

[SS 11] /ic B62M11/04

Results in EPODOC **1.623**

[SS 12] /c B62K3/005 or B62K5/05 or B62M11/06

Results in EPODOC **3.858**

[SS 13] Overrunning

Results in EPODOC **7.433**

[SS 14] 13 and (12 or 13)

Results in EPODOC **7.433**

[SS 15] 13 and (11 or 12)

Results in EPODOC **35**

[SS 16] transmission or gear

Results in EPODOC **2.814.596**

[SS 17] 15 and 16

Results in EPODOC **32**

[SS 18] groove and 17

Results in EPODOC **6**

[SS 19] ..li



1/6 © EPODOC / EPO

PN - [MX2017001443](#) A 20180112

PR - CN20141377428 20140801; WO2015CN85969 20150803

AP - MX20170001443 20150803

DT - I

CCI - [F16H63/30](#)

CUI - [B62M11/04](#) ; [F16D7/048](#) ; [F16H3/089](#) ; [F16H35/10](#)

CCA - [F16H2063/3093](#)

CUA - [F16H2003/0822](#)

PA - CHONGQING HIJOY IND GROUP CO LTD [CN]

TI - **OVERRUNNING TRANSMISSION** DEVICE CONVENIENT FOR SWITCHING.

AB - Disclosed is an **overrunning transmission** device convenient for switching.
The **transmission** device comprises a **transmission gear** and a **transmission shaft** (102) which is arranged to penetrate a shaft hole of the **transmission gear**, wherein at least one clamping **groove** (105) is formed at an edge of the shaft hole of the **transmission gear**; an accommodating chamber is formed in the axial direction of the **transmission shaft** (102), and a clamping plate (104) is provided in the accommodating chamber; and an end of the clamping plate (104) can move in the accommodating chamber back and forth in the radial direction of the **transmission gear** so as to be inserted into the clamping **groove** (105) or removed from the clamping **groove** (105), thereby achieving combination and separation of the **transmission shaft** (102) and the **transmission gear**.
The **overrunning transmission** device convenient for switching can make switching in a **transmission** process smooth and can save energy effectively.

2/6 © EPODOC / EPO

PN - [PH12017500187](#) A1 20170628

PR - CN20141377428 20140801; WO2015CN85969 20150803

AP - PH20171500187 20170131

DT - I

CCI - [F16H63/30](#)

CUI - [B62M11/04](#) ; [F16D7/048](#) ; [F16H3/089](#) ; [F16H35/10](#)

CCA - [F16H2063/3093](#)

CUA - [F16H2003/0822](#)

PA - CHONGQING HIJOY IND GROUP CO LTD [CN]

TI - **OVERRUNNING TRANSMISSION** DEVICE CONVENIENT FOR SWITCHING

AB - Disclosed is an **overrunning transmission** device convenient for switching.
The **transmission** device comprises a **transmission gear** and a **transmission shaft** (102) which is arranged to penetrate a shaft hole of the **transmission gear**, wherein at least one clamping **groove** (105) is formed at an edge of the shaft hole of the **transmission gear**; an accommodating chamber is formed in the axial direction of the **transmission shaft** (102), and a clamping plate (104) is provided in the accommodating chamber; and an end of the clamping plate (104) can move in the accommodating chamber back and forth in the radial direction of the **transmission gear** so as to be inserted into the clamping **groove** (105) or removed from the clamping **groove** (105), thereby achieving combination and separation of the **transmission shaft** (102) and the **transmission gear**.
The **overrunning transmission** device convenient for switching can make switching in a **transmission** process smooth and can save energy effectively.

3/6 © EPODOC / EPO

PN - [WO2016015682](#) A1 20160204
 PR - CN20141377428 20140801
 AP - WO2015CN85969 20150803
 DT - **
 CT - [CN] ISR (A1)
 [CN204309598U](#) U 20150506
 [PX] (CHONGQING HIJOY INDUSTRY GROUP CO LTD)
 [PX] 1-25
 * the whole document *;
 [CN104097505](#) A 20141015
 [PX] (CHONGQING HIJOY INDUSTRY GROUP CO LTD)
 [PX] 1-25
 * the whole document *;
 [CN102556275](#) A 20120711
 [X] (ZHANG E)
 [X] 1
 * description, pages 5-8, and figures 1-12 *;
 [CN102563045](#) A 20120711
 [A] (CHONGQING ZONGTIAN ELECTROMECHANICAL CO LTD)
 [A] 1-25
 * the whole document *;
 [EP2319754](#) A1 20110511
 [A] (CHEN GEPING [CN], et al)
 [A] 1-25
 * the whole document *;
 [KR20040038060](#) A 20040508
 [A] (VALEO MANDO ELECTRICAL SYS)
 [A] 1-25
 * the whole document *

 CCI - [F16H63/30](#)
 CUI - [B62M11/04](#) ; [F16D7/048](#) ;
 [F16H3/089](#) ; [F16H35/10](#)
 CCA - [F16H2063/3093](#)
 CUA - [F16H2003/0822](#)
 PA - CHONGQING HIJOY INDUSTRY GROUP CO LTD [CN]
 TI - **OVERRUNNING TRANSMISSION**
 DEVICE CONVENIENT FOR SWITCHING
 AB - Disclosed is an **overrunning transmission** device convenient for switching. The **transmission** device

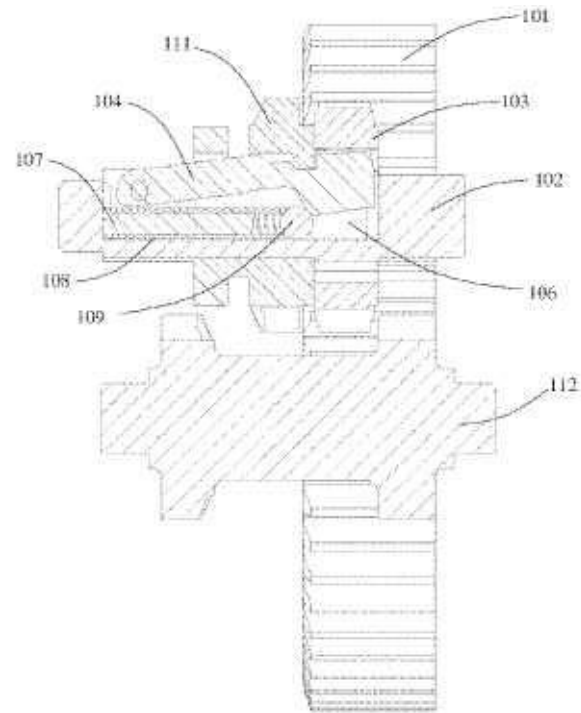


图4 / FIG. 4

comprises a **transmission gear** and a **transmission shaft** (102) which is arranged to penetrate a shaft hole of the **transmission gear**, wherein at least one clamping **groove** (105) is formed at an edge of the shaft hole of the **transmission gear**; an accommodating chamber is formed in the axial direction of the **transmission shaft** (102), and a clamping plate (104) is provided in the accommodating chamber; and an end of the clamping plate (104) can move in the accommodating chamber back and forth in the radial direction of the **transmission gear** so as to be inserted into the clamping **groove** (105) or removed from the clamping **groove** (105), thereby achieving combination and separation of the **transmission shaft** (102) and the **transmission gear**. The **overrunning transmission** device convenient for switching can make switching in a **transmission** process smooth and can save energy effectively.

4/6 © EPODOC / EPO

PN - [EP3176067](#) A1 20170607

PNFP - EP3176067 A4 20180425

PR - CN20141377428 20140801; WO2015CN85969 20150803

AP - EP20150826636 20150803

DT - *; Rep

CT - || STSE (A4)
[WO2009068853](#) A1 20090604 [XAI] (ZEROSHIFT LTD [GB], et al)
[X] 1
* abstract *
* page 22, line 8 - page 23, line 4; figures 8-10 *
[A] 3,14
[I] 2,4-13,15;
[US3028763](#) A 19620410 [X] (RUDOLF VETSCH)
[X] 1,12
* figure - *;
[US5109722](#) A 19920505 [X] (HUFNAGLE DONALD L [US], et al)
[X] 1,12

* abstract *;
[US4817772](#) A 19890404 [A] (SACHER CHRISTOPH [DE])
 [A] 8
 * column 5, lines 53-68 *
 * abstract *

CCI - [F16H63/30](#)

CUI - [B62M11/04](#) ; [F16D7/048](#) ; [F16H3/089](#) ; [F16H35/10](#)

CCA - [F16H2063/3093](#)

CUA - [F16H2003/0822](#)

PA - (A1 A4)
 CHONGQING HIJOY IND GROUP CO LTD [CN]

TI - (A1 A4)
OVERRUNNING TRANSMISSION DEVICE CONVENIENT FOR SWITCHING

AB - (A1)
 The present invention discloses an **overrunning transmission** device convenient for switching. The **transmission** device comprises a **transmission gear** and a **transmission shaft** (102) which is arranged to penetrate a shaft hole of the **transmission gear**, wherein at least one clamping **groove** (105) is formed at an edge of the shaft hole of the **transmission gear**; a chamber is formed in **transmission shaft** (102) which extends in the axial direction of the **transmission shaft** (102), and a clamping plate (104) is provided in the chamber; and an end of the clamping plate (104) can move in the chamber back and forth along the radial direction of the **transmission gear** so that the end of the clamping plate (104) can be inserted into or removed from the clamping **groove** (105), thereby the **transmission shaft** (102) and the **transmission gear** can be engaged and separated with each other. The **overrunning transmission** device convenient for switching can make the switching smooth and save energy effectively.

