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3:
Search 2 and 3 (Results 16)
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Search cartridge and drum (Results 31554)
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Search IC=(F16D) (Results 315814)
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Search 6 and 7 (Results 291)
8:
Search 3 and 8 (Results 183)
9:
Search width* (Results 1000000)
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Search 9 and 10 (Results 106)
11:
Search cylind* (Results 1000000)
12:
Search 11 and 12 (Results 91)
13:
Search flange (Results 1000000)
14:
Search 13 and 14 (Results 63)
15:

1) Family number: 2904752 (US5435539A)

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Title: Driving force transmitting apparatus

Abstract: The present invention provides a driving force transmitting apparatus comprising a first rotary member having grooves formed in an outer peripheral surface thereof, a second rotary member having an outer peripheral surface of substantially the same diameter as that of the first rotary member, and a coil spring wound around the outer peripheral surfaces of the first and second rotary members.

Classifications:

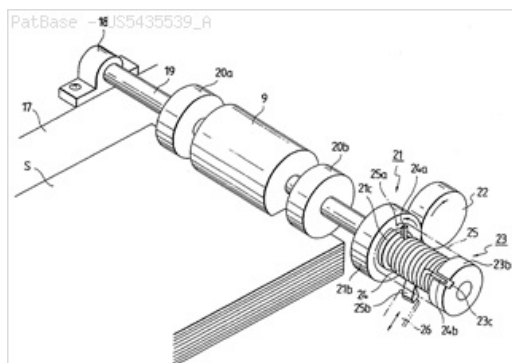
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International (IPC 1-7): B65H3/06 F16D13/08 F16D13/74 F16D3/50 G03G15/00

CPC: B65H3/0669 F16D13/025 F16D13/08

European: B65H3/06M F16D13/02B F16D13/08

US: 271/114 271/116



Family:

Publication number	Publication date	Application number	Application date
DE69029101 D1	19961219	DE19906029101	19900606
DE69029101 T2	19970515	DE19906029101T	19900606
EP0401807 A2	19901212	EP19900110740	19900606
EP0401807 A3	19911023	EP19900110740	19900606
EP0401807 B1	19961113	EP19900110740	19900606
JP2607956 B2	19970507	JP19890144244	19890608
JP3014915 A2	19910123	JP19890144244	19890608
US5435539 A	19950725	US19930022600	19930217

Priority:

JP19890144244 19890608 US19900533863 19900606 US19920942092 19920908
US19930022600 19930217

Probable Assignee: CANON INC**Assignee(s):** (std): CANON KK**Assignee(s):** CANON INC ; CANON K K ; CANON K K TOKIO TOKYO JP ; CANON KABUSHIKI KAISHA**Inventor(s):** (std): NAMIKI HIROAKI**Inventor(s):** NAMIKI HIROAKI OHTA KU TOKYO JP**Designated states:** DE FR GB IT**2) Family number: 41960107 (EP0735432A1)**

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Title: PROCESS CARTRIDGE WITH DRIVING FORCE TRANSMISSION

Abstract: An electrophotographic image forming apparatus for forming an image on a recording material includes an electrophotographic photosensitive drum; charging means for charging the photosensitive drum; developing means for developing a latent image formed on the photosensitive drum into a toner image; transfer means for transferring the toner image onto the recording material; fixing means for fixing the toner image on the recording material; a motor; a main assembly side gear (13) for receiving driving force from the motor; a twisted hole (18a) formed substantially at a center of the gear, the hole having a polygonal cross-section; a twisted prism projection (17a) provided at a longitudinal end of the photosensitive drum (7), wherein when the main assembly side gear rotates with the hole and projection engaged with each other, rotational driving force is transmitted from the gear to the photosensitive drum through the hole and the projection with the projection being pulled into the hole; and moving means for imparting relative movement between the hole and the projection in a longitudinal direction of the photosensitive drum.

Classifications:

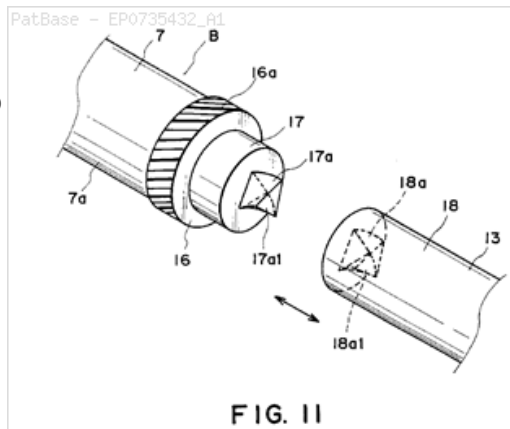
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F16C13/02 F16D1/06 G03G21/00 G03G21/16 (Advanced/Non-invention)

International (IPC 1-7): F16D1/00 G03G15/00 G03G15/04 G03G15/30 G03G21/00 G03G21/16 G03G21/18

CPC: G03G21/1633 G03G21/1647 G03G21/186 F16D1/101 G03G15/757 G03G2221/1654 G03G2221/1657 G03G2221/183

European: F16D1/10B G03G15/75F G03G21/18H2C S03G221/16K1 S03G221/16K2 S03G221/18P

**Family:**

Publication number	Publication date	Application number	Application date
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CA2172593 AA	19960928	CA19962172593	19960325
CA2172593 C	20011127	CA19962172593	19960325
CN1096629 C	20021218	CN19961007267	19960327
CN1164052 A	19971105	CN19961007267	19960327
CN1210633 C	20050713	CN20021020435	20020524
CN1428669 A	20030709	CN20021020435	20020524
DE69611116 D1	20010111	DE19966011116	19960327
DE69611116 T2	20010510	DE19966011116T	19960327
EP0735432 A1	19961002	EP19960302138	19960327
EP0735432 B1	20001206	EP19960302138	19960327

Priority:

JP19950067796 19950327 JP19960064105 19960321 CA19962172593 19960325
CA19962172593 19960325

Probable Assignee: CANON INC**Assignee(s):** (std): CANON INC ; CANON KK**Assignee(s):** KAWAI TOSHIHARU ; ITO YOSHIHIRO ; WATANABE KAZUSHI ; CANON K K ; CANON KABUSHIKI KAISHA**Inventor(s):** (std): ITO YOSHIHIRO ; KAWAI TOSHIHARU ; KAZUSHI WATANABE ; TOSHIJI KAAI ; WATANABE KAZUSHI ; YOSHIHIRO ITO**Inventor(s):** TOSHIHARU KAWAI ; KAAI TOSHIJI**Agent(s):** SPRUSON AND FERGUSON; ASPEN PHARMA PTY LTD; RIDOUT AND MAYBEE LLP**Designated states:** CH DE FR GB IT LI**3) Family number: 41960106 (US5903803A)**

© PatBase

Title: PROCESS CARTRIDGE, ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS, DRIVING FORCE TRANSMISSION PART, AND ELECTROPHOTOGRAPHIC PHOTOSENSITIVE DRUM

Abstract: An electrophotographic image forming apparatus for forming an image on a recording material includes an electrophotographic photosensitive drum; a charging device for charging the photosensitive drum; a developing device for developing a latent image formed on the photosensitive drum into a toner image; a transfer device for transferring the toner image onto the recording material; a fixing device for fixing the toner image on the recording material; a motor; a main

assembly side gear for receiving driving force from the motor; a twisted hole formed substantially at a center of the gear, the hole having a polygonal cross-section; a twisted prism projection provided at a longitudinal end of the photosensitive drum, wherein when the main assembly side gear rotates with the hole and projection engaged with each other, rotational driving force is transmitted from the gear to the photosensitive drum through the hole and the projection with the projection being pulled into the hole; and a moving device for imparting relative movement between the hole and the projection in a longitudinal direction of the photosensitive drum.

Classifications:

International (IPC 8-9): F16C13/02 F16C13/04 F16D1/06 F16D1/10 G03G15/00 G03G15/14 G03G21/00 G03G21/16 G03G21/18 G06K15/14 (Advanced/Invention); G03G21/16 (Advanced/Non-invention); F16D1/00 G03G15/00 G03G21/00 G03G21/18 (Core/Invention); G03G (Subclass/Invention)

International (IPC 1-7): F16C13/02 F16C13/04 G03G15/00 G03G15/02 G03G15/14 G03G21/00 G03G21/16 G03G21/18 G06K15/14

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European: F16D1/10B G03G15/75F G03G21/18H2C S03G221/16K1 S03G221/16K2 S03G221/18P

US: 399/111 399/116 399/159 399/167

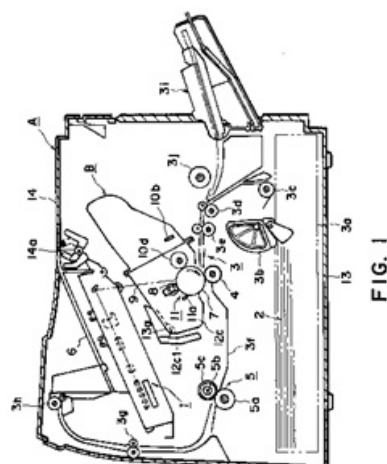
PatBase - US5903803_R

U.S. Patent

May 11, 1999

Sheet 1 of 18

5,903,803



Family:

Publication number	Publication date	Application number	Application date
AU199880817 A1	19981015	AU19980080817	19980818
AU726711 B2	20001116	AU19980080817	19980818
EP0797125 A1	19970924	EP19970301926	19970321
EP0797125 B1	20021106	EP19970301926	19970321
EP0797126 A1	19970924	EP19970301942	19970321
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HK1002666 A1	20030411	HK19980101851	19980306
HK1012055 A1	20010817	HK19980113101	19981210
JP2875203 B2	19990331	JP19960064105	19960321
JP8328449 A2	19961213	JP19960064105	19960321
KR100258609 B1	20000615	KR19960008563	19960327
KR100355723 B1	20021009	KR19990043362	19991008
KR100355724 B1	20021019	KR20010088857	20011231
KR19960035174 A	19961024	KR19960008563	19960327
TW420784 B	20010201	TW19960103617	19960326
US5903803 A	19990511	US19960621941	19960326
US5903803 C1	20110913	US19960621941	19960326

Priority:

JP19950067796 19950327	JP19960064105 19960321	AU19960050323 19960326
EP19960302138 19960327	KR19960008563 19960327	JP19960277532 19960926
JP19960277528 19960926	JP19970082344 19970314	EP19970301942 19970321
EP19970301926 19970321	AU19980080817 19980818	KR19990043362 19991008

Probable Assignee: CANON INC

Assignee(s): (std): CANON KK

Assignee(s): KYANON KK ; CANON INC ; CANON KABUSHIKI KAISHA

Inventor(s): (std): ITO YOSHIHIRO ; KAWAI TOSHIHARU ; KAWAI TOSHIJI ; WATANABE KAZUFUMI ; WATANABE KAZUSHI

Inventor(s): YOSHIHIRO ITO ; KAZUSHI WATANABE ; TOSHIHARU KAWAI

Agent(s): SPRUSON AND FERGUSON; ASPEN PHARMA PTY LTD

Designated states: CH DE FR GB IT LI

4) Family number: 41960103 (US6240266B)

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Title: PROCESS CARTRIDGE AND DRUM MOUNT FOR PHOTSENSITIVE DRUM

Abstract: An electrophotographic image forming apparatus for forming an image on a recording material includes an electrophotographic photosensitive drum, a charger for charging the photosensitive drum, a developer for developing a latent image formed on the photosensitive drum into a toner image, a transferer for transferring the toner image onto the recording material, a fixer for fixing the toner image on the recording material, a motor, a main assembly side gear for receiving a driving force from the motor, and a hole formed substantially at a center of the gear. The hole has a polygonal cross-section. The apparatus also includes a projection provided at a longitudinal end of the photosensitive drum. When the

main assembly side gear rotates with the hole and projection engaged with each other, a rotational driving force is transmitted from the gear to the photosensitive drum through the hole and the projection with the projection is pulled into the hole. An end portion of a shaft having the projection and a surface defining the hole contact each other so that the process cartridge is positioned in place in a longitudinal direction of the photosensitive drum relative to the main assembly. The apparatus also includes a mover for imparting relative movement between the hole and the photosensitive drum to engage the projection with the hole.

Classifications:

International (IPC 8-9): F16D1/10 G03G15/00

G03G21/18 (Advanced/Invention);

G03G15/00 (Advanced/Non-invention)

International (IPC 1-7): F16D1/10 G03G15/00 G03G15/02

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CPC: G03G21/1633 G03G21/1647 G03G21/1864 F16D1/101

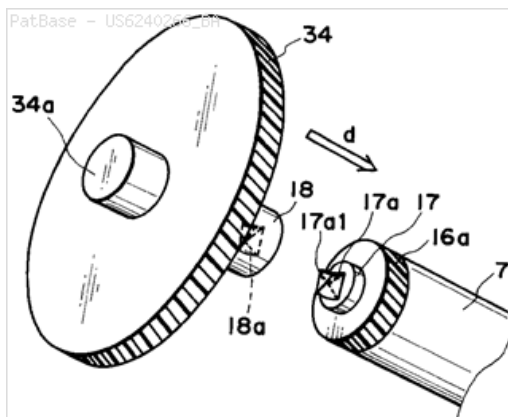
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G03G2221/183

European: F16D1/10B G03G15/75F G03G21/18H1V G03G21/18H2P

S03G221/16K1 S03G221/16K2 S03G221/18P

US: 399/117 399/167



Family:

Publication number	Publication date	Application number	Application date
CN1125379 C	20031022	CN19971010063	19970321
CN1168491 A	19971224	CN19971010063	19970321
KR100284825 B1	20010315	KR19970009773	19970321
KR19970066740 A	19971013	KR19970009773	19970321
US6240266 BA	20010529	US19970819772	19970318

Priority:

JP19960064105 19960321

JP19960277532 19960926

JP19970082344 19970314

Probable Assignee: CANON INC

Assignee(s): (std): CANON INC ; CANON KK

Assignee(s): CANON K K ; CANON KABUSHIKI KAISHA

Inventor(s): (std): ITO YOSHIHIRO ; KAWAI TOSHIHARU ; WATANABE KAZUSHI

Inventor(s): YOSHIHIRO ITO ; KAZUSHI WATANABE ; TOSHIHARU KAWAI

5) Family number: 41960104 (US6226478B)

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Title: PROCESS CARTRIDGE HAVING DRIVE MOUNT FOR PHOTORESENSITIVE DRUM

Abstract: An electrophotographic image forming apparatus for forming an image on a recording material includes an electrophotographic photosensitive drum, a charging device for charging the photosensitive drum, a developing device for developing a latent image formed on the photosensitive drum into a toner image, a transfer device for transferring the toner image onto the recording material, a fixing device for fixing the toner image on the recording material, a motor, and a main assembly side gear for receiving driving force from the motor. A recess is formed substantially at a center of the gear, the recess having a polygonal cross-section, and a projection is provided at a longitudinal end of the photosensitive drum, wherein when the main assembly side gear rotates with the recess and projection engaged with each other, rotational driving force is transmitted from the gear to the photosensitive drum through the recess and the projection with the projection being pulled into the recess, wherein a free end of the projection and a bottom surface of the recess are contacted to each other so that the process cartridge is positioned in place in a longitudinal direction of the photosensitive drum relative to the main assembly. A moving device imparts relative movement between the recess and the projection in a longitudinal direction of the photosensitive drum to engage the projection with the recess.

Classifications:

International (IPC 8-9): F16D1/10 G03G15/00

G03G21/18 (Advanced/Invention);

G03G15/00 (Advanced/Non-invention)

International (IPC 1-7): F16D1/10 G03G15/00 G03G15/02

G03G21/18

CPC: G03G21/1633 G03G21/1647 G03G21/186 F16D1/101

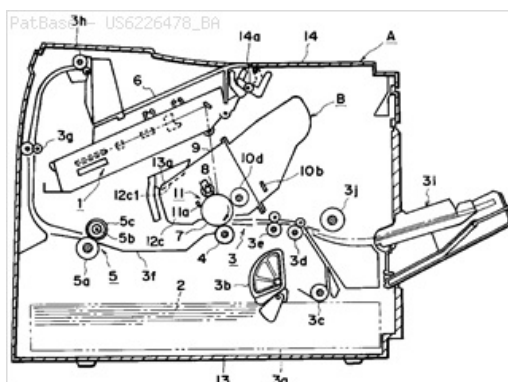
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European: F16D1/10B G03G15/75F G03G21/18H1V G03G21/18H2C

G03G21/18H2P S03G221/16K1 S03G221/16K2 S03G221/18P

US: 399/117 399/167



Family:

Publication number	Publication date	Application number	Application date
CN1135441 C	20040121	CN19971010065	19970321
CN1176410 A	19980318	CN19971010065	19970321
KR19970066741 A	19971013	KR19970009774	19970321
US6226478 BA	20010501	US19970820481	19970318

Priority:

JP19960064105 19960321

JP19960277528 19960926

Probable Assignee: CANON INC

Assignee(s): (std): CANON INC ; CANON KK
Assignee(s): CANON K K ; CANON KABUSHIKI KAISHA
Inventor(s): (std): ITO YOSHIHIRO ; KAWAI TOSHIHARU ; KAWEI TOSHIHARU ; WATANABE KAZUSHI
Inventor(s): YOSHIHIRO ITO ; KAZUSHI WATANABE ; TOSHIHARU KAWAI ; TOSHIHARU KAWEI

6) Family number: 41960092 (US6400914B)

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Title: COUPLING PART, PHOTSENSITIVE DRUM, PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract: A process cartridge detachably mountable to a main assembly of an electrophotographic image forming apparatus, wherein the main assembly includes a motor, a main assembly side gear for receiving driving force from the motor, a hole defined by twisted surfaces, the hole being substantially coaxial with the gear, and a main assembly side grounding contact provided in the hole, the process cartridge includes an electrophotographic photosensitive drum; process mechanisms actable on the photosensitive drum; and a projection engageable with the twisted surfaces, the projection being provided at a longitudinal end of the photosensitive drum, wherein when the main assembly side gear rotates with the hole and projection engaged with each other, rotational driving force is transmitted from the gear to the photosensitive drum through engagement between the hole and the projection; and a cartridge side grounding contact electrically connected with the electrophotographic photosensitive drum for electrically grounding the electrophotographic photosensitive drum when the process cartridge is mounted to the main assembly of the apparatus, the cartridge side grounding contact being provided on the projection so as to be electrically connectable with the main assembly side grounding contact.

Classifications:

International (IPC 8-9): F16D1/10 G03G15/00 G03G21/00
G03G21/18 G03G5/00 (Advanced/Invention);
G03G15/00 (Advanced/Non-invention);
G03G5/00 (Core/Invention)

International (IPC 1-7): B41F31/00 F16D1/10 G03G15/00
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G03G2221/183 G03G2221/1861 G03G2221/1884

European: F16D1/10B G03G15/75F G03G21/18H1V G03G21/18H2C
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S03G221/16K2 S03G221/16K3 S03G221/18P S03G221/18P3A
S03G221/18P4

US: 399/111 399/159 399/167 399/90

PatBase - US6400914_BA

U.S. Patent Jan. 4, 2002 Sheet 1 of 48 US 6,400,914 B1

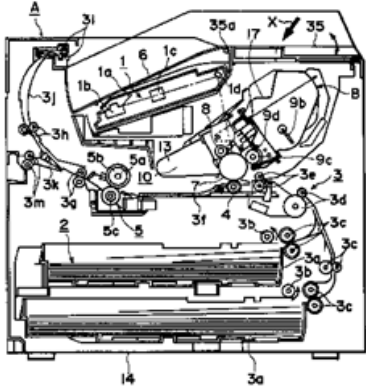


FIG. 1

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Publication number	Publication date	Application number	Application date
CA2421985 AA	19980326	CA19972421985	19970926
CA2421985 C	20050125	CA19972421985	19970926
EP1180732 A2	20020220	EP20010204138	19970926
EP1180732 A3	20030521	EP20010204138	19970926
EP1180732 B1	20050316	EP20010204138	19970926
HK1009515 A1	20030911	HK19980110211	19980825
JP10240103 A2	19980911	JP19970269320	19970916
JP3839932 B2	20061101	JP19970269320	19970916
KR100383708 B1	20030514	KR20010052640	20010830
KR100404405 B1	20031105	KR20010052641	20010830
MX9707366 A1	19980731	MX19970007366	19970926
SG71071 A1	20000321	SG19970004393	19970926
US6400914 BA	20020604	US19970938893	19970926

Priority:

JP19960277530 19960926 JP19960356297 19961224 JP19970269320 19970916
CA19972216857 19970926 EP19970307564 19970926 KR19970049032 19970926

Probable Assignee: CANON INC

Assignee(s): (std): CANON KK

Assignee(s): CANON INC ; CANON KABUSHIKI KAISHA

Inventor(s): (std): HIGETA AKIRA ; IKEMOTO ISAO ; NODA SHINYA ; SASAKI SHINICHI ; TOMA AKIHIRO ; WATANABE KAZUFUMI ; WATANABE KAZUSHI

Inventor(s): AKIHIRO TOMA ; AKIRA HIGETA ; SHINICHI SASAKI ; SHINYA NODA ; ISAO IKEMOTO ; KAZUSHI WATANABE

Designated states: CH DE FR GB IT LI

Title: COUPLING PART, PHOTSENSITIVE DRUM, PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract: A process cartridge detachably mountable to a main assembly of an electrophotographic image forming apparatus, wherein the main assembly includes a motor, a main assembly side gear for receiving driving force from the motor, a hole defined by twisted surfaces, the hole being substantially coaxial with the gear, and a main assembly side grounding contact provided in the hole, the process cartridge includes an electrophotographic photosensitive drum; process means actable on the photosensitive drum; and a projection engageable with the twisted surfaces, the projection being provided at a longitudinal end of the photosensitive drum, wherein when the main assembly side gear rotates with the hole and projection engaged with each other, rotational driving force is transmitted from the gear to the photosensitive drum through engagement between the hole and the projection; and a cartridge side grounding contact electrically connected with the electrophotographic photosensitive drum for electrically grounding the electrophotographic photosensitive drum when the process cartridge is mounted to the main assembly of the apparatus, the cartridge side grounding contact being provided on the projection so as to be electrically connectable with the main assembly side grounding contact.

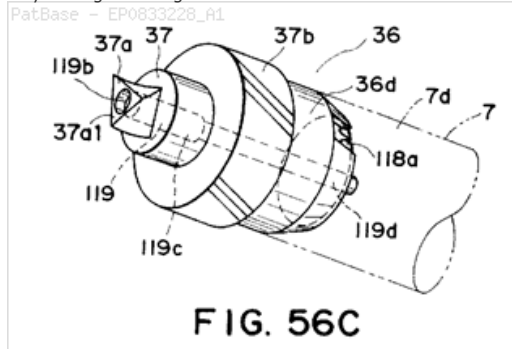
Classifications:

International (IPC 8-9): F16D1/10 G03G15/00 G03G21/00 G03G21/16 G03G21/18 G03G5/00 (Advanced/Invention); G03G21/00 (Advanced/Non-invention)

International (IPC 1-7): F16D1/10 G03G15/00 G03G15/30 G03G21/00 G03G21/16 G03G21/18 G03G5/00

CPC: G03G15/757 F16D1/101 G03G21/1633 G03G21/1647 G03G21/1853 G03G21/186 G03G21/1864 G03G21/1867 G03G21/1871 G03G2221/1654 G03G2221/1657 G03G2221/166 G03G2221/183 G03G2221/1861 G03G2221/1884

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Family:

Publication number	Publication date	Application number	Application date
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CA2216857 AA	19980326	CA19972216857	19970926
CA2216857 C	20030603	CA19972216857	19970926
CN1107246 C	20030430	CN19971020528	19970926
CN1188266 A	19980722	CN19971020528	19970926
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DE69732809 D1	20050421	DE19976032809	19970926
DE69732809 T2	20060413	DE19976032809T	19970926
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Priority:

JP19960356297 19960924 JP19960277530 19960926 JP19960356297 19961224
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Probable Assignee: CANON INC

Assignee(s): (std): CANON INC ; CANON KK

Assignee(s): HIGETA AKIRA ; SASAKI SHINICHI ; NODA SHINYA ; WATANABE KAZUSHI ; TOMA AKIHIRO ; IKEMOTO ISAO ; CANON K K ; CANON KABUSHIKI KAISHA

Inventor(s): (std): WATANABE KAZUSHI ; TOMA AKIHIRO ; SHINYA NODA ; SHINICHI SASAKI ; SASAKI SHINICHI ; NODA SHINYA ; IKEMOTO ISAO ; HIGETA AKIRA ; AKIHIRO TOMA

Inventor(s): AKIRA HIGETA ; KAZUSHI WATANABE ; ISAO IKEMOTO

Agent(s): SPRUSON AND FERGUSON; RIDOUT AND MAYBEE LLP

Designated states: CH DE FR GB IT LI

Title: PROCESS CARTRIDGE, ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS DRIVING FORCE TRANSMISSION PART AND ELECTROPHOTOGRAPHIC PHOTSENSITIVE DRUM

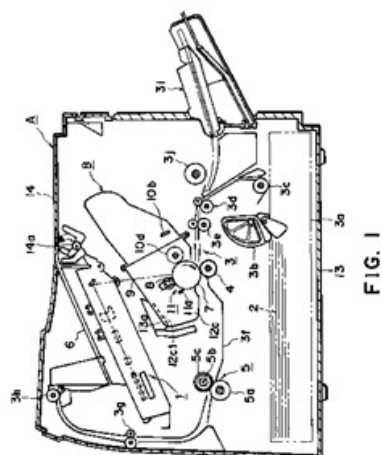
Abstract: A process cartridge detachably mountable to a main assembly of an electrophotographic image forming apparatus includes a motor, a main assembly side gear for receiving a driving force from the motor and a main assembly recess defined by a twisted surface. The main assembly recess is substantially coaxial with the gear, and a main assembly projection provided in the main assembly and substantially coaxial with the gear. The process cartridge includes an electrophotographic photosensitive drum; a process device actable on the photosensitive drum; and a twisted cartridge projection engageable with the twisted surfaces. The projection is provided at a longitudinal end of the photosensitive drum. The cartridge also includes a cartridge recess provided at a free end of the cartridge projection and substantially coaxial with the cartridge projection. When the process cartridge is mounted to the main assembly, the main assembly projection enters the cartridge recess. When the main assembly side gear rotates with the main assembly recess and cartridge projection engaged with each other, a rotational driving force is transmitted from the gear to the photosensitive drum through engagement between the main assembly recess and the cartridge projection.

