, and not only energy -conservation but also safety are upright placed the **bicycle** from transversely placing to become, has greatly saved and has parked the space, and this has stronger effect to solving the traffic of blocking up in the city, in addition, unique curved surface card fixed wheels's design can let this device serve the **bicycle** motorcycle type of exhausted great number, do not need in the use too great strength alright realize parking of **bicycle**.

11/53 © EPODOC / EPO

PN - [CN109577705](#) A 20190405
 PR - CN201811652706 20181227
 AP - CN201811652706 20181227
 DT - I
 CI - B62H3/08 (CN)
 - E04H6/005 (CN)
 - E04H6/422 (CN)
 PA - UNIV QIQIHAR
 TI - Intelligent **bicycle** underground parking system
 AB - The invention provides an intelligent **bicycle** underground parking system, and belongs to the field of urban public facilities. The intelligent **bicycle** underground parking system comprises a solar power supply board, an overground storing and fetching garage, an intelligent IC card control device, an underground **parking device** and a power supply **device**. Underground **parking** space is arranged below the overground storing and fetching garage, an underground **parking device** is arranged on the underground parking space, an electric rotary disc capable of rotating by 360 degrees is arranged below the underground **parking device**, an intelligent parking pile is welded and fixed to the upper face of the electric rotary disc, 15 hydraulic lifting rods are arranged in the intelligent parking pile, the hydraulic lifting rods are connected with a parking platform to control lifting of a parking platform, **bicycle** fixing devices are arranged on the two sides of the **bicycle** parking platform, a fixing groove is formed in the platform and used for fixing a **bicycle**, and a **wheel locking** device and an induction device are arranged in the groove. The intelligent **bicycle** underground parking system is provided aiming at the defects that bicycles are parked at will and parked outside for a long time, and the system is used for saving ground resources and reducing the maintenance cost of the bicycles.

12/53 © EPODOC / EPO

PN - [CN208650600U](#) U 20190326
 PR - CN201821104358U 20180712
 AP - CN201821104358U 20180712
 DT - I
 PA - TAIYUAN INST TECH
 TI - **Bicycle parking device** upright
 AB - The utility model belongs to the technical field of **bicycle** parking equipment, concretely relates to **bicycle parking device** upright, include the center bearing bracket and install a plurality of **bicycle** parking positions on the center bearing bracket, a plurality of **bicycle** parking positions can be rotatory around the center bearing bracket, effectively utilize the space, fixing device has been arranged on

every **bicycle** parking position, during the **bicycle** parking, car front wheel enters into in the fixing device by oneself, the manual work is punched the card, the photosensitive tube judgement detects the **bicycle**, power device rotates on the parking stall that corresponds, conveyer drives fixing device and rises, when the rear wheel of **bicycle** extrudees touch switch, the conveying stops, the anti-theft device starts, the **locking rear wheel**, the **bicycle** parking is accomplished, when picking up the car, the manual work is punched the card, verifies successfully back, the anti-theft device unblock, and on power device rotated the parking stall that corresponds, conveyer drove fixing device and descends, and when the front wheel of **bicycle** extrudeed touch switch, the conveying stopped, the completion of picking up the car, whole device occupation space is little, and the access is convenient, has more the hommization.

13/53 © EPODOC / EPO

PN - [CN208248350U](#) U 20181218
 PR - CN201820800639U 20180528
 AP - CN201820800639U 20180528
 DT - I
 PA - UNIV WUYI
 TI - Over -and -under type **bicycle parking device**
 AB - The utility model relates to a **bicycle** parking technical field, concretely relates to over -and -under type **bicycle parking device**, including operating system, driving system and fixing system, operating system installs wheel load module respectively including the parallel one or more track of arranging on every track, can drive by oneself that technical field 0 reciprocate along the track in the driving system effect down, and the **bicycle** is vertical parks in the realization, fixing system is used for pressing from both sides the fastening to the rear wheel to be decided, and wheel load module includes V type piece for correspond the track lower extreme with the **locking of wheel** load module during no **bicycle** parking, with wheel load module from corresponding the unblock of track lower extreme when parking the **bicycle**. The utility model provides an over -and -under type **bicycle parking device** can park the **bicycle** is vertical, improves space utilization, and simultaneously through setting up V type piece, the dead weight that utilizes the tire can realize wheel load module's locking and unblock, makes the process of stopping picking up the car more convenient, swift, laborsaving, and it needs the car to give people brings conveniently.

14/53 © EPODOC / EPO

PN - [CN109025406](#) A 20181218
 PR - CN201810839249 20180727
 AP - CN201810839249 20180727
 DT - I
 CI - B62H3/08 (CN)
 PA - UNIV SOUTH CHINA TECH
 TI - **Bicycle** vertical **parking device** based on gear rack engagement
 AB - The invention discloses a **bicycle** vertical **parking device** based on gear rack engagement; the **parking device** comprises the following parts: a vertical pedestal vertically fixed on the ground, wherein the front side is provided with a vertical linear guiderail, and the side face is provided with a rack; an L-type **bicycle** mount base, wherein a vertical edge of the base is provided with a guiderail groove

matched with the linear guiderail in a slide mode, a locking structure used for **locking** the **wheel** is arranged on the upper portion of the vertical edge, a motor is fixedly arranged on one side of the vertical edge, and the motor output shaft is provided with a gear matched with the rack. The **parking device** can solve the city **bicycle** wrong parking conditions, can park as many bicycles as possible with as less lands as possible, can realize smart and safe keeping, can park and take at will, and is convenient and fast. The **parking device** is smart in structure, easy to mount, and is suitable for city road **bicycle** parking.

15/53 © EPODOC / EPO

PN - [CN108945180](#) A 20181207
 PR - CN201810613953 20180614
 AP - CN201810613953 20180614
 DT - I
 CI - B62H3/12 (CN)
 PA - UNIVLONGYAN
 TI - **Bicycle automatic parking device**
 AB - The invention discloses a **bicycle** automatic **parking device** which comprises a sliding rail, a position clamping device, a buckle, a spring, a sunshade and a folding **bicycle** frame. The position clamping device and the sliding rail are in sliding connection. The upper end of the position clamping device is connected with the upper end of the sliding rail through the spring. The lower end of the position clamping device is connected with the lower end of the sliding rail in a buckled mode through the buckle. The sliding rail is vertically arranged. The lower end of the sliding rail is fixedly connected with the ground. The upper end of the sliding rail is detachably connected with the sunshade. The folding **bicycle** frame is arranged on the ground on one side of the sliding rail. A **bicycle** is stored in a three-dimensional mode, and the space use rate is greatly increased. A lever and the spring are combined into a linkage system, the device is automatic, the **bicycle** is parked conveniently and quickly in a labor saving mode, the device is suitable for most people, simple and ingenious in structure, free of maintenance, free of energy, capable of saving sites and low in manufacturing cost, a **wheel locking** mechanism of the **bicycle** is suitable for most bicycles, the trouble that the occupied space of the **bicycle** is large can be saved, and application and popularization value is achieved.