5/6 © EPODOC / EPO

PN - [CN105151215](#) A 20151216

PR - CN20151568062 20150908

AP - CN20151568062 20150908

DT - I

CT - || STSE (A)
[CN2288135Y](#) Y 19980819 [A] (LI MINGWU [CN])
 [A] 1-10
 * 全文 *;
[FR2902073](#) A1 20071214 [A] (PIERONI MICHEL [FR])
 [A] 1-10
 * 全文 *;
[CN202203304U](#) U 20120425 [Y] (GUANGLIN SHI, et al)
 [Y] 1-10
 * 说明书第[0004]-[0033]段，附图1 *;
[CN102748450](#) A 20121024 [Y] (UNIV SOUTHWEST)
 [Y] 1-10
 * 说明书第[0002]、[0037]-[0068]段，附图1-10 *

PA - LIANG ZHIZI

- TI - Lateral-hung bow disk type two-**gear** self-adaption automatic speed change driving assembly for electric motorcycle
- AB - The invention discloses a lateral-hung bow disk type two-**gear** self-adaption automatic speed change driving assembly for an electric motorcycle. The lateral-hung bow disk type two-**gear** self-adaption automatic speed change driving assembly comprises a box body and a transmitting shaft; the box body comprises an installing portion which is laterally hung and installed on the hub side; and the lateral-hung bow disk type two-**gear** self-adaption automatic speed change driving assembly further comprises a slow-**gear** transmitting mechanism and a mechanical intelligent self-adaption speed change assembly arranged on the transmitting shaft. An annular **groove** is formed in an axial end face of an outer ring of an **overrunning** clutch of the slow-**gear** transmitting mechanism, an inner ring is arranged in the annular **groove** in a rotary and matched manner, and a meshed space is formed between the outer circle of the inner ring and the inner wall of the axial outer side of the annular **groove**. The lateral-hung bow disk type two-**gear** self-adaption automatic speed change driving assembly avoids a traditional structure that an inner ring directly supports the transmitting shaft and also solves the problem that transmitting errors are amplified on the **overrunning** clutch. Furthermore, the whole stability of the **overrunning** clutch is guaranteed, the stable support of the speed changer can be still guaranteed after a long-time operation, the operating noise is reduced, the running comfortableness is guaranteed, the transmitting efficiency is improved, and the energy consumption is reduced. In addition, the service life is prolonged, the operation accuracy is improved, and the lateral-hung bow disk type two-**gear** self-adaption automatic speed change driving assembly is suitable for the heavy-load using environment and the high-speed using environment.

6/6 © EPODOC / EPO

- PN - [CN202541776U](#) U 20121121
- PR - CN20112258983U 20110721; CN20122155271U 20120413
- AP - CN20122155271U 20120413
- DT - I
- PA - FUYU DU
- TI - Double-clutch **gear** shifting mechanism of electric motorcycle
- AB - The utility model discloses a double-clutch **gear** shifting mechanism of an electric motorcycle, and relates to a mechanical **gear** shifting technology. The upper part of a second **gear** shaft (14) is connected with a **gear** (15) by a flat key, and the lower part of the second **gear** shaft (14) is connected with a second driving **gear** (16) by a flat key; a second **gear** shaft (7) is connected with a second **gear** cam (2) by a spline, a controllable **gear** shifting retainer (4) is sleeved outside the second **gear** cam (2) and connected with the second **gear** cam (2) by a positioning pin (3), a second **gear** pin roller (17) is embedded into the controllable **gear** shifting retainer (4), a second driven **gear** (6) is sleeved outside the controllable **gear** shifting retainer (4), and the second **gear** shaft (7) is connected with a standard bearing unidirectional **overrunning** clutch (8) by a flat key; the standard bearing unidirectional **overrunning** clutch (8) is sleeved at one end of a first and second **gear** connecting sleeve (10), a first **gear** (9) is arranged outside the other end of the first and second **gear** connecting sleeve (10), and a **groove** is formed on the inner circle of the first **gear** (9) and holds a first **gear** pin roller (13); a bearing frame (1) is arranged in a shell (12), and a bolt penetrates through

a hole of the bearing frame (1), penetrates through a hole of a **gear** shifting hook (5) with a pull rope (19) and is connected with a nut; and one end of a tension spring (18) is connected with the controllable **gear** shifting retainer (4), and the other end of the tension spring (18) is connected with the second **gear** cam (2). Under the condition that the input rotating speed is unchangeable, the driving and driven gears do not move; through the controllable bidirectional clutches, an output shaft can obtain different rotating speeds; and the mechanism has an obvious effect.

[SS 19] ..v

[EPODOC: SS 19] ..v 17



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PROBLEM The (interval of) document number(s) is out of range.

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[EPODOC: SS 19] ..hi



EPODOC	SS Status	Results	Query
1		3.036	(ROAD W SIGN)
2		116	COMMUNICATION AND SS1
3		1	BLUETOOTH AND SS2
4		0	SS2 AND WIFI
5		1.176	SS2
6		116	COMMUNICATION AND SS1
7		12	HASHAND(REMOTE_DATABASEOREXTERNAL_DATABASE)
8		5	7 AND COMPAR+
9		1.623	/IC B62M11/04
10		3.858	/C B62K3/005 OR B62K5/05 OR B62M11/06
11		1.623	/IC B62M11/04
12		3.858	/C B62K3/005 OR B62K5/05 OR B62M11/06
13		7.433	OVERRUNNING
14		7.433	13 AND (12 OR 13)
15		35	13 AND (11 OR 12)
16		2.814.596	TRANSMISSION OR GEAR
17		32	15 AND 16
18		6	GROOVE AND 17

V13

[SS 19] 17

Results in EPODOC 32

[SS 20] ..li



1/32 © EPODOC / EPO

- PN - [MX2017001443](#) A 20180112
- PR - CN20141377428 20140801; WO2015CN85969 20150803
- AP - MX20170001443 20150803
- DT - I
- CCI - [F16H63/30](#)
- CUI - [B62M11/04](#) ; [F16D7/048](#) ; [F16H3/089](#) ; [F16H35/10](#)
- CCA - [F16H2063/3093](#)
- CUA - [F16H2003/0822](#)
- PA - CHONGQING HIJOY IND GROUP CO LTD [CN]
- TI - **OVERRUNNING TRANSMISSION** DEVICE CONVENIENT FOR SWITCHING.
- AB - Disclosed is an **overrunning transmission** device convenient for switching.
The **transmission** device comprises a **transmission gear** and a **transmission** shaft (102) which is arranged to penetrate a shaft hole of the **transmission gear**, wherein at least one clamping groove (105) is formed at an edge of the shaft hole of the **transmission gear**; an accommodating chamber is formed in the axial direction of the **transmission** shaft (102), and a clamping plate (104) is provided in the accommodating chamber; and an end of the clamping plate (104) can move in the accommodating chamber back and forth in the radial direction of the **transmission gear** so as to be inserted into the clamping groove (105) or removed from the clamping groove (105), thereby achieving combination and separation of the **transmission** shaft (102) and the **transmission gear**.
The **overrunning transmission** device convenient for switching can make switching in a **transmission** process smooth and can save energy effectively.