Classifications:

International (IPC 8-9): B41J27/16 F16D1/10 G03G15/00 G03G21/18 (Advanced/Invention); F16D1/00 G03G15/00 G03G21/18 (Core/Invention)

International (IPC 1-7): B41J27/16 G03G15/00 G03G15/30 G03G21/16 G03G21/18

CPC: G03G21/1633 G03G21/1647 G03G21/186 F16D1/101



Family:

Publication number	Publication date	Application number	Application date
AU199739265 A1	19980402	AU19970039265	19970926
CA2216905 AA	19980326	CA19972216905	19970926
CA2216905 C	20010306	CA19972216905	19970926
CN1117296 C	20030806	CN19971019675	19970926
CN1179559 A	19980422	CN19971019675	19970926
DE69713236 D1	20020718	DE19976013236	19970926
DE69713236 T2	20021205	DE19976013236T	19970926
EP0833232 A2	19980401	EP19970307597	19970926
EP0833232 A3	19980527	EP19970307597	19970926
EP0833232 B1	20020612	EP19970307597	19970926
KR100270672 B1	20001101	KR19970049037	19970926
KR19980025034 A	19980706	KR19970049037	19970926
US6175706 BA	20010116	US19970938891	19970926

Priority:

JP19960277530 19960926	JP19960356297 19961224	JP19970269320 19970916
JP19970259995 19970925	CA19972216905 19970926	CA19972216905 19970926

Probable Assignee: CANON INC

Assignee(s): (std): CANON INC ; CANON KK ; CANOU K K

Assignee(s): KAWAI TOSHIHARU ; ITO YOSHIHIRO ; WATANABE KAZUSHI ; CANOU KK ; CANON K K ; CANON KABUSHIKI KAISHA

Inventor(s): (std): KAWAI TOSHIHARU ; KAWAI DOSHIHARU ; ITO YOSHIHIRO ; ITO TOSHIHIRO ; WATANABE KAZUSHI

Inventor(s): TOSHIHARU KAWAI ; KAZUSHI WATANABE ; YOSHIHIRO ITO

Agent(s): SPRUSON AND FERGUSON; RIDOUT AND MAYBEE LLP

Designated states: AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

9) Family number: 15965336 (US6006058A)

© PatBase

Title: PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS HAVING AN IMPROVED DRIVING SYSTEM

Abstract: A process cartridge detachably mountable to a main assembly of an electrophotographic image forming apparatus, wherein the main assembly includes a motor, a main assembly side gear for receiving driving force from the motor and a non-twisted recess which is substantially coaxial with the gear, the process cartridge includes an electrophotographic photosensitive drum; a process device actable on the photosensitive drum; and a non-twisted projection engageable with the recess, the projection being provided at a longitudinal end of the photosensitive drum, wherein when the main assembly side gear rotates with the recess and projection engaged with each other, rotational driving force is transmitted from the gear to the photosensitive drum through engagement between the recess and the projection.

Classifications:

International (IPC 8-9): F16D1/10 G03G15/00 G03G21/00

G03G21/16 G03G21/18 (Advanced/Invention);

F16D1/00 G03G15/00 G03G21/00 G03G21/16

G03G21/18 (Core/Invention)

International (IPC 1-7): F16D1/10 G03G1/500 G03G13/05

G03G15/00 G03G21/00 G03G21/16 G03G21/18

CPC: G03G21/1633 G03G21/1647 G03G21/186 F16D1/101

G03G15/757 G03G2221/1654 G03G2221/1657 G03G21/1864

European: F16D1/10B G03G15/75F G03G21/18H2C G03G21/18H2P

S03G221/16K1 S03G221/16K2



KR1002280671 B1	200010301	KR19970049031	19970926
KR100290584 B1	20010907	KR19970049036	19970926
KR100338349 B1	20021118	KR19970049034	19970926
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KR19980025032 A	19980706	KR19970049035	19970926
KR19980025033 A	19980706	KR19970049036	19970926
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US6330409 BA	20011211	US20000480178	20000110

Priority:

JP19960277524 19960926	JP19960277525 19960926	JP19960277533 19960926
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Probable Assignee: CANON INC

Assignee(s): (std): CANON KK

Assignee(s): CANON KABUSHIKI KAISHA ; CANON INC ; CANON K K

Inventor(s): (std): ATSUSHI NUMAGAMI ; ICHISHI WATANABA ; IKEMOTO ISAO ; ICHISHI WATANABE ; KATSUNORI WATANABE KAZUSHI IKE ; ISAO IKEMOTO ; TSUDA TADAYUKI ; SASAKI SHINICHI ; NUMAGAMI ATSUSHI ; TADAYUKI TSUDA ; SHINICHI SASAKI ; KATSUNORI YOKOYAMA ; WATANABA ICHISHI ; KAZUSHI WATANABE ; WATANABE KAZUSHI ; YOKOYAMA KATSUNORI ; WATANABE ICHISHI ; WATANABE KAZUSHI IKEMOTO ISAO NUMAGAMI ATSUSHI YOK ; WATANABE KAZUFUMI

Inventor(s): WATANABE KAZUSHI IKEMOTO ISAO NUMAGAMI ATSUSHI

Agent(s): SPRUSON AND FERGUSON; ASPEN PHARMA PTY LTD

Designated states: AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

10) Family number: 11262978 (US6336018B)

© PatBase

Title: Electrophotographic image forming apparatus, process cartridge, and drive mount for photosensitive drum

Abstract: A process cartridge detachably mountable to a main assembly of an electrophotographic image forming apparatus, wherein the main assembly includes a motor, a main assembly side gear for receiving driving force from the motor and a hole defined by twisted surfaces, the hole being substantially coaxial with the gear; an electrophotographic photosensitive drum; process device actable on the photosensitive drum; and a projection provided at a longitudinal end of the photosensitive drum. The projection has an engaging portion for engagement with the twisted surfaces and a supporting portion for supporting the engaging portion. The supporting portion is capable of entering the hole, and wherein when the main assembly side gear rotates with the hole and the engaging portion of the projection engaged with each other, rotational driving force is transmitted from the gear to the photosensitive drum through engagement between the hole and the projection, and the projection is urged inwardly of the hole.

Classifications:

International (IPC 8-9): F16D1/10 G03G15/00 G03G21/00

G03G21/16 G03G21/18 (Advanced/Invention);

F16D1/00 G03G15/00 G03G21/00 G03G21/16

G03G21/18 (Core/Invention)

International (IPC 1-7): G03G15/00 G03G21/00 G03G21/18

CPC: F16D1/101 G03G15/757 G03G21/186

European: F16D1/10B G03G15/75F G03G21/18H2C

US: 399/117 399/167

PatBase - US6336018_BA

U.S. Patent Jan. 1, 2002 Sheet 1 of 21 US 6,336,018 B1

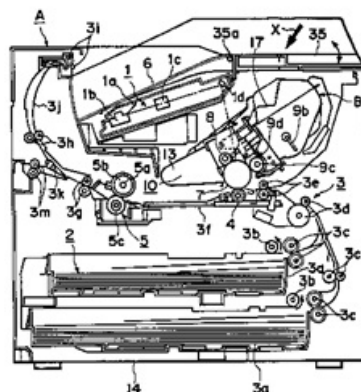


FIG. 1

Family:

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DE69723189 T2	20040527	DE19976023189T	19970926
EP0833214 A2	19980401	EP19970307586	19970926

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HK1009521 A1	20031017	HK19980110218	19980825
JP10105022 A2	19980424	JP19960277523	19960926
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US6336018 BA	20020101	US19970938959	19970926

Priority:

JP19960277523 19960926

Probable Assignee: CANON INC

Assignee(s): (std): CANON KK

Assignee(s): CANON INC ; CANON K K ; CANON KABUSHIKI KAISHA

Inventor(s): (std): ITO YOSHIHIRO ; KAWAI TOSHIHARA ; KAWAI TOSHIHARU ; KAWAI TOSHIJI ; WATANABE KAZUFUMI ; WATANABE KAZUSHI ; YOSHIHIRO ITO ; TOSHIJI KAAI ; ICHISHI WATANABA

Inventor(s): KAAI TOSHIJI ; WATANABA ICHISHI

Designated states: AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

11) Family number: 1572094 (US2002117510A)

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Title: COMPACT VENDING MACHINE

Abstract: A vending machine is housed in a light, yet sturdy enclosure made of an external sheet metal shell and an internal seamless plastic liner between which a volume of expanded synthetic foam material is injected. One or more good-holding magazines are removably held within the enclosure. A keypad, alpha-numerical display and card reader are packaged in the door closing the front of the enclosure. A driving motor module and a coin acceptor are removably mounted against the inside liner. Due to the absence of complex or delicate structure, the machine can be serviced, cleaned and sanitized within minutes. A pair of vending machine, one holding snack food, the other beverage cans are coupled to work together and dispense combinations of items from a single control panel. Both the beverage and snack food holding magazines are driven from the same type of motor module mounted inside the liner.

Classifications:

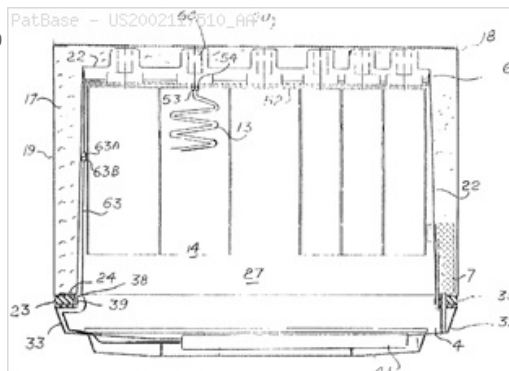
International (IPC 8-9): B65G47/78 B65G59/00 F16B12/24 F16D1/00 G06F15/16 G06F17/00 G06F21/00 G06K17/00 G06Q10/00 G06Q10/08 G06Q20/00 G06Q30/00 G06Q30/06 G06Q50/00 G07F11/24 G07F11/28 G07F11/32 G07F11/34 G07F11/36 G07F11/42 G07F11/46 G07F11/48 G07F17/00 G07F5/18 G07F7/08 G07F9/00 G07F9/02 G07F9/10 H04L9/32 (Advanced/Invention); B65G47/78 B65G59/00 F16B12/00 F16D1/00 G06K17/00 G06Q10/00 G06Q20/00 G06Q30/00 G06Q50/00 G07F11/02 G07F5/00 G07F7/08 G07F9/00 G07F9/02 G07F9/10 (Core/Invention); G06F (Subclass/Invention)

International (IPC 1-7): B65G47/78 B65G59/00 B65H1/00 B65H3/00 F16D1/00 G06F G06F17/00 G06K17/00 G07F11/00 G07F11/28 G07F11/32 G07F11/34 G07F11/36 G07F11/42 G07F5/18 G07F7/08 G07F9/00 G07F9/02

CPC: G07F5/18 G07F9/10 G07F11/002 G07F11/34 G06Q30/06 G07F9/026 G07F11/42

European: G06F17/60B G06Q30/06 G07F11/00B G07F11/34 G07F11/42 G07F5/18 G07F9/02D G07F9/10

US: 221/1 221/129 221/197 221/1P 221/2 221/287 221/287S 221/2S 221/68 221/68P 221/75 235/375 235/375S 700/236 700/241 700/241P 700/242 700/242S 709/217 709/217S 726/19 726/19S



Family:

Publication number	Publication date	Application number	Application date
AU199872533 A1	19981113	AU19980072533	19980415
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AU200192856 A1	20020402	AU20010092856	20010901
AU200192856 A5	20020402	AU20010092856	20010901
CA2423352 AA	20030320	CA20012423352	20010901
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CN1492974 A	20040428	CN20018022807	20010221
CN1529877 A	20040915	CN20018002807	20010901
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US2002153382 AA	20021024	US20020119227	20020408
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WO0225552 A2	20020328	WO2001US29416	20010901
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Priority:

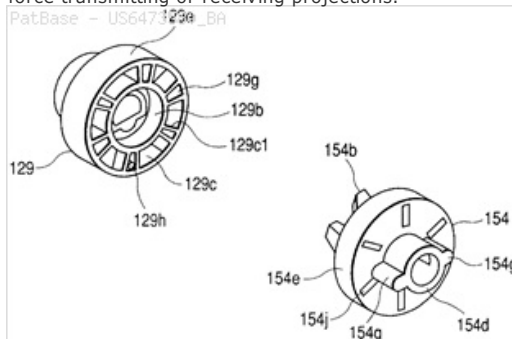
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WO2001US29416 20010901 US20020119227 20020408 US20030682777 20031008
US20090643120 20091221

Probable Assignee: BUCHACA JOHN D**Assignee(s):** (std): CHARMASSON HENRI J A ; HENRI J A CHARMASSON ; SIMSON TODD A ; RUSKIN FRANK ; SIMSON ANTON K ; BRUSSO PETER C ; BUCHACA JOHN D ; MILLER MICHAEL R ; DISTRIBUTED VENDING COMPANY ; HENRI CHARMASSON**Assignee(s):** DISTRIBUTED VENDING CO ; HENRI JA CHARMASSON ; SIMON TODD A 13025 SU ; SIMSON TODD A 13025 SU ; SIMON TODD A ; CHARMASSON HENRI J ; BRUSSO PETER C 807 SONGBIRD AVENUEANAHEIM ; CHARMASSON HENRI JA ; MICHAEL R MILLER**Inventor(s):** (std): BUCHACA JOHN D ; MILLER MICHAEL R ; XIMSEN TOD A ; SIMSON ANTO K ; RASKIN FRANK ; CHARMASSON HENVRI J A ; BRUSSON PETER C ; BAKEKA JOHN D ; TODD A SIMSON ; SIMSON TODD A ; SIMSON ANTON K ; RUSKIN FRANK ; FRANK RUSKIN ; CHARMASSON HENRI J A ; BRUSSO PETER C ; ANTON K SIMSON**Inventor(s):** HENVRI J A CHARMASSON ; PETER C BRUSSO ; JOHN D BUCHACA ; HENRI J A CHARMASSON ; ANTO K SIMSON ; CHARMASSON HENRI JA ; CHARMASSON HENRI J ; PETER C BRUSSON ; JOHN D BAKEKA ; HENVRI JA CHARMASSON ; FRANK RASKIN ; TOD A XIMSEN ; MICHAEL R MILLER**Agent(s):** DAVIES COLLISON CAVE; DAVIES COLLISON CAVE PTY LTD; RIDOUT AND MAYBEE LLP; SAKAI HAJIME; ZOGO MASAHIRO; CHARMASSON BUCHACA AND LEACH LLP**Designated states:** AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EE ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NE NL NO NZ PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW**12) Family number: 12129924 (US6473580B)**

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Title: Driving force receiving member, shaft coupling, toner image bearing member, process cartridge and electrophotographic image forming apparatus

Abstract: An electrophotographic image forming apparatus to which a process cartridge is detachably mounted and which is adapted to form an image on a recording medium includes an electrophotographic photosensitive drum, a mounting device capable of detachably mounting a process cartridge including a process device acting on the electrophotographic photosensitive drum and a shaft coupling member secured to a drum support shaft for supporting the electrophotographic photosensitive drum. A shaft coupling member of an apparatus body is adapted to be engaged by and disengaged from the shaft coupling member of the process cartridge. The shaft coupling member of the apparatus body includes either of one shaft coupling member including a cylindrical projection coaxial with a rotation center, and transmitting force transmitting or receiving projections disposed around the cylindrical projection and protruding in the same direction as the cylindrical projection and having inclined surfaces with a tip end lead directing toward a rotational direction, or another shaft coupling member including a cylindrical hole to be fitted onto the cylindrical projection to effect centering, and holes to be fitted onto the transmitting force transmitting or receiving projections and disposed around the cylindrical hole and having inclined surfaces to be contacted with the inclined surfaces of the transmitting force transmitting or receiving projections.

Classifications:**International (IPC 8-9):** F16D1/112 G03G15/00 G03G15/01 G03G15/16 G03G21/16 G03G21/18 (Advanced/Invention); F16D1/00 G03G15/00 G03G15/01 G03G15/16 G03G21/16 G03G21/18 (Core/Invention)**International (IPC 1-7):** G03G15/00 G03G15/01 G03G15/16 G03G21/16**CPC:** F16D1/112 G03G15/757 G03G21/186 G03G2215/0177 G03G2221/1657 G03G2221/183**European:** F16D1/112 G03G15/75F G03G21/18H2C S03G215/01S2A S03G221/16K2 S03G221/18P**US:** 399/111 399/167**Family:**

Publication number	Publication date	Application number	Application date
JP10326034 A2	19981208	JP19980096758	19980325
JP3789040 B2	20060621	JP19980096758	19980325
US6473580 BA	20021029	US19980049901	19980330

Priority:

JP19970095366 19970328 JP19970095367 19970328 JP19980096758 19980325

Probable Assignee: CANON INC**Assignee(s):** (std): CANON KK**Assignee(s):** CANON INC ; CANON KABUSHIKI KAISHA**Inventor(s):** (std): INOMATA MITSUGU ; INOMATA MITSUGI**13) Family number: 29598760 (US6227341B)**

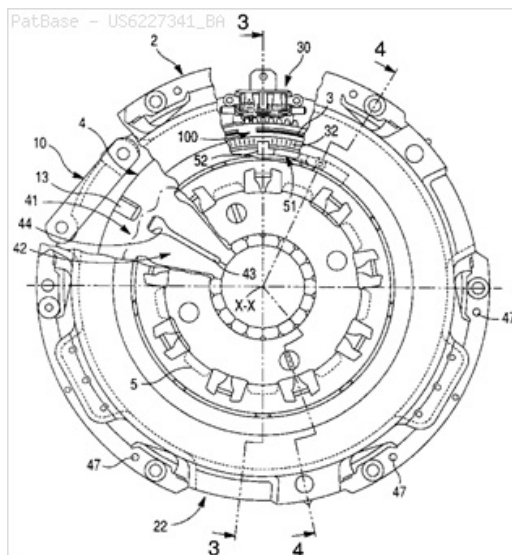
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Title: CLUTCH MECHANISM FOR MOTOR VEHICLE COMPRISING AN IMPROVED WEAR TAKE-UP DEVICE FOR FRICTION LININGS

Abstract: A clutch mechanism comprising a wear take-up device including a ring with ramps bearing an outer toothing and set between a pressure plate and support member (engagement zones) to constitute a pressure plate with varying thickness between its friction surface and the support member. A box having a worm screw cooperates with the toothing. A brake strap borne by the pressure plate and cooperating with the ramp ring is arranged such that in the vent of axial vibrations or overtravel of the clutch during declutching, the ramps do not rotate and there is no wear take-up.

Classifications:

International (IPC 8-9): B23P19/04 F16D13/58 F16D13/60 F16D13/71 F16D13/75 (Advanced/Invention); B23P19/04 F16D13/58 F16D13/60 (Core/Invention)
International (IPC 1-7): F16D13/25 F16D13/58 F16D13/60 F16D13/75
CPC: F16D13/7 Y10S192/01 F16D13/58 F16D13/585 F16D13/71 F16D13/757
European: F16D13/58 F16D13/58C2 F16D13/71 F16D13/75D R16D13/70B
US: 192/109R 192/110R 192/111.17 192/111A 192/70.13 192/70.25 192/70.252 192/70.27 192/89.24 192/DIG.1



Family:

Publication number	Publication date	Application number	Application date
DE19980416 B4	20080703	DE19991080416	19990215
DE19980416 B8	20081016	DE19991080416	19990215
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EP0975883 A1	20000202	EP19990903762	19990215
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ES2198888 T3	20040201	ES19990903761T	19990215
ES2205766 T3	20040501	ES19990903762T	19990215
ES2205767 T3	20040501	ES19990903763T	19990215
FR2775038 A1	19990820	FR19980001769	19980213
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US6354419 BA	20020312	US20010403228	20010613
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Priority:

FR19980001769 19980213	FR19980015532 19981209	FR19980015533 19981209
WO1999FR00337 19990215	WO1999FR00335 19990215	WO1999FR00336 19990215

Probable Assignee: VALEO

Assignee(s): (std): DALBIEZ ANDRE ; GIROIRE JEAN PIERRE ; GRATON MICHEL ; VALEO ; VALEO EMBRAYAGES

Assignee(s): VALEO EMBRAYAGES S A S ; VALEO PARIS ; VALEO EMBRAYAGES SAS

Inventor(s): (std): DALBIEZ ANDR EACUTE ; DALBIEZ ANDRE ; GIROIRE JEAN PIERRE ; GRATON MICHEL

Inventor(s): MICHEL GRATON ; ANDRE DALBIEZ

Agent(s): VALEO EMBRAYAGES

Designated states: AT BE CH CY DE DK ES FI FR GB GR IE IT JP LU MC NL PT SE US

14) Family number: 15179565 (US6244531B)

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Title: Clutch mechanism and webbing winding device

Abstract: In a normal state, a roller is engaged with an engaging projection of a rotor constituting a pretensioner and is not nipped between the rotor and a shaft. Accordingly, the shaft is freely rotated and a spool is also freely rotated so that a webbing can be pulled out and wound up. When a vehicle suddenly decelerates, the rotor is rotated and the engaging projection is separated from the roller. Accordingly, the roller is pushed by a taper of the rotor and is nipped between an outer circumferential face of the shaft and the taper. Since the rotor and the shaft are connected to each other through the

roller, the rotation force of the rotor is transmitted to the shaft and the spool is rotated and the webbing is wound. Accordingly, it is possible to provide a webbing winding device in which the rotation force of the pretensioner can be transmitted to the spool without causing resistance in the rotation of the pretensioner at its operating time or wasting the rotation force for rotating the spool.

Classifications:

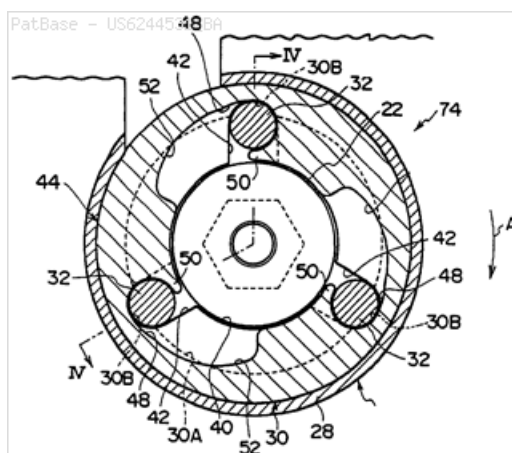
International (IPC 8-9): B60R22/46 B65H75/38 F16D43/24 F16H1/10 F16H15/04 F16H19/00 F16H19/04 (Advanced/Invention); F16H15/04 (Advanced/Non-invention); B60R22/46 B65H75/38 F16D43/00 F16H1/04 F16H19/00 (Core/Invention)

International (IPC 1-7): B60R22/36 B60R22/46 B65H18/26 B65H75/38 F16D41/064 F16D43/24 F16H1/10 F16H15/04 F16H19/04

CPC: Y10T74/1967 F16H19/04 B60R22/4633 B60R2022/468

European: B60R22/46D2 F16H19/04 L60R22/46J

US: 192/38 242/374 74/422



Family:

Publication number	Publication date	Application number	Application date
DE69917823 D1	20040715	DE19996017823	19990304
DE69917823 T2	20041007	DE19996017823T	19990304
EP0940603 A2	19990908	EP19990102896	19990304
EP0940603 A3	20010314	EP19990102896	19990304
EP0940603 B1	20040609	EP19990102896	19990304
JP11247906 A2	19990914	JP19980052413	19980304
JP11314558 A2	19991116	JP19990009020	19990118
JP4109780 B2	20080702	JP19990009020	19990118
KR100522856 B1	20051019	KR19990006566	19990226
KR19990077497 A	19991025	KR19990006566	19990226
KR19990077665 A	19991025	KR19990007460	19990306
US6244531 BA	20010612	US19990261959	19990303
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Priority:

JP19980052413 19980304 JP19980055435 19980306 JP19990009020 19990118
KR19990006566 19990226 KR19990007460 19990306

Probable Assignee: TOKAI RIKI DENKI SEISAKUSHO KK

Assignee(s): (std): TOKAI RIKI CO LTD

Assignee(s): TOKAI RIKI DENKI SEISAKUSHO KK ; TOKAI RIKI DENKI SEISAKUSHO AICHI KK ; KABUSHIKI KAISHA TOKAI RIKI DENKI SEISAKUSHO ; KABUSHIKI KAISHA TOKAI RIKI DENKI SEISAKUSHO AICHI

Inventor(s): (std): HORI SEIJI ; IMAI KEISUKE ; KATO KEICHI ; NAGATA TOMONORI ; NISHIDE SEIJI OHGUCHI CHO ; SAITO TOSHIO ; SUMIYASHIKI AKIRA ; NISHIDE SEIJI ; KATO KEIICHI ; KADOYASHIKI AKIRA

Designated states: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

15) Family number: 20678473 (US6334521B)

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Title: Clutch mechanism provided with an endless screw wear take-up device

Abstract: The invention concerns a clutch mechanism comprising a wear take-up device with a ramp (32) ring (330) coupled in rotation into axial mobility with an intermediate part (310) equipped with a toothing (31) engaged in an endless screw (36) integral with a cover. The invention is applicable to a motor vehicle.