16/53 © EPODOC / EPO

PN - [CN108839730](#) A 20181120
 PNFP - CN108839730B B 20200417
 PR - CN201810389721 20180427
 AP - CN201810389721 20180427
 DT - I
 CT - || STSE (A)
[DE4119403](#) A1 19921217 [A] (INST SCHIENENFAHRZEUGE [DE])
 [A] 1-5
 * 全文 *;
[WO9307786](#) A1 19930429 [A] (WALKER JOSEPH H [US])
 [A] 1-5
 * 全文 *;
[EP3069967](#) A1 20160921 [A] (MPB CONCEPTS B V [NL])
 [A] 1-5

* 全文 *;
[RU165063U](#) U1 20160927 [A]
 [A] 1-5
 * 全文 *;
[CN205769720U](#) U 20161207 [A] (ZHEJIANG INST MECH & ELECT ENG)
 [A] 1-5
 * 全文 *;
[CN107310659](#) A 20171103 [A] (GUIZHOU YOUHAO PARKING EQUIPMENT CO LTD)
 [A] 1-5
 * 全文 *;
[CN206679122U](#) U 20171128 [A] (CHONGQING FUBANG MEDIUM AND SMALL ENTPR SERVICES CO LTD)
 [A] 1-5
 * 全文 *;
[CN206691263U](#) U 20171201 [A] (SHANGHAI SHOW KYOEL AUTOMOTIVE EQUIPMENT CO LTD, et al)
 [A] 1-5
 * 全文 *;
[CN107675915](#) A 20180209 [A] (BEIJING INSTITUTE TECH ZHUHAI)
 [A] 1-5
 * 全文 *;
[CN107804392](#) A 20180316 [A] (UNIV TIANJIN CHENGJIAN)
 [A] 1-5
 * 全文 *;
[CN207225517U](#) U 20180413 [A] (SUZHOU KEYIJIA AVIATION TECH CO LTD)
 [A] 1-5
 * 说明书第25-49段以及附图1-10 *

CI - B62H3/08 (CN)
 - B62H3/12 (CN)
 PA - (A)
 WENZHOU VOCATIONAL & TECHNICAL COLLEGE
 TI - (A)
 Vertical type **bicycle** automatic **parking device**
 AB - (A)
 The invention relates to a vertical type **bicycle** automatic **parking device**. The vertical type **bicycle** automatic **parking device** comprises a rack, a vertically arranged lifting track, a front **wheel locking** seat capable of lifting along the lifting track, a push plate pushed into the front **wheel locking** seat along with a front tire of a **bicycle**, a push plate locking mechanism locking the front **wheel locking** seat and the push plate after reaching the specified position, a **wheel** front **locking** mechanism locking the front part of the front tire of the **bicycle**, a **wheel** back **locking** mechanism locking the back lower part of the front tire of the **bicycle**, and a lifting power assisting mechanism capable of assisting power in the lifting. Due to the adoption of the scheme, the invention provides a hoisting type sharing **bicycle** parking garage capable of increasing the space use rate and saving labor in fetching the **bicycle**.

17/53 © EPODOC / EPO
 PN - [JP2018155056](#) A 20181004
 PR - JP20170054283 20170321
 AP - JP20170054283 20170321
 DT - I

FI - B62H3/04; E04H6/10&B; E04H6/42&G; G07B15/00&L
 FT - 3E127/AA18; 3E127/BA03; 3E127/BA32; 3E127/CA25; 3E127/FA18; 3E127/FA23
 PA - MARS WINTEC CO LTD
 TI - **BICYCLE PARKING DEVICE**
 AB - PROBLEM TO BE SOLVED: To provide a **bicycle parking device** capable of effectively eliminating mischief and illegal **bicycle** parking.SOLUTION: A **bicycle parking device** 10 includes: a support member 12; a lock device 25 which is provided on the support member 12 and can **lock** a **wheel** 11a of a **bicycle** 11; a driving device 18 which rotates the support member 12 in a front/rear direction at a standby position or moves the support member to the front/rear direction from the standby position; and a control section which controls driving of the driving device 18 so as to drive the support member 12 with the driving device 18 to advance the lock device 25 and **lock** the **wheel** of the **bicycle** existing ahead with the lock device 25.SELECTED DRAWING: Figure 1

18/53 © EPODOC / EPO

PN - [CN108609078](#) A 20181002
 PR - CN201810600260 20180612
 AP - CN201810600260 20180612
 DT - I
 CT - || STSE (A)
[CN2388093Y](#) Y 20000719 [Y] (BAOJI CITY ENGINEERING HYDRAUL [CN])
 [Y] 1-5
 * 说明书第1页末段至第2页第1段, 说明书第3页末段, 附图1 *;
[JP2004148912](#) A 20040527 [A] (OKUYAMA KAZUO)
 [A] 1-5
 * 全文 *;
[CN103863441](#) A 20140618 [Y] (HANGZHOU BENEFIT BUILDING SUPPORTING ENGINEERING CO LTD)
 [Y] 1-5
 * 说明书第30-36段, 附图1 *;
[CN206385861U](#) U 20170808 [A] (HANGZHOU HAOCHETECH CO LTD)
 [A] 1-5
 * 全文 *;
[CN107269047](#) A 20171020 [A] (XIAMEN MOREFUNNY INTERACTION TECH CO LTD)
 [A] 1-5
 * 全文 *;
[CN107355099](#) A 20171117 [A] (GUIZHOU YOUHAO PARKING EQUIPMENT CO LTD)
 [A] 1-5
 * 全文 *;
[CN206871228U](#) U 20180112 [A] (HANGZHOU OS PACKING FACILITIES CO LTD)
 [A] 1-5
 * 全文 *;
[CN107724732](#) A 20180223 [A] (SHAANXI JIA HANG SPECIAL AUTOMOBILE CO LTD)
 [A] 1-5
 * 全文 *
 CI - B62H3/12 (CN)
 PA - UNIV ANHUI
 TI - Modularized cylindrical vertical type rotary **bicycle parking device**
 AB - The invention discloses a modularized cylindrical vertical type rotary **bicycle parking**

device which is a modularized assembled vertical type rotary **bicycle parking device**. The device mainly solves the problem that a large space is occupied when bicycles are parked on a street, in a community and indoors. The device is provided with a spliced protection part (1), a modularized cylinder part (2) is connected through strut connecting pieces (203), after the bicycles are pushed into rear wheel grooves (402), front wheels of the bicycles are locked through front **wheel self-locking** devices (401), the bicycles vertically stand through tension of constant-force springs (301), and the bicycles are stored; and the **bicycle** taking process is on the contrary and similar. A device base part (5) can rotate, the inner portion depends on a thrust ball bearing (502) and a deep groove ball bearing (505) to rotate and bear pressure, and a universal ball is installed below each rear wheel groove so as to reduce the stress of the rear wheel groove. The device can be used in a single-module mode and can be used in a modularized assembled mode as well.

19/53 © EPODOC / EPO

- PN - [CN108590263](#) A 20180928
- PR - CN201810764464 20180712
- AP - CN201810764464 20180712
- DT - I
- CI - B62H3/04 (CN)
- E04H6/005 (CN)
- PA - TAIYUAN INST TECH
- TI - Upright **bicycle parking device**
- AB - The invention belongs to the technical field of **bicycle** parking equipment, and particularly relates to an upright **bicycle parking device**. The upright **bicycle parking device** comprises a center bracket and a plurality of **bicycle** storing spaces mounted on the center bracket; the multiple storing spaces can rotate around the center bracket, the space is effectively utilized, and a fixing device is arranged on each **bicycle** storing space. During **bicycle** storing, a front wheel of a **bicycle** enters the fixing device, manual card swiping is conducted, a photosensitive tube judges and detects the **bicycle**, a power device rotates to the corresponding storing space, a conveying device drives the fixing device to rise till a rear wheel of the **bicycle** extrudes a touch switch, then conveying is stopped, an anti-theft device is started, the rear **wheel** is **locked**, and **bicycle** storing is completed; during **bicycle** picking-up, manual card swiping is conducted, after verification succeeds, the anti-theft device is unlocked, the power device rotates to the corresponding storing space, the conveying device drives the fixing device to fall, when the front wheel of the **bicycle** extrudes the touch switch, conveying is stopped, and **bicycle** picking-up is completed; and the whole upright **bicycle parking device** is small in occupied space, **bicycle** storing and picking-up are convenient, and more humanization is achieved.