2/32 © EPODOC / EPO

- PN - [PH12017500187](#) A1 20170628
- PR - CN20141377428 20140801; WO2015CN85969 20150803
- AP - PH20171500187 20170131
- DT - I
- CCI - [F16H63/30](#)
- CUI - [B62M11/04](#) ; [F16D7/048](#) ; [F16H3/089](#) ; [F16H35/10](#)
- CCA - [F16H2063/3093](#)
- CUA - [F16H2003/0822](#)
- PA - CHONGQING HIJOY IND GROUP CO LTD [CN]
- TI - **OVERUNNING TRANSMISSION** DEVICE CONVENIENT FOR SWITCHING
- AB - Disclosed is an **overrunning transmission** device convenient for switching.
The **transmission** device comprises a **transmission gear** and a **transmission** shaft (102) which is arranged to penetrate a shaft hole of the **transmission gear**, wherein at least one clamping groove (105) is formed at an edge of the shaft hole of the **transmission gear**; an accommodating chamber is formed in the axial direction of the **transmission** shaft (102), and a clamping plate (104) is provided in the accommodating chamber; and

an end of the clamping plate (104) can move in the accommodating chamber back and forth in the radial direction of the **transmission gear** so as to be inserted into the clamping groove (105) or removed from the clamping groove (105), thereby achieving combination and separation of the **transmission** shaft (102) and the **transmission gear**. The **overrunning transmission** device convenient for switching can make switching in a **transmission** process smooth and can save energy effectively.

3/32 © EPODOC / EPO

PN - [AP201709789](#) AO 20170228
 PR - CN20141377428 20140801; WO2015CN85969 20150803
 AP - AP20170009789 20150803
 DT - 0
 CUI - [B62M11/04](#) ; [F16D7/048](#) ; [F16H3/089](#) ; [F16H35/10](#)
 CUA - [F16H2003/0822](#)
 PA - CHONGQING HIJOY INDUSTRY GROUP CO LTD [CN]
 TI - **OVERRUNNING TRANSMISSION** DEVICE CONVENIENT FOR SWITCHING

4/32 © EPODOC / EPO

PN - [CN105365996](#) A 20160302
 PR - CN20151564539 20150908
 AP - CN20151564539 20150908
 DT - I
 CT - || STSE (A)
[JPH07224917](#) A 19950822 [A] (ON SHIYODEN)
 [A] 1-10
 * 全文 *;
[US2001024993](#) A1 20010927 [A] (TSUKADA YOSHIKI [JP], et al)
 [A] 1-10
 * 全文 *;
[CN202203304U](#) U 20120425 [Y] (GUANGLIN SHI, et al)
 [Y] 1-10
 * 说明书第4-33段, 附图1 *;
[CN102748450](#) A 20121024 [Y] (UNIV SOUTHWEST)
 [Y] 1-10
 * 说明书第2、37-68段, 附图1-10 *;
[CN103307140](#) A 20130918 [Y] (UNIV SOUTHWEST)
 [Y] 5-8
 * 说明书第21-31段, 附图1-3 *
 PA - LIANG ZHIZI
 TI - Laterally hung bow cone type two-**gear** self-adaption automatic speed change driving assembly for electric motorcycle
 AB - The invention discloses a laterally hung bow cone type two-**gear** self-adaption automatic speed change driving assembly for an electric motorcycle, comprising a box and a **transmission** shaft as well as a low-**gear transmission** mechanism and a mechanical intelligent self-adaption speed change assembly, wherein the box has a

mounting part for being arranged at the side of a hub in a laterally hung way, the mechanical intelligent self-adaption speed change assembly is arranged on the **transmission** shaft, an annular pit is formed in the axial end face of the outer ring of an **overrunning** clutch of the low-**gear transmission** mechanism, the inner ring is arranged in the annular pit in a rotatable fit way, and a meshing space is formed between the outer circle of the inner ring and the inner wall of the radial outer side of the annular pit. According to the invention, the conventional structure that the inner ring is supported by the **transmission** shaft directly is avoided, and the problem that **transmission** error is amplified on the **overrunning** clutch is avoided, and therefore, the overall stability of the **overrunning** clutch is ensured, steady support is still ensured for long-period operation of a speed changer, operation noise is lowered, operation comfort is ensured, and **transmission** efficiency is improved, and further energy consumption is reduced; and the service life is prolonged, the operation precision is improved, and the driving assembly is applicable to use environments with heavy load and requiring high speed.

5/32 © EPODOC / EPO

PN - [WO2016015682](#) A1 20160204
 PR - CN20141377428 20140801
 AP - WO2015CN85969 20150803
 DT - **
 CT - [CN] ISR (A1)
[CN204309598U](#) U 20150506
 [PX] (CHONGQING HIJOY INDUSTRY GROUP CO LTD)
 [PX] 1-25
 * the whole document *;
[CN104097505](#) A 20141015
 [PX] (CHONGQING HIJOY INDUSTRY GROUP CO LTD)
 [PX] 1-25
 * the whole document *;
[CN102556275](#) A 20120711
 [X] (ZHANG E)
 [X] 1
 * description, pages 5-8, and figures 1-12 *;
[CN102563045](#) A 20120711
 [A] (CHONGQING ZONGTIAN ELECTROMECHANICAL CO LTD)
 [A] 1-25
 * the whole document *;
[EP2319754](#) A1 20110511
 [A] (CHEN GEPING [CN], et al)
 [A] 1-25
 * the whole document *;
[KR20040038060](#) A 20040508
 [A] (VALEO MANDO ELECTRICAL SYS)

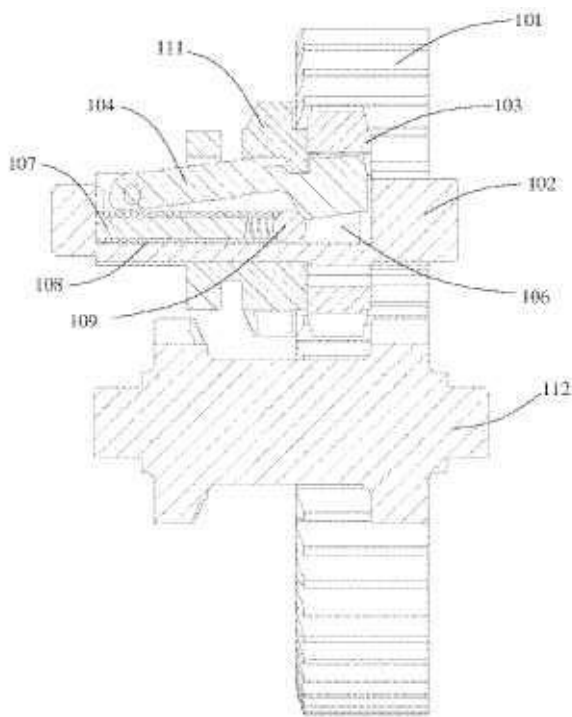


图4 / FIG. 4

[A] 1-25

* the whole document *

- CCI - [F16H63/30](#)
- CUI - [B62M11/04](#) ; [F16D7/048](#) ;
[F16H3/089](#) ; [F16H35/10](#)
- CCA - [F16H2063/3093](#)
- CUA - [F16H2003/0822](#)
- PA - CHONGQING HIJOY INDUSTRY
GROUP CO LTD [CN]
- TI - **OVERRUNNING TRANSMISSION**
DEVICE CONVENIENT FOR
SWITCHING
- AB - Disclosed is an **overrunning**
transmission device convenient for
switching. The **transmission** device
comprises a **transmission gear**
and a **transmission** shaft (102)
which is arranged to penetrate a
shaft hole of the **transmission**
gear, wherein at least one
clamping groove (105) is formed
at an edge of the shaft hole of
the **transmission gear**; an
accommodating chamber is
formed in the axial direction of
the **transmission** shaft (102), and a
clamping plate (104) is provided
in the accommodating chamber;
and an end of the clamping plate
(104) can move in the
accommodating chamber back
and forth in the radial direction of
the **transmission gear** so as to be
inserted into the clamping groove
(105) or removed from the
clamping groove (105), thereby
achieving combination and
separation of the **transmission**
shaft (102) and the **transmission**
gear. The **overrunning**
transmission device convenient for
switching can make switching in
a **transmission** process smooth
and can save energy effectively.