Classifications:

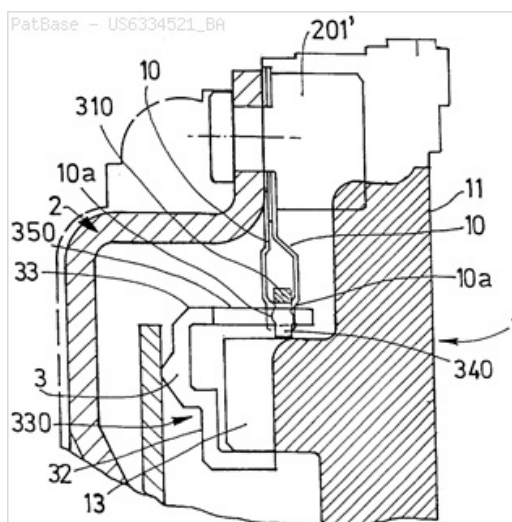
International (IPC 8-9): F16D13/46 F16D13/64 F16D13/71 F16D13/75 (Advanced/Invention); F16D13/75 (Advanced/Non-invention); F16D13/00 F16D13/58 F16D13/64 (Core/Invention)

International (IPC 1-7): F16D13/46 F16D13/75

CPC: F16D13/64 F16D13/71 F16D13/757 F16D2013/581 F16D2013/706

European: F16D13/64 F16D13/71 F16D13/75D R16D13/58A R16D13/70B

US: 192/111.17 192/70.25 192/70.252



Family:

Publication number	Publication date	Application number	Application date
AU199956317 A1	20000410	AU19990056317	19990923
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BRPI9907291 A	20001003	BR1999PI07291	19990923
DE19981977 B4	20101202	DE19991081977	19990923
DE19981977 T	20001012	DE19991081977T	19990923
DE19981977 T1	20001012	DE19991081977T	19990923
EP1030978 A1	20000830	EP19990943028	19990923
EP1030978 B1	20041110	EP19990943028	19990923
ES2232167 T3	20050516	ES19990943028T	19990923
FR2783580 A1	20000324	FR19980011991	19980923
FR2783580 B1	20001124	FR19980011991	19980923
FR2784150 A1	20000407	FR19990009974	19990730
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JP2002525520 T2	20020813	JP20000571155T	19990923
JP4458677 B2	20100428	JP20000571155T	19990923
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PL198488 B1	20080630	PL19990340538	19990923
PL340538 A1	20010212	PL19990340538	19990923
US6334521 BA	20020101	US20000555027	20000523
WO0017535 A1	20000330	WO1999FR02257	19990923

Priority:

FR19980011991 19980923 FR19990009974 19990730 WO1999FR02257 19990923

Probable Assignee: VALEO

Assignee(s): (std): BLARD MICHEL ; DALBIEZ ANDRE ; THIRION DE BRIEL JACQUES ; VALEO ; VALEO EMBRAYAGES

Assignee(s): VALEO EMBRAYAGES S A S ; VALEO PARIS

Inventor(s): (std): GRATON MICHEL ; THIRION DE BRIEL JAQUES ; THIRION DE BRIEL JACQUES ; MICHEL BLARD ; JACQUES THIRION DE BRIEL ; DALBIEZ ANDRE ; BRIEL JACQUES THIRION DE ; BLARD MICHEL ; ANDRE DALBIEZ

Designated states: AE AL AM AT AU AZ BA BB BE BF BG BJ BR BY CA CF CG CH CI CM CN CR CU CY CZ DE DK DM EE ES FI FR GA GB GD GE GH GM GN GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LK LR LS LT LU LV MC MD MG MK ML MN MR MW MX NE NL NO NZ PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

16) Family number: 29375994 (US2003091379A)

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Title: FLOOR FINISH APPLICATION SYSTEM USING APPLICATOR PAD AND MATCHED FLOOR FINISH COMPOSITION

Abstract: A system for the formation of a thick robust transparent floor finish layer from a high solids formulation with an applicator device utilizing micro fiber technology. A micro fiber applicator device can be configured to apply a sufficient amount of an aqueous high solids floor finish to obtain a thick robust finish layer in a single application. One system for applying the floor finish can comprise a source of aqueous floor finish and an applicator wand comprising an application nozzle and application surface. Application surface can comprise micro fiber technology in a pad structure comprising a reservoir foam and a micro fiber applicator surface.

Classifications:

International (IPC 8-9): A46B11/00 A46B11/04 A46B17/02 A47L1/08 A47L13/22 A47L13/26 A47L13/30 B05C1/06 B05C11/10 B05D1/28 B05D7/00 E04F15/12 E04F21/08 F16D3/20 F16D3/223

F16D3/224 (Advanced/Invention); A46B11/00 A46B17/00 A47L1/00 A47L13/10 A47L13/20 B05C1/04 B05C11/10 B05D1/28 B05D7/00 E04F15/12 E04F21/02 F16D3/16 (Core/Invention)

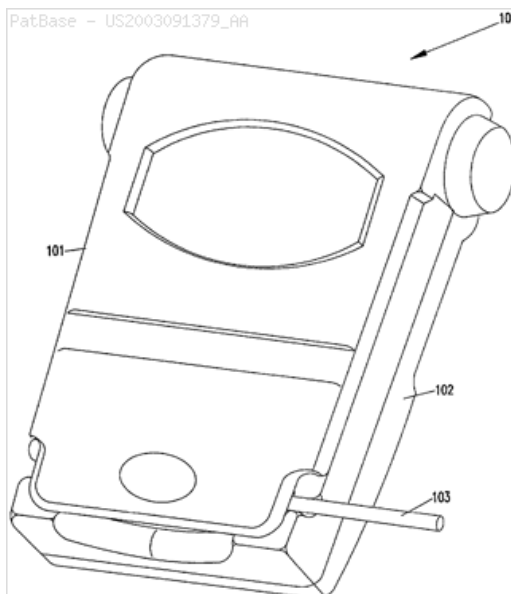
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CPC: A47L13/22 A47L13/30 A46B11/063 A46B17/02 A46B2200/302 A46B2200/3033 Y10S464/906 F16D3/224 F16D2003/22306

F16D2003/22316 F16D2003/22326

European: A46B11/06B A46B17/02 A47L11/38 A47L13/22 A47L13/23 A47L13/30 F16D3/224 K46B200/30C K46B200/30E R16D3/223B R16D3/223E R16D3/223H

US: 401/130 401/130P 401/137 401/137S 401/138 401/138S 401/139 401/139P 401/139S 401/261 401/27 401/270 401/270S 401/276 401/276S 401/284 401/284S 401/292 401/292S 401/48 401/48P 401/6 464/141 464/145 464/906



Family:

Publication number	Publication date	Application number	Application date
AT250383 E	20031015	AT20000912541T	20000303
AT364345 E	20070715	AT20020782299T	20021113
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Priority:

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US20090487901	20090619				

Probable Assignee: ECOLAB INC

Assignee(s): (std):	GKN LOEBRO GMBH ; HENKEL ECOLAB AND CO OGH ; ECOLAB INC ; ECOLAB GMBH AND CO OHG ; FERNSCHILD HANS LEO ; FAUBEL HEIKO ; GKN LOBRO GMBH ; HENKEL ECOLAB GMBH AND CO OHG ; ROGMANN KARL HEINZ ; LENZ ULRIKE
Assignee(s):	OLSON SCOTT ; ECOLAB INC ST PAUL ; LANCETTE CHRISTOPHER JOHN ; OLSON SCOTT RANDALL ; NELSON WESLEY ; JAHNKE DARREN ; GARDNER JAMES P ; BALZ ERIC ; CARLSON BRIAN ; CHASE JANE ANN ; DEFIELDS SCOTT ; ECOL GMBH AB ; ECOL INC AB ; ECOLAB GMBH ; HENKEL ECOL GMBH AB ; HENKEL ECOLAB GMBH
Inventor(s): (std):	CHASE JANE A ; CHASE JANE ANN ; DEFIELDS SCOTT ; FAUBEL HEIKO ; FERNSCHILD HANS LEO ; BALZ ERIC ; CARLSON BRIAN ; GARDNER JAMES P ; GARDNER JAMES P JR ; LANCETTE CHRISTOPHER J ; LANCETTE CHRISTOPHER JOHN ; LENZ ULRIKE ; NELSON WESLEY ; OLSON SCOTT ; OLSON SCOTT R ; OLSON SCOTT RANDALL ; ROGMANN KARL HEINZ ; SCHEUVENS ULRIKE ; GARDNER JR JAMES P ; JACOB WERNER ; JAHNKE DARREN ; SCOTT OLSON ; WERNER JACOB
Inventor(s):	JR JAMES P ; LANCETTE CHRISTOPHER ; SCOTT DEFIELDS ; GARDNER JAMES PJR ; CHASE JANE ; GARDNER ; GARDNER JAMES
Agent(s):	SPRUSON AND FERGUSON; CASSAN MACLEAN; CASSAN MACLEAN IP AGENCY INC; CABINET BEAU DE LOMENIE; AOKI ATSUSHI; ISHIDA TAKASHI; KOGA TETSUJI; NISHIYAMA MASAYA; MERCHANT AND GOULD PC; INTELLECTUAL PROPERTY GROUP FREDRIKSON AND BYRON PA; FREDRIKSON AND BYRON

Designated states: PA; ANDREW D; LAURA C
AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK
DM DZ EE ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC
LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NE NL NO NZ PH PL PT RO RU SD SE SG
SI SK SL SN SZ TD TG TJ TM TR TT TZ UA UG US UZ VN YU ZA ZM ZW

17) Family number: 41960105 (US6128454A) © PatBase

Title: PROCESS CARTRIDGE, ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS, DRIVING FORCE TRANSMISSION PART, AND ELECTROPHOTOGRAPHIC PHOTOSENSITIVE DRUM

Abstract: An electrophotographic image forming apparatus for forming an image on a recording material includes an electrophotographic photosensitive drum; a charging device for charging the photosensitive drum; a developing device for developing a latent image formed on the photosensitive drum into a toner image; a transfer device for transferring the toner image onto the recording material; a fixing device for fixing the toner image on the recording material; a motor; a main assembly side gear for receiving driving force from the motor; a twisted hole formed substantially at a center of the gear, the hole having a polygonal cross-section; a twisted prism projection provided at a longitudinal end of the photosensitive drum, wherein when the main assembly side gear rotates with the hole and projection engaged with each other, rotational driving force is transmitted from the gear to the photosensitive drum through the hole and the projection with the projection being pulled into the hole; and a moving device for imparting relative movement between the hole and the projection in a longitudinal direction of the photosensitive drum.

Classifications:

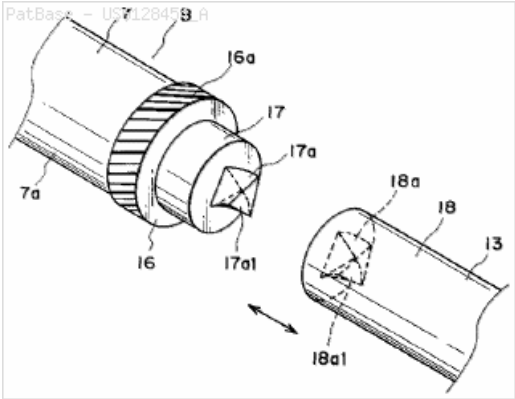
International (IPC 8-9): F16C13/02 F16C13/04 F16D1/06 F16D1/10 G03G15/00 G03G21/00 G03G21/16 G03G21/18 (Advanced/Invention)

International (IPC 1-7): G03G15/02

CPC: G03G21/1633 G03G21/1647 G03G21/186 F16D1/101 G03G15/757 G03G2221/1654 G03G2221/1657 G03G2221/183

European: F16D1/10B G03G15/75F G03G21/18H2C S03G221/16K1 S03G221/16K2 S03G221/18P

US: 399/111 399/116 399/159 399/167



Family:

Publication number	Publication date	Application number	Application date
US6128454 A	20001003	US19990258314	19990226
US6128454 C1	20120103	US19990258314	19990226

Priority:

JP19950067796 19950327 JP19960064105 19960321 US19960621941 19960326
US19990258314 19990226

Probable Assignee: CANON INC

Assignee(s): (std): CANON INC ; CANON KK

Assignee(s): CANON KABUSHIKI KAISHA

Inventor(s): (std): ITO YOSHIHIRO ; KAWAI TOSHIHARU ; WATANABE KAZUSHI

18) Family number: 28158212 (US2002025191A) © PatBase

Title: Image forming apparatus

Abstract: An image forming apparatus includes a process unit detachably mountable to a main assembly of the apparatus, the process unit including an image bearing member for bearing an electrostatic image and process means actable on the image bearing member, the process means having a rotational shaft; a driving shaft, substantially co-axial with the rotational shaft, for rotating the rotational shaft; and a drive transmitting member, engaged with the driving shaft and with the rotational shaft, for transmitting a driving force to the rotational shaft from the driving shaft; wherein the drive transmitting member is engaged with the driving shaft with a play and is engaged with the rotational shaft with a play.

Classifications:

International (IPC 8-9): F16D1/02 F16D3/04 F16D3/44 G03G15/00 G03G15/08 G03G15/18 G03G21/18 (Advanced/Invention);

G03G15/18 (Advanced/Non-invention);

F16D1/02 F16D3/02 F16D3/16 G03G15/00 G03G15/08 G03G15/18 G03G21/18 (Core/Invention)

International (IPC 1-7): F16D1/02 G03G15/06 G03G15/18 G03G21/16 G03G21/18

CPC: F16D3/44 G03G15/757 G03G21/186 G03G2221/1657

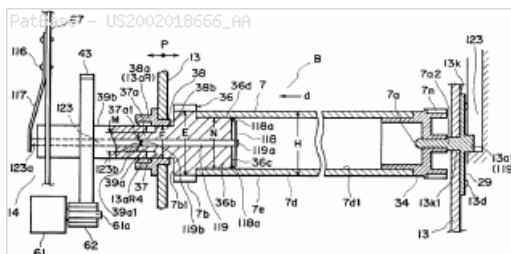
European: F16D3/44 G03G15/75F G03G21/18H2C S03G221/16K2

US: 399/111 399/167 399/222 399/222P



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US: 399/90 399/90P



Family:

Publication number	Publication date	Application number	Application date
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Priority:

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US19970938893 19970926 US20010968657 20011002

Probable Assignee: HIGETA AKIRA

Assignee(s): HIGETA AKIRA ; IKEMOTO ISAO ; NODA SHINYA ; SASAKI SHINICHI ; TOMA AKIHIRO ; WATANABE KAZUSHI

Inventor(s): (std): HIGETA AKIRA ; IKEMOTO ISAO ; NODA SHINYA ; SASAKI SHINICHI ; TOMA AKIHIRO ; WATANABE KAZUSHI

20) Family number: 41960102 (US6349188B)

© PatBase

Title: PROCESS CARTRIDGE, ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS, DRIVING FORCE TRANSMISSION PART AND ELECTROPHOTOGRAPHIC PHOTOSENSITIVE DRUM

Abstract: An electrophotographic image forming apparatus for forming an image on a recording material includes an electrophotographic photosensitive drum; a charging device for charging the photosensitive drum; a developing device for developing a latent image formed on the photosensitive drum into a toner image; a transfer device for transferring the toner image onto the recording material; a fixing device for fixing the toner image on the recording material; a motor; a main assembly side gear for receiving driving force from the motor; a twisted hole formed substantially at a center of the gear, the hole having a polygonal cross-section; a twisted prism projection provided at a longitudinal end of the photosensitive drum, wherein when the main assembly side gear rotates with the hole and projection engaged with each other, rotational driving force is transmitted from the gear to the photosensitive drum through the hole and the projection with the projection being pulled into the hole; and a moving device for imparting relative movement between the hole and the projection in a longitudinal direction of the photosensitive drum.

Classifications:

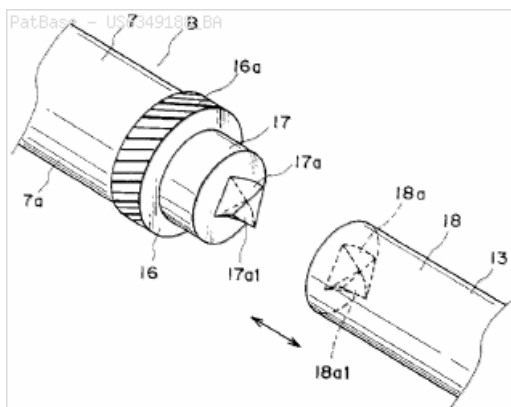
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International (IPC 1-7): G03G15/02

CPC: G03G21/1633 G03G21/1647 G03G21/186 F16D1/101
G03G15/757 G03G2221/1654 G03G2221/1657 G03G2221/183

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US: 399/111 399/116 399/159 399/167



Family:

Publication number	Publication date	Application number	Application date
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Priority:

JP19950067796 19950327 JP19960064105 19960321 US19960621941 19960326
US19990258314 19990226 US20000522293 20000309

Probable Assignee: CANON INC

Assignee(s): (std): CANON INC ; CANON KK

Assignee(s): CANON KABUSHIKI KAISHA

Inventor(s): (std): ITO YOSHIHIRO ; KAWAI TOSHIHARU ; WATANABE KAZUSHI

21) Family number: 41960100 (US6501927B)

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Title: PROCESS CARTRIDGE AND PHOTOSENSITIVE DRUM DRIVING MOUNT

Abstract: An electrophotographic image forming apparatus for forming an image on a recording material includes an electrophotographic photosensitive drum, a charger for charging the photosensitive drum, a developer for developing a latent image formed on the photosensitive drum into a toner image, a transferer for transferring the toner image onto the recording material, a fixer for fixing the toner image on the recording material, a motor, a main assembly side gear for receiving a driving force from the motor, and a hole formed substantially at a center of the gear. The hole has a polygonal cross-section. The apparatus also includes a projection provided at a longitudinal end of the photosensitive drum. When the main assembly side gear rotates with the hole and projection engaged with each other, a rotational driving force is transmitted from the gear to the photosensitive drum through the hole and the projection with the projection being pulled into the hole.

hole. An end portion of the gear having the projection and a end surface defining the hole contact each other so that the process cartridge is positioned in place in a longitudinal direction of the photosensitive drum relative to the main assembly. The apparatus also includes a mover for imparting relative movement between the hole and the photosensitive drum to engage the projection with the hole.

Classifications:

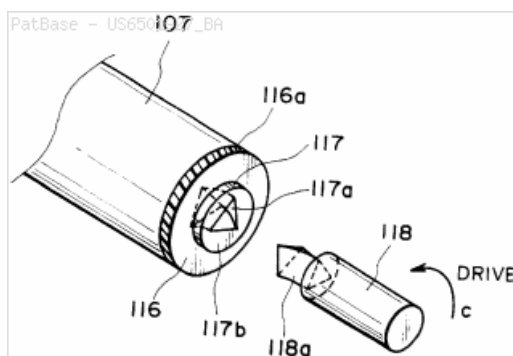
International (IPC 8-9): F16D1/10 G03G15/00
G03G21/18 (Advanced/Invention)

International (IPC 1-7): G03G15/00

CPC: G03G21/1633 G03G21/1647 G03G21/1864 F16D1/101
G03G15/757 G03G21/1853 G03G2221/1654 G03G2221/1657
G03G2221/183

European: F16D1/10B G03G15/75F G03G21/18H1V G03G21/18H2P
S03G221/16K1 S03G221/16K2 S03G221/18P

US: 399/117 399/167



Family:

Publication number	Publication date	Application number	Application date
US6501927 BA	20021231	US20000597983	20000619

Priority:

JP19960064105 19960321 JP19960277532 19960926 JP19970082344 19970314
US19970819772 19970318 US20000597983 20000619

Probable Assignee: CANON INC

Assignee(s): (std): CANON INC ; CANON KK

Assignee(s): CANON KABUSHIKI KAISHA

Inventor(s): (std): ITO YOSHIHIRO ; KAWAI TOSHIHARU ; WATANABE KAZUSHI

22) Family number: 41960101 (US6501926B)

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Title: PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract: An electrophotographic image forming apparatus for forming an image on a recording material includes an electrophotographic photosensitive drum; charging means for charging the photosensitive drum; developing means for developing a latent image formed on the photosensitive drum into a toner image; transfer means for transferring the toner image onto the recording material; fixing means for fixing the toner image on the recording material; a motor; a main assembly side gear for receiving driving force from the motor; a recess formed substantially at a center of the gear, the recess having a polygonal cross-section; a projection provided at a longitudinal end of the photosensitive drum, wherein when the main assembly side gear rotates with the recess and projection engaged with each other, rotational driving force is transmitted from the gear to the photosensitive drum through the recess and the projection with the projection being pulled into the recess, wherein a free end of the projection and a bottom surface of the recess are contacted to each other so that the process cartridge is positioned in place in a longitudinal direction of the photosensitive drum relative to the main assembly; and moving means for imparting relative movement between the recess and the projection in a longitudinal.

Classifications:

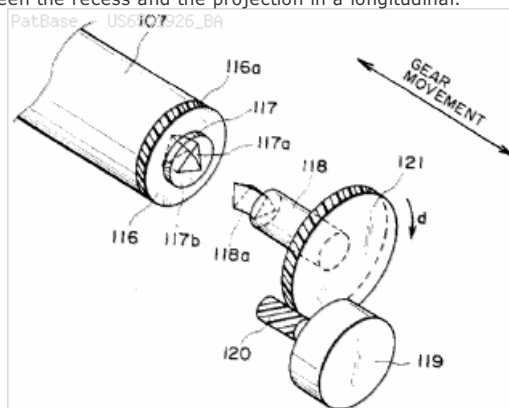
International (IPC 8-9): F16D1/10 G03G15/00
G03G21/18 (Advanced/Invention)

International (IPC 1-7): G03G15/00

CPC: G03G21/1633 G03G21/1647 G03G21/186 F16D1/101
G03G15/757 G03G21/1853 G03G21/1864 G03G2221/1654
G03G2221/1657 G03G2221/183

European: F16D1/10B G03G15/75F G03G21/18H1V G03G21/18H2C
G03G21/18H2P S03G221/16K1 S03G221/16K2 S03G221/18P

US: 399/117 399/167



Family:

Publication number	Publication date	Application number	Application date
US6501926 BA	20021231	US20000597823	20000619

Priority:

JP19960064105 19960321 JP19960277528 19960926 US19970820481 19970318
US20000597823 20000619

Probable Assignee: CANON INC

Assignee(s): (std): CANON INC ; CANON KK

Assignee(s): CANON KABUSHIKI KAISHA

Inventor(s): (std): ITO YOSHIHIRO ; KAWAI TOSHIHARU ; WATANABE KAZUSHI

23) Family number: 28396257 (US2003053823A)

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Title: Coupling apparatus, development cartridge and electrophotographic printer having the same

Abstract: A coupling apparatus to transfer a rotation force in a connected state. The apparatus has a first coupler having a first sloping rib formed at one end thereof and sloped in a rotation direction, and a second coupler having a second sloping rib formed at an inner circumference of the second coupler and sloped to correspond to the first sloping rib. The sloping ribs are connected by being pressed as the first coupler and the second coupler are relatively rotated, and rotation axes of the couplers coincide when the sloping ribs are completely connected.

Classifications:

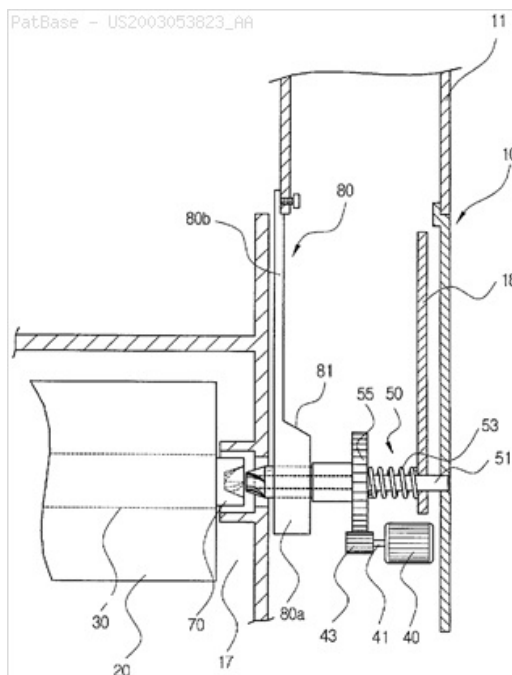
International (IPC 8-9): F16D1/02 F16D1/06 F16D1/10 F16D11/00 G03G15/00 G03G21/18 (Advanced/Invention); G03G15/00 (Advanced/Non-invention); F16D1/00 F16D1/02 F16D1/06 F16D11/00 G03G15/00 G03G21/18 (Core/Invention)

International (IPC 1-7): F16D11/00 G03G15/00 G03G21/18

CPC: F16D1/101 G03G15/757 G03G21/1864 G03G2221/1657 G03G2221/183

European: F16D1/10B G03G15/75F G03G21/18H2P S03G2221/16K2 S03G2221/18P

US: 399/120 399/167 399/167P



Family:

Publication number	Publication date	Application number	Application date
JP2003120713 A2	20030423	JP20020271563	20020918
JP3848607 B2	20061122	JP20020271563	20020918
KR100381598 B1	20030426	KR20010057653	20010918
KR20030028585 A	20030410	KR20010057653	20010918
US2003053823 AA	20030320	US20020164383	20020610
US6768890 BB	20040727	US20020164383	20020610

Priority:

KR20010057653 20010918

Probable Assignee: S PRINTING SOLUTION CO LTD

Assignee(s): (std): SAMSUNG ELECTRONICS CO LTD

Assignee(s): S PRINTING SOLUTION CO LTD ; SAMSUNG ELECTRONICS CO

Inventor(s): (std): CHA DEOK SUN ; CHA DOUK SOO ; CHA DOUK SOON ; CHO MUN SEON ; CHO MUN SON ; JANG GYEONG HWAN ; JANG KYUNG HWAN

24) Family number: 28433201 (US2003059233A)

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Title: Coupling apparatus, development cartridge and electrophotographic printer having the same

Abstract: A coupling apparatus, a development cartridge, and an electrophotographic printer having the coupling apparatus. The coupling apparatus transfers a rotation force in a connected state. The coupling apparatus has a first coupler having a cylindrical-type connection portion at an end and a spiral rib spirally protruded at an outer circumference of the connection portion; and a second coupler having a circular-type main hole depressed at an end corresponding to the connection portion, and a spiral groove formed at an inner circumference of the main hole corresponding to the spiral rib. The connection portion and the spiral rib are relatively connected with the main hole and the spiral groove by being pressed, and transmit a rotation force by being rotated together.