20/53 © EPODOC / EPO

- PN - [CN108482528](#) A 20180904
- PR - CN201810492356 20180517
- AP - CN201810492356 20180517
- DT - I
- CI - B62H3/04 (CN)
- B62H5/145 (CN)
- PA - UNIV TIANJIN POLYTECHNIC

- TI - Front wheel clamping type assisted **bicycle vertical parking device**
- AB - The invention discloses a front wheel clamping type assisted **bicycle vertical parking device**, relates to the field **bicycle parking mechanical device** structural design, and aims to reduce parking floorspace and solve safety problems caused by the fact that during **bicycle** vertical parking, the front wheel cannot be clamped stably, and situations such as misoperation and accidental touch occur. The front wheel clamping type assisted **bicycle vertical parking device** has the advantages that the assisted **bicycle** lifting process is achieved by using an assisted lifting device to lift a vertical-sliding device and a front wheel clamping device; a hinge is used as the fulcrum to achieve the opening and closing process between an opening and closing lock plate and a slide bottom plate; a safety key structure is specifically designed in order to avoid risks caused by the fact that the vertical-sliding device suddenly ascends during manual misoperation and accidental touch, the opening and closing of the opening and closing lock plate can be effectively limited by the structure, and opening and closing can only be achieved by rotating the structure 180 degrees to ascend the vertical-sliding device; a designed L-shaped rotary part is coordinated with a front **wheel** clamping **lock** to effectively clamp the front wheel, and accordingly the front wheel of the **bicycle** can be constantly stably clamped during parking.

21/53 © EPODOC / EPO

- PN - [CN108423095](#) A 20180821
- PR - CN201810443772 20180510
- AP - CN201810443772 20180510
- DT - I
- CI - B62H3/00 (CN)
- PA - UNIV ANHUI SCI & TECHNOLOGY
- TI - Rotary **bicycle parking-taking device**
- AB - The invention discloses a rotary **bicycle parking-taking device**. The rotary **bicycle parking-taking device** comprises a support structure and an internal **bicycle parking-taking device** structure, wherein the support structure comprises a base, a landing gear, a push rod and a bearing bracket; the internal structure comprises two cross-shaped main frames which are placed in parallel, a main shaft passing through the centers of the two main frames, and four connecting shafts which are connected with the tail ends of the two cross-shaped main frames; the two adjacent connecting shafts are provided with one U-shaped lane board respectively; a **bicycle** is fixed to the lane boards through front and rear **wheel locks**; adjacent lane boards are placed in a staggered way with one end being a fixed end while the other end being a mobile end; the fixed ends can rotate around the connecting shafts; the mobile ends are connected with the shafts through electric control locks. The whole internal framework is connected through the bearing bracket and the support structure, a motor fixed to the base is used for driving a belt pulley fixed to one end of a central main shaft to rotate, and movement is specified through a control part. By adopting the rotary **bicycle parking-taking device**, the aims of saving place, bringing greater convenience to vehicle parking and taking and reasonably planning parking of the bicycles can be fulfilled.

22/53 © EPODOC / EPO

- PN - [CN108397004](#) A 20180814
- PR - CN201810453567 20180514

AP - CN201810453567 20180514

DT - I

CT - || STSE (A)
EP0718454 A1 19960626 [A] (ERLAU AG EISEN DRAHTWERK [DE])
 [A] 1-3
 * 全文 *;
CN2453072Y Y 20011010 [Y] (JIECHENG INDUSTRY AND TRADE CO [CN])
 [Y] 1-3
 * 说明书第25-28段, 附图4 *;
US2004156699 A1 20040812 [A] (PARK DAL YOUNG [KR])
 [A] 1-3
 * 全文 *;
CN1541873 A 20041103 [Y] (QIU BINGSHUN [CN])
 [Y] 1-3
 * 说明书第6页第1-2段, 附图1-3 *;
CN2711316Y Y 20050720 [A] (PAN LONGYANG [CN])
 [A] 1-3
 * 全文 *;
CN203655969U U 20140618 [A] (XI AN DUNAN ELECTRIC CO LTD)
 [A] 1-3
 * 全文 *;
CN205479177U U 20160817 [A] (CHONGQING SHEPING TECH CO LTD)
 [A] 1-3
 * 全文 *;
CN206737512U U 20171212 [Y] (UNIV TIANJIN TECHNOLOGY & EDUCATION)
 [Y] 1-3
 * 说明书第22-27段, 附图1-2、5 *;
CN107859384 A 20180330 [A] (UNIV CHANGSHA SCIENCE & TECH)
 [A] 1
 * 全文 *;
CN201158420Y Y 20081203 [A] (XINLIN YIN [CN])
 [A] 1
 * 全文 *;
CN106968470 A 20170721 [A] (ZHEJIANG HYTFIA TECH CO LTD)
 [A] 1
 * 全文 *;
CN107060400 A 20170818 [A] (LIANG CHONGYAN)
 [A] 1
 * 全文 *;
CN207296512U U 20180501 [A] (ZHAO QINGHE)
 [A] 1
 * 全文 *

CTNP - || STSE (A)
 [A] - 自行车产业振兴会,《自行车实用手册(第三分册)》,轻工业出版社,(19851031)
 [A] 1
 * 第525-527页 *
 [A] - 许安之 等,《高层办公综合建筑设计》,中国建筑工业出版社,(19971231)
 [A] 1
 * 第155页 *

CI - E04H6/005 (CN)
 - E04H6/42 (CN)

PA - UNIVSHENYANGCHEMICALTECH

TI - Vertical type **bicycle parking device**

AB - The invention discloses a vertical type **bicycle parking device**, and relates to a **bicycle parking device**. The vertical type **bicycle parking device** comprises a frame, a chain wheel, a chain, a main driving motor, a parking frame, a parking frame shaft, a cam, a cam driving motor, pull rods, clamping pieces, and a clamping wheel. The cam is arranged on the cam driving motor. The main driving motor is connected with the chain. The parking frame is parallel to the chain wheel. Bicycles are distributed in two rows in a parallel mode. The whole **parking device** is of a three-dimensional circular structure. The parking frame is parallel to the chain **wheel**. A **locking device** is a clamping pin. A single chip microcomputer and a limiting switch constitute a control device. The locking device is arranged on the **parking device**, and the locking device is of a clamping pin structure. The left pull rod (10) is arranged in a cam groove, the left pull rod (10) is connected with the cam (8) and is connected with a main shaft (18), and the clamping pieces (7) are fixed on the left pull rod (10) and the right pull rod (17). The vertical type **bicycle parking device** is suitable for places such as a subway entrance, a bus station, a shopping mall, an office building and a residential area.

23/53 © EPODOC / EPO

PN - [CN108394496](#) A 20180814

PR - CN201810395847 20180427

AP - CN201810395847 20180427

DT - I

CI - B62H3/12 (CN)
- B62H5/14 (CN)
- H04N7/18 (CN)

PA - PIZHOU HI TECH ZONE NEW ENERGY TECH RESEARCH INSTITUTE CO LTD

TI - Safety anti-theft monitoring system of **bicycle vertical parking device**

AB - The invention discloses a safety anti-theft monitoring system of a **bicycle vertical parking device**. The system comprises a base, an upright frame and a U-shaped lock, the upright frame is provided with a first guiding rail, a second guiding rail and a control panel, the first guiding rail is provided with a first supporting frame, the first supporting frame is provided with an electric push rod, the second guiding rail is provided with a second supporting frame, the second supporting frame is provided with a cylinder, the upright frame is provided with a solar supporting frame, and the solar supporting frame is provided with an illumination device, a camera, an infrared sensing device and a horn. The system is simple in structure and convenient to use, by arranging the U-shaped lock, a rear **wheel** is **locked**, by the cooperation of the electric push rod and a groove formed in the cylinder, a front **wheel** is **locked**, so that a **bicycle** is effectively prevented from being carried away by a thief, the **bicycle vertical parking device** is effectively monitored by installing the camera, and the system has the functions of sending alarming information to a user and being safe and anti-theft.