PNFP - EP3176067 A4 20180425

PR - CN20141377428 20140801; WO2015CN85969 20150803

AP - EP20150826636 20150803

DT - *; Rep

CT - || STSE (A4)
[WO2009068853](#) A1 20090604 [XAI] (ZEROSHIFT LTD [GB], et al)
[X] 1
* abstract *
* page 22, line 8 - page 23, line 4; figures 8-10 *
[A] 3,14
[I] 2,4-13,15;
[US3028763](#) A 19620410 [X] (RUDOLF VETSCH)
[X] 1,12
* figure - *;
[US5109722](#) A 19920505 [X] (HUFNAGLE DONALD L [US], et al)
[X] 1,12
* abstract *;
[US4817772](#) A 19890404 [A] (SACHER CHRISTOPH [DE])
[A] 8
* column 5, lines 53-68 *
* abstract *

CCI - [F16H63/30](#)

CUI - [B62M11/04](#) ; [F16D7/048](#) ; [F16H3/089](#) ; [F16H35/10](#)

CCA - [F16H2063/3093](#)

CUA - [F16H2003/0822](#)

PA - (A1 A4)
CHONGQING HIJOY IND GROUP CO LTD [CN]

TI - (A1 A4)
OVERRUNNING TRANSMISSION DEVICE CONVENIENT FOR SWITCHING

AB - (A1)
The present invention discloses an **overrunning transmission** device convenient for switching. The **transmission** device comprises a **transmission gear** and a **transmission shaft** (102) which is arranged to penetrate a shaft hole of the **transmission gear**, wherein at least one clamping groove (105) is formed at an edge of the shaft hole of the **transmission gear**; a chamber is formed in **transmission shaft** (102) which extends in the axial direction of the **transmission shaft** (102), and a clamping plate (104) is provided in the chamber; and an end of the clamping plate (104) can move in the chamber back and forth along the radial direction of the **transmission gear** so that the end of the clamping plate (104) can be inserted into or removed from the clamping groove (105), thereby the **transmission shaft** (102) and the **transmission gear** can be engaged and separated with each other. The **overrunning transmission** device convenient for switching can make the switching smooth and save energy effectively.

AP - CN20151579590 20150909

DT - I

CT - || STSE (A)
[JPH07224917](#) A 19950822 [A] (ON SHIYODEN)
 [A] 1-8
 * 全文 *;
[US2001024993](#) A1 20010927 [A] (TSUKADA YOSHIKI [JP], et al)
 [A] 1-8
 * 全文 *;
[CN102717705](#) A 20121010 [X] (UNIV SOUTHWEST)
 [X] 1-8
 * 说明书第12、34-61段，附图1-10 *;
[CN103307140](#) A 20130918 [A] (UNIV SOUTHWEST)
 [A] 1-8
 * 全文 *

PA - LIANG ZHIZI

TI - Side-hanging pendulum type self-adaptive automatic **transmission** driving assembly for electric motorcycle

AB - The invention discloses a side-hanging pendulum type self-adaptive automatic **transmission** driving assembly for an electric motorcycle. The side-hanging pendulum type self-adaptive automatic **transmission** driving assembly for the electric motorcycle comprises a box body, a **transmission** shaft, a slow-**gear transmission** mechanism and a mechanical intelligent self-adaptive **transmission** assembly, wherein the slow-**gear transmission** mechanism comprises an **overrunning** clutch and an intermediate reducing **transmission** mechanism; the **overrunning** clutch transmits and outputs slow- **gear** power through a slow-**gear** cam engagement pair; and the slow-**gear** cam engagement pair comprises at least one pendulum type end cam engagement pair. The side-hanging pendulum type self-adaptive automatic **transmission** driving assembly for the electric motorcycle, disclosed by the invention, has all advantages of the traditional cam self-adaptive automatic **transmission** device; as swinging buffer is available in the **gear** shifting process and good stability and smoothness are obtained during releasing a **transmission** elastic piece, abrupt senses and noises are eliminated and the side-hanging pendulum type self-adaptive automatic **transmission** driving assembly is favorable for further increasing the working efficiency. **Transmission** energy consumption in the **gear** shifting process is reduced, the side-hanging pendulum type self-adaptive automatic **transmission** driving assembly has good energy-saving and consumption-reducing effects, the service life of the side-hanging pendulum type self-adaptive automatic **transmission** driving assembly is prolonged, and the side-hanging pendulum type self-adaptive automatic **transmission** driving assembly is suitable for lightweight vehicles such as the electric motorcycles and the like.

8/32 © EPODOC / EPO

PN - [CN105172991](#) A 20151223

PR - CN20151572220 20150908

AP - CN20151572220 20150908

DT - I

CT - || STSE (A)

[JP55754761](#) A 19820401 [A] (KUBOTA LTD)
 [A] 1-10
 * 全文 *;
[CN2735072Y](#) Y 20051019 [Y] (MENG QINGWEI [CN])
 [Y] 1-10
 * 参见说明书第2页第4段，倒数第1段、附图3-4 *;
[CN102717705](#) A 20121010 [Y] (UNIV SOUTHWEST)
 [Y] 1-10
 * 参见说明书第2-5，34-61段以及说明书附图1-10 *;
[CN103307140](#) A 20130918 [Y] (UNIV SOUTHWEST)
 [Y] 5-8
 * 参见说明书第21-31段以及说明书附图1-3 *;
[CN203362896U](#) U 20131225 [A] (LUO QINGFAN, et al)
 [A] 1-10
 * 全文 *

- PA - LIANG ZHIZI
- TI - Bow disc type two-**gear** self-adaption automatic speed change drive assembly of inner rotor motor of electric motorcycle
- AB - The invention discloses a bow disc type two-**gear** self-adaption automatic speed change drive assembly of an inner rotor motor of an electric motorcycle. The assembly comprises a drive motor, a box and a **transmission** shaft, wherein the drive motor is an inner rotor motor. The assembly further comprises a slow-**gear transmission** mechanism, and a mechanical intelligent self-adaption speed change assembly arranged on the **transmission** shaft; the axial end surface of an outer ring of an **overrunning** clutch of the slow-**gear transmission** mechanism is formed to an annular recess; an inner ring is rotationally matched in the annular recess; and an engagement space is formed between the outer circle of the inner ring and the inner wall of the radial outer side of the annular recess. The assembly prevents an inner ring on a traditional structure from being directly supported on the **transmission** shaft, and prevents the problem of increment of a **transmission** error on the **overrunning** clutch, so that the whole stability of the **overrunning** clutch is guaranteed, the stable support is still guaranteed in long-time operation of a **transmission**, the operation noise is reduced, the operation comfort is guaranteed, the **transmission** efficiency is improved, and the energy consumption is reduced; and the assembly prolongs the service life, improves the operation precision, and is suitable for use environments of heavy load and high speed.

9/32 © EPODOC / EPO

- PN - [CN105151215](#) A 20151216
- PR - CN20151568062 20150908
- AP - CN20151568062 20150908
- DT - I
- CT - || STSE (A)
[CN2288135Y](#) Y 19980819 [A] (LI MINGWU [CN])
 [A] 1-10
 * 全文 *;
[FR2902073](#) A1 20071214 [A] (PIERONI MICHEL [FR])

[A] 1-10

* 全文 *;

[CN202203304U](#) U 20120425 [Y] (GUANGLIN SHI, et al)

[Y] 1-10

* 说明书第[0004]-[0033]段，附图1 *;

[CN102748450](#) A 20121024 [Y] (UNIV SOUTHWEST)

[Y] 1-10

* 说明书第[0002]、[0037]-[0068]段，附图1-10 *

PA - LIANG ZHIZI

TI - Lateral-hung bow disk type two-**gear** self-adaption automatic speed change driving assembly for electric motorcycle

AB - The invention discloses a lateral-hung bow disk type two-**gear** self-adaption automatic speed change driving assembly for an electric motorcycle. The lateral-hung bow disk type two-**gear** self-adaption automatic speed change driving assembly comprises a box body and a transmitting shaft; the box body comprises an installing portion which is laterally hung and installed on the hub side; and the lateral-hung bow disk type two-**gear** self-adaption automatic speed change driving assembly further comprises a slow-**gear** transmitting mechanism and a mechanical intelligent self-adaption speed change assembly arranged on the transmitting shaft. An annular groove is formed in an axial end face of an outer ring of an **overrunning** clutch of the slow-**gear** transmitting mechanism, an inner ring is arranged in the annular groove in a rotary and matched manner, and a meshed space is formed between the outer circle of the inner ring and the inner wall of the axial outer side of the annular groove. The lateral-hung bow disk type two-**gear** self-adaption automatic speed change driving assembly avoids a traditional structure that an inner ring directly supports the transmitting shaft and also solves the problem that transmitting errors are amplified on the **overrunning** clutch. Furthermore, the whole stability of the **overrunning** clutch is guaranteed, the stable support of the speed changer can be still guaranteed after a long-time operation, the operating noise is reduced, the running comfortableness is guaranteed, the transmitting efficiency is improved, and the energy consumption is reduced. In addition, the service life is prolonged, the operation accuracy is improved, and the lateral-hung bow disk type two-**gear** self-adaption automatic speed change driving assembly is suitable for the heavy-load using environment and the high-speed using environment.