Classifications:

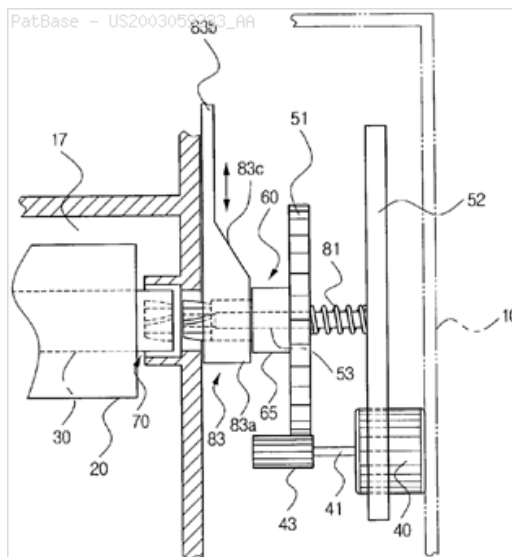
International (IPC 8-9): F16D1/02 F16D1/10 F16D1/108 F16H1/20 F16H55/17 G03G15/00 G03G21/00 (Advanced/Invention); G03G15/00 (Advanced/Non-invention); F16D1/00 F16D1/02 F16H1/02 F16H55/17 G03G15/00 G03G21/00 (Core/Invention)

International (IPC 1-7): F16D1/02 F16H1/20 F16H55/17 G03G15/00 G03G21/00

CPC: F16D1/101 F16D1/108 G03G15/757

European: F16D1/108 F16D1/10B G03G15/75F

US: 399/120 399/167 399/167P



Family:

Publication number	Publication date	Application number	Application date
JP2003148503 A2	20030521	JP20020277497	20020924
KR100381601 B1	20030426	KR20010059714	20010926
KR20030026641 A	20030403	KR20010059714	20010926
US2003059233 AA	20030327	US20020156797	20020530
US6892042 BB	20050510	US20020156797	20020530

Priority:

KR20010059714 20010926

Probable Assignee: S PRINTING SOLUTION CO LTD

Assignee(s): (std): SAMSUNG ELECTRONICS CO LTD

Assignee(s): S PRINTING SOLUTION CO LTD ; SAMSUNG ELECTRONICS CO

Inventor(s): (std): AHN BYEONG HWA ; CHA DEOK SUN ; CHA DOUK SOON ; JANG GYEONG HWAN ; JANG KYUNG HWAN

Agent(s): STAAS AND HALSEY LLP

25) Family number: 30219828 (US2004009011A)

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Title: DRIVE APPARATUS FOR A ROTARY MEMBER, AN IMAGE FORMING APPARATUS, AND A METHOD OF ASSEMBLY FOR A DRIVE APPARATUS

Abstract: A drive apparatus for a rotary member including a drive motor, and a drive shaft driven by the drive motor and having a first hole. The drive apparatus further includes a transmission member disposed around the drive shaft and configured to transmit the driving force to the rotary member by engaging with the rotary member. The transmission member includes a second hole extending in an axial direction of the drive shaft and being open toward a front side and closed toward a back side. A pin is inserted in the first and second holes. A spring presses the transmission member toward the rotary member.

Classifications:

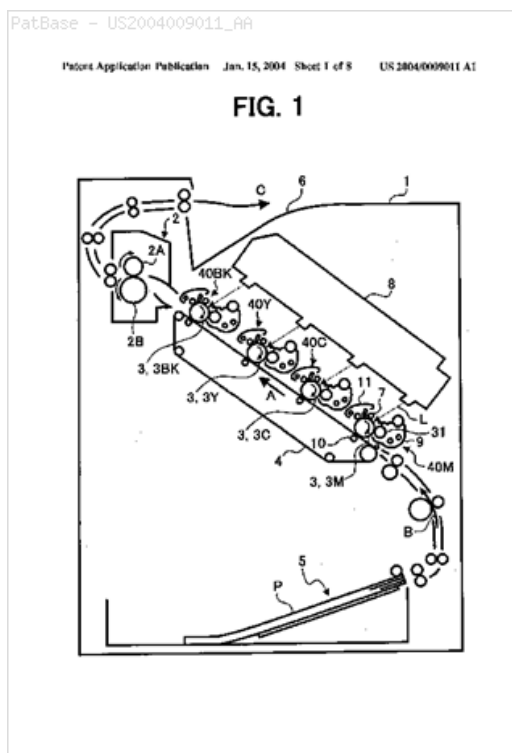
International (IPC 8-9): B41F13/00 B41F13/08 F16D11/04 G03G15/00 G03G21/00 (Advanced/Invention); B41F13/08 F16D11/00 G03G15/00 G03G21/00 (Core/Invention)

International (IPC 1-7): B41F13/00 B41F13/008 F16D11/04 G03G15/00 G03G21/00

CPC: B41F13/08 G03G15/757

European: B41F13/08 G03G15/75F

US: 399/167 399/167P



Family:

Publication number	Publication date	Application number	Application date
DE60333148 D1	20100812	DE20036033148	20030710
EP1385063 A2	20040128	EP20030015532	20030710
EP1385063 A3	20040324	EP20030015532	20030710
EP1385063 B1	20100630	EP20030015532	20030710
JP2004100942 A2	20040402	JP20030106441	20030410
US2004009011 AA	20040115	US20030431429	20030508
US6898400 BB	20050524	US20030431429	20030508

Priority:

JP20020205087 20020715 JP20030106441 20030410

Probable Assignee: RICOH CO LTD**Assignee(s):** (std): RICOH KK**Assignee(s):** RICOH COMPANY LTD ; EHARA YASUHISA ; RICOH CO LTD ; RICOH COMPANY LTD**Inventor(s):** (std): EBARA YASUHISA ; EHARA YASUHISA**Agent(s):** SCHWABE SANDMAIR MARX; OBLON SPIVAK MCCLELLAND MAIER AND NEUSTADT PC**Designated states:** AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT RO SE SI SK TR**26) Family number: 41960091 (US2004086300A)**

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Title: COUPLING PART, PHOTSENSITIVE DRUM, PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract: A process cartridge detachably mountable to a main assembly of an electrophotographic image forming apparatus, wherein the main assembly includes a motor, a main assembly side gear for receiving driving force from the motor, a hole defined by twisted surfaces, the hole being substantially coaxial with the gear, and a main assembly side grounding contact provided in the hole, the process cartridge includes an electrophotographic photosensitive drum; process mechanisms actable on the photosensitive drum; and a projection engageable with the twisted surfaces, the projection being provided at a longitudinal end of the photosensitive drum, wherein when the main assembly side gear rotates with the hole and projection engaged with each other, rotational driving force is transmitted from the gear to the photosensitive drum through engagement between the hole and the projection; and a cartridge side grounding contact electrically connected with the electrophotographic photosensitive drum for electrically grounding the electrophotographic photosensitive drum when the process cartridge is mounted to the main assembly of the apparatus, the cartridge side grounding contact being provided on the projection so as to be electrically connectable with the main assembly side grounding contact

Classifications:**International (IPC 8-9):** F16D1/10 G03G15/00 G03G21/00 G03G21/18 (Advanced/Invention)**International (IPC 1-7):** G03G15/00 G03G21/16**CPC:** G03G15/757 F16D1/101 G03G21/1633 G03G21/1647

G03G21/1853 G03G21/186 G03G21/1864 G03G21/1867

G03G21/1871 G03G2221/1654 G03G2221/1657 G03G2221/166

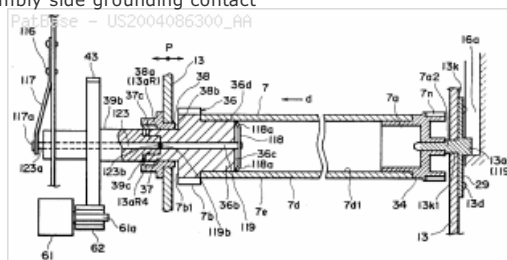
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European: F16D1/10B G03G15/75F G03G21/18H1V G03G21/18H2C

G03G21/18H2P G03G21/18H3 G03G21/18H3P S03G221/16K1

S03G221/16K2 S03G221/16K3 S03G221/18P S03G221/18P3A

S03G221/18P4

US: 399/111 399/167 399/167P

JP3997222 B2	20071024	JP20040253011	20040831
JP4314150 B2	20090812	JP20040144839	20040514
JP4630615 B2	20110209	JP20040273534	20040921
KR100723557 B1	20070531	KR20040092284	20041112
KR20050096821 A	20051006	KR20040092284	20041112
US2005220476 AA	20051006	US20040957616	20041005
US2005220480 AA	20051006	US20040951604	20040929
US2005220490 AA	20051006	US20040960117	20041008
US2005254862 AA	20051117	US20040957610	20041005
US2006051133 AA	20060309	US20050233067	20050923
US7003247 BB	20060221	US20040960117	20041008
US7072601 BB	20060704	US20040957616	20041005
US7164875 BB	20070116	US20040951604	20040929
US7218882 BB	20070515	US20040957610	20041005
US7457566 BB	20081125	US20050233067	20050923

Priority:

JP20040099503	20040330	JP20040099504	20040330	JP20040144839	20040514
JP20040253011	20040831	JP20040273534	20040921	US20040960117	20041008
US20050233067	20050923				

Probable Assignee: CANON INC

Assignee(s): (std): CANON KK

Assignee(s): CANON CO ; CANON CO LTD ; CANON INC ; CANON K K ; CANON KABUSHIKI KAISHA

Inventor(s): (std): KAKITANI MASAKI ; KAKIYA MASAKI ; KOISHI ISAO ; MIYABE SHIGEO ; NUMAGAMI ATSUSHI ; SATO MASAOKI ; TOBA SHINJIRO ; UENO TAKAHITO ; YOU KONISHI ; TAKAHITO UENO ; ATSU NUUE

Inventor(s): NUUE ATSU ; KONISHI YOU

Agent(s): TBK-PATENT; FITZPATRICK CELLA HARPER AND SCINTO

Designated states: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PL PT RO SE SI SK TR

29) Family number: 41960089 (US2006008287A)

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Title: COUPLING PART, PHOTSENSITIVE DRUM, PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract: A process cartridge detachably mountable to a main assembly of an electrophotographic image forming apparatus, wherein the main assembly includes a motor, a main assembly side gear for receiving driving force from the motor, a hole defined by twisted surfaces, the hole being substantially coaxial with the gear, and a main assembly side grounding contact provided in the hole, the process cartridge includes an electrophotographic photosensitive drum; process mechanisms actable on the photosensitive drum; and a projection engageable with the twisted surfaces, the projection being provided at a longitudinal end of the photosensitive drum, wherein when the main assembly side gear rotates with the hole and projection engaged with each other, rotational driving force is transmitted from the gear to the photosensitive drum through engagement between the hole and the projection; and a cartridge side grounding contact electrically connected with the electrophotographic photosensitive drum for electrically grounding the electrophotographic photosensitive drum when the process cartridge is mounted to the main assembly of the apparatus, the cartridge side grounding contact being provided on the projection so as to be electrically connectable with the main assembly side grounding contact

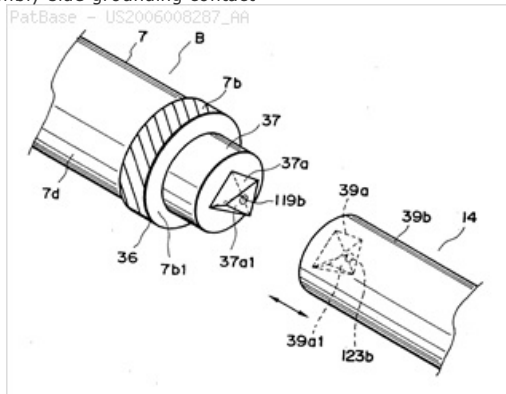
Classifications:

International (IPC 8-9): F16D1/10 G03G15/00 G03G21/00 G03G21/16 G03G21/18 (Advanced/Invention)

CPC: G03G15/757 F16D1/101 G03G21/1633 G03G21/1647 G03G21/1853 G03G21/186 G03G21/1864 G03G21/1867 G03G21/1871 G03G2221/1654 G03G2221/1657 G03G2221/166 G03G2221/183 G03G2221/1861 G03G2221/1884

European: F16D1/10B G03G15/75F G03G21/18H1V G03G21/18H2C G03G21/18H2P G03G21/18H3 G03G21/18H3P S03G221/16K1 S03G221/16K2 S03G221/16K3 S03G221/18P S03G221/18P3A S03G221/18P4

US: 399/111 399/167 399/90 399/90P



Family:

Publication number	Publication date	Application number	Application date
US2006008287 AA	20060112	US20050221766	20050909
US7092655 BB	20060815	US20050221766	20050909

Priority:

JP19950067796	19950327	JP19960064105	19960321	US19960621941	19960326
JP19960277530	19960926	JP19960356297	19961224	JP19970269320	19970916
US19970938893	19970926	US19990258314	19990226	US20000522293	20000309
US20010968657	20011002	US20030642165	20030818	US20050084623	20050321
US20050221766	20050909				

Probable Assignee: CANON INC

Assignee(s): (std): CANON INC ; CANON KK

Assignee(s): CANON KABUSHIKI KAISHA

Inventor(s): (std): HIGETA AKIRA ; IKEMOTO ISAO ; NODA SHINYA ; SASAKI SHINICHI ; TOMA AKIHIRO ; WATANABE KAZUSHI

Agent(s): FITZPATRICK CELLA HARPER AND SCINTO

Title: COUPLING PART, PHOTSENSITIVE DRUM, PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract: A process cartridge detachably mountable to a main assembly of an electrophotographic image forming apparatus, wherein the main assembly includes a motor, a main assembly side gear for receiving driving force from the motor, a hole defined by twisted surfaces, the hole being substantially coaxial with the gear, and a main assembly side grounding contact provided in the hole, the process cartridge including an electrophotographic photosensitive drum; process mechanisms actable on the photosensitive drum; and a projection engageable with the twisted surfaces, the projection being provided at a longitudinal end of the photosensitive drum, wherein when the main assembly side gear rotates with the hole and projection engaged with each other, rotational driving force is transmitted from the gear to the photosensitive drum through engagement between the hole and the projection; and a cartridge side grounding contact electrically connected with the electrophotographic photosensitive drum for electrically grounding the electrophotographic photosensitive drum when the process cartridge is mounted to the main assembly of the apparatus, the cartridge side grounding contact being provided on the projection so as to be electrically connectable with the main assembly side grounding contact.

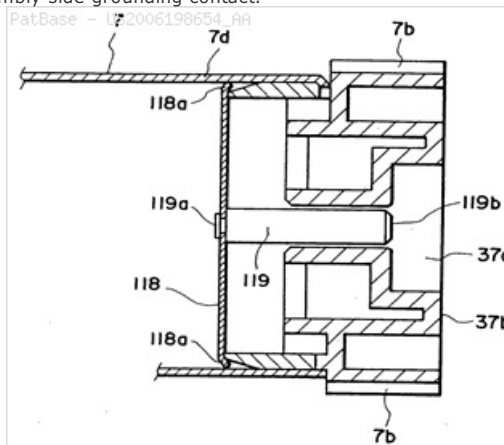
Classifications:

International (IPC 8-9): F16D1/10 G03G15/00 G03G21/00 G03G21/18 (Advanced/Invention)

CPC: G03G15/757 F16D1/101 G03G21/1633 G03G21/1647 G03G21/1853 G03G21/186 G03G21/1864 G03G21/1867 G03G21/1871 G03G2221/1654 G03G2221/1657 G03G2221/166 G03G2221/183 G03G2221/1861 G03G2221/1884

European: F16D1/10B G03G15/75F G03G21/18H1V G03G21/18H2C G03G21/18H2P G03G21/18H3 G03G21/18H3P S03G221/16K1 S03G221/16K2 S03G221/16K3 S03G221/18P S03G221/18P3A S03G221/18P4

US: 399/111 399/111S 399/167 399/167S 399/90 399/90P



Family:

Publication number	Publication date	Application number	Application date
US2006198654 AA	20060907	US20060417142	20060504
US7231161 BB	20070612	US20060417142	20060504

Priority:

JP19950067796 19950327	JP19960064105 19960321	US19960621941 19960326
JP19960277530 19960926	JP19960356297 19961224	JP19970269320 19970916
US19970938893 19970926	US19990258314 19990226	US20000522293 20000309
US20010968657 20011002	US20030642165 20030818	US20050084623 20050321
US20050221766 20050909	US20060417142 20060504	

Probable Assignee: CANON INC

Assignee(s): (std): CANON INC ; CANON KK

Assignee(s): CANON KABUSHIKI KAISHA

Inventor(s): (std): HIGETA AKIRA ; IKEMOTO ISAO ; NODA SHINYA ; SASAKI SHINICHI ; TOMA AKIHIRO ; WATANABE KAZUSHI

Agent(s): FITZPATRICK CELLA HARPER AND SCINTO

Title: APPARATUS FOR ACTUATING A BICYCLE HUB BRAKE

Abstract: An apparatus is provided for actuating a bicycle hub brake of the type having a fastening bracket adapted to be nonrotatably mounted relative to a bicycle frame, a brake drum, and a brake mechanism adapted to apply a braking force to the brake drum, wherein the brake drum rotates integrally with a bicycle hub around a hub axle. The apparatus comprises an actuating member and a rotating member. The actuating member is structured to be movably mounted relative to the fastening bracket for actuating the brake mechanism, and the rotating member is structured to be rotatably mounted relative to the fastening bracket independently of the actuating member. The rotating member includes an actuating member moving unit for moving the actuating member. The rotating member also includes a cable winding surface to wind a brake actuating cable thereon.

Classifications:

International (IPC 8-9): B60B27/02 B62L1/00 B62L1/02 B62L3/00 B62L3/02 B62L5/00 F16D49/18 F16D51/12 F16D65/22 (Advanced/Invention);

B62L1/00 B62L3/00 F16D51/00 F16D65/16 (Core/Invention)

CPC: F16D51/10 F16D2121/14 F16D2125/30 F16D2125/62 B62L1/005

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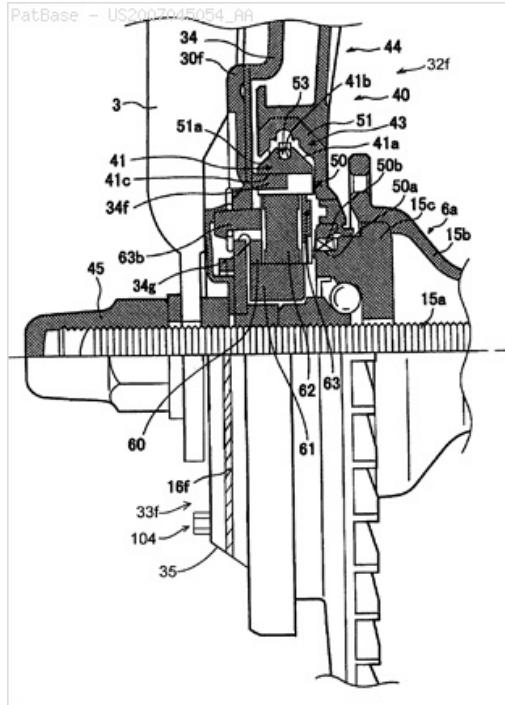
US: 188/17 188/2.00D 188/24.22 188/24.220P 188/26 188/2D

Publication number	Publication date	Application number	Application date
CN1923604 A	20070307	CN200610126637	20060831
CN1923604 B	20121114	CN200610126637	20060831
DE602006030074 D1	20120809	DE200660030074T	20060811
EP1759978 A2	20070307	EP20060118773	20060811
EP1759978 A3	20090128	EP20060118773	20060811
EP1759978 B1	20120613	EP20060118773	20060811
JP2007062717 A2	20070315	JP20060215703	20060808
JP4455553 B2	20100421	JP20060215703	20060808
TW200708439 A	20070301	TW20060116417	20060509
US2007051567 AA	20070308	US20050162206	20050831
US7267205 BB	20070911	US20050162206	20050831

US20050162206 20050831 EP20060118773 20060811

Designated states: AL AT BA BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK NL PL PT RO
RS SE SI SK TR YU

European: B60T11/04D B62L1/00B R16D121/14
US: 188/2.00D 188/2.00DP 188/24.14 188/24.15 188/2D 188/77.00R
 188/77R

**Family:**

Publication number	Publication date	Application number	Application date
CN100579857 C	20100113	CN200610126644	20060831
CN1923606 A	20070307	CN200610126644	20060831
DE602006027279 D1	20120322	DE200660027279T	20060711
EP1759977 A2	20070307	EP20060116934	20060711
EP1759977 A3	20090128	EP20060116934	20060711
EP1759977 B1	20120125	EP20060116934	20060711
TW200708440 A	20070301	TW20060117323	20060516
US2007045054 AA	20070301	US20050162207	20050831
US7314121 BB	20080101	US20050162207	20050831

Priority:

US20050162207 20050831 EP20060116934 20060711

Probable Assignee: SHIMANO INC

Assignee(s): (std): SHIMANO KK

Assignee(s): SHIMANO INC ; SHIMANO INC SAKAI

Inventor(s): (std): KEIJI MATSUEDA ; KEITA MATSUEDA KEIJI TANAKA ; KEITA TANAKA ; MATSUEDA KEIJI ; TANAKA KEITA

Inventor(s): MATSUEDA KEIJI TANAKA KEITA

Agent(s): CBDL PATENTANWALTE; INTES DIDIER GERARD ANDRE ET AL; INTES DIDIER GERARD ANDRE; DELAND LAW OFFICE; DELAND JAMES A; JAMES A

Designated states: AL AT BA BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK NL PL PT RO RS SE SI SK TR YU

33) Family number: 55962476 (US2007104510A)

© PatBase

Title: COUPLING PART, PHOTSENSITIVE DRUM, PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract: A process cartridge detachably mountable to a main assembly of an electrophotographic image forming apparatus, wherein the main assembly includes a motor, a main assembly side gear for receiving driving force from the motor, a hole defined by twisted surfaces, the hole being substantially coaxial with the gear, and a main assembly side grounding contact provided in the hole, the process cartridge includes an electrophotographic photosensitive drum; process mechanisms actable on the photosensitive drum; a projection engageable with the twisted surfaces, the projection being provided at a longitudinal end of the photosensitive drum, wherein when the main assembly side gear rotates with the hole and projection engaged with each other, rotational driving force is transmitted from the gear to the photosensitive drum through engagement between the hole and the projection; and a cartridge side grounding contact electrically connected with the electrophotographic photosensitive drum for electrically grounding the electrophotographic photosensitive drum when the process cartridge is mounted to the main assembly of the apparatus, the cartridge side grounding contact being provided on the projection so as to be electrically connectable with the main assembly side grounding contact

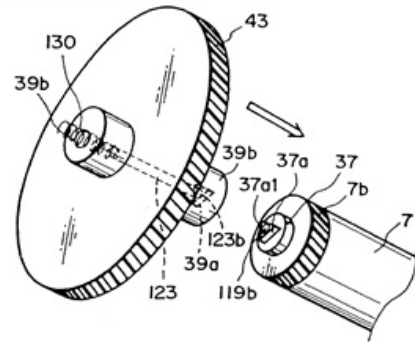
Classifications:

International (IPC 8-9): F16D1/10 G03G15/00 G03G21/00 G03G21/18 (Advanced/Invention)

CPC: G03G15/757 F16D1/101 G03G21/1633 G03G21/1647 G03G21/1853 G03G21/186 G03G21/1864 G03G21/1867 G03G21/1871 G03G2221/1654 G03G2221/1657 G03G2221/166 G03G2221/183 G03G2221/1861 G03G2221/1884

European: F16D1/10B G03G15/75F G03G21/18H1V G03G21/18H2C G03G21/18H2P G03G21/18H3 G03G21/18H3P S03G221/16K1 S03G221/16K2 S03G221/16K3 S03G221/18P S03G221/18P3A S03G221/18P4

US: 399/111 399/167

**Family:**

Publication number	Publication date	Application number	Application date
US2007104510 AA	20070510	US20060617357	20061228
US7248814 BB	20070724	US20060617357	20061228

Priority:

JP19950067796 19950327	JP19960064105 19960321	US19960621941 19960326
JP19960277530 19960926	JP19960277350 19960926	JP19960356297 19961224
JP19970269320 19970916	US19970938893 19970926	US19990258314 19990226
US20000522293 20000309	US20010968657 20011002	US20030642165 20030818
US20050084623 20050321	US20050221766 20050909	US20060417142 20060504
US20060617357 20061228		