24/53 © EPODOC / EPO

PN - [CN207728058U](#) U 20180814

PR - CN201721918945U 20171229

AP - CN201721918945U 20171229

DT - I

PA - UNIV SHIJIAZHUANG TIEDAO

TI - **Bicycle parking device**

AB - The utility model provides a **bicycle parking device** belongs to **bicycle** parking facility technical field, including the **bicycle** shed and be used for a plurality of vehicle fixed frames of fixed **bicycle**, in including, establishes the **bicycle** shed global positioning system's roof and a plurality of roof supporting's of being used for support column, and the vehicle fixed frame sets up in the bicycleshed below side by side, vehicle fixed puts up including setting up in two stands of proper motion car front wheel both sides, is equipped with on the stand to be used for fixed car front wheel's automatic locking by oneself, and the stand top is equipped with the crossbeam, is equipped with a plurality of fly on the crossbeam and the corresponding two - dimensional code of automatic locking. But search for the position of **bicycle** shed with the help of the global positioning system using mobile phones in the **bicycle** shed roof, the **bicycle** is placed between two stands of vehicle fixed frame, utilizes the automatic locking to **lock** the **wheel**, and with the two -dimensional code on the mobile phone scanning crossbeam, the automatic locking is opened and to be pushed away away the **bicycle** when picking up the car, has realized depositing in order of **bicycle**, the simple easy operation of access, and area is little, high -usage, convenient popularization and application.

25/53 © EPODOC / EPO

PN - [CN207631389U](#) U 20180720

PR - CN201721792569U 20171220

AP - CN201721792569U 20171220

DT - I

PA - XUZHOU COLLEGE IND TECHNOLOGY

TI - Automatic **parking device**

AB - The utility model provides an automatic **parking device** vertically parks the vertical setting of board in stand both sides around, and the level is parked the board and is passed through rotation axis and crossbeam articulated afterwards the level setting is between the stand, and the fixed port of scalable bracing piece articulates in the side of stand, and the flexible port of scalable bracing piece articulates the side of parking the board in the level, the spout is fixed to be set up and parks on board, level park the board vertical, and front wheel guide mechanism sets up with the spout cooperation, and front wheel guide mechanism can follow the spout and slides, the reel is installed on the output shaft of motor, and the one end of stay cord is connected with front wheel guide mechanism, and the other end passes through the pulley and convolutes on the reel, be equipped with the front **wheel** bayonet **lock** in front wheel guide mechanism, the setting of rear **wheel** bayonet **lock** is in the vertical side of parking board, level and parking the board. The utility model discloses simple structure can effectively improve space utilization, solves the land resource shortage and stops the indiscriminate traffic puzzlement that causes of putting owing to the **bicycle** is indiscriminate.

26/53 © EPODOC / EPO

PN - [CN207607572U](#) U 20180713

PR - CN201721776793U 20171219

AP - CN201721776793U 20171219

DT - I

PA - XUZHOU COLLEGE IND TECHNOLOGY

TI - Multifunctional **bicycle parking device**

AB - The utility model discloses a multifunctional **bicycle parking device**, which comprises a column, a pedestal, the lower margin, steel cable and parking platform, the triangle -shaped support that standupper end symmetry was provided with fixed pulley I and extended to both sides, the lower part symmetry is provided with the hand -operated control ware in the stand, the top of triangle -shaped support is provided with fixed pulley II, parking platform includes two blocks of curb plates and connects the bottom plate in both sides board bottom, the curb plate is the pentagon, top of side plate passes through the connecting rod and connects, the connecting rod middle part is provided with the movable pulley, be provided with two sets of wheel grooves riser on the bottom plate, every group wheelgroove riser has two, wherein still be provided with the **wheel locking** lever on wheel groove riser, steel cable one end is connected on the hand -operated control ware, the other end loops through fixed pulley I, fixed pulley II, behind the movable pulley, fix the top at the triangle -shaped support. The utility model discloses simple structure, it is easy and simple to handle, can realize the flame -out in flight, make ground broader, improve space utilization, the difficult social problem of effective stopping at release.

27/53 © EPODOC / EPO

PN - [CN207374549U](#) U 20180518

PR - CN201721121437U 20170901

AP - CN201721121437U 20170901

DT - I

CI - B62H3/04 (EP)
- B62H3/06 (EP)
- B62H3/08 (EP)

PA - GUANGZHOU MINGXI NETWORK TECH CO LTD

TI - **Bicycle** lock ends **parking device**

AB - The utility model discloses a **bicycle** lock ends **parking device**, including **parking** the base and locating the vertical rocker of parking on the base, vertical rocker include with one end with park the base and rotate the rotation portion that is connected, the rotation portion other end is connected with swinging portion, swinging portion's upper portion is equipped with the locking ware and can drives the locking ware swings in vertical plane and makes the radial locking of locking ware on proper motion wheel wheel hub. When the locking ware was pushed to the **bicycle**, by oneself the wheel withstood the locking ware and makes vertical rocker to swing in vertical plane, and swing through vertical rocker reaches adjusts the locking ware and the purpose of **wheel locking** angle by oneself, guarantees that the radial locking of locking ware is on proper motion wheel wheel hub. To the proper motion wheel of equidimension not, the corresponding angle of vertical rocker swing, the proper motion wheel of the multiple size of applicable locking.

28/53 © EPODOC / EPO

PN - [CN108035575](#) A 20180515

PR - CN201711348595 20171215

AP - CN201711348595 20171215

DT - I

CI - B62H3/02 (CN)
 - B62H3/08 (CN)

PA - UNIV HENAN POLYTECHNIC

TI - Shaftless sky wheel type three-dimensional annular **bicycle parking device**

AB - The invention discloses a shaftless sky wheel type three-dimensional annular **bicycle parking device** and solves the problems of serious consumption and impact on urban traffic and urban appearance caused by the fact that existing sharing bicycles cannot be reasonably parked. The device comprises a bearing base, a shaftless parking ring and a driving mechanism, a gear ring in transmission fit with the driving mechanism is arranged on the outer ring face of the shaftless parking ring, and a plurality of **bicycle** parking units are arranged on the inner ring face of the shaftless parking ring; each bicycle parking unit comprises a front **wheel self-locking** structure and a rear **wheel self-locking** structure, each front **wheel self-locking** structure comprises a semicircular wheel clamping groove with one end fixedly arranged in the shaftless parking ring, and a handlebar fixing groove is arranged at the other end of each semicircular wheel clamping groove; each rear **wheel self-locking** structure comprises a rear wheel clamping groove in front-rear correspondence to the corresponding front-**wheel self-locking** structure, an electromagnetic lock for locking a rear wheel is arranged on one side of each rear wheel clamping groove, and the driving mechanism and the electromagnetic locks are all connected with a controller. The device is novel in structure, high in practicability and great in popularization and application prospect.

29/53 © EPODOC / EPO

PN - [CN107745761](#) A 20180302

PR - CN201710962632 20171017

AP - CN201710962632 20171017

DT - I

CT - || STSE (A)
[CN1112888](#) A 00000000 [YX]
 [Y] 6
 * 说明书第2页第5段-第3页最后一段、附图1-6 *
 [X] 1-5;
[CN2387007Y](#) Y 00000000 [A]
 [A] 1-6
 * 全文 *;
[US2004251219](#) A1 00000000 [Y]
 [Y] 6
 * 说明书第34-35段、附图1-2 *;
[KR200454587Y](#) Y1 00000000 [A]
 [A] 1-6
 * 全文 *;
[CN201989882U](#) U 00000000 [A]
 [A] 1-6
 * 全文 *;
[CN205150049U](#) U 00000000 [A]
 [A] 1-6
 * 全文 *

CI - B62H3/08 (CN)

PA - LI JUNQIANG

TI - **Bicycle parking device**

AB - The invention discloses a **bicycle parking device**. The **bicycle parking device** comprises a rectangular frame fixed on the ground; a plurality of groups of **locking wheel** frames are uniformly arranged on the frame; each group of **locking wheel** frames comprises two locking rods arranged in parallel; two ends of the locking rods are fixed on the two sides of the frame; and the middle part of each locking rod is arched upwards. The **bicycle parking device** has the advantages that the **bicycle parking device** is convenient to park, plan and lock bicycles, the bicycles are prevented from being stolen, the bicycles are convenient to be parked and planned, and road congestion and influence on normal production are avoided.