10/32 © EPODOC / EPO

PN - [US2015076787](#) A1 20150319

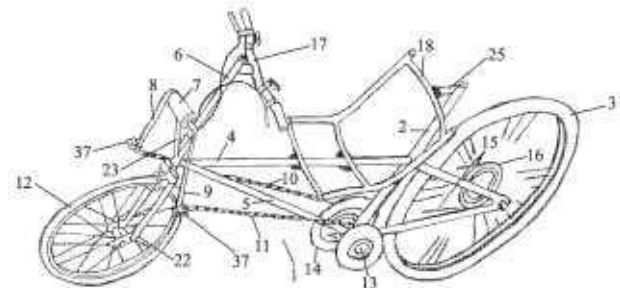
PR - US201414482622
20140910; US201361877562P
20130913

AP - US201414482622 20140910

DT - *; Rep

CT - || R141 (A1)
[US6173981](#) B1 [];
[US4574649](#) A [];
[US4846488](#) A [];
[US5272928](#) A []

CCI - [B62M1/28](#) ; [B62K3/005](#)



PA - KIPNIS MICHAEL [US]

TI - RECUMBENT HUMAN POWERED
VEHICLE WITH A RECIPROCATING
LINEAR DRIVE

AB - A recumbent human-powered
vehicle is propelled by a
reciprocating thrust motion
using a linear drive mechanism
connected by flexible power
links to a double **overrunning**
clutch **transmission** with
returning springs. The vehicle
has a wheel base approximately
that of a conventional upright
bicycle and does not utilize a
crank **transmission**. The vehicle
may be propelled with
alternating, single or
simultaneous leg motion with
the use of pedal sliders
positioned for independent
pendulum-type oscillation. The
linearly reciprocating pedals are
rotationally linked to
the **transmission** portion of the
linear drive mechanism through
a pair of flexible power links so
as to transfer power from the
pedals to the **transmission**, which
includes a pair of **overrunning**
clutches connected to the main
chain axis allowing to transmit
the moving force to the main
chain axis. The **overrunning**
clutches return back to idle
mode with the use of returning
springs.

11/32 © EPODOC / EPO

PN - [CN204021166U](#) U 20141217

PR - CN20142316741U 20140613

AP - CN20142316741U 20140613

DT - I

PA - ZHAO YOUYI

TI - Front wheel main shaft direct driving system

AB - A front wheel main shaft direct driving system is formed by a **gear** type **overrunning**
coupler, a **gear** accelerator, driving fluted disc cranks, a main driving shaft and

bearings. The **gear** type **overrunning** coupler is installed on a flywheel connector of a wheel hub, and the main driving shaft penetrates through a central hole of the hub and then is positioned in a left side hub shaft bowl and a right side hub shaft bowl through the wheel bearings. The main driving shaft provided with a wheel penetrates through a left rear fork mouth and a right rear fork mouth, the fork bearings are installed in a fork mouth shaft frame for positioning, and finally the driving fluted disc cranks and pedals are installed at the outer ends of the two sides. According to the front wheel main shaft direct driving system, a front vehicle shaft used for supporting a front wheel and screwed and locked through a bolt is transformed into a rotatable driving shaft to directly drive the wheel manually, and thus the front wheel main shaft direct driving system is compact in structure, small in size, capable of being applied to any bicycle and electric bicycle and wide in development prospect, and efficiency is greatly improved.

12/32 © EPODOC / EPO

PN - [RU2011125589](#) A 20121227

PNFP - RU2492097 C2 20130910

PR - RU20110125589 20110622

AP - RU20110125589 20110622

DT - I

PA - (C2)
KHMEI NITSKIY ANATOLIY ISAAKOVICH [RU]; KHODOVA TAT JANA IVANOVNA [RU]

TI - (C2)
BICYCLE STEPLESS **TRANSMISSION**

AB - (C2)
FIELD: transport. SUBSTANCE: invention relates to bicycle rear wheel variators. Variator has discs 4, 5 that stay in direct friction contact. One of said discs is tapered disc. Surfaces of said discs converge at acute angle. Driven sp[rocket 10 is fitted on hollow shaft 8 to transmit torque to drive disc 5 and presses the latter to driven disc 4 fitted on wheel hub 2 of **overrunning** coupling 3. Control cables 20 displace sliding disc 14 with hollow shaft 8 and driven and drive discs 10 and 5, respectively, fitted thereon. This allows drive disc 5 to displace relative driven disc 4 with stepless variation of **gear** ratio. Variator can be uncased for protection against ambient effects. EFFECT: reduced weight. 2 cl, 6 dwg

13/32 © EPODOC / EPO

PN - [CN202541776U](#) U 20121121

PR - CN20112258983U 20110721; CN20122155271U 20120413

AP - CN20122155271U 20120413

DT - I

PA - FUYU DU

TI - Double-clutch **gear** shifting mechanism of electric motorcycle

AB - The utility model discloses a double-clutch **gear** shifting mechanism of an electric motorcycle, and relates to a mechanical **gear** shifting technology. The upper part of a second **gear** shaft (14) is connected with a **gear** (15) by a flat key, and the lower part of

the second **gear** shaft (14) is connected with a second driving **gear** (16) by a flat key; a second **gear** shaft (7) is connected with a second **gear** cam (2) by a spline, a controllable **gear** shifting retainer (4) is sleeved outside the second **gear** cam (2) and connected with the second **gear** cam (2) by a positioning pin (3), a second **gear** pin roller (17) is embedded into the controllable **gear** shifting retainer (4), a second driven **gear** (6) is sleeved outside the controllable **gear** shifting retainer (4), and the second **gear** shaft (7) is connected with a standard bearing unidirectional **overrunning** clutch (8) by a flat key; the standard bearing unidirectional **overrunning** clutch (8) is sleeved at one end of a first and second **gear** connecting sleeve (10), a first **gear** (9) is arranged outside the other end of the first and second **gear** connecting sleeve (10), and a groove is formed on the inner circle of the first **gear** (9) and holds a first **gear** pin roller (13); a bearing frame (1) is arranged in a shell (12), and a bolt penetrates through a hole of the bearing frame (1), penetrates through a hole of a **gear** shifting hook (5) with a pull rope (19) and is connected with a nut; and one end of a tension spring (18) is connected with the controllable **gear** shifting retainer (4), and the other end of the tension spring (18) is connected with the second **gear** cam (2). Under the condition that the input rotating speed is unchangeable, the driving and driven gears do not move; through the controllable bidirectional clutches, an output shaft can obtain different rotating speeds; and the mechanism has an obvious effect.

14/32 © EPODOC / EPO

PN - [CN202320712U](#) U 20120711
 PR - CN20112464326U 20111121
 AP - CN20112464326U 20111121
 DT - I
 PA - XUZHOU CHINESE BUSINESS MAN CONSULTING CO LTD
 TI - Driving system for electric tricycle
 AB - The utility model discloses a driving system for an electric tricycle, which belongs to the technical field of electric tricycles and aims to overcome defects of high possibility of burning a motor out and short service life of the motor and other defects existing in the driving system of the conventional electric tricycle. According to a technical scheme, a driven chain wheel or **gear** is fixedly connected with a planet **gear** carrier of a differential device; a left driving semi-shaft and a right driving semi-shaft are fixedly arranged at output ends of the left and right sides of the differential device respectively; two wheels are fixedly arranged on the end parts of the left driving semi-shaft and the right driving semi-shaft respectively; an **overrunning** clutch is fixedly arranged on an output shaft of a gearbox; a driving chain wheel or **gear** is fixedly arranged on the outer circle of a driven part of the **overrunning** clutch; a **transmission** relation is formed between the driving chain wheel or **gear** and the driven chain wheel or **gear**; and the motor is connected with an input end of the gearbox.

15/32 © EPODOC / EPO

PN - [CN202213480U](#) U 20120509
 PR - CN20112228826U 20110701
 AP - CN20112228826U 20110701
 DT - I

PA - CHONGQING ARD MECHATRONIC CO LTD

TI - Electric wheel hub

AB - The utility model discloses an electric wheel hub comprising a motor, a wheel hub with a combined structure, a first half shaft, a second half shaft and a **gear transmission** system, wherein the motor and the wheel hub are arranged coaxially; the first half shaft and the second half shaft are mainly used for supporting a coaxial line of the motor and the wheel hub and are fixed mutually; the **gear transmission** system is used for transferring the power of the motor to the wheel hub; the first half shaft and the second half shaft are fixedly connected through disc-shaped structures arranged at opposite end parts; a U-shaped space used for containing main parts of the **gear transmission** system is formed between the disc-shaped structures of the first half shaft and the second half shaft; and the **gear transmission** system is provided with a two-**gear** electric control **gear** shifting device. Preferably, the **gear** shifting device mainly comprises a push rod electromagnet, a controllable **overrunning** clutching structure and a control mechanism, wherein the control mechanism is provided with a retaining mechanism used for converting the electric wheel hub from a first **gear** to a second **gear** and retaining the second **gear** or converting the second **gear** to the first **gear** after the push rod electromagnet loses power after getting power transiently. The electric wheel hub has the beneficial effects of capability of realizing speed change through **gear** shifting, low energy consumption, high response speed and long service life.