Probable Assignee: CANON INC**Assignee(s):** (std): CANON INC ; CANON KK**Inventor(s):** (std): ITO YOSHIHIRO ; KAWAI TOSHIHARU ; WATANABE KAZUSHI**Agent(s):** FITZPATRICK CELLA HARPER AND SCINTO**34) Family number: 41960087 (US2007104511A)**

© PatBase

Title: COUPLING PART, PHOTSENSITIVE DRUM, PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract: A process cartridge detachably mountable to a main assembly of an electrophotographic image forming apparatus, wherein the main assembly includes a motor, a main assembly side gear for receiving driving force from the motor, a hole defined by twisted surfaces, the hole being substantially coaxial with the gear, and a main assembly side grounding contact provided in the hole, the process cartridge includes an electrophotographic photosensitive drum; process mechanisms actable on the photosensitive drum; and a projection engageable with the twisted surfaces, the projection being provided at a longitudinal end of the photosensitive drum, wherein when the main assembly side gear rotates with the hole and projection engaged with each other, rotational driving force is transmitted from the gear to the photosensitive drum through engagement between the hole and the projection; and a cartridge side grounding contact electrically connected with the electrophotographic photosensitive drum for electrically grounding the electrophotographic photosensitive drum when the process cartridge is mounted to the main assembly of the apparatus, the cartridge side grounding contact being provided on the projection so as to be electrically connectable with the main assembly side grounding contact

Classifications:**International (IPC 8-9):** F16D1/10 G03G15/00 G03G21/00

G03G21/16 G03G21/18 (Advanced/Invention)

CPC: G03G15/757 F16D1/101 G03G21/1633 G03G21/1647

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G03G21/1871 G03G2221/1654 G03G2221/1657 G03G2221/166

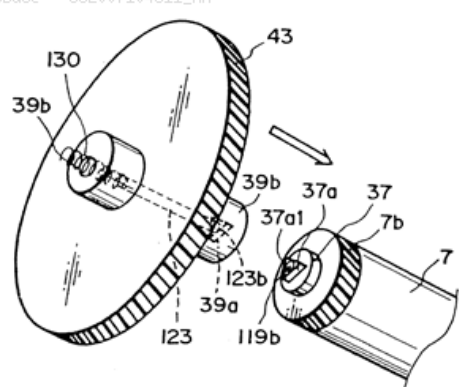
G03G2221/183 G03G2221/1861 G03G2221/1884

European: F16D1/10B G03G15/75F G03G21/18H1V G03G21/18H2C

G03G21/18H2P G03G21/18H3 G03G21/18H3P S03G221/16K1

S03G221/16K2 S03G221/16K3 S03G221/18P S03G221/18P3A

S03G221/18P4

US: 399/111 399/111P 399/167 399/167P**Family:**

Publication number	Publication date	Application number	Application date
US2007104511 AA	20070510	US20060617380	20061228
US7274896 BB	20070925	US20060617380	20061228

Priority:

JP19950067796 19950327	JP19960064105 19960321	US19960621941 19960326
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US19970938893 19970926	US19990258314 19990226	US20000522293 20000309
US20010968657 20011002	US20030642165 20030818	US20050084623 20050321
US20050221766 20050909	US20060417142 20060504	US20060617380 20061228

Probable Assignee: CANON INC**Assignee(s):** (std): CANON INC ; CANON KK**Assignee(s):** CANON KABUSHIKI KAISHA**Inventor(s):** (std): ITO YOSHIHIRO ; KAWAI TOSHIHARU ; WATANABE KAZUSHI

35) Family number: 41960094 (US2008056754A)

© PatBase

Title: COUPLING PART, PHOTSENSITIVE DRUM, PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract: A process cartridge detachably mountable to a main assembly of an electrophotographic image forming apparatus, wherein the main assembly includes a motor, a main assembly side gear for receiving driving force from the motor, a hole defined by twisted surfaces, the hole being substantially coaxial with the gear, and a main assembly side grounding contact provided in the hole, the process cartridge includes an electrophotographic photosensitive drum; process mechanisms actable on the photosensitive drum; and a projection engageable with the twisted surfaces, the projection being provided at a longitudinal end of the photosensitive drum, wherein when the main assembly side gear rotates with the hole and projection engaged with each other, rotational driving force is transmitted from the gear to the photosensitive drum through engagement between the hole and the projection; and a cartridge side grounding contact electrically connected with the electrophotographic photosensitive drum for electrically grounding the electrophotographic photosensitive drum when the process cartridge is mounted to the main assembly of the apparatus, the cartridge side grounding contact being provided on the projection so as to be electrically connectable with the main assembly side grounding contact

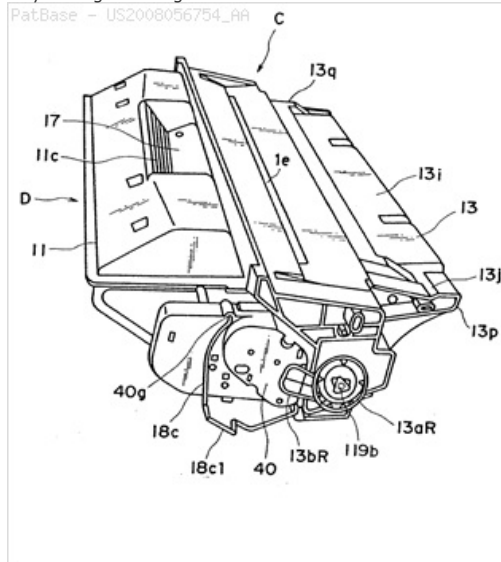
Classifications:

International (IPC 8-9): F16D1/10 G03G15/00 G03G21/00 G03G21/18 (Advanced/Invention)

CPC: G03G15/757 F16D1/101 G03G21/1633 G03G21/1647 G03G21/1853 G03G21/186 G03G21/1864 G03G21/1867 G03G21/1871 G03G2221/1654 G03G2221/1657 G03G2221/166 G03G2221/183 G03G2221/1861 G03G2221/1884

European: F16D1/10B G03G15/75F G03G21/18H1V G03G21/18H2C G03G21/18H2P G03G21/18H3 G03G21/18H3P S03G221/16K1 S03G221/16K2 S03G221/16K3 S03G221/18P S03G221/18P3A S03G221/18P4

US: 399/111 399/111P 399/159 399/167 399/90 399/90P

**Family:**

Publication number	Publication date	Application number	Application date
US2008056754 AA	20080306	US20070839893	20070816
US7489885 BB	20090210	US20070839893	20070816

Priority:

JP19950067796 19950327	JP19960064105 19960321	US19960621941 19960326
JP19960277530 19960926	JP19960356297 19961224	JP19970269320 19970916
US19970938893 19970926	US19990258314 19990226	US20000522293 20000309
US20010968657 20011002	US20030642165 20030818	US20050084623 20050321
US20050221766 20050909	US20060417142 20060504	US20060617380 20061228
US20070839893 20070816		

Probable Assignee: CANON INC

Assignee(s): (std): CANON INC ; CANON KK

Assignee(s): CANON KABUSHIKI KAISHA

Inventor(s): (std): WATANABE KAZUSHI ; TOMA AKIHIRO ; SASAKI SHINICHI ; NODA SHINYA ; IKEMOTO ISAO ; HIGETA AKIRA

Agent(s): FITZPATRICK CELLA HARPER AND SCINTO

36) Family number: 55962733 (US2008063429A)

© PatBase

Title: COUPLING PART, PHOTSENSITIVE DRUM, PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

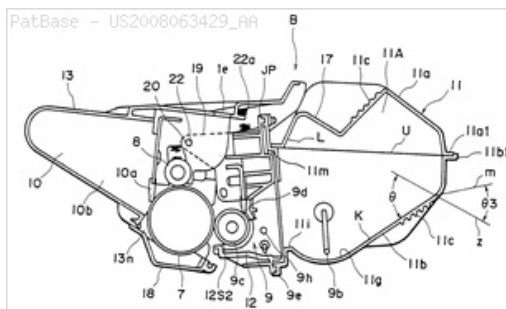
Abstract: A process cartridge detachably mountable to a main assembly of an electrophotographic image forming apparatus, wherein the main assembly includes a motor, a main assembly side gear for receiving driving force from the motor, a hole defined by twisted surfaces, the hole being substantially coaxial with the gear, and a main assembly side grounding contact provided in the hole, the process cartridge includes an electrophotographic photosensitive drum; process mechanisms actable on the photosensitive drum; and a projection engageable with the twisted surfaces, the projection being provided at a longitudinal end of the photosensitive drum, wherein when the main assembly side gear rotates with the hole and projection engaged with each other, rotational driving force is transmitted from the gear to the photosensitive drum through engagement between the hole and the projection; and a cartridge side grounding contact electrically connected with the electrophotographic photosensitive drum for electrically grounding the electrophotographic photosensitive drum when the process cartridge is mounted to the main assembly of the apparatus, the cartridge side grounding contact being provided on the projection so as to be electrically connectable with the main assembly side grounding contact

Classifications:

International (IPC 8-9): F16D1/10 G03G15/00 G03G21/00 G03G21/16 G03G21/18 G03G21/20 (Advanced/Invention)

CPC: G03G15/757 F16D1/101 G03G21/1633 G03G21/1647 G03G21/1853 G03G21/186 G03G21/1864 G03G21/1867 G03G21/1871 G03G2221/1654 G03G2221/1657 G03G2221/166 G03G2221/183 G03G2221/1861 G03G2221/1884

European: F16D1/10B G03G15/75F G03G21/18H1V G03G21/18H2C
G03G21/18H2P G03G21/18H3 G03G21/18H3P S03G221/16K1
S03G221/16K2 S03G221/16K3 S03G221/18P S03G221/18P3A
S03G221/18P4
US: 399/111 399/167 399/67 399/90



Family:

Publication number	Publication date	Application number	Application date
US2008063429 AA	20080313	US20070860777	20070925
US2009074452 AA	20090319	US20080271415	20081114
US2009074453 AA	20090319	US20080271429	20081114
US7403733 BB	20080722	US20070860777	20070925
US7630661 BB	20091208	US20080271429	20081114
US7660545 BB	20100209	US20080271415	20081114

Priority:

JP19950067796	19950327	JP19960064105	19960321	US19960621941	19960326
JP19960277530	19960926	JP19960356297	19961224	JP19970269320	19970916
US19970938893	19970926	US19990258314	19990226	US20000522293	20000309
US20010968657	20011002	US20030642165	20030818	US20050084623	20050321
US20050221766	20050909	US20060417142	20060504	US20060617380	20061228
US20070839893	20070816	US20070860777	20070925	US20080271415	20081114
US20080271429	20081114				

Probable Assignee: CANON INC

Assignee(s): (std): CANON INC ; CANON KK

Inventor(s): (std): HIGETA AKIRA ; IKEMOTO ISAO ; NODA SHINYA ; SASAKI SHINICHI ; TOMA AKIHIRO ; WATANABE KAZUSHI

Agent(s): FITZPATRICK CELLA HARPER AND SCINTO

37) Family number: 41658101 (US2008087119A)

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Title: TWIN CLUTCH TYPE TRANSMISSION

Abstract: A twin clutch type transmission connected to an engine of a vehicle and the like in which an end portion of the main shaft is held in the secure and compact manner to contribute to efficient operation of the transmission. In the twin clutch type transmission, the first and second hydraulic disk clutches are coaxially provided to be adjacent with each other, and the inner and outer shafts of the main shaft as a coaxial dual structure are connected to the respective disk clutches coaxially. The ball bearing fixed to the transmission case with the holder plate pierces the left end portion of the inner shaft so as to be supported, and further to be tightened and fixed to the ball bearing with the locknut screwed with the leading end of the left end portion.

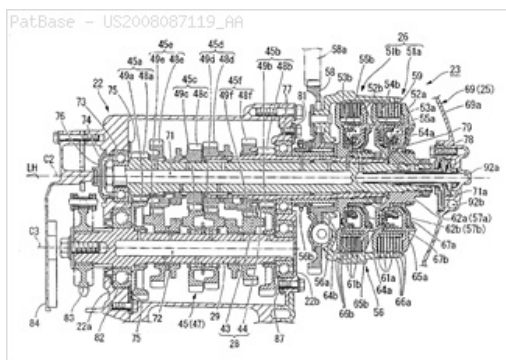
Classifications:

International (IPC 8-9): B60K17/02 F16D13/22 F16D25/02
F16D25/10 F16D25/12 F16D48/02 F16H3/00 F16H3/08 F16H3/091
F16H57/02 F16H57/021 F16H57/04 (Advanced/Invention);
F16H57/02 F16H61/00 (Advanced/Non-invention)

CPC: F16H3/006 F16D25/10 F16D25/12 F16H57/021 F16H2057/0203
F16H2061/0046 Y10T74/19228 F16D21/06

European: F16D25/10 F16D25/12 F16H3/00F F16H57/021
R16H57/02S

US: 1/1 74/330 74/330P



Family:

Publication number	Publication date	Application number	Application date
CN100587295 C	20100203	CN200710161965	20070927
CN101153635 A	20080402	CN200710161965	20070927
DE602007019029 D1	20120209	DE200760019029T	20070731
EP1906056 A1	20080402	EP20070113518	20070731
EP1906056 B1	20111130	EP20070113518	20070731
JP2008089067 A2	20080417	JP20060270102	20060929
JP4704308 B2	20110615	JP20060270102	20060929
US2008087119 AA	20080417	US20070905177	20070927
US9303730 BB	20160405	US20070905177	20070927

Priority:

JP20060270102	20060929	EP20070113518	20070731
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Probable Assignee: HONDA MOTOR CO LTD

Assignee(s): (std): HONDA MOTOR CO LTD ; SHIOZAKI TOMOO

Assignee(s): HONDA MOTOR CO LTD MINATO KU ; HONDA GIKEN KOGYO K K ; HONDA MOTOR CO

Inventor(s): (std): SHIOZAKI TOMOO ; TOMOO SHIOZAKI

Designated states: AL BA DE FR GB HR IT MK YU

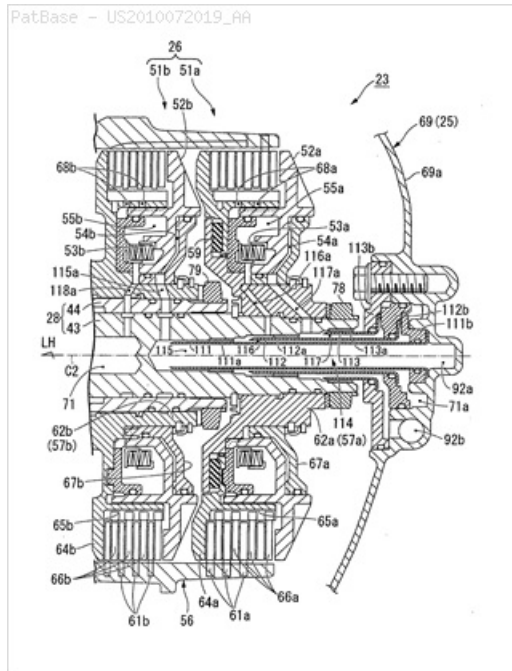
Abstract: In a twin clutch device used in an engine transmission, there are coaxially and adjacently arranged a first disk clutch and a second disk clutch of a hydraulic pressure type that displace a pressing member in an axial direction with externally supplied hydraulic pressure to exert a predetermined engagement force; and the first disk clutch and the second disk clutch respectively have: an engagement side hydraulic chamber that gives the pressing member a pressing force towards a clutch engagement side; and a pressure compensation hydraulic chamber that gives the pressing member a pressing force towards a clutch disengagement side to compensate a pressure of a returning action thereof. Furthermore in this twin clutch device, a plurality of pipes are internally and externally superposed and inserted into a main shaft connected to the first disk clutch and the second disk clutch, and each of a plurality of spaces within the main shaft divided by these pipes serves as an in-shaft oil passage that communicates with any one of the engagement side hydraulic chamber or the pressure compensation hydraulic chamber.

International (IPC 8-9): B60K17/02 F16D25/10

F16D25/00 (Core/Invention)

European: F16D21/06 F16D25/10 F16D25/12 F16D48/02B
F16H61/688 R16D21/06F

US: 192/106F 192/48.611 192/48.611P 192/85.25



Publication number	Publication date	Application number	Application date
CN101501358 A	20090805	CN200780029238	20070927
CN101501358 B	20120229	CN200780029238	20070927
DE602007016632 D1	20111013	DE200760016632T	20070927
EP2068030 A1	20090610	EP20070828624	20070927
EP2068030 A4	20091223	EP20070828624	20070927
EP2068030 B1	20110817	EP20070828624	20070927
JP2008089064 A2	20080417	JP20060270099	20060929
JP4699326 B2	20110608	JP20060270099	20060929
US2010072019 AA	20100325	US20070443130	20070927
US8327988 BB	20121211	US20070443130	20070927
WO08038737 A1	20080403	WO2007JP68878	20070927

JP20060270099 20060929 EP20070828624 20070927 WO2007JP68878 20070927

Assignee(s): (std): HONDA MOTOR CO LTD ; OGASAWARA ATSUSHI

Inventor(s): (std): OGASAWARA ATSUSHI ; ATSUSHI OGASAWARA

Agent(s): MITSCHERLICH PATENT U RECHTSANWAELTE PARTMBB; HERZOG MARKUS; RUPP CHRISTIAN; ARENT
FOX LLP; SHIGA MASATAKE ET AL

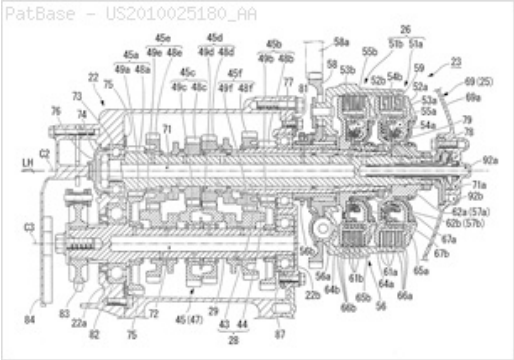
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PatBase PDF Export - Page: 31 25/07/2018

Abstract: In twin clutch device used in an engine transmission, there are coaxially and adjacently arranged a first disk clutch and a second disk clutch of a hydraulic pressure type that displace a pressing member in an axial direction with externally supplied hydraulic pressure to exert a predetermined engagement force, and the first disk clutch and the second disk clutch respectively have: an engagement side hydraulic chamber that gives the pressing member a pressing force towards a clutch engagement side; and a pressure compensation hydraulic chamber that gives the pressing member a pressing force toward a clutch disengagement side to compensate a pressure of a returning action thereof. Furthermore in this twin clutch device there are provided: a first actuator that controls hydraulic pressure supply to the engagement side hydraulic pressure chamber of the first disk clutch, and a second actuator that controls hydraulic pressure supply to the engagement side hydraulic chamber of the second disk clutch; and a hydraulic pressure cut-off device that brings the first disk clutch and the second disk clutch into a disengagement state.

Classifications:

International (IPC 8-9): F16D25/10 F16D48/02
F16H3/08 (Advanced/Invention);
F16D25/00 F16D48/00 (Core/Invention)
CPC: Y10T74/19228 Y10T74/19233 Y10T74/19288 F16D25/12
F16D2021/0661 F16D2048/0212 F16D2300/26 F16H61/688
F16D21/06
European: F16D21/06 F16D25/10 F16D25/12 R16D21/06F
R16D300/26 R16D48/02D R16H61/688
US: 192/48.609 192/48.609P 192/48.611 192/85.01 192/85.010S
192/87.11 74/330 74/331 74/340



Family:

Publication number	Publication date	Application number	Application date
DE112007002228 B4	20131017	DE200711002228T	20070927
DE112007002228 T5	20090910	DE200711002228T	20070927
JP2008089065 A2	20080417	JP20060270100	20060929
JP4754453 B2	20110824	JP20060270100	20060929
US2010025180 AA	20100204	US20070442652	20070927
US8196485 BB	20120612	US20070442652	20070927
WO08038738 A1	20080403	WO2007JP68879	20070927

Priority:

JP20060270100 20060929 WO2007JP68879 20070927

Probable Assignee: HONDA MOTOR CO LTD

Assignee(s): (std): HONDA MOTOR CO LTD ; KANNO YOSHIHISA ; OZEKI TAKASHI ; TOMODA AKIHIKO

Assignee(s): HONDA MOTOR CO

Inventor(s): (std): KANNO YOSHIHISA ; OZEKI TAKASHI ; SUGANO YOSHIHISA ; TOMODA AKIHIKO ; TOMOTA AKIHIKO

Agent(s): ARENT FOX LLP; SHIGA MASATAKE ET AL

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

40) Family number: 41695878 (US2010072018A)

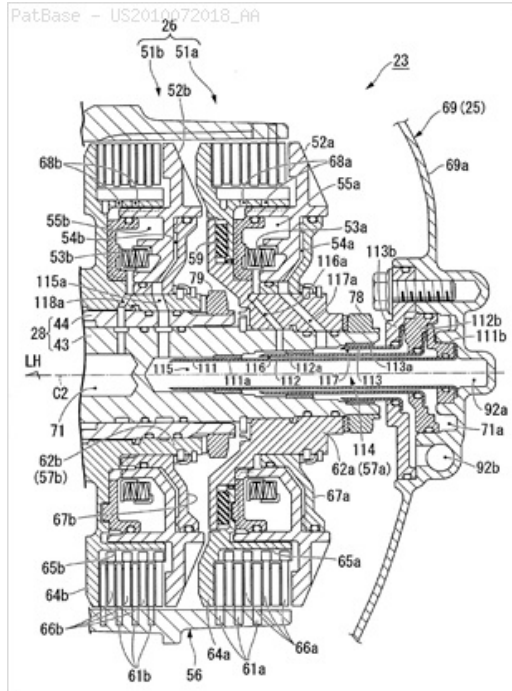
© PatBase

Title: TWIN CLUTCH APPARATUS

Abstract: This twin-clutch apparatus for use in a transmission of an engine, including: a hydraulic first disk clutch and second disk clutch that exert a predetermined engagement force by pressure members displaced in an axial direction by the pressure of a supply oil from outside, the first disk clutch and the second disk clutch being coaxially arranged adjacent to each other, in which: clutch plates of the first disk clutch and clutch plates of the second disk clutch are different in thickness from each other.

Classifications:

International (IPC 8-9): F16D13/52
F16D25/0638 (Advanced/Invention);
F16D25/06 (Core/Invention)
CPC: F16D2021/0692 F16D2021/0661 F16D25/0638 F16D21/06
European: F16D21/06 F16D25/0638 F16D25/10 R16D21/06F
US: 192/209 192/48.611 192/48.611P 192/55.3

**Family:**

Publication number	Publication date	Application number	Application date
DE602007027827 D1	20130228	DE200760027827T	20070927
EP2068029 A1	20090610	EP20070828580	20070927
EP2068029 A4	20090909	EP20070828580	20070927
EP2068029 B1	20130102	EP20070828580	20070927
JP2008089066 A2	20080417	JP20060270101	20060929
JP5165223 B2	20130321	JP20060270101	20060929
US2010072018 AA	20100325	US20070442920	20070927
US8297423 BB	20121030	US20070442920	20070927
WO08041606 A1	20080410	WO2007JP68834	20070927

Priority:

JP20060270101 20060929 EP20070828580 20070927 WO2007JP68834 20070927

Probable Assignee: HONDA MOTOR CO LTD

Assignee(s): (std): HONDA MOTOR CO LTD ; OGASAWARA ATSUSHI ; SHIOZAKI TOMOO ; TSUKADA YOSHIKI

Assignee(s): HONDA MOTOR CO

Inventor(s): (std): OGASAWARA ATSUSHI ; SHIOZAKI TOMOO ; TSUKADA YOSHIKI

Inventor(s): TSUKADA YOSHIKI WAKO SHI ; SHIOZAKI TOMOO WAKO SHI ; OGASAWARA ATSUSHI WAKO SHI

Agent(s): MITSCHERLICH PATENT U RECHTSANWALTE PARTMBB; RUPP CHRISTIAN; BIRCH STEWART KOLASCH AND BIRCH; BIRCH STEWART KOLASCH AND BIRCH LLP; SHIGA MASATAKE ET AL

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

41) Family number: 41952324 (US2008152388A)

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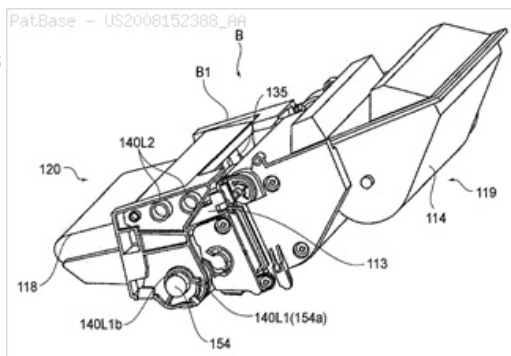
Title: PROCESS CARTRIDGE, ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS, AND ELECTROPHOTOGRAPHIC PHOTORESENSITIVE DRUM UNIT

Abstract: A process cartridge for use with a main assembly of an electrophotographic image forming apparatus, the main assembly including a driving shaft, to be driven by a motor, having a rotational force applying portion, wherein the process cartridge is dismountable from the main assembly in a direction substantially perpendicular to an axial direction of the driving shaft, the process cartridge includes i) an electrophotographic photosensitive drum having a photosensitive layer at a peripheral surface thereof, the electrophotographic photosensitive drum being rotatable about an axis thereof; ii) process means actable on the electrophotographic photosensitive drum; iii) a coupling member engageable with the rotational force applying portion to receive a rotational force for rotating the electrophotographic photosensitive drum, the coupling member being capable of taking a rotational force transmitting angular position for transmitting the rotational force for rotating the electrophotographic photosensitive drum to the electrophotographic photosensitive drum and a disengaging angular position in which the coupling member is inclined away from the axis of the electrophotographic photosensitive drum from the rotational force transmitting angular position, wherein when the process cartridge is dismounted from the main assembly of the electrophotographic image forming apparatus in a direction substantially perpendicular to the axis of the electrophotographic photosensitive drum, the coupling member moves from the rotational force transmitting angular position to the disengaging angular position.