30/53 © EPODOC / EPO

PN - [CN106741325](#) A 20170531

PR - CN201611233388 20161228

AP - CN201611233388 20161228

DT - I

CI - B62H3/04 (CN)

PA - YEHONGYUE

TI - Inflator assisted **bicycle vertical parking device**

AB - The invention discloses an inflator assisted **bicycle vertical parking device**. The inflator assisted **bicycle vertical parking device** comprises a fixing panel vertically attached to a wall. A plurality of vertical tracks are arranged on the front portion of the fixing panel. A wheel fixing rack is arranged on the tracks in a matched mode and can move back and forth on the tracks. The wheel fixing rack comprises side plates which are arranged oppositely. The side plates are connected through an abutting plate. The middle of each side plate is provided with a **wheel locking** device, and the **wheel locking** device comprises an L-shaped part. The middle of each L-shaped part is hinged to the inner wall of the corresponding side wall. The side plates are further provided with lock slots matched with the L-shaped parts. A **bicycle** can be quickly and conveniently locked and parked vertically, and occupied space is effectively saved correspondingly; an inflator is arranged in the tracks, the wheel fixing rack is connected with the inflator, the effect that after being clamped into the wheel fixing rack, the front portion of the **bicycle** can be upwards pushed fast and moved downwards slowly is guaranteed, vertical parking is conducted quickly and effectively, and a person can park or pick up the **bicycle** conveniently.

31/53 © EPODOC / EPO

PN - [CN106741324](#) A 20170531

PR - CN201611193610 20161221

AP - CN201611193610 20161221

DT - I

CI - B62H3/04 (CN)

PA - YEHONGYUE

TI - Vertical **bicycle parking device**

AB - The invention discloses a vertical **bicycle parking device** comprising a fixing panel vertically attached to a wall. A plurality of vertical rails are arranged in the front of the fixing panel, a wheel fixing rack is arranged on the rails in a matched manner and can reciprocate on the rails, the wheel fixing rack comprises oppositely arranged side plates which are connected through a butting plate, a **wheel locking**

unit is arranged in the middle of the side plates and comprises an L-shaped piece, the middle of the L-shaped piece is hinged to the inner walls of the side plates, and lock slots matching with the L-shaped piece are further formed in the side plates. The vertical **bicycle parking device** can allow a **bicycle** to be locked quickly and conveniently and parked vertically, and accordingly corresponding occupied space is saved effectively; meanwhile, by matching of a locking pawl and ratchet teeth arranged in the rails, it is assured that the **bicycle** cannot fall off when pushed upwards, further the ratchet teeth are connected with a connecting rod, the locking pawl can be separated from the ratchet teeth by only rotating the connecting rod so as to realize success picking up of the **bicycle**, and risk that the **bicycle** falls off due to the fact that children or old people touch the **bicycle** by accident is avoided.

32/53 © EPODOC / EPO

PN - [JP2017133208](#) A 20170803

PNFP - JP6009109B B1 20161019

PR - JP20160012855 20160126

AP - JP20160012855 20160126

DT - I

FI - B60R25/09; B62H3/04; E04H6/00&A; E04H6/10&B; E05B47/06&A; E05B71/00&Z; G07B15/00&N; H02J7/00&303A

FT - 3E127/AA18; 3E127/BA56; 3E127/CA25; 3E127/EA04; 5G503/AA07; 5G503/BA01; 5G503/BB03; 5G503/FA01; 5G503/GB01; 5G503/GB03; 5G503/GD03; 5G503/GD04

PA - (A)
SHIMANOSHUNNOSUKE

TI - (A)
BICYCLE PARKING SYSTEM AND LOCKING DEVICE INCLUDED IN THE SAME

AB - (A)
PROBLEM TO BE SOLVED: To provide a locking device included in a **bicycle** parking system requiring no power supply to a **bicycle parking device**. SOLUTION: A locking device included in a **bicycle parking device** for **parking** by fixing a **wheel**, the **locking** device being used for **locking** the **wheel**, includes a **wheel lock** mechanism, kinetic energy transmission means, and power generation means. The **wheel lock** mechanism includes: lock means for **locking** the **wheel**; an electrically-driven actuator for changing and continuing the lock means' locking or unlocking of the wheel; and a detection switch for detecting a locking/unlocking state. The kinetic energy transmission means includes a function for transmitting, to the power generation means, the wheel's motion at the time of **locking** the **wheel** using the **wheel lock** mechanism or the wheel's motion after the **wheel** is **locked**. The power generation means comprises a function for generating power from the motion transferred from the kinetic energy transmission means. SELECTED DRAWING: Figure 2

33/53 © EPODOC / EPO

PN - [CN205637767U](#) U 20161012

PR - CN201620303141U 20160406

AP - CN201620303141U 20160406

DT - I

PA - LIU FUYUAN; LUAN XIAOJING; LI TIANKE; GUO SHAN; LI SASA

TI - Novel public **bicycle** system in underground parks device

AB - The utility model provides a novel public **bicycle** system in underground

parks **device**, includes **parking** stall, outside cylinder, anchor strut fixing device, anchor strut, **wheel locking** device, outer gear, central transmission post, pinion, sun gear, repeater motor, hydraulic stem, laying **wheel locking** device on the parking stall, around the even fixed externally cylinder in parking stall, outside cylinder is fixed, outer gear and four little gear engagement to on four fixed externally cylinders of pinion, sun gear fixes on the central transmission post, and sun gear is located four pinions below, the anchor strut is fixed on the anchor strut fixing **device** of **parking** stall top. The utility model discloses beneficial effect does: 1)The **bicycle** is placed no longer in the open, is convenient for protect the **bicycle**, 2)Positions such as usable bus stop point, park are as **bicycle** arrangement department, and are convenient nimble, 3)Can pick up the car automatically, the automaticity is high, 4) sky parking has improved land use and has rateed.

34/53 © EPODOC / EPO

PN - [KR20120020718](#) A 20120308
 PR - KR20100084516 20100831
 AP - KR20100084516 20100831
 DT - I
 CI - B62H3/00 (KR)
 - B62H3/08 (KR)
 - B62H5/141 (KR)
 - E04H6/005 (KR)
 - E05F15/632 (KR)
 CA - E05Y2900/132 (KR)
 - E05Y2900/40 (KR)
 PA - I GEUM CHEOL [KR]
 TI - THE ENTRANCE LOCATION BE PREVENTING APPARATUS FOR STOLEN OF **BICYCLE**
 PARKING MACHINE USED ROBOT
 AB - PURPOSE: A device for preventing bicycles from becoming stolen from a **bicycle parking device** with a robot is provided to prevent bicycles from falling by installing a sliding door on the entrance. CONSTITUTION: A device for preventing bicycles from becoming stolen from a **bicycle parking device** with a robot comprises a pair of sliding doors(200,210). A **bicycle** moves to the entrance of the storage chamber of the **bicycle parking device** through the sliding door and is supported in a state that a front wheel has passed. The sliding door comprises slits(201)(211). The front wheel of the **bicycle** is supported on the slits. When the second robot of the **bicycle parking device** holds and moves the wheel, the sliding door is opened/closed by an opening/closing driving unit(300). A **wheel locking** unit(400) is installed on one side of the sliding door.