16/32 © EPODOC / EPO

PN - [CN201941934U](#) U 20110824

PR - CN20102640632U 20101202

AP - CN20102640632U 20101202

DT - I

PA - CHONGQING APOLLO GANGCHENG SCIENCE AND TECHNOLOGY CO LTD

TI - Side hanging type driving system for two-wheeled electric motor car

AB - The utility model relates to a two-wheeled electric motor car, in particular to a driving system for the two-wheeled electric motor car, which comprises a motor and a speed transforming **transmission**, wherein the speed transforming **transmission** comprises a motor shaft, an intermediate shaft, a shifting shaft and an output shaft connected to a hub which are in **gear** engagement at the same side; the intermediate shaft and the shifting shaft are provided with engaged change **gear** sets; and the shifting shaft is provided with an **overrunning** coupler and a gearshift device. By using the side hanging type driving system for two-wheeled electric motor car according to the technical scheme, the speed and torsion are conveniently adjusted, the climbing property is excellent and the **overrunning** coupler is difficult to be damaged.

17/32 © EPODOC / EPO

PN - [CN102050194](#) A 20110511

PR - CN20101571960 20101202

AP - CN20101571960 20101202

DT - I

CT - || STSE (A)

[CN101311578](#) A 20081126 [] (TAIZHOU CITY HUANGYAN HUAYANG [CN]);
[CN2212528Y](#) Y 19951115 [] (CHEN BOHENG [CN]);
[CN201187552Y](#) Y 20090128 [] (LIANGBING HE [CN]);
[CN201391581Y](#) Y 20100127 [] (MIU XIANFU);
[CN201941934U](#) U 20110824 [] (CHONGQING APOLLO GANGCHENG SCIENCE AND TECHNOLOGY CO LTD)

- PA - CHONGQING APOLLO GANGCHENG SCIENCE AND TECHNOLOGY CO LTD
- TI - Side hung driving system for two-wheeled electric vehicle
- AB - The invention relates to a two-wheeled electric vehicle, and in particular to a driving system for the two-wheeled electric vehicle, wherein, the driving system comprises a motor and a variable speed drive device. The driving system is characterized in that the variable speed drive device comprises a motor shaft, an intermediate shaft, a variable-speed shaft and an output shaft, wherein, the motor shaft, the intermediate shaft and the variable-speed shaft are sequentially arranged on the same side and connected with each other through gears connected in a meshing manner; the output shaft is connected with a hub; change **gear** sets which are meshed with each other are arranged on the intermediate shaft and the variable-speed shaft; and an **overrunning** clutch and a **gear** shifting device are arranged on the variable-speed shaft. By adopting the technical scheme in the invention, the side hung driving system for the two-wheeled electric vehicle is convenient to adjust the speed and the torque and can achieve good climbing performance, and the **overrunning** clutch is not easy to damage.

18/32 © EPODOC / EPO

- PN - [CN201367088Y](#) Y 20091223
- PR - CN20092136470U 20090122
- AP - CN20092136470U 20090122
- DT - I
- PA - BOXIANG LIN [CN]
- TI - Coaxial integrated **transmission** mechanism of centrifugal clutch and **overrunning** clutch of electric vehicle
- AB - The utility model discloses a coaxial integrated **transmission** mechanism of a centrifugal clutch and an **overrunning** clutch of an electric vehicle, belonging to a **transmission** device of the electric vehicle. A center disc of the centrifugal clutch and an outer disc of the centrifugal clutch are connected and installed on a central shaft of a motor, wherein a flail block of the centrifugal clutch is installed on the center disc of the centrifugal clutch, the **overrunning** clutch is installed on a shaft sleeve of the outer disc of the centrifugal clutch, a needle bearing is arranged between the combination of an inner sleeve of the shaft sleeve of the centrifugal clutch and a central shaft of a motor rotor. A toothed belt is connected and combined on the outer disc of the **overrunning** clutch, the other end of the toothed belt is connected with a rear driven pulley, the rear driven pulley is installed on a main shaft extended from a **gear** box, and the other end of the **gear** box is connected with a rear wheel of the electric vehicle. The other end of the rear driven pulley is provided with the shaft sleeve of a rear driven wheel as well as springs and glands which are combined with the shaft sleeve of the rear driven wheel. The structure of the utility model is simple and compact, the current of starting discharge is small and stable, meanwhile the service life of a battery and the motor as well as a controller can be prolonged, and the energy efficiency is high.

PN - [CN101380988](#) A 20090311

PNFP - CN101380988B B 20110601

PR - CN2008171916 20081013

AP - CN2008171916 20081013

DT - I

PA - (A)
BOXIANG LIN [CN]

- (B)
BOXIANG LIN

TI - (A B)
Engine of electric motor cycle with double power driving

AB - (A)
The invention discloses an engine of an electric motorcycle driven by two motors, belonging to the technical field of the motorcycle and electric motorcycle. A combining part of a driving mechanism consists of two groups of **gear transmission** mechanisms which are all connected with an **overrunning** clutch and belt pulleys. The belt pulleys are provided with a belt. The other end of the belt is connected with the back belt pulley. A central shaft of the back belt wheel is a **gear** shaft of an original **transmission** case. On the basis of the engine of the original motorcycle with stepless speed change, a motor and a stepless speed change device are provided and can be used together or respectively. With the advantages of oil saving property and environmental protection, the engine is the optimal two wheeler walk instead tool at present. The engine of the electric motorcycle driven by two motors has the advantages of reasonable and compact structure, easy manufacturing and convenient use. Both electricity and a gasoline engine can be used as power. A gasoline motor also can be used as power. As the most practical modern green traffic tool, the engine can save oil with strong grade climbing ability and can reduce exhaust emissions.

- (B)
The invention discloses an engine of an electric motorcycle driven by two motors, belonging to the technical field of the motorcycle and electric motorcycle. A combining part of a driving mechanism consists of two groups of **gear transmission** mechanisms which are all connected with an **overrunning** clutch and belt pulleys. The belt pulleys are provided with a belt. The other end of the belt is connected with the back belt pulley. A central shaft of the back belt wheel is a **gear** shaft of an original **transmission** case. On the basis of the engine of the original motorcycle with stepless speed change, a motor and a stepless speed change device are provided and can be used together or respectively. With the advantages of oil saving property and environmental protection, the engine is the optimal two wheeler walk instead tool at present. The engine of the electric motorcycle driven by two motors has the advantages of reasonable and compact structure, easy manufacturing and convenient use. Both electricity and a gasoline engine can be used as power. A gasoline motor also can be used as power. As the most practical modern green traffic tool, the engine can save oil with strong grade climbing ability and can reduce exhaust emissions.

PN - [CN101367421](#) A 20090218
 PR - CN2008171877 20081006
 AP - CN2008171877 20081006
 DT - I
 PA - BOXIANG LIN [CN]
 TI - Acceleration **transmission** mechanism of novel electric vehicle
 AB - The invention discloses a novel speed-raising **transmission** mechanism for an electric motor car, which belongs to a **transmission** device for an electric bicycle or an electric motorcycle. The middle part close to the rear wheel on the lower end of a frame of the electric motor car is provided with a motor which rotates a **gear** of a central axis to drive a speed-raising **gear** to play a role in raising the speed and to drive an **overrunning** coupler to rotate to work; a belt pulley drives a rear idler to work so as to achieve infinite variable speed effect; and the rear idler rotates a central speed transforming **gear**, then an axle sliding **gear** rotated by a sliding **gear** rotates an axle. The speed-raising **transmission** mechanism utilizes the **overrunning** coupler in the belt **transmission** of the motorcycle; meanwhile, the speed-raising **transmission** mechanism is combined with the prior speed-change mechanism of the electric motor car or the electric motorcycle to achieve the infinite variable speed. Therefore, the speed-raising **transmission** mechanism contributes to an ideal electric motor car with the independent motor, stable starting, quick speed raising, strong capacity of climbing, long sliding time and electricity conservation.