Classifications:

International (IPC 8-9): F16D1/02 F16D1/10 F16D11/04 F16D3/16 F16D3/72 G03G15/00 G03G15/06 G03G15/08 G03G15/16 G03G15/22 G03G21/00 G03G21/16 G03G21/18 (Advanced/Invention); G03G15/00 G03G15/06 G03G21/18 (Advanced/Non-invention); F16D1/02 G03G15/00 G03G15/06 G03G15/08 G03G21/00 G03G21/16 G03G21/18 (Core/Invention); G03G15/00 G03G21/18 (Core/Non-invention); G03G (Subclass/Invention)

International (IPC 1-7): G03G21/16 G03G21/18
CPC: G03G15/757 G03G2221/1657 G03G21/1647 G03G21/1857
G03G21/186 G03G21/1817 G03G21/1814 G03G21/1821 G03G21/185
G03G21/1853 G03G21/1842 G03G15/751 G03G15/16 G03G21/1803
European: G03G15/75F G03G21/18H1V G03G21/18H2C
S03G221/16K2
US: 399/111 399/111P 399/117 399/119 399/167 399/167P



Family:

Publication number	Publication date	Application number	Application date
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Probable Assignee: CANON INC

Assignee(s): (std): CANON KK ; HISANO MASATO ; MIYABE SHIGEO ; MORIOKA MASANARI ; KENON KK ; UENO TAKAHITO

Assignee(s): KENON KABUSIKI KAJSYA ; KEHNON KABUSIKI KAJSJA ; CANON INC ; CANON K K ; CANON KABUSHIKI KAISHA ; CANON KABUSHIKI KAISHAJP

Inventor(s): (std): KHisano MASATO ; KUNO MASATO ; MASANARI MORIOKA ; MASATO HISANO ; MIYABE SHIGEO ; MIYABE SHIGEO ; HISANO MASATO ; MORIOKA MASANARI ; SHIGEO MIYABE ; TAKAHITO UENO ; UENO TAKAHITO ; MORIOKA MASAYA ; UENO TAKAKHITO ; MORIOKA MASANARI ; MIYABE SHIGEO

Inventor(s): UENO TAKAHITO TOKYO ; MORIOKA MASANARI TOKYO ; HISANO MASATO TOKYO ; MIYABE SHIGEO TOKYO

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Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Title: ROTATIONAL FORCE TRANSMITTING PARTS

Abstract: A rotating force transmitting part for an electrophotographic photosensitive drum for a main assembly of the electrophotographic image forming apparatus, wherein the main assembly of the electrophotographic image forming apparatus includes a driving shaft, to be driven by a motor, having the rotating force applying portion, and wherein the electrophotographic photosensitive drum is dismountable from the main assembly of the electrophotographic image forming apparatus in a direction substantial perpendicular with an axial direction of the driving shaft, the rotating force transmitting part includes a coupling member engageable with the rotational force applying portion to receive a rotational force for rotating the electrophotographic photosensitive drum in the state in which electrophotographic photosensitive drum is mounted to the main assembly of the electrophotographic image forming apparatus, wherein the coupling member being capable of taking a rotational force transmitting angular position for transmitting the rotational force for rotating the electrophotographic photosensitive drum to the electrophotographic photosensitive drum and a disengaging angular position in which the coupling member is inclined away from the axis of the electrophotographic photosensitive drum from the rotational force transmitting angular position, wherein when the process cartridge is dismounted from the main assembly of the electrophotographic image forming apparatus in a direction substantially perpendicular to the axis of the electrophotographic photosensitive drum, the coupling member moves from the rotational force transmitting angular position to the disengaging angular position.

Classifications:

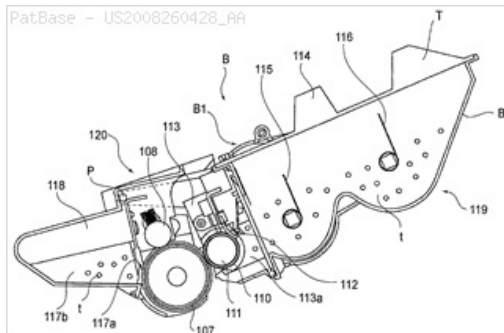
International (IPC 8-9): F16D1/10 F16D1/112 F16D11/04 F16D3/16 G03G15/00 G03G15/02 G03G15/04 G03G15/06 G03G15/08 G03G21/00 G03G21/16 G03G21/18 (Advanced/Invention); G03G15/06 G03G21/18 (Advanced/Non-invention); F16D3/16 G03G15/00 G03G15/06 G03G15/08 G03G21/00 G03G21/16 G03G21/18 (Core/Invention); F16D3/16 G03G15/00 (Core/Non-invention); F16D G03G (Subclass/Invention)

International (IPC 1-7): G03G15/00 G03G21/16 G03G21/18 **CPC:** G03G21/1857 G03G15/751 G03G15/757 G03G21/1853 G03G21/186 G03G2221/1657 G03G21/18

European: G03G15/00H3 G03G15/75F G03G21/18H1V G03G21/18H2C S03G221/16K2

US: 1/1 399/111 399/117 399/167 399/167P

PatBase - US2008260428_AA

**Family:**

Publication number	Publication date	Application number	Application date
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MX2009005493 A1	20090603	MX20090005493	20071225
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US8676090 BA	20140318	US20130096738	20131204
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US9772602 BB	20170926	US20150728722	20150602
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Priority:

JP20060346191	20061222	JP20070042666	20070222	JP20070330304	20071221
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JP20160244825	20071221	JP20070330304	20071222	CA20072670072	20071225
CA20072883912	20071225	CN200780047512	20071225	WO2007JP75366	20071225
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JP20120046872	20120302	US20120617916	20120914	US20120693656	20121204
US20130953779	20130730	US20130096738	20131204	JP20140115298	20140603
AU20140218395	20140827	CA20152670072	20150312	JP20150105905	20150525
US20150728722	20150602	AU20160201766	20160321	JP20160244825	20161216
US20170704421	20170914	AU20170235941	20170927	CA20182883912	20180604

Probable Assignee: CANON INC

Assignee(s): (std): CANON KK ; UENO TAKAHITO ; HISANO MASATO ; MIYABE SHIGEO ; MORIOKA MASANARI ; KENON KK

Assignee(s): KENON KABUSIKI KAJSYA ; KEHNON KABUSIKI KAJSJA ; CANNON KK ; CANON INC ; CANON KABUSHIKI KAISHA ; CANON KABUSHIKI KAISHAJP

Inventor(s): (std): KHISANO MASATO ; MASANARI MORIOKA ; MASATO HISANO ; MIYABE SIGEO ; MIYABE SHIGEO ; HISANO MASATO ; MORIOKA MASANARI ; SHIGEO MIYABE ; TAKAHITO UENO ; UENO TAKAHITO ; UENO TAKAKHITO ; MORIOKA MASAYA ; MIYABE SIGEO ; KUNO MASATO

Agent(s): SPRUSON AND FERGUSON; RIDOUT AND MAYBEE LLP; TBK-PATENT; OOO YURIDICHESKAYA GORODISSKI I PARTNER Y FA; DREW AND NAPIER LLC; FITZPATRICK CELLA HARPER AND SCINTO; YAMADA RYUICHI

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

43) Family number: 42232318 (US2008240796A)

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Title: ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS, DEVELOPING APPARATUS, AND COUPLING MEMBER

Abstract: A developing device usable with an electrophotographic image forming apparatus includes a driving shaft having a rotating force applying portion, and a movable member. The developing device is mounted to the moving member and includes a developing roller, and a coupling member that includes a rotating force receiving portion and a rotating force applying portion. The coupling member is capable of taking (i) a rotational force transmitting angular position for transmitting the rotational force to the developing roller, (ii) a pre-engagement angular position taken before the coupling member is engaged with the rotating force applying portion, in which the coupling member is inclined away from the rotational force

transmitting angular position, and (iii) a disengaging angular position, which enables the coupling member to disengage from the driving shaft, and inclines the coupling member away from the rotational force transmitting angular position, in a direction opposite to the pre-engagement angular position.

Classifications:

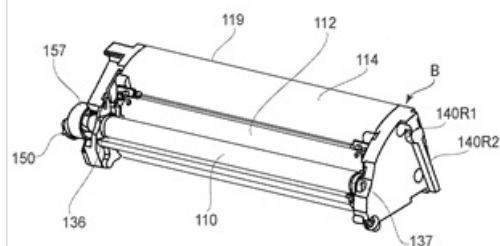
International (IPC 8-9): F16D1/10 F16D3/04 F16D3/16 F16D3/46
G03G15/00 G03G15/01 G03G15/06 G03G15/08 G03G21/00
G03G21/16 G03G21/18 (Advanced/Invention);
G03G15/00 G03G15/06 (Advanced/Non-invention);
F16D1/00 F16D3/02 F16D3/16 G03G15/00 G03G15/01 G03G15/06
G03G15/08 (Core/Invention);
F16D G03G (Subclass/Invention)

International (IPC 1-7): F16D1/10 F16D3/04 G03G15/01 G03G15/08
CPC: G03G15/0173 F16D1/10 F16D3/04 G03G15/0121 G03G15/0896
G03G2215/0177 G03G2221/1657 G03G15/0865 G03G15/0815
F16D1/101 G03G15/08 G03G21/1676 G03G15/081 G03G21/186
G03G21/1647

European: F16D1/10 F16D3/04 G03G15/01S1 G03G15/08S
S03G215/01S2A S03G221/16K2

US: 399/111 399/119 399/167 399/227 399/262 399/279 399/279P

PatBase - US2008240796_AA



Family:

Publication number	Publication date	Application number	Application date
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Probable Assignee: CANON INC

Assignee(s): (std): CANON KK ; UENO TAKAHITO ; MIYABE SHIGEO ; MORIOKA MASANARI

Assignee(s): KEHNON KABUSIKI KAJSA ; CANON INC ; CANON K K ; CANON KABUSHIKI KAISHA

Inventor(s): (std): MIYABE SHIGEO ; MORIOKA MASANARI ; NORIOKA MASANARI ; UENO TAKAHITO ; TAKAHITO UENO ; SHIGEO MIYABE ; MASANARI MORIOKA ; UENO TAKAKHITO ; MIJABE SIGEO ; MORIOKA MASAYA

Inventor(s): MORIOKA, Masanari ; MIYABE, Shigeo ; UENO, Takahito

Agent(s): SPRUSON AND FERGUSON; RIDOUT AND MAYBEE LLP; TBK; TBK PATENT; DURAN CARLOS; DREW AND NAPIER LLC; NAZLI TUGBA KORKUT OEZSOY; FITZPATRICK CELLA HARPER AND SCINTO; YAMADA RYUICHI

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ

44) Family number: 43325409 (US2009196655A)

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Title: COUPLING DEVICE, AND IMAGE FORMING APPARATUS

Abstract: A coupling unit includes two constant velocity joints arranged in series in the shaft direction. The coupling unit couples a driven shaft and a drive shaft. Each constant velocity joint includes a ball non-retaining member and a ball retaining member. The ball non-retaining member has an annular space with one opened end and a plurality of track grooves extending in the shaft direction on an external wall surface of the annular space at a constant interval in a circumferential direction. The ball retaining member has a portion that engages with the annular space of the ball non-retaining member, and that retains a ball that slides along each of the track grooves formed in the ball non-retaining member.

Classifications:**International (IPC 8-9):** F16D3/226 F16H33/00 F16H35/00

G03G15/00 G03G15/01 G03G15/08 G03G15/10

G03G15/20 (Advanced/Invention);

F16H35/00 G03G15/00 (Core/Invention)

CPC: G03G21/1647 G03G21/1864 G03G21/186 G03G2221/1657

Y10T74/19

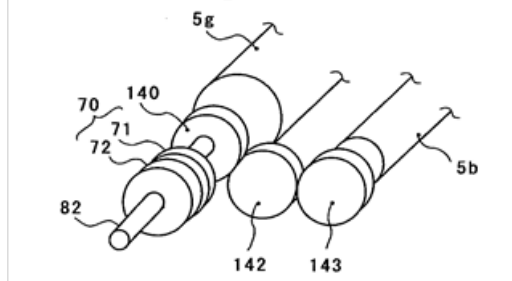
European: G03G21/16 G03G21/18H2C G03G21/18H2P

S03G221/16K2

US: 399/167 399/167P 399/236 399/239 399/265 399/302 399/303

399/308 399/312 399/313 74/640 74/640S

PatBase - US2009196655_AA

**Family:**

Publication number	Publication date	Application number	Application date
JP2009104101 A2	20090514	JP20080100781	20080408
JP5135031 B2	20130130	JP20080100781	20080408
US2009196655 AA	20090806	US20090385389	20090407
US8229324 BB	20120724	US20090385389	20090407

Priority:

JP20070262218 20071005

JP20080100781 20080408

Probable Assignee: NTN CORP

Assignee(s): (std): ASAYAMA YOSHIMI ; KAMIYA TAKURO ; NTN TOYO BEARING CO LTD ; RICOH CO LTD ; RICOH CO LTD AND NTN CORP ; RICOH KK ; SUGATA HIDEAKI ; TAKIGAWA JUNYA

Assignee(s): RICOH CO AND NTN CORP LTD ; NTN CORP

Inventor(s): (std): ASAYAMA YOSHIMI ; KAMIYA TAKURO ; SUGATA HIDEAKI ; TAKIGAWA JUNYA ; KAMIYA TAKUO

Agent(s): HARNESS DICKEY AND PIERCE PLC

45) Family number: 43687130 (US2011077595A)

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Title: BRAKE FOR INJECTION DEVICES

Abstract: A brake mechanism for an injection device for generating a braking action on a moving, e.g. rotating, part or component of the injection device.

Classifications:**International (IPC 8-9):** A61M5/20 A61M5/31 A61M5/315 F16D55/00

F16D57/00 F16D59/00 H02K49/04 (Advanced/Invention);

A61M5/20 A61M5/31 A61M5/315 (Core/Invention);

A61M5/20 A61M5/31 (Core/Non-invention)

CPC: A61M5/31501 A61M5/24 A61M5/3146 A61M5/31535

A61M5/31541 A61M5/31543 A61M5/31553 A61M5/31561

A61M2005/202 A61M2005/2086 A61M2005/2407 A61M2005/2488

A61M2005/3143 A61M2005/3151 A61M2205/0272 A61M5/20

A61M5/31583

European: A61M5/315B A61M5/315E2B1B A61M5/315E2B5

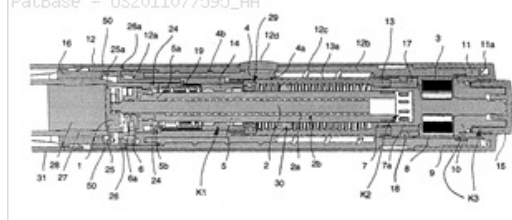
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US: 188/164 188/164S 188/184 188/184S 188/290 188/290S 188/67 188/67S 188/71.1 188/71.100S 604/131 604/135

604/135P 604/68

PatBase - US2011077595_AA

**Family:**

Publication number	Publication date	Application number	Application date
CN102014994 A	20110413	CN200980114996	20090226
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DE502009007202 D1	20130725	DE200950007202T	20090226
DK2262556 T3	20130902	DK20090715125T	20090226
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TW1458510 B	20141101	TW20090105746	20090224
US2011077595 AA	20110331	US20100869282	20100826
US8398593 BB	20130319	US20100869282	20100826
WO09105908 A1	20090903	WO2009CH00077	20090226

Priority:

DE200810011881 20080229

EP20090715125 20090226

WO2009CH00077 20090226

Probable Assignee: TECPHARMA LICENSING AG

Assignee(s): (std): EICH ADRIAN ; HORISBERGER AURELE ; HOSTETTLER PATRICK ; KLADIWA MALTE ; MEIER STEFAN ; SETTLER PETER ; TECPHARMA LICENSING AG ; WITTMANN JUERGEN ; STETTLER PETER

Inventor(s): (std): ADRIAN EICH ; AURELE HORISBERGER ; EICH ADRIAN ; HORISBERGER AURELE ; HOSTETTLER PATRICK ; JUERGEN WITTMANN ; KLADIWA MALTE ; MALTE KLADIWA ; MEIER STEFAN ; PATRICK HOSTETTLER ; PETER SETTLER ; SETTLER PETER ; STEFAN MEIER ; STETTLER PETER ; WITTMANN JUERGEN

Agent(s): SCHWABE SANDMAIR MARX; DORSEY AND WHITNEY LLP; DAVID E; TECPHARMA LICENSING AG

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

46) Family number: 44047520 (US2009290908A)

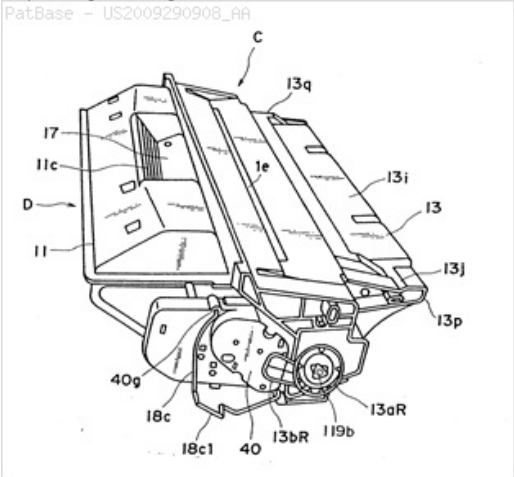
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Title: COUPLING PART, PHOTSENSITIVE DRUM, PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract: A process cartridge detachably mountable to a main assembly of an electrophotographic image forming apparatus, wherein the main assembly includes a motor, a main assembly side gear for receiving driving force from the motor, a hole defined by twisted surfaces, the hole being substantially coaxial with the gear, and a main assembly side grounding contact provided in the hole, the process cartridge includes an electrophotographic photosensitive drum; process mechanisms actable on the photosensitive drum; and a projection engageable with the twisted surfaces, the projection being provided at a longitudinal end of the photosensitive drum, wherein when the main assembly side gear rotates with the hole and projection engaged with each other, rotational driving force is transmitted from the gear to the photosensitive drum through engagement between the hole and the projection; and a cartridge side grounding contact electrically connected with the electrophotographic photosensitive drum for electrically grounding the electrophotographic photosensitive drum when the process cartridge is mounted to the main assembly of the apparatus, the cartridge side grounding contact being provided on the projection so as to be electrically connectable with the main assembly side grounding contact

Classifications:

International (IPC 8-9): F16D1/10 G03G15/00 G03G21/00 G03G21/16 G03G21/18 (Advanced/Invention)
CPC: G03G15/757 F16D1/101 G03G21/1633 G03G21/1647 G03G21/1853 G03G21/186 G03G21/1864 G03G21/1867 G03G21/1871 G03G2221/1654 G03G2221/1657 G03G2221/166 G03G2221/183 G03G2221/1861 G03G2221/1884
European: F16D1/10B G03G15/75F G03G21/18H1V G03G21/18H2C G03G21/18H2P G03G21/18H3 G03G21/18H3P S03G221/16K1 S03G221/16K2 S03G221/16K3 S03G221/18P S03G221/18P3A S03G221/18P4
US: 399/111 399/111P 399/90



Family:

Publication number	Publication date	Application number	Application date
US2009290908 AA	20091126	US20090534247	20090803
US7920806 BB	20110405	US20090534247	20090803

Priority:

JP19950067796 19950327	JP19960064105 19960321	US19960621941 19960326
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US20050221766 20050909	US20060417142 20060504	US20060617380 20061228
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Probable Assignee: CANON INC

Assignee(s): (std): CANON INC ; CANON KK

Assignee(s): CANON KABUSHIKI KAISHA

Inventor(s): (std): HIGETA AKIRA ; IKEMOTO ISAO ; NODA SHINYA ; SASAKI SHINICHI ; TOMA AKIHIRO ; WATANABE KAZUSHI

Agent(s): FITZPATRICK CELLA HARPER AND SCINTO

47) Family number: 44232897 (US2010034561A)

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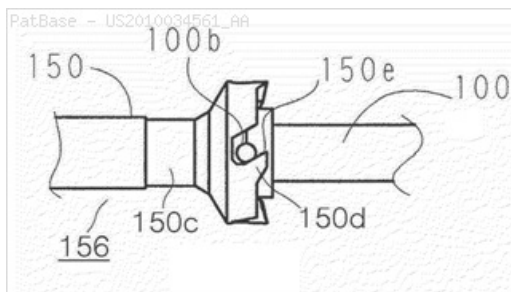
Title: DISMOUNTING AND MOUNTING METHODS FOR COUPLING AND ELECTROPHOTOGRAPHIC PHOTSENSITIVE DRUM UNIT

Abstract: A method for dismounting a coupler from an electrophotographic photosensitive drum flange whose drum is usable with a cartridge detachably mountable to a main assembly of an electrophotographic image forming apparatus. The coupler receives a force rotating the drum from the main assembly when the cartridge is mounted and includes force receiving and spherical portions. The method includes the steps of inclining the coupler relative to a flange rotational axis, pushing a pin from one end to the other end thereof, both of which project from the spherical portion when the inclining step inclines the coupler, making part of the pin ride on a surface of a regulator inside the flange, and dismounting the coupler from the flange by applying a force to a free end of the coupler toward the part of the pin riding on the regulator surface.

Classifications:

International (IPC 8-9): F16D1/02 G03G13/02 G03G15/00

G03G15/14 G03G21/00 G03G21/16 G03G21/18
G03G21/20 (Advanced/Invention);
G03G15/14 G03G21/18 (Advanced/Non-invention);
F16D1/02 G03G15/00 G03G21/00 G03G21/18 (Core/Invention);
G03G13/02 (Core/Non-invention);
G03G (Subclass/Invention)
CPC: G03G15/757 G03G21/181 G03G21/186 G03G21/1864
G03G2215/00987 G03G2221/1657 G03G15/75 G03G15/751
G03G21/1647 G03G21/18 G03G15/1615 G03G21/20
European: G03G15/75F G03G21/18C2 G03G21/18H2C
G03G21/18H2P S03G215/00R S03G221/16K2
US: 399/111 399/113 399/116 399/117 399/117P 399/167 399/167P



Family:

Publication number	Publication date	Application number	Application date
AU2009269328 AA	20100114	AU20090269328	20090615
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CA2728434 AA	20100114	CA20092728434	20090615
CA2728434 C	20151103	CA20092728434	20090615
CN102067043 A	20110518	CN200980122305	20090615
CN102067043 B	20130320	CN200980122305	20090615
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CN102890435 B	20150805	CN201210403423	20090615
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EP2291715 A1	20110309	EP20090787976	20090615
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EP3173875 A1	20170531	EP20160202843	20090615
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HK1153544 A1	20131220	HK20110107588	20110721
HK1178264 A1	20160318	HK20130103547	20110721
HK1181469 A1	20170203	HK20130108560	20110721
HK1181470 A1	20170203	HK20130108561	20110721
HU031609 T2	20170728	HU20090787976T	20090615
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JP5420052 B2	20140219	JP20120256097	20121122
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PT2291715 T	20170217	PT20090787976T	20090615
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RU2627006 C2	20170802	RU20130154415	20131206
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TWI411897 B	20131011	TW20090119938	20090615
TWI506383 B	20151101	TW20130127407	20090615
US2010034561 AA	20100211	US20090483718	20090612
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US2013230337 AA	20130905	US20130773856	20130222
US2014086632 AA	20140327	US20130031192	20130919
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US8406656 BB	20130326	US20100981683	20101230
US8565640 BB	20131022	US20130773856	20130222
US8676085 BA	20140318	US20130096669	20131204
WO10004854 A1	20100114	WO2009JP61266	20090615
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Priority:

JP20080161527	20080620	JP20080207291	20080811	US20090483718	20090612
CN200980122305	20090615	EP20090787976	20090615	WO2009JP61266	20090615

US20190981683 20191229 RU20180101893 20180119 JP20120256097 20131122
US201300773856 20130122 US20130096669 20131122

Probable Assignee: CANON INC

Assignee(s): (std): BATORI YOSHIYUKI ; CANON KK ; HARA NOBUYOSHI ; KENON KK

Assignee(s): KENON KABUSIKI KAJSYA ; KEHNON KABUSIKI KAJSJA ; CANON INC ; CANON K K ; CANON KABUSHIKI KAISHA ; CANON KABUSHIKI KAISHAJP

Inventor(s): (std): BATORI JOSIJUKI ; BATORI YOSHIYUKI ; HARA NOBUYOSHI ; KHARA NOBUJOSI ; YOSHIYUKI BATORI ; UMATORI YOSHIYUKI ; BATORI JOSIYUKI ; NOBUYOSHI HARA

Agent(s): SPRUSON AND FERGUSON; RIDOUT AND MAYBEE LLP; TBK PATENT; TBK; DURAN CARLOS; MEHMET NAZIM AYDIN DERIS; FITZPATRICK CELLA HARPER AND SCINTO; YAMADA RYUICHI

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

48) Family number: 47015849 (US2012275824A)

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Title: PROCESS CARTRIDGE

Abstract: The invention relates to a process cartridge, which comprises a process cartridge housing, a photosensitive member, a driving force receiving opening, a retractable mechanism and a control mechanism, wherein the photosensitive member is arranged inside the process cartridge housing; the driving force receiving opening is connected with the photosensitive member and provides a driving force for the photosensitive member; the retractable mechanism allows the driving force receiving opening to extend or retract in the axial direction of the photosensitive member; and the control mechanism controls the extension and retraction of the retractable mechanism.