35/53 © EPODOC / EPO

PN - [CN201907591U](#) U 20110727
 PR - CN20112006366U 20110106
 AP - CN20112006366U 20110106
 DT - I
 CCA - [B62H2003/005](#)
 CA - B62H2003/005 (EP)
 PA - ZHENQING ZHANG

- TI - Public locking structure for **bicycle**
- AB - The utility model relates to a public locking structure for a **bicycle**, which comprises a parking post, a lock bar and a locking **device**. The **parking** post is used for locking the **bicycle** fixedly, the lock bar is arranged in the front of the **bicycle** and fixedly connected with the **bicycle**, and the locking device is fixedly connected with the parking post, so that the public locking structure is used with a public locking electronic control system to lock and unlock the **bicycle** with the lock bar. The parking post is 'n'-shaped structure formed by two lock columns, and locking slots are arranged at corresponding positions on the inner sides of the lock columns. The locking device comprises two locking mechanisms which are respectively mounted at positions in a wall cavity of the parking post and close to the locking slots, and each locking mechanism comprises a **lock wheel** with a gear-shaped locking claw, a locking ratchet, a positioning slider, an electromagnet connected with the public locking electronic control system, a sliding shaft, a spring and a spring stopper. The public locking structure is simple, firm and reliable, lower in maintenance cost and more convenient in popularization and application.

36/53 © EPODOC / EPO

- PN - [JP2010111293](#) A 20100520
- PNFP - JP5164800B B2 20130321
- PR - JP20080285845 20081106
- AP - JP20080285845 20081106
- DT - I
- FI - B62H3/08
- PA - (A)
IKEYA FORMULA KK
- TI - (A)
BICYCLE PARKING DEVICE
- AB - (A)
PROBLEM TO BE SOLVED: To obtain a **bicycle parking device** having a lock mechanism, which is reduced in price and excellent in reliability due to its simple structure.
- (A)
SOLUTION: A lock arm part having a two-pronged arm rotates so as to **lock a wheel**, and this rotation can be locked by a rotation prohibition claw of a lock lever engaging with a rack provided on the periphery of the lock arm, thereby locking the **bicycle parking device**. The **bicycle parking device** can prevent free **bicycle** parking because the lock arm rotates automatically so as to be locked due to the weight of a two-wheeled vehicle.
- (A)
COPYRIGHT: (C)2010,JPO&INPIT

37/53 © EPODOC / EPO

- PN - [NL1035058C](#) C1 20090824
- PR - NL20081035058 20080220
- AP - NL20081035058 20080220
- DT - *; Rep
- CCI - [B62H3/04](#) ; [B62H5/00](#)
- CI - B62H3/04 (EP)
- B62H5/00 (EP)

- PA - TONGERENJEROENBASTIAANVAN[NL]
- TI - **Bicycle parking device** for use in **bicycle** parking facility, has body in which portion of **bicycle** wheel is placed and locked in axial direction, where **wheel** is **locked** by shaft mounted between fasteners
- AB - The device (1) has a body in which a portion of a **bicycle** wheel (8) is placed and locked in an axial direction. The **wheel** is **locked** by a shaft mounted between fasteners that connect the **bicycle** wheel with the device, where the body includes one or more tapered clamping surfaces.

38/53 © EPODOC / EPO

- PN - [JP2007290463](#) A 20071108
- PR - JP20060118712 20060424
- AP - JP20060118712 20060424
- DT - I
- FI - B62H3/00; B62H3/04; B62H3/08; B62H5/16; E04H6/02&H
- PA - IWASE KK
- TI - WHEEL STOPPER FOR **PARKING DEVICE** FOR **BICYCLE** AND MOTORCYCLE
- AB - PROBLEM TO BE SOLVED: To completely lock wheels of a **bicycle** or a motorcycle during parking without damaging the wheels of the **bicycle** or motorcycle and without damaging wheel stopper side.
- SOLUTION: The wheel stopper for the **bicycle** or the motorcycle has: a plastic base body 11 in which a wheel advance groove portion 16 for enabling the wheel 2 to advance is formed; a detector 12 attached at the base body 11 and detecting that the wheel 2 advances in the wheel advance groove portion 16 of the base body 11; a plastic stopper 13 for **locking** the **wheel** which is rotatably attached at the base body 11, rotated and projected in the wheel advance groove portion 16 of the base body 11 when an advance of the wheel 2 into the wheel advance groove portion 16 is detected by the detector 12, and stops the wheel 2 advancing in the wheel advance groove portion 16 so as not to fall off, and in which metallic core material 31 is inserted in the inner portion; and a fixing device 14 for fixing/releasing the stop of the wheel 2 in the plastic stopper 13 for stopping the wheel.
- COPYRIGHT: (C)2008,JPO&INPIT

39/53 © EPODOC / EPO

- PN - [JP2006183455](#) A 20060713
- PNFP - JP4539544B B2 20100908
- PR - JP20040352067 20041203; JP20050347767 20051201
- AP - JP20050347767 20051201
- DT - I
- FI - B62H3/08; E04H6/12&B
- PA - (A)
JFE PLANT & SERVICE CORP
- TI - (A)
BICYCLE LOCK DETECTION DEVICE AND MECHANICAL THREE-DIMENSIONAL **BICYCLE** **PARKING DEVICE**
- AB - (A)
PROBLEM TO BE SOLVED: To provide a **bicycle** lock detection device without causing malfunction about whether a **bicycle** lock is present.

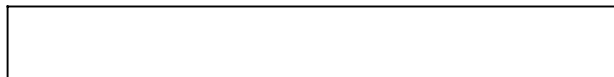
- (A)
SOLUTION: The **bicycle** lock detection device is provided with a guide part 9 for guiding a **bicycle** to move and with a roller 10 having the outer peripheral surface exposed in the guide part 9 and only rotatably supported without sliding. Whether or not a **wheel** is **locked** is detected by difference in torque applied to the roller 10 when a **locked wheel** and an unlocked wheel pass on the roller 10.
- (A)
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- PN - [JP2006131034](#) A 20060525
- PR - JP20040320750 20041104
- AP - JP20040320750 20041104
- DT - I
- FI - B62H3/06
- PA - SANICA KK
- TI - **WHEEL LOCKING DEVICE, BICYCLE PARKING SYSTEM AND DRIVING METHOD OF LOCKING ARM FOR PARKING BICYCLE**
- AB - PROBLEM TO BE SOLVED: To prevent or reduce an illegal forced escape.
- SOLUTION: The **wheel locking** device has locking arms 53, 54 **locking** the **wheel** 101, and a driving source oscillating the locking arms 53, 54 around support shafts 51, 52 of the fulcrums. The locking arms 53, 54 are closed by turning of the locking arms 53, 54 in the one direction to become a closed state of the wheel 101, and the locking arms 53, 54 are opened by turning in the other direction to become an open state of the wheel 101. The **locked wheel** 101 is made to be escaped from the locking state, and the locking arms 53, 54 are turned by the escape force in the one direction (M1, M2 directions in the Fig.), that is, in the closing direction when the wheel 101 is moved in the opposite direction to the insertion direction.
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- PN - [JP2006056396](#) A 20060302
- PR - JP20040240587 20040820
- AP - JP20040240587 20040820
- DT - I
- FI - B62H3/04
- PA - NIPPON SAN CYCLE KK; SAN CYCLE SYSTEM KK
- TI - **BICYCLE PARKING DEVICE**
- AB - PROBLEM TO BE SOLVED: To provide a **bicycle parking device** capable of being adapted to a front wheel diameter of a wide range while being provided with a lock function capable of collecting charge.
- SOLUTION: A hook type member of a lock part

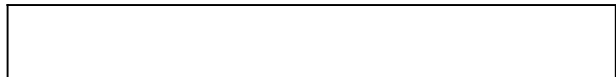


for **locking a wheel** provided on the **bicycle parking device** is constituted such that it is upwardly inclined and fixed at an angle of elevation predetermined from a horizontal direction. Thereby, even when a **bicycle** with the wheel of a large diameter is parked, since an angle formed by a spoke and the hook type member becomes small, the hook type member is hardly interfered to the spoke and it can be adapted to the wheel of a wide range from a large diameter to a small diameter. The hook type member can be fixed to the height of an axle of the wheel having the smallest diameter of the wheel diameter, i.e., an object to be parked. The angle of the elevation of the hook type member can be set to a smaller angle than an angle α formed relative to a horizontal direction by a connection tightening the axle and the hook type member when the wheel of the largest diameter of the wheel diameter, i.e., the object to be parked is parked.

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PN - [JP2005112073](#) A 20050428
 PR - JP20030347187 20031006
 AP - JP20030347187 20031006
 DT - I
 FI - B62H3/04; B62H3/08;
 B62J39/00&J; B62J99/00&J
 PA - SANICA KK
 TI - **WHEEL LOCKING DEVICE,**
 BICYCLE PARKING SYSTEM,
 AND METHOD FOR DRIVING
 DRIVE LOCK ARM FOR **BICYCLE**
 PARKING
 AB - PROBLEM TO BE SOLVED: To



provide a method for driving a drive lock arm for **bicycle** parking in which the drive lock arm to **lock a wheel** can be opened/closed by using a simple motor.

- SOLUTION: An eccentricity cam 64 is rotated by the rotation of an output shaft 62a of a motor 62, an eccentricity link plate 61 with the eccentricity cam 64 inserted therein is rocked by the displacement associated with the rotation of the eccentricity cam 64, and a drive lock arm 53 is rocked together with a drive shaft 51.
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- PN - [JP2005082123](#) A 20050331
- PR - JP20030319907 20030911
- AP - JP20030319907 20030911
- DT - I
- FI - B62H3/08; B62H5/16
- PA - NIPPON SIGNAL CO LTD
- TI - **BICYCLE PARKING DEVICE**
AND **BICYCLE PARKING SYSTEM**
- AB - PROBLEM TO BE SOLVED: To provide a **bicycle parking device** and a **bicycle** parking system capable of improving the convenience of a user by automatically locking a **bicycle** and capable of managing a **bicycle** park without a manager.
- SOLUTION: The **bicycle parking device** is provided with a wheel housing part 2 that houses a front wheel of a **bicycle** and is turned between a housing position and a lock position, a lock means for **locking the wheel** housing part 2 turned to the lock position, and a fall preventing means for preventing the fall of the front



wheel from the front wheel
housing part 2 in the lock
position of the wheel housing
part 2.

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PN - [JP2004243915](#) A 20040902

PR - JP20030036289 20030214

AP - JP20030036289 20030214

DT - I

FI - B62H3/08; E04H6/02&H

PA - NIPPON SAN CYCLE KK; SAN
CYCLE SYSTEM KK

TI - **BICYCLE PARKING DEVICE**

AB - PROBLEM TO BE SOLVED: To
provide a **bicycle parking
device** having high stability in
supporting a **bicycle** with a
simple structure.

- SOLUTION: This **bicycle
parking device** has: a **wheel
lock** mechanism part 20
for **locking a wheel** in
response to pressure by the
wheel of the **bicycle**; and a
lock releasing mechanism
part 30 for releasing the lock
of the wheel by the
mechanism part 20 in
conjunction with operation of
an operation lever 31
operable by dropping in a
coin. The mechanism part 20
is equipped with: a rail
member 22 of a nearly V-
shaped rail member for
mounting the wheel and
journalled rotatably around a
V-shaped bent part; an
energization means for
energizing the rail member 22
in one rotation direction; and
a locking means 33 for
locking the rail member 22 at
a lock position after rotation
when the rail member 22 is
rotated in a direction
opposite to the energizing
direction of the energization



means in response to the pressure by the wheel.

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PN - [JP2004218255](#) A 20040805

PNFP - JP4287661B B2 20090701

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AP - JP20030006208 20030114

DT - I

FI - B62H3/04; B62H3/08;
E05B47/00&H; E05B71/00&Z

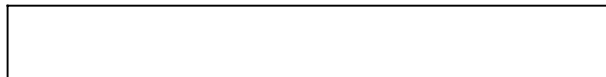
PA - (A)
AIDA ENG LTD

TI - (A)
BICYCLE PARKING LOCK DEVICE

AB - (A)
PROBLEM TO BE SOLVED: To provide a **bicycle parking lock device** for surely locking a **bicycle** and releasing a lock with superior maintenance performance by a simple structure.

- (A)
SOLUTION: This **bicycle parking lock device** 4 is arranged on **bicycle** parking racks 1 and 2, and **locks** a **wheel** of the **bicycle**, and has a pair of arm members 5 for rotating with a prescribed rotary shaft 6 as the center for sandwiching the wheel 21 of the **bicycle** in one end, a plate-like cam 8 having a cam groove 9 for rotating the arm members 5 by engaging with the respective other ends of the respective arm members 5 and a motor 7 for rotating the plate-like cam 8.

- (A)
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PN - [JP2003191876](#) A 20030709

PR - JP20010393447 20011226



AP - JP20010393447 20011226

DT - I

FI - B62H3/04; B62H5/16;
G07F17/24

PA - NIPPON SAN CYCLE KK; SAN
CYCLE SYSTEM KK

TI - **PARKING DEVICE FOR BICYCLE**

AB - PROBLEM TO BE SOLVED: To
provide an easy-to-
operate **bicycle parking device**.
- SOLUTION: When a **bicycle** is
parked, a user advances a
front wheel of the **bicycle** in a
parking guide 3 on a parking
stand 2 until the front wheel
reaches a **wheel lock** part 4.
Then, two jaws installed to
the **wheel lock** part 4 are
closed according to the
pressure of the front wheel,
so as to lock a tire and a rim
of the front wheel. When
parking of the **bicycle** is
ceased, the user inserts a
coin from a coin insertion of
a lock releasing device 6,
whereby rotating a release
lever 61 for releasing the
protect of the rotation. Then,
the rotation is transmitted to
the **wheel lock** part 4 via a
wire, so as to release the lock
of the front wheel due to the
two jaws of the **wheel lock**
part 4.
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PN - [JP2003112675](#) A 20030415

PNFP - JP4137421B B2 20080820

PR - JP20010307374 20011003

AP - JP20010307374 20011003

DT - I

FI - B62H3/00; B62H3/08;
B62H5/00&Z; E04H6/42&Z

PA - (A)
GIKEN SEISAKUSHO KK

TI - (A)
LOCK DETECTING DEVICE

AB - (A)

(a)

A + | 2

PROBLEM TO BE SOLVED: To provide a lock detecting device 10 for notifying a user that a wheel W of a **bicycle** is locked when the user sets the **bicycle** to a guide rail 2 in the locked state of the wheel W and allowing smooth utilizing of an underground **bicycle parking device**. SOLUTION: This lock detecting device 10 is provided with a wheel passing member 21 which is provided on a moving path of the **bicycle**, allows the wheel W pass thereon and is movably provided along the moving direction of the **bicycle**. Based on a difference of loads along the moving direction of the **bicycle** applied to the wheel passing member 21 when a **locked wheel W** passes thereon and when an unlocked wheel W passes, whether or not the wheel W is locked is detected by a lock detection means 3.

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 PN - [JP2001328576](#) A 20011127
 PR - JP20010074893
 20010315; JP20000072552
 20000315
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 DT - I
 CT - || STSE (A)
[JPH0659377U](#) U 00000000 [];
[JPS58102690](#) A 00000000 [];
[JPH11125020](#) A 00000000 [];
[JPS63180484U](#) U 00000000 [];
[JP2000339581](#) A 00000000 [];
[JPH10310089](#) A 00000000 []
 CCI - [B62H3/00](#)
 CCA - [B62H2003/005](#)
 CI - B62H3/00 (EP)
 CA - B62H2003/005 (EP)
 FI - B62H3/04; E05B47/00&R;
 E05B71/00&Z; G07F17/12



- FT - 3E048/CA11
- PA - TOOMASU KK
- TI - **WHEEL LOCKING DEVICE,**
BICYCLE PARKING MACHINE
 USING THIS **DEVICE, BICYCLE**
PARKING LOT MANAGEMENT
 SYSTEM PROVIDED WITH
 THIS **BICYCLE PARKING**
 MACHINE, AND RENTAL
 METHOD FOR **BICYCLE** USING
 THIS **BICYCLE PARKING**
 MACHINE
- AB - PROBLEM TO BE SOLVED: To
 inexpensively provide
 a **wheel locking** device and
 a **bicycle** parking machine
 using this device capable of
 positively preventing theft,
 allowing smooth lock/unlock
 action. SOLUTION: This device
 is provided with a pair of
 right and left lock arms 20
 and 20 journaling base end
 parts 20a, an elastic body 21
 mutually energizing the lock
 arms 20 and 20 in a close
 direction, a wheel abutting
 plate 22 reciprocatably
 provided in a midway of a
 front wheel entering passage
 R formed between the lock
 arms 20 and 20 so as to
 retreat in an abutted state by
 a front wheel F2 of a **bicycle** F,
 a switch 23 provided so as to
 turn on in a retreat position
 of the wheel abutting plate
 22, a solenoid 24 provided
 with a reciprocatable plunger
 24a and retreating the
 plunger 24a by the turning on
 of the switch 23, and a
 stopper piece 25 provided so
 as to protrude and withdraw
 between base end parts 20a
 and 20a of the lock arms 20
 and 20 by reciprocation of
 the plunger 24a.

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PN - [JP2002264858](#) A 20020918

PR - JP20010067503 20010309

AP - JP20010067503 20010309
DT - I
FI - B62H3/08; E04H6/02&H
PA - UEMITSU KIKAI KOGYO KK
TI - **BICYCLE PARKING DEVICE**
AB - PROBLEM TO BE SOLVED: To provide a **bicycle parking device** needing no power, having easy engagement/disengagement work not soiling the hands and superior even in an antitheft function. SOLUTION: The **bicycle parking device** 1 is provided with a spindle 13 rotatably supported inside a stand 3, a wheel holding member 10 for holding a part of the outer circumference of a front wheel 7 of a **bicycle** 6, a **wheel locking** arm 14 locking onto the front wheel 7 by abutting to the front wheel 7 attached and detached to the wheel holding member 10 and rotating with the spindle 13, a lock plate 15 rotating with the spindle 13, a lock shaft 17 fixing the lock plate 15 so that it can engage and disengage when the **wheel locking** arm 14 is in a **wheel locking** position, and a locking mechanism 24 operating the lock shaft 17.

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PN - [JP2000135994](#) A 20000516
PR - JP19980347766 19981030
AP - JP19980347766 19981030
DT - I
FI - B62H3/00; B62H5/08
PA - YOSHIKAWA KAZUMA
TI - **BICYCLE PARKING/THEFT PREVENTIVE DEVICE BY FIXATION OF PEDAL**
AB - PROBLEM TO BE SOLVED: To simplify a **bicycle** parking facility, and to prevent a theft by fixing only a **bicycle** pedal by a pedal fixing device fixed to a floor surface. SOLUTION: A pedal fixing device is

opened at an angle of a certain degree by the action of a support 1, a cover 2 and a coil spring shaft 13 by fixing the support 1 to the ground surface 15 by an anchor bolt 14. A **wheel** fastening **lock** 4 for a **bicycle** is installed on the tip of the cover 2. A pedal 8 of the **bicycle** is positioned between the support 1 and the cover 2 so that a pedal shaft 10 of the pedal 8 is fitted to a recess 3 of the cover 2, and the cover 2 is put on the pedal 8 to be fitted to the support 1 to be operated so that the lock 4 is fastened. Thus, an acting metal fitting 6 of the lock 4 enters a hole of a plate 7 of a plate-like projection existing on the end of the support 1, and the cover 2 becomes unopenable, so that the pedal 8 is shut up inside. When a key 5 of the lock is pulled out, the prevention of a theft is completed. Since this device is the size of a degree for covering the pedal of the **bicycle**, a facility of a **bicycle parking device** is not difficult, so that a place can be selected in a wide visual field.

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 PN - [JPH08104268](#) A 19960423
 PR - JP19930200994
 19930721; JP19920218436
 19920723
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 DT - I
 CCI - [B62H3/02](#)
 CCA - [B62H2003/005](#)
 CI - B62H3/02 (EP)
 CA - B62H2003/005 (EP)
 FI - B62H3/10; B62H5/16;
 E04H6/02&H
 PA - MARUYAMA JOJI; OKA KENJI



- TI - **PARKING DEVICE FOR BICYCLE**
- AB - PURPOSE: To make quick reliable parking possible without using a stand for a parked **bicycle** by, in a device for sandwichedly holding the front wheel of the **bicycle** to make the parking of the **bicycle** possible, spreadly providing a front wheel sandwichedly holding body with an elastic body which becomes free length during the advance of the front wheel sandwichedly holding body and compressed length during its retreat.
- CONSTITUTION: In parking a **bicycle**, the front wheel of the **bicycle** is pushed into a space between front wheel holding wall bodies 2 having width W being wider than that of the front wheel. A front wheel sandwichedly holding body 4 is therefore retreated against the spring force of an elastic body 3 by an inserted front wheel, and the front wheel is sandwichedly held under energized force between the front wheel sandwichedly holding body 4 and the front wheel holding wall body 2, and the **bicycle** is supported in an erect state. In this case, since the locking member of a front **wheel locking** device 9 enters a locking hole, when a user puts a coin into a coin charging port 22, a key 10 inserted in a locking device turns into the state of allowable rotating operation. The scotch block of the locking device 9 is locked on the front wheel by operating the key 10, and the taking out of the parked **bicycle** thereby becomes impossible.

PN	- JPH0821118 A 19960123
PR	- JP19940177628 19940706
AP	- JP19940177628 19940706
DT	- I
FI	- B62H3/08; E04H6/06&Y
PA	- NICHIIWA KK
TI	- BICYCLE PARKING DEVICE
AB	- PURPOSE:To facilitate an installing operation of a bicycle to be even when an adjacent bicycle is already locked, and even when a front wheel is locked by suspending a lower stage-side bicycle support frame movably in the front and rear directions downward to a fixing part of an upper stage-side bicycle support frame alone a fixed frame. CONSTITUTION:A lower stage-side bicycle support frame 12 is movably suspended and held along a fixed frame 1. A transverse cross section-U-shaped guide rail 9 is mounted to the outer surface of the fixed frame 1 in both sides over the whole length of the fixed frame 1 in one piece by welding, for example. A frame support member 10 is movably laid out along both guide rails 9. A lower stage and trough-like bicycle support frame 12 is held on the support member 10 in a suspended fashion by way of a pair of support levers 11 on both sides comprising a pipe material or the like. Then, the support frame 12 is projected in the rear of the fixed frame 1, thereby loading a bicycle B on the frame 12 and pushing the frame 12 into along the fixed frame 1. This construction makes it possible to install a bicycle at a specified location.

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PN - [JPH09254841](#) A 19970930

PR - JP19960066924 19960322

AP - JP19960066924 19960322

DT - I

FI - B62H3/08; E04H6/02&H

PA - SANOYAS HISHINO MEISHO
CORP

TI - SLIDE BLOCK AND PALLET
FOR **BICYCLE PARKING DEVICE**

AB - PROBLEM TO BE SOLVED: To
surely hold a **bicycle** to a front
wheel receiving block, and
guide the front wheel
receiving base to a pallet with
an inexpensive structure.
SOLUTION: A side plate 7a to
regulate each side surface of
a front wheel of a **bicycle**, and
a positioning body (a first
holding seat 8 and a second
holding seat 9) to regulate the
longitudinal position of the
front wheel when the front
wheel is at the prescribed
loading position) are
provided on a front wheel
receiving block 7, and the
front wheel receiving block 7
is rolled on a guide rail 5 by
guide rollers 12, 14 so as to
be moved in the longitudinal
direction. When a front wheel
is not loaded on the front
wheel receiving block, the
front **wheel** is **locked** to a
pallet frame 1 by a catcher
18, and the lock is released
when the front wheel is
loaded at the prescribed
position.