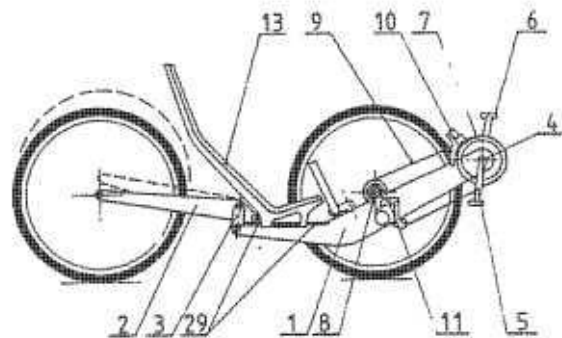
21/32 © EPODOC / EPO

PN - [US6199884](#) B1 20010313
 PR - US19960771982 19961223
 AP - US19960771982 19961223
 DT - **
 CT - || STSE (B1)
[US4248448](#) A 19810203 [] (DMITROWSKY IGOR);
[US4303255](#) A 19811201 [] (THOMAS JOHN C);
[US4411443](#) A 19831025 [] (POLLARD CHRISTOPHER A [US]);
[US5403027](#) A 19950404 [] (HWANG CHUL [US]);
[US5496051](#) A 19960305 [] (FARMOS GEORGE T [US]);
[US5785337](#) A 19980728 [] (MING KUAN SHANG [HK]);
[CH236146](#) A 19450115 [] (OSKAR BAETTIG [CH])
 CCI - [A61G5/02](#) ; [B62M1/30](#) ; [B62K3/005](#)
 CCA - [Y10T74/1556](#)
 PA - HELICAL DYNAMICS INT INC [BB]
 TI - Helical drive bicycle
 AB - A bicycle with a drive mechanism using reciprocal rectilinear pedal motion to propel a pinion **gear** against a crown **gear** face associated with a rear bicycle wheel, rotating the rear wheel. The pinion **gear** receives motion from a helical member surrounded by a slider. Each pedal is united with the slider which moves linearly along a guide or track, forcing rotation of the helical member as the slider is pushed rearwardly by a pedal. A freewheel or **overrunning** clutch permits power transfer only when the pedal moves

rearwardly and allows freewheeling when the pedal is reset. Reciprocal, linear pedal strokes power the bicycle.

22/32 © EPODOC / EPO

- PN - [RU2106278](#) C1 19980310
- PR - RU19920015020 19921229
- AP - RU19920015020 19921229
- DT - I
- CCI - [B62K3/005](#) ; [B62K5/05](#) ;
[B62K21/00](#)
- PA - SOLOV EV ALEKSEJ GEORGIEVICH;
SHTRAKIN VLADIMIR
VLADIMIROVIC; MAZAEV VADIM
VADIMOVICH
- TI - VEHICLE OPERATED BY MUSCULAR
FORCE OF DRIVER
- AB - FIELD: transport. SUBSTANCE:
vehicle has base carrying crank-
pedal drive with
chain **transmission** and driven
sprockets mounted on additional
member, seat installed for
movement along front part of
base and fixing in any
intermediate
position, **overrunning** clutch for
coupling drive with wheel, rear
wheel, two front steerable
wheels, handlebar connected
with steerable wheels and
embracing the driver from below.
Front wheels are interconnected
by propeller shaft drive. Base is
made of parts hinge-connected
connected by horizontal axle
through shock absorber. Each
front wheel is installed on
hollow semiaxle accommodating
shaft connected with wheel and
installed for rotation, with outer
end of shaft extending from
semiaxle. Handlebar is made in
form of yoke-shape curved tube
coupled with wheels by means of
rigid tie-rods installed for
turning around vertical axles.
Vehicle has extensible member



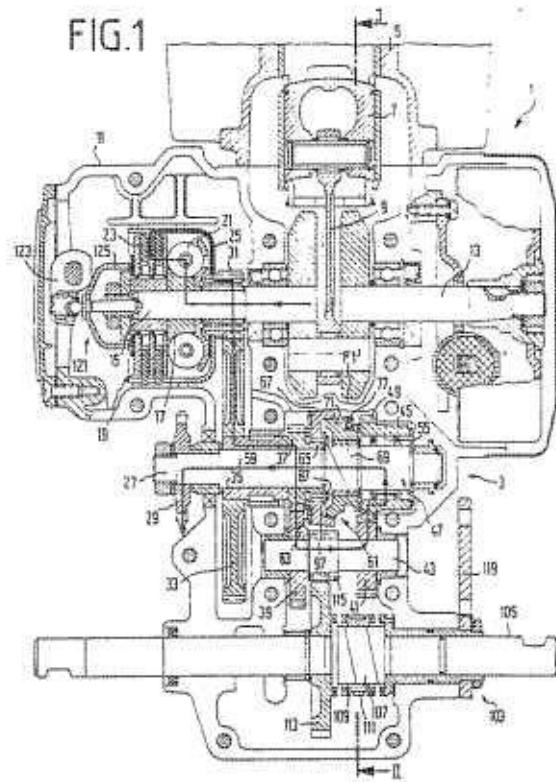
made of driving shaft installed for rotation and accommodating bushings connected with shaft by sliding splined connection. Driven sprockets of chain **transmission** are mounted in driving shaft, and its bushings, at corresponding side, are coupled through propeller shaft drive with inner ends of shafts installed in each hollow semiaxle, outer ends of shafts being coupled with wheels through **overrunning** clutches. EFFECT: enlarged operating capabilities. 2 cl, 3 dwgt

23/32 © EPODOC / EPO

- PN - [WO9828182](#) A2 19980702
- PNFP - WO9828182 A3 19980903
- PR - US19960771982 19961223
- AP - WO1997IB01655 19971222
- DT - *; Rep
- CT - |US| ISR (A3)
[US597621](#) A [X];
[US578269](#) A [X]
- CCI - [A61G5/02](#) ; [B62M1/30](#) ; [B62K3/005](#)
- CCA - [Y10T74/1556](#)
- PA - (A2)
 HELICAL DYNAMICS INT INC [BB]; DOROFTEI MIGHEL [CA]
 - (A3)
 HELICAL DYNAMICS INT INC [BB]; DOROFTEI MIGHEL [BB]
- TI - (A2 A3)
 HELICAL DRIVE BICYCLE
- AB - (A2)
 A bicycle with a drive mechanism using reciprocal rectilinear pedal motion to propel a pinion **gear** against a crown **gear** face associated with a rear bicycle wheel, rotating the rear wheel. The pinion **gear** receives motion from a helical member surrounded by a slider. Each pedal is united with the slider which moves linearly along a guide or track, forcing rotation of the helical member as the slider is pushed rearwardly by a pedal. A freewheel or **overrunning** clutch permits power transfer only when the pedal moves rearwardly and allows freewheeling when the pedal is reset. Reciprocal, linear pedal strokes power the bicycle.

24/32 © EPODOC / EPO

PN - [EP0302409](#) A2 19890208
 PNFP - EP0302409 A3 19900718
 PR - DE19873725643 19870803
 AP - EP19880112343 19880729
 DT - *; Rep
 CT - || STSE (A3)
 [DE3302844](#) A1 19840802
 [AD] (FICHTEL & SACHS AG [DE]);
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 [FR2546998](#) A1 19841207
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 [DE7528755U](#) U 00000000 [AD];
 [DE2739908](#) A1 19780309
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 CCI - [B62M11/06](#) ; [F02B61/02](#)
 CCA - [F02B2075/025](#)
 PA - (A2)
 FICHTEL & SACHS AG [DE]
 TI - (A2)
 Gearing and clutch unit for a two-
 wheeled motor vehicle.
 (A3)
 GEARING AND CLUTCH UNIT FOR A
 TWO-WHEELED MOTOR VEHICLE
 AB - (A2)
 The gearing and clutch unit for a
 two-wheeled motor vehicle
 comprises a housing (11) in
 which an input shaft (13), an
 output shaft (27) and a
 countershaft (43) are mounted in
 such a way that they can rotate
 relative to one another.
 Connected to the input shaft (13)
 is a starting clutch (19)
 designed, in particular, as a
 centrifugal clutch, which, in turn,
 is connected to the output shaft
 (27) via two gearing **transmission**
 paths with different **transmission**
 ratios. The first
 gearing **transmission** path leads
 to the output shaft (27) via the
 countershaft (43) and
 an **overrunning** clutch (47). The



second gearing **transmission** path contains a **gear**-change clutch (61) designed as a friction clutch and having two clutch members (67, 71) arranged coaxially on the output shaft (27). The first (71) of these clutch members, which can be displaced manually by means of an actuating device, is spring-loaded into its disengaged position. The first clutch member (71) is connected to the output shaft (27) via a coarse-pitch thread (69) and is screwed towards the second clutch member (67) by the friction torque transmitted in the engaged position. The **gear**-change clutch (61) can thus only be disengaged when the internal combustion engine (1) is relieved of torque, an unwanted increase in the speed of the internal combustion engine when changing down from second to first **gear** thereby being avoided.

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- PN - [CN201009982Y](#) Y 20080123
- PR - CN20072200055U 20070207
- AP - CN20072200055U 20070207
- DT - I
- PA - GUANGXI UNIVERSITY OF TECHNOLOGY [CN]
- TI - Speed governing non-chain bicycle
- AB - A speed regulation non-chain bicycle: An middle shaft thereof is a power input shaft of a multi-staged driving gearbox; an output shaft of the multi-staged driving gearbox is connected with wheels through a **gear** driving device and an **overrunning** clutch. Compared with the prior bicycles of the same kind, the utility model can resolve the problems of complex structure, low mechanism driving efficiency and small speed regulation range in the prior speed regulation non-chain bicycles.

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- PN - [CN201046758Y](#) Y 20080416
- PR - CN20072109841U 20070525
- AP - CN20072109841U 20070525

DT - I

PA - TAIZHOU CITY HUANGYAN HUAYANG [CN]

TI - Electric vehicle driving speed-change **gear**

AB - The utility model relates to a drive and **gear** shifting mechanism of an electric vehicle, which comprises a gearbox; wherein, a motor is arranged in the gearbox, and the output shaft of the motor is driven by a **gear** shaft through a drive mechanism; the output shaft in turn drives the wheel hub of the electric vehicle. The utility model is characterized in that: the **gear** shaft of the motor drives a reducing **gear** set, which drives a shifting shaft; a friction shifting **gear** is arranged at one end of the shifting shaft, and an **overrunning** shifting **gear** is arranged at the other end of shifting shaft; the **overrunning** shifting **gear** drives an **overrunning** clutch, which is fitted with the output shaft. The friction shifting **gear** drives a multi-disc friction clutch, which is also fitted with the output shaft; a shifting device is arranged at one end of the friction clutch and connected with a steel cable stayguy, which is in turn connected with the handle bar of the electric vehicle. The utility model has the advantages of safe use, reliability, strong endurance capacity of the electric vehicle, effective protection of the battery and motor, smooth **gear** shifting, as well as convenient, flexible and reliable operations.

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PN - [CN101204986](#) A 20080625

PR - CN20061146236 20061218

AP - CN20061146236 20061218

DT - I

PA - JIAN PAN [CN]

TI - Bicycle speed changer

AB - The invention provides a speed changer for the bicycles, which belongs to a technological field of bicycle fittings. The structure of the invention includes a spindle fixed on the bicycle through bicycle frames on the left side and the right side and the spindle is provided with an external stent ring, a power **gear**, a driving **gear**, an internal stent ring, a cross binding device and a hub in turn from the left to the right; a small shaft parallel to the spindle is arranged between the external stent ring and the internal stent ring and the small shaft is provided with a speed changing **gear** and a guiding **gear** in turn from the left to the right; the speed change **gear** and the power **gear** are meshed and driven and the guiding **gear** and the driving **gear** are meshed and driven; the driving **gear** is arranged together with the cross binding device which is arranged together with an **overrunning** clutch fixed on the left end of the hub; an **overrunning** clutch used for setting sprockets is arranged on the right end of the hub. The spindle is a power input shaft and the hub is a power output mechanism. The speed changer for the bicycles in the invention can be used on the front, medium and rear shafts of the bicycles as well as in other industries and fields; the invention can realize the switch of changing speed and not changing speed for solo riding as well as for double-persons riding and no mutual interference exists when two persons ride the bicycle.

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PN - [CN101108647](#) A 20080123

PR - CN2006154456 20060718
 AP - CN2006154456 20060718
 DT - I
 PA - QIANLIN BI [CN]
 TI - Automatic range conversion **transmission** device of booster vehicle engine
 AB - A power assistant vehicle engine automatic shift driving device is provided, which belongs to the technology field of the power assistant vehicle engine driving device. The technical problem to be solved is to provide a power assistant vehicle engine automatic shift driving device capable of shifting automatically. The technical proposals to solve the technical problem are as follows: a crankshaft main **gear** and a first speed centrifugal clutch are provided on a crankshaft; an output main **gear**, a second speed centrifugal clutch and a first speed auxiliary **gear** are provided on a main shaft; an output auxiliary **gear** and a combiner are provided on an output shaft; the combiner is moved by a combiner fork; an **overrunning** clutch is arranged in the first auxiliary **gear**; the upper part of the first speed centrifugal clutch is a first main **gear**; the teeth of the first main **gear** are meshed with that of the first speed auxiliary **gear**; the upper part of the second speed centrifugal clutch is a crankshaft auxiliary **gear** and the teeth of the crankshaft main **gear** are meshed with that of a second speed auxiliary **gear**; the teeth of the output main **gear** are meshed with that of the output auxiliary **gear**; a drive sprocket is arranged on the outer shaft. The invention is applied in the power assistant vehicle. The beneficial effects are automatic shift and convenient operation.

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PN - [CN2802203Y](#) Y 20060802
 PR - CN2005209218U 20050429
 AP - CN2005209218U 20050429
 DT - I
 PA - LI DAQI [CN]
 TI - Speed-transformation for engine or electric machine
 AB - The utility model relates to a speed changer for an engine or an electric machine, which comprises a speed changing mechanism, a shifting mechanism and a shifting control mechanism. The utility model is characterized in that the speed changing mechanism is composed of a power input shaft, a power output shaft, a synchronizer, **overrunning** clutches, a first **gear**, a second **gear** and a third **gear** driving gears and a first **gear**, a second **gear** and a third **gear** driven gears, wherein the power input shaft is provided with the first **gear**, the second **gear** and the third **gear** driving gears, hock mechanisms are arranged between the synchronizer and the second **gear** driving **gear** and between the synchronizer and the third **gear** driving **gear**, the first **gear** and the second **gear** driven gears respectively engaged with the first **gear** and the second **gear** driving gears are respectively connected with the power output shaft through the first **gear** and the second **gear overrunning** clutches, the third **gear** driven **gear** is fixedly arranged on the power output shaft, the power input shaft is connected with the engine or the electric machine through the clutches and a shifting fork is connected with the synchronizer. The utility model has the advantages of simple structure, low cost, easy operation, safe use, etc. The utility model realizes the reliable speed change of the engine or the electric machine in the automatic mode or the man-controlled mode and realizes the best match

of specific fuel consumption and power factor.

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PN - [CN2320518Y](#) Y 19990526
PR - CN1998220621U 19980327
AP - CN1998220621U 19980327
DT - I
PA - QU LINGNIAN [CN]
TI - Bicycle
AB - The utility model discloses a bicycle with a lever type reciprocating movement as driving force, belonging to the technical field of bicycles. The utility model is characterized in that on the basis of the existing bicycles, a crankshaft-sprocket drive mechanism is changed into a drive mechanism with a lever type reciprocating movement; both ends of the main shaft of a rear wheel are fixedly provided with a reverse star wheel; the main shaft is fixedly provided with a driving wheel train structure, comprising an internal **gear**, an intermediate wheel, a speed regulating wheel, a power output wheel, etc. The power of the power output wheel is transferred to the rear wheel of the bicycle through an **overrunning** clutch which is fixedly connected with the power output wheel. Two driving levers are fixedly connected to a one-way moving coat of the reverse star wheel, and the purpose of rotating the rear wheel of the bicycle can be achieved when pedals are stressed. The utility model has the advantages of original conception and simple structure, and compared with the existing bicycles, the utility model has the advantages of time saving and labor saving.

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PN - [CN2288135Y](#) Y 19980819
PR - CN1996205852U 19960410
AP - CN1996205852U 19960410
DT - I
PA - LI MINGWU [CN]
TI - Automatic two-step speed variator for stepless speed change motorcycle
AB - The utility model discloses an automatic two-step speed variator for a stepless speed change motorcycle, which is characterized in that a centrifugal clutch and a shaft sleeve are arranged on a power input shaft, on the basis of a speed reducer of an existing stepless speed change motorcycle; an outer drum wheel of the centrifugal clutch is fixedly coupled with the shaft sleeve; a pinion with two-speed arranged on the shaft sleeve is engaged with a big **gear** with two-speed on a middle **gear** shaft. A big **gear** with one-step on the middle **gear** shaft adopts a **gear** of an **overrunning** clutch, forming a speed regulation device with two-step; the speed regulation range is wide; the running performance of the whole motorcycle is improved. The utility model has the advantages of compact structure and realizes automatic shift.

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PN - [CN1186755](#) A 19980708
PR - CN1996108305 19960616

AP - CN1996108305 19960616
DT - I
PA - HUANG ZHIWEI [CN]
TI - Speed changer in bicycle rear axle
AB - The speed changer consists of one planetary **gear transmission** mechanism, two **overrunning** clutches and two controllable ratchet clutches. Without inserted tooth clutch, the speed change is stepless. Two controllable ratchet clutches are in the same side of planetary **gear transmission** mechanism, the speed changer has relatively simple structure, small **transmission** resistance and abrasion and thus the features of high reliability and long service life.

[SS 20] ..v

[EPODOC: SS 20]