Classifications:

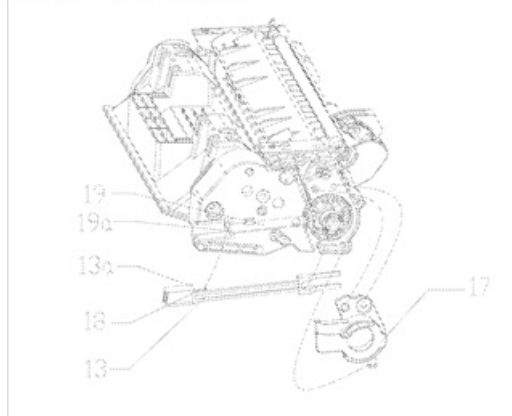
International (IPC 8-9): F16D11/00 F16D11/14 G03G15/00 G03G21/00 G03G21/16 G03G21/18 (Advanced/Invention)

CPC: G03G21/186 G03G21/1857 G03G15/757 G03G21/185

European: G03G21/18H2 G03G21/18H2C

US: 1/1 399/111 399/116

PatBase - US2012275824_AA



Family:

Publication number	Publication date	Application number	Application date
CN101846955 A	20100929	CN201010104692	20100128
CN102141766 A	20110803	CN201010585490	20101203
CN102141766 B	20131030	CN201010585490	20101203
CN102200706 A	20110928	CN201010131386	20100322
CN102200706 B	20140827	CN201010131386	20100322
CN103439871 A	20131211	CN201310418996	20101203
CN103439871 B	20160427	CN201310418996	20101203
CN103454894 A	20131218	CN201310418974	20101203
CN103488071 A	20140101	CN201310418972	20101203
CN103488071 B	20170721	CN201310418972	20101203
CN201725146 U	20110126	CN201020138989U	20100322
DE202010018322 U1	20150917	DE201020018322U	20101202
DE202010018322 U9	20151217	DE201020018322U	20101202
EP2530532 A1	20121205	EP20100844463	20101202
EP2530532 A4	20141029	EP20100844463	20101202
EP3176649 A1	20170607	EP20160195088	20101202
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JP2013518303 T2	20130520	JP20120550302T	20101202
JP2016026334 A2	20160212	JP20150226606	20151119
JP2016029509 A2	20160303	JP20150226607	20151119
JP2016040625 A2	20160324	JP20150226604	20151119
JP2016042197 A2	20160331	JP20150226605	20151119
JP2017102486 A2	20170608	JP20170040844	20170303
JP6039040 B2	20161207	JP20150226604	20151119
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JP6149091 B2	20170614	JP20150226606	20151119
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JP6338306 B2	20180606	JP20170040844	20170303
RU2012131978 A	20140310	RU20120131978	20101202
RU2547171 C2	20150410	RU20120131978	20101202
US2012275824 AA	20121101	US20120548981	20120713
US2015177683 AA	20150625	US20150642877	20150310
US2016187844 AA	20160630	US20160063806	20160308
US2016370751 AA	20161222	US20160256477	20160902

US2017097609 AA	20170406	US20160378730	20161214
US9176467 BB	20151103	US20120548981	20120713
US9488958 BB	20161108	US20150642877	20150310
US9599949 BB	20170321	US20160256477	20160902
US9671742 BB	20170606	US20160063806	20160308
WO11091686 A1	20110804	WO2010CN079377	20101202

Priority:

CN201010104692	20100128	CN201010131386	20100322	CN201020138989U	20100322
JP20120550302T	20101202	EP20100844463	20101202	JP20150226606	20101202
WO2010CN079377	20101202	WO2010CN79377	20101202	CN201010585490	20101203
CN201310418974	20101203	CN201310418972	20101203	CN201310418996	20101203
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JP20150226607	20151119	JP20150226604	20151119	JP20150226605	20151119
US20160063806	20160308	US20160256477	20160902	US20160378730	20161214
JP20170040844	20170303				

Probable Assignee: STATIC CONTROL COMPONENTS INC

Assignee(s): (std): APEX TECH CO LTD ; APEX TECHNOLOGY CO ; DING GEMING ; GU WEIDONG ; CAO JIANXIN ; LI YONGHONG ; LIU XIAOBING ; LI ZHIYONG ; LI XIONG ; SEINE IMAGE INT L CO LTD ; SEINE TECHNOLOGY CO LTD ; ZHUHAI SAINA TECHNOLOGY CO LTD ; ZHUHAI SEINE TECHNOLOGY LTD ; ZHUHAI SEINE TECHNOLOGY CO ; ZHUHAI SEINE TECHNOLOGY CO LTD ; ZHUHAI SEINE TECH LTD ; ZHUHAI SEINE TECH CO LTD ; ZHUHAI SAINA TECH CO LTD

Assignee(s): STATIC CONTROL COMPONENTS INC ; ZHUHAI SEINE TECHNOLOGY LIMITED ; ZHUHAI SAINA TECHNOLOGY CO ; NINESTAR CORP ; SEINE IMAGE INT L CO ; APEX TECHNOLOGY CO LTD

Inventor(s): (std): GEMING DING ; JIANXIN CAO ; LIU ZIAOBING ; WEIDONG GU ; XIAOBING LIU ; XIONG LI ; YONGHONG LI ; ZHIYONG LI ; LLU XIAOBING ; LIU XIAOBING ; LI ZHIYONG ; LI YONGHONG ; LI XIONG ; GU WEIDONG ; DING GEMING ; CAO JIANXIN

Agent(s): HELLMICH WOLFGANG; PATENTANWALTE RUFF WILHELM BEIER DAUSTER AND PARTNER MBB; KOHNO TAKAO; TROUTMAN SANDERS LLP; TROUTMAN SANDERS; SHENZHEN BAIRUI PATENT AND TRADEMARK OFFICE

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

49) Family number: 47450903 (US2010272470A)

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Title: IMAGE FORMING APPARATUS

Abstract: An apparatus includes: a main body; a moving member movable between an accommodation position and a separation position; a driving member rotatably provided in the main body; a passive member rotatably provided in the moving member and is opposed to the driving member in a rotation axis direction; and a driving force transmitting member provided between the driving member and the passive member. The driving force transmitting member is movably supported in the driving member along the rotation axis direction, a first connecting unit is engaged with the driving member and the driving force transmitting member by an unevenness so as to be movable in a first diameter direction, and a second connecting unit is engaged with the driving force transmitting member and the passive member by an unevenness so as to be movable in a second diameter direction.

Classifications:

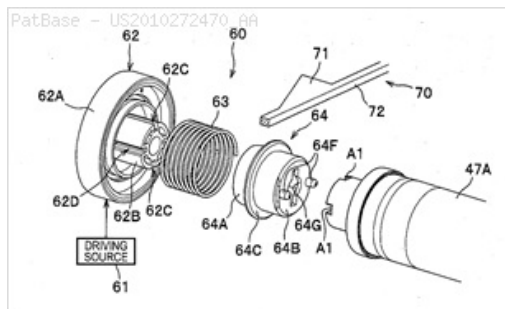
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CPC: G03G21/1623 G03G21/1647 G03G2221/1603 G03G2221/1657 G03G2221/1684

European: G03G21/16 S03G221/16A S03G221/16K2 S03G221/16S2

US: 399/167 399/167P



Family:

Publication number	Publication date	Application number	Application date
JP2010256766 A2	20101111	JP20090109003	20090428
JP2011075659 A2	20110414	JP20090224757	20090929
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JP5471015 B2	20140416	JP20090109003	20090428
US2010272470 AA	20101028	US20100748950	20100329
US8270877 BB	20120918	US20100748950	20100329

Priority:

JP20090109003	20090428	JP20090224757	20090929
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Probable Assignee: BROTHER IND LTD

Assignee(s): (std): BROTHER IND LTD ; HASHIMOTO YOHEI ; TOMATSU YOSHIYA

Assignee(s): BROTHER INDUSTRIES LTD ; BROTHER KOGYO KABUSHIKI KAISHA ; BROTHER KOGYO KK

Inventor(s): (std): TOMATSU YOSHIYA ; HASHIMOTO YOHEI

Agent(s): BANNER AND WITCOFF LTD ATTORNEYS FOR CLIENT NO 016689; BANNER AND WITCOFF LTD

50) Family number: 49151829 (US2011159970A)

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Title: CARTRIDGE

Abstract: A cartridge includes a casing, a rotatable member rotatably supported by the casing, a protruding member configured to advance and retract in directions parallel to an axis of rotation of the rotatable member, and an urging member configured to urge the protruding member to advance in an advancing direction. The protruding member has a particular sloping surface configured to be contacted in a direction orthogonal to an axis of rotation of the protruding member when the cartridge is mounted. The particular sloping surface slopes with respect to directions parallel to and orthogonal to the axis of rotation of the protruding member.

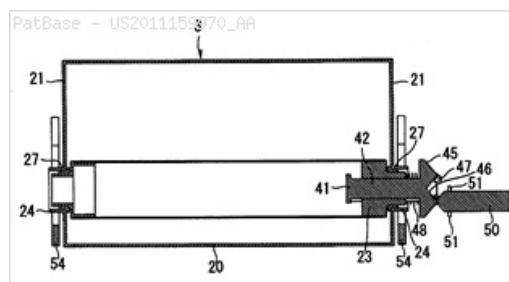
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European: G03G21/18H2P S03G221/16K2

US: 399/111 399/167 464/169 464/169P

**Family:**

Publication number	Publication date	Application number	Application date
CN102109806 A	20110629	CN201010623212	20101224
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Priority:

JP20090293468 20091224

Probable Assignee: BROTHER IND LTD

Assignee(s): (std): BROTHER IND LTD ; OKABE YASUSHI

Assignee(s): BROTHER INDUSTRIES LTD ; BROTHER KOGYO KABUSHIKI KAISHA ; BROTHER KOGYO KK

Inventor(s): (std): OKABE YASUSHI ; YASUSHI OKABE

Agent(s): BAKER BOTTS LLP

51) Family number: 49483868 (US2013216265A)

© PatBase

Title: DRIVING FORCE TRANSMISSION MECHANISM AND PROCESS CARTRIDGE CONTAINING THE SAME

Abstract: A driving force transmission mechanism comprising a photosensitive drum driving member, wherein the photosensitive drum driving member is engaged with an image forming apparatus driving member and receives the driving force from the image forming apparatus driving member; the image forming apparatus driving member comprises a triangular groove having a triangular cross-section and driving force transmission portion disposed in three vertex angles of the triangular groove; the photosensitive drum driving member comprises a non-distorting protrusion which is axially extended from the end face of a drum shaft and engaged with the groove on the image forming apparatus driving member; the protrusion has a position-limiting mechanism and a stressed mechanism; a projecting tooth obliquely disposed on said non-distorting protrusion is taken as the stressed mechanism; and each projecting tooth also has a mating surface which is engaged with the driving force transmission component to transmit the driving force.

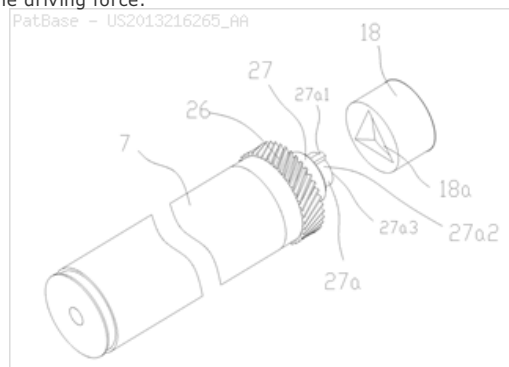
Classifications:

International (IPC 8-9): F16D1/10 F16D1/112 G03G15/00 G03G21/00 G03G21/18 (Advanced/Invention)

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European: F16D1/108 G03G15/75F G03G21/18H2C R16D1/10P

US: 399/117 399/167

**Family:**

Publication number	Publication date	Application number	Application date
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CN102866609 A	20130109	CN201210232590	20120705
CN102866609 B	20140625	CN201210232590	20120705
CN103226305 A	20130731	CN201310173971	20120705

CN103226305 B	20141008	CN201310173971	20120705
CN201945801 U	20110824	CN201020601927U	20101029
CN202677063 U	20130116	CN201220325068U	20120705
CN202710924 U	20130130	CN201220324405U	20120705
DE602012023189 D1	20161103	DE201260023189T	20121213
EP2634636 A1	20130904	EP20110835585	20110927
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EP2703893 A1	20140305	EP20120868927	20121213
EP2703893 A4	20141203	EP20120868927	20121213
EP2703893 B1	20160914	EP20120868927	20121213
IN03693KN2013 A	20140228	IN2013KN03693	20131213
JP2013545134 T2	20131219	JP20130535255T	20110927
JP2015525892 T2	20150907	JP20150518787T	20121213
JP5935023 B2	20160615	JP20150518787T	20121213
RU2013113999 A	20141210	RU20130113999	20110927
RU2015103674 A	20160827	RU20150103674	20121213
RU2575665 C2	20160220	RU20130113999	20110927
RU2599597 C2	20161010	RU20150103674	20121213
RU2599597 C9	20170220	RU20150103674	20121213
US2013216265 AA	20130822	US20110823259	20110927
US2014010576 AA	20140109	US20130972739	20130821
US8737882 BB	20140527	US20110823259	20110927
US8886087 BB	20141111	US20130972739	20130821
WO12055217 A1	20120503	WO2011CN72836	20110415
WO12055312 A1	20120503	WO2011CN080235	20110927
WO14005403 A1	20140109	WO2012CN86505	20121213

Priority:

CN201010537983	20101029	CN201020601927U	20101029	CN201110186826	20110507
CN101110186826	20110705	CN201110186826	20110705	WO2011CN080235	20110927
CN201210232587	20120705	CN201210232590	20120705	CN201220325068U	20120705
CN201220324405U	20120705	CN201310173971	20120705	WO2012CN86505	20121213
WO2012CN086505	20121213	EP20120868927	20121213		

Probable Assignee: NINESTAR CORP

Assignee(s): (std): CAO JIANXIN ; LIANG JUN ; PENG QINGFEI ; WU JUNZHONG ; LIU JINLIAN ; NINESTAR IMAGE TECH LTD ; NINESTAR CORP ; SEINE TECHNOLOGY CO LTD ; APEX TECH CO LTD ; APEX TECHNOLOGY CO LTD ; ZHUHAI SEINE TECHNOLOGY CO LTD ; ZHUHAI SEINE TECHNOLOGY LTD ; ZHUHAI SEINE TECH CO LTD ; ZHUHAI SEINE TECH LTD

Assignee(s): ZHUHAI SEINE TECHNOLOGY LIMITED ; APEX TECHNOLOGY CO LTD ZHUHAI ; APEX TECHNOLOGY CO ; ZHUHAI SEINE TECHNOLOGY CO

Inventor(s): (std): WU JUNZHONG ; WU JUN ZHONG ; QINGFEI PENG ; PENG QINGFEI ; LIU JINLIAN ; JUNZHONG WU ; JUN LIANG ; JINLIAN LIU ; JIANXIN CAO ; CAO JIANXIN ; LIANG JUN

Agent(s): FB RICE ; FB RICE PTY LTD ; BENNETT JONES LLP ; HELLMICH WOLFGANG ; JANSEN CORNELIS MARINUS ; VO ; CREO LAW AND IP LPC ; YAGI TOSHIYASU ; JACKSON IPG PLLC ; JC PATENTS ; SHENZHEN BAIRUI PATENT AND TRADEMARK OFFICE ; SHENZHEN BAIRUI PATENT AND TRADEMARK OFFICE

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

52) Family number: 55969441 (US2011211863A)

© PatBase

Title: COUPLING PART, PHOTOSENSITIVE DRUM, PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract: A process cartridge detachably mountable to a main assembly of an electrophotographic image forming apparatus, wherein the main assembly includes a motor, a main assembly side gear for receiving driving force from the motor, a hole defined by twisted surfaces, the hole being substantially coaxial with the gear, and a main assembly side grounding contact provided in the hole, the process cartridge includes an electrophotographic photosensitive drum; process mechanisms actable on the photosensitive drum; and a projection engageable with the twisted surfaces, the projection being provided at a longitudinal end of the photosensitive drum, wherein when the main assembly side gear rotates with the hole and projection engaged with each other, rotational driving force is transmitted from the gear to the photosensitive drum through engagement between the hole and the projection; and a cartridge side grounding contact electrically connected with the electrophotographic photosensitive drum for electrically grounding the electrophotographic photosensitive drum when the process cartridge is mounted to the main assembly of the apparatus, the cartridge side grounding contact being provided on the projection so as to be electrically connectable with the main assembly side grounding contact

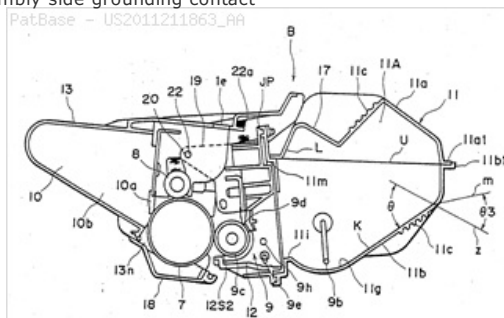
Classifications:

International (IPC 8-9): F16D1/10 G03G15/00 G03G21/00 G03G21/18 (Advanced/Invention)

CPC: G03G15/757 F16D1/101 G03G21/1633 G03G21/1647 G03G21/1853 G03G21/186 G03G21/1864 G03G21/1867 G03G21/1871 G03G2221/1654 G03G2221/1657 G03G2221/166 G03G2221/183 G03G2221/1861 G03G2221/1884

European: F16D1/10B G03G15/75F G03G21/18H1V G03G21/18H2C G03G21/18H2P G03G21/18H3 G03G21/18H3P S03G221/16K1 S03G221/16K2 S03G221/16K3 S03G221/18P S03G221/18P3A S03G221/18P4

US: 399/111 399/167



Family:

Publication number	Publication date	Application number	Application date
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US2011211863 AA	20110901	US20110035167	20110225
US8725042 BB	20140513	US20110035167	20110225

Priority:

JP19950067796	19950327	JP19960064105	19960321	US19960621941	19960326
JP19960277530	19960926	JP19960356297	19961224	JP19970269320	19970916
US19970938893	19970926	US19990258314	19990226	US20000522293	20000309
US20010968657	20011002	US20030642165	20030818	US20050084623	20050321
US20050221766	20050909	US20060417142	20060504	US20060617380	20061228
US20070839893	20070816	US20080271415	20081114	US20090534247	20090803
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Probable Assignee: CANON INC

Assignee(s): (std): CANON INC ; CANON KK ; ITO YOSHIHIRO ; KAWAI TOSHIHARU ; WATANABE KAZUSHI

Inventor(s): (std): WATANABE KAZUSHI ; KAWAI TOSHIHARU ; ITO YOSHIHIRO

Agent(s): FITZPATRICK CELLA HARPER AND SCINTO

53) Family number: 51894641 (US2012230729A)

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Title: SHAFT-RECEIVING DEVICE, DRUM UNIT, AND IMAGE-FORMING DEVICE

Abstract: A shaft-receiving device connects a rotating member and a frame. The rotating member has a rotational axis extending in a first direction and at least one end in the first direction. The frame extends in a second direction perpendicular to the first direction and is formed with a through-hole having an inner peripheral surface. The shaft-receiving device includes a shaft-receiving portion and a pressing member. The one end is inserted into the shaft-receiving portion in the first direction. The shaft-receiving portion is inserted into the through-hole in the first direction and opposes the inner peripheral surface in the second direction. The pressing member opposes the inner peripheral surface in the second direction to press the rotating member toward the inner peripheral surface.

Classifications:

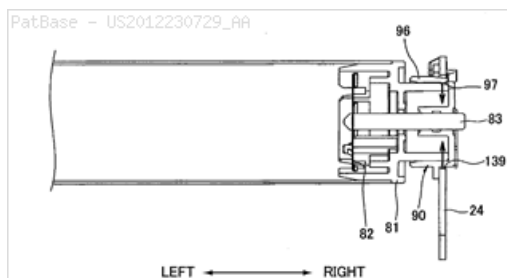
International (IPC 8-9): F16C33/04 F16D1/08 G03G15/00

G03G21/00 G03G21/16 (Advanced/Invention)

CPC: G03G15/757 G03G21/1671

European: G03G15/75F G03G21/16F2

US: 399/117



Family:

Publication number	Publication date	Application number	Application date
CN102678752 A	20120919	CN201210024665	20120206
CN102678752 B	20141105	CN201210024665	20120206
EP2498139 A2	20120912	EP20120151207	20120116
EP2498139 A3	20121017	EP20120151207	20120116
JP2012189619 A2	20121004	JP20110050406	20110308
JP5459242 B2	20140402	JP20110050406	20110308
US2012230729 AA	20120913	US20120351490	20120117
US8737874 BB	20140527	US20120351490	20120117

Priority:

JP20110050406 20110308

Probable Assignee: BROTHER IND LTD

Assignee(s): (std): ABE KOJI ; BROTHER IND LTD

Assignee(s): BROTHER KOGYO KABUSHIKI KAISHA ; BROTHER KOGYO KK

Inventor(s): (std): ABE KOJI ; KOJI ABE

Agent(s): KUHNEN AND WACKER; BANNER AND WITCOFF LTD

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

54) Family number: 55057679 (US2015030353A)

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Title: TORQUE RECEIVING ASSEMBLY, PHOTSENSITIVE DRUM AND PROCESS CARTRIDGE

Abstract: A torque receiving assembly, a photosensitive drum and a process cartridge having such torque receiving assembly. The torque receiving assembly having a body having an axis and having an accommodating chamber; a driven shaft disposed coaxially with the body, the driven shaft including a guide stem and a coupling head provided at one axial end of the guide stem, the guide stem having a pair of output arms which extend outwardly in a radial direction, the coupling head having a plurality of projections; wherein a pair of input arms are provided at an inner wall of the accommodating chamber and configured for abutting with the output arms; the guide stem is movable in the axial direction relative to the body, the torque receiving assembly further comprises a distance-limiting mechanism that defines a maximum distance the driven shaft is able to move relative to the body in the axis direction. The photosensitive drum and process cartridge according to the present invention both includes said torque receiving assembly.

Classifications:

International (IPC 8-9): F16D3/06 G03G15/00

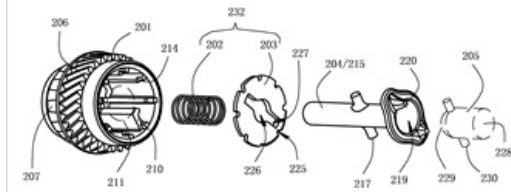
G03G21/18 (Advanced/Invention);

F16D1/10 F16D3/10 (Advanced/Non-invention)

CPC: G03G15/757 G03G21/1857 G03G2221/1657 F16D3/06

F16D1/10 F16D3/10 G03G21/186

US: 1/1 399/111 399/117 399/167 464/162 464/169

**Family:**

Publication number	Publication date	Application number	Application date
CN103376696 A	20131030	CN201310316731	20130725
CN103376696 B	20151021	CN201310316731	20130725
EP2829919 A1	20150128	EP20140178350	20140724
US2015030353 AA	20150129	US20140340007	20140724
US2015185693 AA	20150702	US20150645255	20150311
US9170549 BB	20151027	US20140340007	20140724
US9274500 BB	20160301	US20150645255	20150311
WO15010538 A1	20150129	WO2014CN81858	20140709

Priority:

CN201310316731 20130725 US20140340007 20140724 US20150645255 20150311

Probable Assignee: PRINT RITE UNICORN IMAGE PRODUCTS CO LTD OF ZHUHAI

Assignee(s): (std): PRINT RITE UNICOM IMAGE PRODUCTS CO LTD OF ZHUHAI ; PRINT RITE UNICOM IMAGE PRODUCTS CO LTD ZHUHAI ; PRINT RITE UNICORN IMAGE PROD ; LI ZHENG GUANG ; PRINT RITE UNICORN IMAGE PRODUCTS CO LTD ; PRINT RITE UNICORN IMAGE PRODUCTS CO LTD OF ZHUHAI ; YANG XIAOFENG ; WANG QILE ; PRINT RITE UNICORN IMAGE PRODUCTS CO LTD ZHUHAI

Assignee(s): PRINT RITE UNICORN IMAGE PRODUCTS CO LTED OF ZHUHAI ; PRINT RITE UNICOM IMAGE PRODUCTS CO ; PRINT RITE UNICORN IMAGE PRODUCTS CO

Inventor(s): (std): WANG QILE ; YANG XIAOFENG ; LI ZHENG GUANG

Agent(s): KRAMER BARSKE SCHMIDTCHEN PATENTANWALTE PARTG MBB; COZEN OCONNOR; INNOPAT INTELLECTUAL PROPERTY CO LTD

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

55) Family number: 55305225 (US2013322923A)

© PatBase

Title: BEARING MEMBER, END MEMBER, PHOTSENSITIVE DRUM UNIT, PROCESS CARTRIDGE, AND METHOD FOR MANUFACTURING BEARING MEMBER

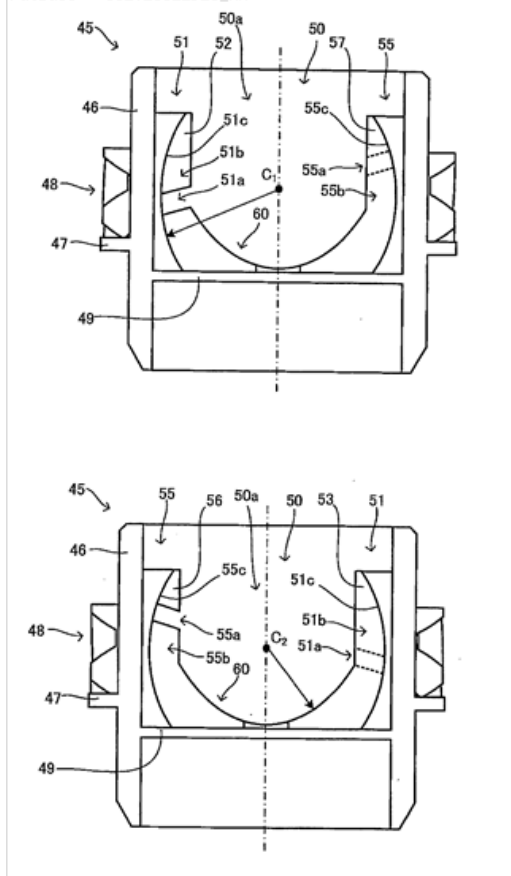
Abstract: A bearing member placed at an end of a photosensitive drum, and a shaft member is attached thereto. The bearing member has a cylindrical body and a retaining portion placed in the cylindrical body, retaining a torque transmission pin provided in the shaft member, and removably provided. The retaining portion is provided with swaying grooves at least two grooves extending in an axial direction of the cylindrical body, placed opposite each other, and whose bottoms have each a curved surface exhibiting a bow with respect to the axial direction; inlet grooves at one end thereof connected to the respective swaying grooves and at the other end thereof connected to outside of the retaining portion and placed at an upstream position with respect to the swaying grooves along a direction of rotation of the cylindrical body; and a pedestal interposed, at one end, between the two swaying grooves.

Classifications:

International (IPC 8-9): B29C45/26 B29D99/00 F16C17/02
F16C33/02 F16D1/10 F16D3/16 F16D3/205 G03G15/00 G03G15/08
G03G15/16 G03G15/22 G03G21/00 G03G21/16
G03G21/18 (Advanced/Invention);
B29C45/44 F16D3/44 (Advanced/Non-invention)

CPC: F16C17/02 F16C33/02 B29D99/00 B29C45/2616 B29C45/44
F16D1/10 F16D3/2052 F16D3/44 G03G15/757

US: 1/1 264/328.1 384/397 384/428 399/117 399/159

**Family:**

Publication number	Publication date	Application number	Application date
CN103454874 A	20131218	CN201310210419	20130530
CN103454874 B	20170503	CN201310210419	20130530
CN203455585 U	20140226	CN201320306305U	20130530
DE202013102325 U1	20141016	DE201320102325U	20130529
JP2014197158 A2	20141016	JP20130076143	20130401
JP6102438 B2	20170329	JP20130076143	20130401
US2013322923 AA	20131205	US20130902234	20130524
US9062707 BB	20150623	US20130902234	20130524

Priority:

JP20120123608 20120530 JP20130047000 20130308 JP20130076143 20130401

Probable Assignee: MITSUBISHI CHEMICAL CORP

Assignee(s): (std): MITSUBISHI CHEM CORP

Assignee(s): MITSUBISHI CHEMICAL CORP ; MITSUBISHI CHEMICALS CORP ; MITSUBISHI RAYON CO LTD

Inventor(s): (std): SHUICHI IKEDA ; IKEDA SHUICHI

Agent(s): OBLON MCCLELLAND MAIER AND NEUSTADT LLP

56) Family number: 56878738 (US2015050048A)

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Title: TRANSMISSION DEVICE FOR PHOTSENSITIVE DRUM

Abstract: A transmission device for a photosensitive drum includes a sleeve, a transmission unit disposed in the sleeve and capable of moving and rotating at the same time, an elastic member, and a shell receiving the sleeve and the elastic member so that a relatively larger radius section and a relatively smaller radius section of the elastic member exert elastic force on the sleeve and the transmission unit, respectively. The transmission unit has two engagement blocks and a receiving space between them. Each engagement block has an inclined outer surface, an inner surface, an inclined top surface and an engagement concave connecting the inner and outer surfaces. The engagement concaves are opened toward opposite directions for engagement with two pillars of a drive member of an electronic image forming apparatus respectively. As a result, the transmission device can be connected with and separated from the drive member smoothly.

Classifications:

International (IPC 8-9): F16C3/02 F16D11/12 F16D11/16 F16D3/02

G03G15/00 G03G15/08 G03G15/16 G03G15/30 G03G21/16

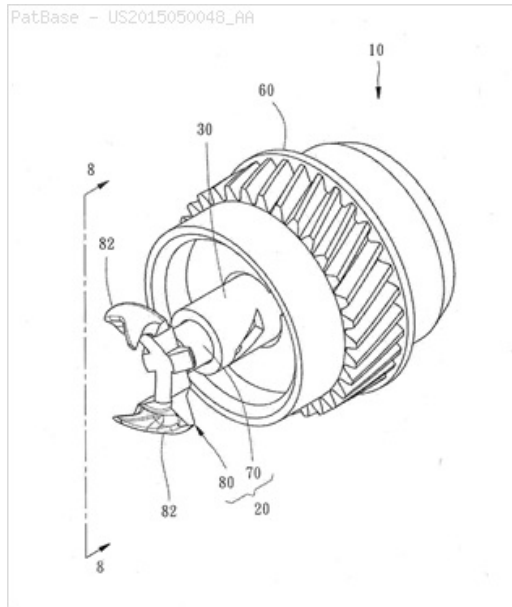
G03G21/18 (Advanced/Invention);

G03G21/18 (Advanced/Non-invention)

CPC: F16D11/12 F16D11/16 G03G21/186 G03G15/16 G03G15/08

G03G15/757 G03G21/1857 G03G2221/1657 G03G21/1864

US: 1/1 399/117 399/167

**Family:**

Publication number	Publication date	Application number	Application date
CN104749919 A	20150701	CN201510157519	20150403
CN104749919 B	20180209	CN201510157519	20150403
CN104991428 A	20151021	CN201410542142	20141014
CN104991428 B	20180720	CN201410542142	20141014
CN105204308 A	20151230	CN201510500909	20150814
CN203759426 U	20140806	CN201420043683U	20140123
CN203930334 U	20141105	CN201420375511U	20140708
DE102014114266 A1	20151112	DE201410114266	20141001
DE102015104038 A1	20151224	DE201510104038	20150318
DE102015113481 A1	20160218	DE201510113481	20150814
DE202014100621 U1	20140710	DE201420100621U	20140212
DE202014102906 U1	20140918	DE201420102906U	20140625
TW201502724 A	20150116	TW20130124445	20130708
TW201600942 A	20160101	TW20150109556	20150325
TW201606454 A	20160216	TW20140133602	20140926
TW201606458 A	20160216	TW20150126166	20150811
TWI492002 B	20150711	TW20130124445	20130708
TWI547774 B	20160901	TW20140133602	20140926
TWI547775 B	20160901	TW20150109556	20150325
TWI573001 B	20170301	TW20150126166	20150811
US2015050048 AA	20150219	US20130965856	20130813
US2015050049 AA	20150219	US20140310615	20140620
US2015050050 AA	20150219	US20140461011	20140815
US2015153701 AA	20150604	US20150617473	20150209
US2015338817 AA	20151126	US20150816640	20150803
US2016231688 AA	20160811	US20150755871	20150630
US9031465 BB	20150512	US20130965856	20130813
US9091994 BB	20150728	US20140461011	20140815
US9091995 BB	20150728	US20150617473	20150209
US9098048 BB	20150804	US20140310615	20140620
US9488951 BB	20161108	US20150816640	20150803
US9684274 BB	20170620	US20150755871	20150630
USRE46847 E	20180515	US20150811004	20150728
USRE46863 E	20180522	US20150932367	20151104

Priority:

TW20130124445 20130708	US20130965856 20130813	US20140310615 20140620
US20140461011 20140815	US20150617473 20150209	US20150755871 20150630
US20150811004 20150728	US20150816640 20150803	US20150932367 20151104

Probable Assignee: MITSUBISHI CHEMICAL CORP**Assignee(s):** (std): GENERAL PLASTIC INDUSTRIAL CO LTD ; MITSUBISHI CHEM CORP ; GENERAL PLASTIC IND CO LTD ; GEN PLASTIC IND CO ; GEN PLASTIC IND CO LTD**Assignee(s):** GENERAL PLASTIC INDUSTRIAL CO ; MITSUBISHI CHEMICAL CORP ; MITSUBISHI RAYON CO LTD**Inventor(s):** (std): HUANG SHI JIE ; HUANG SHIH CHIEH ; HUANG SHIJIE**Agent(s):** MUNCY GEISSLER OLDS AND LOWE PC; LOCKE LORD LLP; TIM TINGKANG**57) Family number: 56951802** (US2014205322A)

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Title: COUPLING PART, PHOTSENSITIVE DRUM, PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS**Abstract:** An electrophotographic photosensitive drum comprises a cylinder having a photosensitive layer formed thereon,

JP2014157213 A2	20140828	JP20130027512	20130215
JP6020237 B2	20161102	JP20130027512	20130215
US2015346671 AA	20151203	US20150826268	20150814
US9494905 BB	20161115	US20150826268	20150814
WO14126114 A1	20140821	WO2014JP53221	20140212

Priority:

JP20130027512 20130215 WO2014JP53221 20140212

Probable Assignee: MITSUBISHI CHEMICAL CORP

Assignee(s): (std): MITSUBISHI CHEM CORP ; MITSUBISHI CHEMICAL CORP

Assignee(s): MITSUBISHI CHEMICALS CORP ; MITSUBISHI RAYON CO LTD

Inventor(s): (std): IKEDA SHUICHI

Agent(s): HOFFMANN EITL; OBLON MCCLELLAND MAIER AND NEUSTADT LLP; HAMADA YURIKO ET AL

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

59) Family number: 58293435 (US2015110522A)

© PatBase

Title: BEARING MEMBER, END MEMBER, PHOTSENSITIVE DRUM UNIT, DEVELOPING ROLLER UNIT, PROCESS CARTRIDGE, INTERMEDIATE MEMBER, AND BEARING MEMBER BODY

Abstract: A bearing member is configured to be arranged in an end portion of a columnar rotary body, in which a shaft member is attached to the bearing member. The bearing member includes a body which includes a cylindrical body and a holding portion which is arranged inside the cylindrical body, and an intermediate member which is held by the holding portion of the body. The holding portion includes an intermediate member guide which guides the intermediate member so that the intermediate member rotates. The intermediate member includes a portion in which the shaft member is arranged.

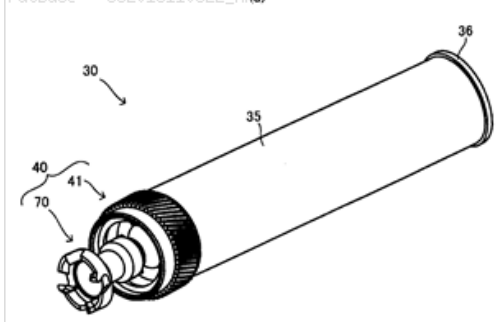
Classifications:

International (IPC 8-9): F16C11/06 F16C13/00 F16C13/04 F16D1/06 G03G15/00 G03G21/00 G03G21/16 G03G21/18 (Advanced/Invention)

CPC: G03G15/751 F16D1/06 G03G15/00 G03G21/18 F16C11/06 G03G21/186 G03G21/1647 Y10T403/7073 G03G15/757 G03G2221/1657

US: 1/1 399/111 399/117 399/119 399/159 399/308 403/122 403/375

PatBase - US2015110522_A(1)



Family:

Publication number	Publication date	Application number	Application date
CN105359041 A	20160224	CN201480038687	20140710
EP3021168 A1	20160518	EP20140823520	20140710
EP3021168 A4	20160622	EP20140823520	20140710
JP2015215580 A2	20151203	JP20140118089	20140606
JP6299446 B2	20180328	JP20140118089	20140606
US2015110522 AA	20150423	US20140580288	20141223
US2016048103 AA	20160218	US20150923795	20151027
US9268303 BB	20160223	US20140580288	20141223
US9400484 BB	20160726	US20150923795	20151027
WO15005446 A1	20150115	WO2014JP68489	20140710

Priority:

JP20130146354 20130712 JP20140090277 20140424 JP20140118089 20140606
WO2014JP68489 20140710 US20140580288 20141223 US20150923795 20151027

Probable Assignee: MITSUBISHI CHEMICAL CORP

Assignee(s): (std): MITSUBISHI CHEM CORP ; MITSUBISHI CHEMICAL CORP

Assignee(s): MITSUBISHI CHEMICALS CORP ; MITSUBISHI RAYON CO LTD

Inventor(s): (std): IIJIMA SHINICHI ; IKEDA SHUICHI

Agent(s): HOFFMANN EITL; OBLON MCCLELLAND MAIER AND NEUSTADT LLP; OBLON MCCLELLAND MAIER AND NEUSTADT LLP; HAMADA YURIKO ET AL

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

60) Family number: 58735964 (US2016246250A)

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Title: CARTRIDGE AND DRUM UNIT FOR ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract: A cartridge mountable to a printer, said printer including a coupling guide contactable to a coupling of the cartridge to guide the coupling member. A case of the cartridge is provided with a hole for exposing a free end portion of the coupling to an outside of the cartridge, and a retracted portion provided in downstream of the hole with respect to the mounting

International (IPC 8-9): F16D1/10 F16D3/16 G03G G03G13/02
G03G15/00 G03G21/16 G03G21/18 (Advanced/Invention);
G03G (Subclass/Invention)
CPC: G03G15/757 G03G21/1642 G03G2221/1657 G03G2221/183
G03G21/1671 G03G21/1676 G03G21/1853
US: 399/167

Publication number	Publication date	Application number	Application date
AR099716 AA	20160810	AR2015P100726	20150311
AU2014319287 AA	20150319	AU20140319287	20140911
AU2017216445 AA	20170831	AU20170216445	20170814
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CA2923967 AA	20160309	CA20142923967	20140911
CL2016000526 A1	20170203	CL20160000526	20160308
CN105531632 A	20160427	CN201480050056	20140911
CO16088043 A2	20161121	CO20160088043	20160407
EP3045979 A1	20160720	EP20140844462	20140911
EP3045979 A4	20170517	EP20140844462	20140911
EP3168692 A1	20170517	EP20160200236	20140911
HK1219543 A1	20170407	HK20160107442	20160627
ID201705476 A	20170526	ID2016P0001897	20140911
IN201647012036 A	20160708	IN201647012036	20160405
JP2015079243 A2	20150423	JP20140183708	20140909
KR20160053968 A	20160513	KR20167008847	20140911
MX2016003086 A1	20160526	MX20160003086	20140911
PH2016500458 A	20160516	PH20160500458	20160309
RU2016113714 A	20171016	RU20160113714	20140911
RU2016113714 A3	20180428	RU20160113714	20140911
SG10201802833P A1	20180530	SG20181002833	20140911
SG11201601874P A1	20160428	SG201611101874	20140911
TW201516590 A	20150501	TW20140131583	20140912
TW201734677 A	20171001	TW20170103518	20140912
TWI581074 B	20170501	TW20140131583	20140912
US2016246250 AA	20160825	US20160052192	20160224
US2017371296 AA	20171228	US20170697610	20170907
US9791825 BB	20171017	US20160052192	20160224
WO15037744 A1	20150319	WO2014JP74754	20140911
ZA201600728 A	20170531	ZA20160000728	20160202

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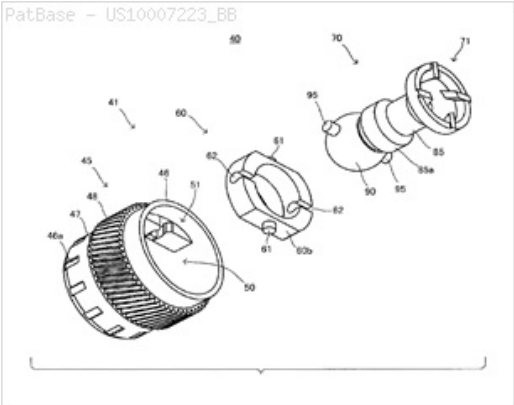
Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Title: BEARING MEMBER, END MEMBER, PHOTORECEPTOR DRUM UNIT, DEVELOPING ROLLER UNIT, PROCESS CARTRIDGE, AND MANUFACTURING METHOD OF BEARING MEMBER

Abstract: An end member (40) is disposed in an end portion of a columnar rotating body (20, 306), comprises: a bearing member (41); and a shaft member (70), in which the bearing member includes a main body (45) having a tubular body (46) and a holding portion (50) disposed on an inner side of the tubular body, and an intermediate member (60) held by the holding portion of the main body, in which one end side of the shaft member is held by the intermediate member, the intermediate member is snap-fit jointed to the holding portion of the main body to be rotatable around one axis, and the shaft member is snap-fit jointed to the intermediate member to be rotatable around an axis which is different from the axis of rotation of the intermediate member.

Classifications:

International (IPC 8-9): F16D3/26 G03G15/00 G03G15/08
G03G21/16 G03G21/18 (Advanced/Invention)
CPC: G03G15/08 G03G21/16 G03G21/18 G03G15/757 G03G21/1647
F16D3/26 G03G15/00



Family:

Publication number	Publication date	Application number	Application date
EP3153927 A1	20170412	EP20150802595	20150604
EP3153927 A4	20170621	EP20150802595	20150604
JP2015230468 A2	20151221	JP20140118083	20140606
JP6287603 B2	20180307	JP20140118083	20140606
US10007223 BB	20180626	US20160369931	20161206
US2017123367 AA	20170504	US20160369931	20161206
WO15186811 A1	20151210	WO2015JP66266	20150604

Priority:

JP20140118083 20140606 WO2015JP66266 20150604

Probable Assignee: MITSUBISHI CHEMICAL CORP

Assignee(s): (std): MITSUBISHI CHEM CORP ; MITSUBISHI CHEMICAL CORP

Assignee(s): MITSUBISHI CHEMICALS CORP ; MITSUBISHI RAYON CO LTD

Inventor(s): (std): MATSUOKA YOHEI ; IKEDA SHUICHI

Agent(s): HOFFMANN EITL; OBLON MCCLELLAND MAIER AND NEUSTADT LLP; EIKOH PATENT FIRM PC ET AL

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

62) Family number: 63372153 (US2017351214A)

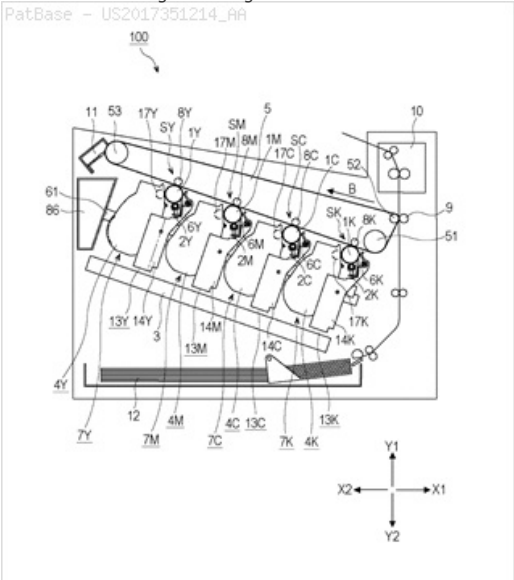
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Title: DRUM UNIT, CARTRIDGE AND COUPLING MEMBER

Abstract: To develop a conventional coupling for transmitting a driving force. A coupling member is provided with a supporting portion for movable supporting a driving force receiving portion for receiving a driving force.

Classifications:

International (IPC 8-9): F16D1/06 G03G15/00 G03G15/08
G03G21/16 G03G21/18 (Advanced/Invention)
CPC: G03G15/08 G03G21/16 G03G21/18 G03G21/1647
G03G15/0808 G03G21/1671 G03G21/1821 G03G21/1853
G03G21/186 G03G21/1842 G03G15/00 G03G15/757 G03G21/1857
G03G2215/0132 G03G2221/1657 G03G15/0837 G03G21/1864



Family:

Publication number	Publication date	Application number	Application date
AU2016224399 AA	20160901	AU20160224399	20160226
BR112017017874 A2	20180410	BR20171117874	20160226
CA2977940 AA	20170825	CA20162977940	20160226
CL2017002162 A1	20180413	CL20170002162	20170824
CN107430365 A	20171201	CN201680018880	20160226
CO20170009086 A2	20180131	CO20170009086	20170905
DE112016000940 T5	20171130	DE201611000940T	20160226
EP3264185 A1	20180103	EP20160755757	20160226
GB201715563 A0	20171108	GB20170015563	20160226
GB2552915 A1	20180214	GB20170015563	20160226
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IN201747033632 A	20170929	IN201747033632	20170922
JP2017142473 A2	20170817	JP20160038343	20160229
KR20170125887 A	20171115	KR20177027394	20160226
MX2017010811 A1	20171212	MX20170010811	20160226
PH2017501542 A	20180205	PH20170501542	20170825
SG11201706926U A1	20170928	SG20171106926	20160226
TW201633019 A	20160916	TW20160105978	20160226
US2017351214 AA	20171207	US20170685169	20170824
WO16137014 A1	20160901	WO2016JP56692	20160226

Priority:

JP20150039432 20150227 JP20160023071 20160209 WO2016JP56692 20160226
JP20160038343 20160229

Probable Assignee: CANON INC

Assignee(s): (std): CANON INC ; CANON KK

Assignee(s): HAYASHIDA MAKOTO ; UESUGI TETSUO ; YAMAGUCHI KOJI ; YANO TAKASHI

Inventor(s): (std): HAYASHIDA MAKOTO ; KOJI YAMAGUCHI ; MAKOTO HAYASHIDA ; TAKASHI YANO ; TETSUO UESUGI ; UESUGI TETSUO ; YAMAGUCHI KOJI ; YANO TAKASHI

Agent(s): SPRUSON AND FERGUSON; RIDOUT AND MAYBEE LLP; ESTUDIO VILLASECA Y CIA; HUMBERTO RUBIO CAMACHO; TBK; NABILA AMBADAR SH LLM

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

63) Family number: 63563961 (US2018087580A)

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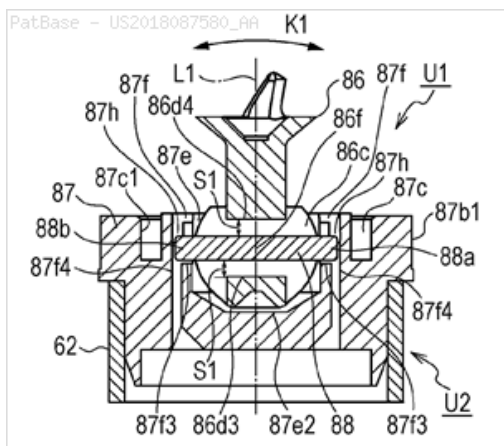
Title: DRUM CYLINDER UNIT, METHOD FOR ATTACHING COUPLING MEMBER, AND DRUM UNIT

Abstract: A drum cylinder unit includes a photoconductive drum and a flange member. The flange member includes a fixing portion fixed to an end of the photoconductive drum, a cylindrical portion which forms a hollow portion therein, a groove portion provided at an edge of the cylindrical portion, and a gear portion. The groove portion and the hollow portion open to an outside of an axial direction of the photoconductive drum.

Classifications:

International (IPC 8-9): F16D3/16 F16D3/20 F16D3/46 G03G15/00 G03G21/00 G03G21/16 G03G21/18 (Advanced/Invention)

CPC: F16D1/101 F16D3/265 F16D3/46 G03G15/757 G03G21/186 F16D3/16 G03G2221/1861 F16D3/20 G03G21/1671 G03G21/1647 F16D3/2052



Family:

Publication number	Publication date	Application number	Application date
AU2016230559 AA	20160915	AU20160230559	20160308
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CL2017002251 A1	20180413	CL20170002251	20170906
CN107407899 A	20171128	CN201680014249	20160308
CO20170010099 A2	20171010	CO20170010099	20171004
EP3268813 A1	20180117	EP20160761307	20160308
ID201805172 A	20180518	ID2017AID06811	20160308
IN201747034874 A	20171006	IN201747034874	20171003
JP2016170402 A2	20160923	JP20160028430	20160217
KR20170133366 A	20171205	KR20177027904	20160308
MX2017011036 A1	20171110	MX20170011036	20160308
PH2017501632 A	20180212	PH20170501632	20170908

SG11201706983R A1	20170928	SG20171106983	20160308
TW201638681 A	20161101	TW20160107418	20160310
TWI600985 B	20171001	TW20160107418	20160310
US2018087580 AA	20180329	US20160554929	20160308
WO16143333 A1	20160915	WO2016JP01268	20160308

Priority:

JP20150047603 20150310 JP20160028430 20160217 WO2016JP01268 20160308

Probable Assignee: CANON INC

Assignee(s): (std): CANON INC ; CANON KK

Assignee(s): KAMOSHIDA SHIGEMI ; KIKUCHI KEN ; MIYAMOTO JUN ; MORI TOMONORI ; ABE DAISUKE

Inventor(s): (std): ABE DAISUKE ; DAISUKE ABE ; JUN MIYAMOTO ; KAMOSHIDA SHIGEMI ; KEN KIKUCHI ; KIKUCHI KEN ; KIKUCHI TAKESHI ; MIYAMOTO JUN ; MORI TOMONORI ; SHIGEMI KAMOSHIDA ; TOMONORI MORI

Agent(s): SPRUSON AND FERGUSON; RIDOUT AND MAYBEE LLP; ESTUDIO VILLASECA Y CIA; HUMBERTO RUBIO CAMACHO; TBK; NABILA AM BADAR SH LLM

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW