

1) Family number: 46712092 (US2010221036A)

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Title: CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Priority: JP20090045057 20090227

Family:

Publication number	Publication date	Application number	Application date
CN101819400 A	20100901	CN201010126084	20100226
CN101819400 B	20120919	CN201010126084	20100226
JP2010197893 A2	20100909	JP20090045057	20090227
JP5344580 B2	20131120	JP20090045057	20090227
US2010221036 AA	20100902	US20100708787	20100219
US8478166 BB	20130702	US20100708787	20100219

Probable Assignee: CANON INC

Assignee(s):(std): CANON KK ; HARA NOBUYOSHI ; MORIOKA MASANARI

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

Inventor(s):(std): HARA NOBUYOSHI ; MASANARI MORIOKA ; MORIOKA MASANARI ; MORIOKA MASAYA ; NOBUYOSHI HARA

Agent(s): FITZPATRICK CELLA HARPER AND SCINTO

International class (IPC 8-9): G03G15/00 G03G15/02 G03G21/18 (Advanced/Invention);
G03G15/00 G03G21/18 (Core/Invention)

CPC: G03G21/1853 G03G21/186 G03G21/1864

European class: G03G21/18H1V G03G21/18H2C G03G21/18H2P

US class: 399/110 399/110P 399/167

JP class F-Term: 2H171/FA02 2H171/FA03 2H171/FA04 2H171/FA09 2H171/FA13 2H171/GA03 2H171/GA04
2H171/GA09 2H171/JA23 2H171/JA27 2H171/JA29 2H171/JA31 2H171/KA05 2H171/KA06 2H171/KA17
2H171/KA23 2H171/KA26 2H171/KA27 2H171/LA02 2H171/LA04 2H171/LA13 2H171/LA17 2H171/QA02
2H171/QB03 2H171/QB15 2H171/QB32 2H171/QC03 2H171/SA10 2H171/SA12 2H171/SA18 2H171/SA22
2H171/SA26

JP class F-Index: G03G15/00/550 G03G15/00/556 G03G21/16/161 G03G21/16/171 G03G21/16/176

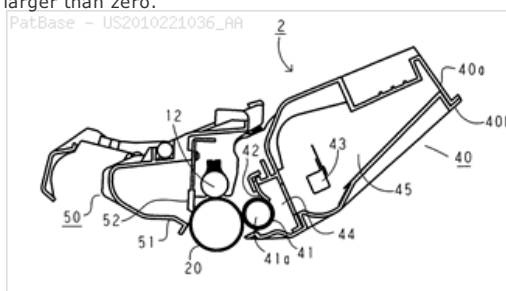
[Classification Explorer](#)

Cited documents: US6464589 BA, US5160946 A, US2008240796 AA, US2008152388 AA, US2006240896 AA, JPS646981,
JP64006981 A2, JP5241457 A2, JP2008268927 A2, JP2008268927, JP2008233867 A2, JP2008233867,
JP200752185, JP2007052185 A2, JP2007052185, JP200672160, JP2006072160 A2, JP2006072160,
JP2004145077 A2, JP2004100942 A2, JP2004100942, JP1006981 A2, CN1851282 A,

Forward Citations: WO17202352, WO15169205, WO15043339, WO15005446, WO14157113, USD796574, US9996050,
US9846409, US9690248, US9494906, US9400484, US9268303, US8270876, US2018341214,
US2018046133, US2017075300, US2009317131, US10671015, US10635047, US10635045, US10585387,
KR20170091586, KR20170044013, KR102079856, KR102062425, JP6299446, JP5943716, JP5791315,
JP5495671, JP2015215580, JP2013250518, JP2012194210, JP2010079284, EP3168692, EP3141965,
EP3029527, EP3021168, CN105652617, CN105652617, CN105359041, CN105359041, CN105093871,
CN105093871, CN104516224, CN104516224,

Abstract:

A cartridge mountable and dismountable by moving in the direction crossing with an axial direction of the drive shaft of a main assembly of the apparatus, includes a rotatable member rotatable by receiving a rotational force from the apparatus; a coupling engageable with the rotational force applying portion to receive a force for rotating said rotatable member, said coupling including a coupling member rotatable about an axis, a first rotational force receiving portion, provided at one end portion of said coupling member, for receiving the rotational force from the driving shaft, a rotational force transmission member engaged with the other end portion of said coupling member and having opposite ends projected out in a crossing wherein said coupling member is pivotable between a transmitting angular position for transmitting the rotational force from the driving shaft to said rotatable member and a mounting-and-dismounting angular position which is inclined relative to the axis of said rotatable member; a flange mounted to said rotatable member and rotatable about an axis, said flange including an opening accommodating said transmission member with a gap, a regulating portion, provided in said opening, for regulating movement of said transmission member in the crossing direction when said coupling takes the transmitting angular position, a second rotational force receiving portion for being abutted by said transmission member to receive the rotational force from said coupling, an opposing portion opposing to said second receiving portion, wherein in a state that said coupling is in the transmitting angular position and that one end of said transmission member contacts to said regulating portion to be confined in movement, when said coupling inclines relative to said flange such that a side in which a projection distance of said rotational force transmission member is relatively smaller moves away from said first receiving portion, an engagement depth between said side of said transmission member and said second receiving portion and an engagement depth between said side of said transmission member and said opposing portion are larger than zero.



2) Family number: 54080261 (US2014270845A)

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Title: CARTRIDGE DETACHABLY MOUNTABLE TO MAIN ASSEMBLY OF ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS, ASSEMBLING METHOD FOR DRIVE TRANSMITTING DEVICE FOR PHOTOSENSITIVE DRUM, AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Priority:

JP20110266989	20111206	JP20120228108	20121015	JP20120242778	20121102
BR20141113431	20121206	CN201280068776	20121206	IN2014CN04840	20121206
JP20160186960	20121206	JP20170217747	20121206	JP20120267561	20121206
WO2012JP82271	20121206	US20140291918	20140530	HK20150101759	20150217
US20160189169	20160622	JP20160186960	20160926	US20170791635	20171024
JP20170217747	20171110	JP20190078175	20190416		

Family:	Publication number	Publication date	Application number	Application date
	BR112014013431 A2	20170613	BR20141113431	20121206
	BR112014013431 A8	20170620	BR20141113431	20121206
	BR112014013431 A8	20170613	BR20141113431	20121206
	BR122015030276 A2	20190827	BR20151230276	20121206
	CN104081291 A	20141001	CN201280068776	20121206
	CN104081291 B	20180911	CN201280068776	20121206
	CN109116707 A	20190101	CN201810957169	20121206
	EP2790065 A1	20141015	EP20120854694	20121206
	EP2790065 A4	20150729	EP20120854694	20121206
	EP2790065 B1	20200603	EP20120854694	20121206
	HK1201338 A1	20150828	HK20150101759	20150217
	HK1201338 B	20190830	HK20150101759	20150217
	HK1258654 A1	20191115	HK20190101018	20150217
	IN04840CN2014 A	20150918	IN2014CN04840	20140626
	IN201848047297 A	20181221	IN201848047297	20181214
	JP2014112169 A2	20140619	JP20120267561	20121206
	JP2017021369 A2	20170126	JP20160186960	20160926
	JP2018022197 A2	20180208	JP20170217747	20171110
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	JP6246294 B2	20171213	JP20160186960	20160926
	JP6516815 B2	20190522	JP20170217747	20171110
	KR101653333 B1	20160901	KR20147017797	20121206
	KR101709998 B1	20170224	KR20167023505	20121206
	KR101746368 B1	20170612	KR20177004597	20121206
	KR101779754 B1	20170918	KR20177015343	20121206
	KR101871784 B1	20180628	KR20177025662	20121206
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	KR102007136 B1	20190802	KR20187038007	20121206
	KR102054637 B1	20191210	KR20197022314	20121206
	KR102118940 B1	20200604	KR20197035854	20121206
	KR20140106623 A	20140903	KR20147017797	20121206
	KR20160104744 A	20160905	KR20167023505	20121206
	KR20170021907 A	20170228	KR20177004597	20121206
	KR20170066706 A	20170614	KR20177015343	20121206
	KR20170107099 A	20170922	KR20177025662	20121206
	KR20180073712 A	20180702	KR20187017639	20121206
	KR20190002753 A	20190108	KR20187038007	20121206
	KR20190091387 A	20190805	KR20197022314	20121206
	KR20190137956 A	20191211	KR20197035854	20121206
	KR20200065100 A	20200608	KR20207015485	20121206
	PH2014501470 A	20141008	PH20140501470	20140625
	PH2014501470 B	20141008	PH20140501470	20140625
	RU2014127499 A	20160210	RU20140127499	20121206
	RU2637370 C2	20171204	RU20140127499	20121206
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	RU2692404 C1	20190624	RU20180137479	20181024
	RU2713081 C1	20200203	RU20190118292	20190613
	TW201337477 A	20130916	TW20120145980	20121206
	TW201546579 A	20151216	TW20150110971	20121206
	TW201736992 A	20171016	TW20170121120	20121206
	TW201921191 A	20190601	TW20180129611	20121206
	TWI489226 B	20150621	TW20120145980	20121206
	TWI598709 B	20170911	TW20150110971	20121206
	TWI640849 B	20181111	TW20170121120	20121206
	US2014270845 AA	20140918	US20140291918	20140530
	US2016306320 AA	20161020	US20160189169	20160622
	US2018046133 AA	20180215	US20170791635	20171024
	US9395679 BB	20160719	US20140291918	20140530
	US9823619 BB	20171121	US20160189169	20160622
	US10585387 BB	20200310	US20170791635	20171024

US10635045 BB	20200428	US20170791635	20171024
VN20497 A1	20190225	VN20140002050	20140623
WO13085073 A1	20130613	WO2012JP82271	20121206

Probable Assignee: CANON INC

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

Assignee(s): CANON KABUSHIKI KAISHA ; KENON KABUSIKI KAJSYA

Inventor(s):(std): KAWAKAMI TAKUYA ; KOISHI ISAO ; KOMATSU NORIYUKI ; SHIRAKATA SHO ; TAKUYA KAWAKAMI ; SIRAKATA SO ; SHO SHIRAKATA ; NORIYUKI KOMATSU ; KOISI ISAO ; KAVAKAMI TAKUYA ; ISAO KOISHI

Agent(s): TBK; DEACONS; OOO YURIDICHESKAYA GORODISSKIY I PARTNERY FA; YURIDICHESKAYA GORODISSKIY I PARTNERY OOO FA; FITZPATRICK CELLA HARPER AND SCINTO; VENABLE LLP; YAMADA RYUICHI

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 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 TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

International class (IPC 8-9): F16D3/16 G03G G03G15/00 G03G15/08 G03G15/16 G03G21/12 G03G21/16 G03G21/18 (Advanced/Invention); G03G (Subclass/Invention)

International class (IPC 1-7): G03G21/18

CPC: F16D3/16 G03G21/1647 G03G21/186 Y10T29/49826 G03G21/1671 G03G21/18 G03G21/12

US class: 1/1 29/428 399/110 399/116

JP class F-Term: 2H035 2H035/CA07 2H035/CB01 2H035/CD02 2H035/CD05 2H035/CD07 2H035/CD09 2H035/CD11 2H035/CD14 2H077 2H077/AB15 2H077/AD13 2H077/AD17 2H077/AE03 2H077/BA01 2H077/BA08 2H077/BA09 2H077/EA13 2H171 2H171/FA09 2H171/FA09 2H171/GA12 2H171/GA31 2H171/JA23 2H171/JA27 2H171/JA29 2H171/JA34 2H171/JA48 2H171/KA05 2H171/KA17 2H171/KA22 2H171/KA23 2H171/KA25 2H171/KA26 2H171/KA27 2H171/LA13 2H171/LA17 2H171/QA02 2H171/QA06 2H171/QA08 2H171/QA11 2H171/QA13 2H171/QB03 2H171/QB15 2H171/QB17 2H171/QB32 2H171/QC03 2H171/QC22 2H171/SA10 2H171/SA12 2H171/SA18 2H171/SA19 2H171/SA22 2H171/SA26 2H171/FA02 2H171/GA06 2H171/JA14 2H171/LA03 2H171/LA08 2H171/JA31 2H171/JA31 2H171/KA12 2H171/FA03 2H171/FA02 2H171/FA13 2H171/FA24 2H171/GA15 2H171/JA57 2H171/JA59 2H171/PA12 2H171/PA15 2H171/PA17 2H171/QB38 2H171/TA15

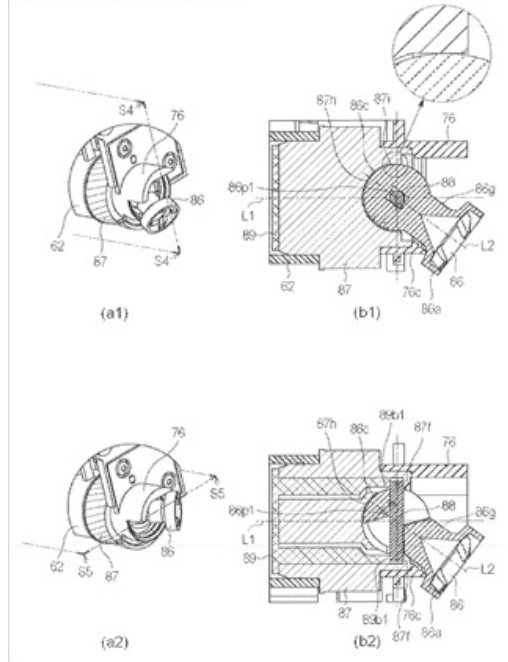
JP class F-Index: G03G15/00/556 G03G15/00/650 G03G15/00/651 G03G15/00/659 G03G15/08/390/A G03G21/00/354 G03G21/16/161 G03G21/16/171 G03G21/16/176 G03G21/18/160 G03G21/18/153 G03G21/18/157

[Classification Explorer](#)

Cited documents: WO09151132 A1, WO08081966 A1, WO08081966 A1, WO08078836 A1, WO08072431 A2, US8787794 BB, US8571445 BB, US8526841 BB, US8139979 BB, US7890012 BB, US7856192 BB, US7813671 BB, US7457566 BB, US7315710 BB, US7283765 BB, US7266326 BB, US7184690 BB, US7158749 BB, US7156797 BB, US7139502 BB, US7110703 BB, US7072601 BB, US7024131 BB, US7003247 BB, US6671477 BB, US4065941 A, US4065941 A, US2015010320 AA, US2014112685 AA, US2014064784 AA, US2014056614 AA, US2013064659 AA, US2012243905 AA, US2011182654 AA, US2011038649 AA, US2010221036 AA, US2010170368 AA, US2010054823 AA, US2010034561 AA, US2009317132 AA, US2009317129 AA, US2009317129 AA, US2008260428 AA, US2008152388 AA, US2008095549 AA, US2007110478 AA, US2006240896 AA, US2002025191 AA, RU2367016 C2, KR20090105941 A, KR20090105941 A, KR101653333 B1, KR101653333 B1, KR101653333, JP4948382 B2, JP4948382 B2, JP4948382 B2, JP4498407 B2, JP4498407 B2, JP4498407 A2, JP3157067 U, JP3157067 U, JP201195604, JP201195604, JP2011145670 A2, JP2011145670 A2, JP2011095604 A2, JP2011095604 A2, JP20102689, JP2010152387 A2, JP2010152387 A2, JP2010140051 A2, JP2010140051 A2, JP2010079284 A2, JP2010079284 A1, JP2010079284, JP2010079283 A2, JP2010079283, JP201002689, JP2010026473 A2, JP2010026473 A2, JP2010002689 A2, JP2010002689, JP2010002688 A2, JP2010002688 A2, JP2009300516 A2, JP2009300516 A2, JP2008268927 A2, JP2008268927, JP2008268297 A2, JP2008268297, JP2008233868 A2, JP2008233868 A2, JP200672160, JP200672160, JP2006072160 A2, JP2006072160 A2, JP200445603, JP200445603, JP2004045603 A2, JP2004045603 A2, JP200248148, JP200248148, JP2002048148 A2, JP2002048148 A2,

Forward Citations: WO16143912, WO16143333, WO15158274, WO15037744, US9964919, US9952555, US9939778, US9836016, US9791825, US9684278, US9678457, US9494890, US9423767, US9417604, US9304483, US2018164741, US2017176915, US2017108827, US2017108824, US10671015, US10663911, US10635045, US10613465, US10599090, US10585391, US10459403, US10416604, US10394182, US10379491, US10353339, US10338513, US10331077, US10241459, US10203652, TWI640848, TWI640844, TWI600985, TWI596453, TWI581074, RU2712933, RU2692107, RU2691137, RU2670580, RU2667311, KR20180107312, KR20170107099, KR20160105317, KR102058278, KR102045168, KR101982107, KR101902662, KR101871784, JP6415198, JP2019015978, JP2016170402, JP2016170396, JP2015079243, EP3376062, EP3376062, EP3268813, EP3026503, EP2911010, EP2911010, CN107407899, CN107407898, CN107407898, CN106814575, CN106125533, CN106125533, CN105531632, CN105531632, AU2016230559,

Abstract:
 With a structure in which a coupling member includes a sphere providing a center of inclination (pivoting), a rotational force transmitted member has an opening have a diameter smaller than that of the sphere, and the coupling member is prevented from disengaging from rotational force transmitted member by contact of inner edge of the opening to the sphere, the inner edge of the opening may limit an inclinable (pivotable) angle range of the coupling member. In a state that a pin that is a shaft portion is inserted in a hole that is a through-hole provided in a coupling member, opposite end portions of the pin are supported by a driving side flange, which is a rotational force transmitted member. The coupling member, the driving side flange, and the pin are connected in this manner, and the pin contacts the inside of the hole without limiting the inclinable (pivotable) angle range, by which the coupling member is prevented from disengaging from the driving side flange.

**3) Family number: 44451315** (US2010054823A)

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Title: DEVELOPING DEVICE, DEVELOPING CARTRIDGE, ROTATIONAL FORCE TRANSMITTING PART AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Priority: JP20080218465 20080827 JP20090191189 20090820 AU20090284873 20090827
CA20092728942 20090827 WO2009JP65375 20090827 CN200980132510 20090827
IN2011CN01965 20090827 HK20110110814 20111012 AU20130202125 20130328
CA20152728942 20150310 AU20160201011 20160218 RU20160127560 20160708
AU20170236008 20170929

Family:	Publication number	Publication date	Application number	Application date
	AU2009284873 AA	20100304	AU20090284873	20090827
	AU2013202125 AA	20130502	AU20130202125	20130328
	AU2013202125 BB	20151203	AU20130202125	20130328
	AU2016201011 AA	20160303	AU20160201011	20160218
	AU2016201011 BB	20170629	AU20160201011	20160218
	AU2017236008 AA	20171026	AU20170236008	20170929
	AU2017236008 BB	20190117	AU20170236008	20170929
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	CN105116702 B	20190726	CN201510626305	20090827
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	DE112009001827 T5	20110630	DE200911001827T	20090827
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	HK1213643 A1	20160708	HK20160101522	20111012
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	IN01965CN2011 A	20111202	IN2011CN01965	20110321
	IN201748027989 A	20170818	IN201748027989	20170807
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TWI620040 B	20180401	TW20160120556	20090827
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US8874004 BB	20141028	US20090547790	20090826
VN16444 A1	20170225	VN20110000787	20090827
WO10024457 A1	20100304	WO2009JP65375	20090827

Probable Assignee: CANON INC

Assignee(s):(std): CANON KK ; KENON KK ; MIYABE SHIGEO ; TAKASAKA ATSUSHI ; UENO TAKAHITO

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

Inventor(s):(std): ATSUSHI TAKASAKA ; MIJABE SIGEO ; MIYABE SHIGEO ; MIYABE SIGEO ; SHIGEO MIYABE ; TAKAHITO UENO ; TAKASAKA ATSUSHI ; TAKASAKA ATSUSI ; TAKASAKA ATSUYUKI ; UENO TAKAHITO ; UENO TAKAKHITO

Agent(s): SPRUSON AND FERGUSON; RIDOUT AND MAYBEE LLP; DERHAM CASSANDRA VIRGINIE; HITCHING PETER MATTHEW; DEACONS; OOO YURIDICHESKAYA GORODISSKIJ I PARTNER Y FA; DREW AND NAPIER LLC; 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

International class (IPC 8-9): F16D F16D1/10 F16D3/205 G03G G03G15/00 G03G15/01 G03G15/04 G03G15/06 G03G15/08 G03G15/14 G03G21/00 G03G21/16 (Advanced/Invention); F16D1/10 G03G15/01 G03G15/14 (Advanced/Non-invention); F16D1/00 G03G15/01 G03G15/08 G03G21/16 (Core/Invention); G03G15/01 G03G15/08 (Core/Non-invention); F16D G03G (Subclass/Invention)

International class (IPC 1-7): F16D1/10 G03G15/01

CPC: G03G15/0121 G03G15/0173 G03G21/00 F16D1/10 F16D3/2052 G03G15/0152 G03G2215/0177

European class: F16D1/10 F16D3/205B G03G15/01S1B S03G215/01S2A

US class: 399/119 399/227 399/286 399/286P

JP class F-Term: 2H077 2H077/AC04 2H077/AD02 2H077/AD06 2H077/AD13 2H077/AD17 2H077/AD23 2H077/AE04 2H077/BA08 2H077/BA09 2H077/BA10 2H077/DA24 2H077/EA14 2H077/GA13 2H171 2H171/FA02 2H171/FA04 2H171/FA13 2H171/GA06 2H171/GA12 2H171/HA02 2H171/HA23 2H171/HA24 2H171/HA33 2H171/JA06 2H171/JA14 2H171/JA23 2H171/JA29 2H171/JA34 2H171/JA40 2H171/JA59 2H171/KA10 2H171/KA12 2H171/KA17 2H171/KA22 2H171/KA23 2H171/KA24 2H171/KA25 2H171/KA26 2H171/KA27 2H171/LA06 2H171/LA13 2H171/LA17 2H171/QA02 2H171/QA08 2H171/QA24 2H171/QB15 2H171/QB34 2H171/QB38 2H171/QB41 2H171/QC03 2H171/QC05 2H171/SA11 2H171/SA14 2H171/SA18 2H171/SA22 2H171/SA26 2H171/TA07 2H171/TA15 2H171/TA20 2H171/UA12 2H171/WA07 2H171/WA12 2H171/XA16 2H300 2H300/EA07 2H300/EA08 2H300/EA17 2H300/EB02 2H300/EB08 2H300/EB12 2H300/EC05 2H300/EF06 2H300/EF08 2H300/EH16 2H300/EJ09 2H300/EJ15 2H300/EJ47 2H300/GG01 2H300/GG02 2H300/HH03 2H300/HH14 2H300/HH16 2H300/HH17 2H300/HH23 2H300/HH24 2H300/HH34 2H300/HH37 2H300/HH38 2H300/MM01 2H300/QQ10 2H300/QQ16

JP class F-Index: G03G15/00/550 G03G15/00/554 G03G15/01/113/Z G03G15/08/390/A G03G15/08/390/C G03G15/08/503/C G03G15/08/507/H G03G21/16/147 G03G21/16/176

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Forward Citations: WO19124661, WO15010538, US9989915, US9964919, US9939776, US9886002, US9874854, US9874846, US9869960, US9864333, US9864331, US9857766, US9857765, US9857764, US9851688, US9851685, US9846408, US9841729, US9841728, US9841727, US9841724, US9836021, US9836015, US9817333, US9791825, US9772602, US9746826, US9733614, US9703257, US9684278, US9678471, US9671751, US9658593, US9658592, US9594343, US9551957, US9477201, US9377755, US9348303, US9182733, US9176468, US9141069, US9134652, US8995880, US8953981, US8923731, US8892004, US8798501, US8688008, US8688004, US8670688, US8644733, US8644732, US8521060, US8494411, US8483589,

US8433219, US8422914, US8369748, US8369744, US2019004472, US2017293255, US2017227927, US2017227925, US2017227920, US2017227919, US2017192386, US2017192384, US2017185033, US2017185031, US2017185030, US2017185027, US2017176915, US2017090412, US2014165761, US2013322930, US2013045030, US2013028635, US2012294649, US2011103832, US2011103827, US2011103823, US2010054806, US2009317135, US10712710, US10712709, US10671018, US10671015, US10663915, US10663911, US10642216, US10635045, US10627778, US10627769, US10620582, US10585391, US10585387, US10579012, US10558165, US10551793, US10545450, US10539924, US10539923, US10520887, US10474096, US10459402, US10452016, US10429794, US10416606, US10394182, US10345733, US10268156, US10248076, US10209670, US10203652, US10191436, US10095179, RU2716169, RU2692943, KR20170091586, KR20160114489, KR102079856, KR101907942, JP6516815, JP2018022197, JP2016170396, EP3444681, EP3226078, EP3226078, EP3045979, CN107407898, CN107407898, CN107272374, CN107111273, CN103676561, CN103676561, CN103513534, CN103513534, CN102722094, AU2018202453, AU2018202452, AU2018202448, AU2018202447, AU2018202445,

Abstract:

A developing device is usable with an electrophotographic image forming apparatus including a shaft and a rotary unit mounting the device. When mounted, the device is movable perpendicular to a shaft axial direction in response to movement of the rotary unit and the shaft is not movable in that direction. The device includes a developing roller that contacts and separates from a drum in response to movement of the rotary unit, and a coupler transmitting a rotating force to the roller. The coupler includes a portion engaging the shaft to receive a rotating force and a portion transmitting the received rotating force to the roller. The coupler takes a first position for transmitting the rotational force to the roller, a position before the coupler engages the shaft and is inclined away from the first position, and a position for the disengagement of the coupler and the shaft.

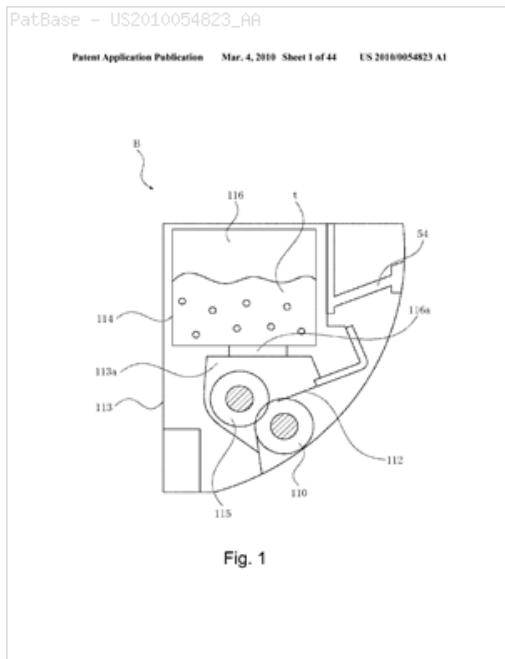


Fig. 1

4) Family number: 42232318 (US2008240796A)

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

Priority:

JP20070076771	20070323	JP20080073685	20080321	JP20130140504	20080321
JP20140236931	20080321	JP20160044298	20080321	JP20170114248	20080321
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Family:

Publication number	Publication date	Application number	Application date
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WO08117878 A1	20081002	WO2008JP56259	20080324

Probable Assignee: CANON INC

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

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

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

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

Agent(s): SPRUSON AND FERGUSON; RIDOUT AND MAYBEE LLP; TBK; TBK PATENT; DURAN CARLOS; DEACONS; YURIDICHESKAYA GORODISSKIJ I PARTNER Y OOO FA; YURIDICHESKAYA GORODISSKIJ I PARTNER Y UL BOLSHAYA SPASSKAYA D25 STROENIE 3 MOSKVA 129090 OOO FA; DREW AND NAPIER LLC; NAZLI TUGBA KORKUT OEZSOY; FITZPATRICK CELLA HARPER AND SCINTO; VENABLE LLP; 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 TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

International class (IPC 8-9): F16D F16D1/10 F16D3/04 F16D3/16 F16D3/46 G03G 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 class (IPC 1-7): F16D1/10 F16D3/04 G03G15/01 G03G15/08

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

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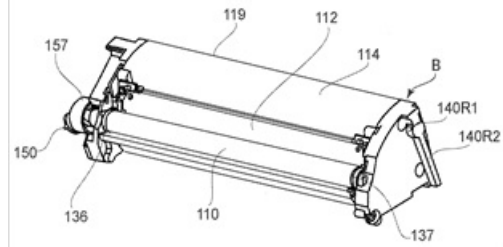
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Forward Citations:

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.

**5) Family number: 41952324 (US2008152388A)**

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

Priority:

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Family:

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Probable Assignee: CANON INC

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

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

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

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

Agent(s): SPRUSON AND FERGUSON; RIDOUT AND MAYBEE LLP; TBK; TBK PATENT; DURAN CARLOS; DEACONS; STROENIE 3 MOSKVA 129090; YURIDICHESKAYA GORODISSKI I PARTNER YOO FA; DREW AND NAPIER LLC; NUKHET SERRA CORAL; CANAN OETZUERKER; FITZPATRICK CELLA HARPER AND SCINTO; VENABLE LLP; YAMADA RYUICHI

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8-9): G03G15/22 G03G21/00 G03G21/16 G03G21/18 (Advanced/Invention);
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G03G15/00 G03G21/18 (Core/Non-invention);
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CPC: G03G21/1803 G03G21/00 G03G15/00 G03G15/16 G03G21/18 G03G21/1647 G03G21/1817 G03G15/757
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European class: G03G15/75F G03G21/18H1V G03G21/18H2C S03G221/16K2

US class: 1/1 399/111 399/111P 399/113 399/117 399/119 399/167 399/167P

JP class F-Term: 2H035 2H035/CA07 2H035/CB01 2H035/CD02 2H035/CD05 2H035/CD07 2H035/CD14 2H171 2H171/FA02
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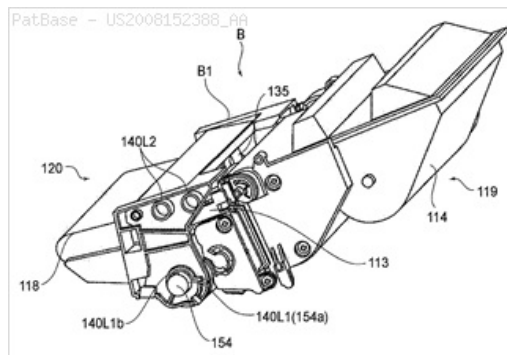
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Abstract:

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.



6) Family number: 42001508 (US2008260428A)

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Title: ROTATIONAL FORCE TRANSMITTING PARTS

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Probable Assignee: CANON INC

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

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

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

Agent(s): SPRUSON AND FERGUSON; RIDOUT AND MAYBEE LLP; TBK-PATENT; TBK; DEACONS; OOO YURIDICHESKAYA GORODISSKIY I PARTNERY FA; YURIDICHESKAYA GORODISSKIY I PARTNERY OOO FA; DREW AND NAPIER LLC; FITZPATRICK CELLA HARPER AND SCINTO; VENABLE LLP; 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 UM US UZ VC VN ZA ZM ZW

International class (IPC 8-9): F16D F16D1/10 F16D1/112 F16D11/04 F16D3/16 G03G 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)

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

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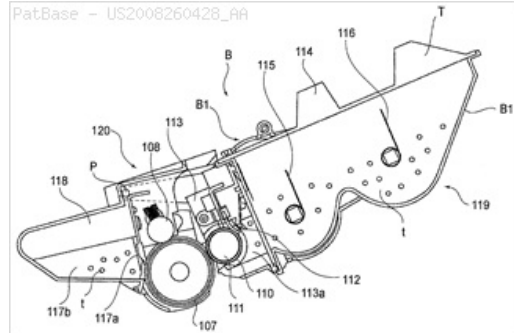
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Abstract:

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.

**7) Family number: 44125674 (US2011038649A)**

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Title:	CARTRIDGE, AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS WHICH USES CARTRIDGE					
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Probable Assignee: CANON INC

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

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

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

Inventor(s): MORIOKA MASANORI

Agent(s): SPRUSON AND FERGUSON; RIDOUT AND MAYBEE LLP; TBK PATENT; TBK; DEACONS; OOO YURIDICHESKAYA GORODISSKIJ I PARTNERY FA; YURIDICHESKAYA GORODISSKIJ I PARTNERY OOO FA; DREW AND NAPIER LLC; FITZPATRICK CELLA HARPER AND SCINTO; VENABLE LLP; 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

International class (IPC 8-9): F16D3/16 G03G G03G15/00 G03G15/06 G03G15/08 G03G15/30 G03G21/00 G03G21/08 G03G21/16 G03G21/18 (Advanced/Invention); G03G15/08 G03G21/16 G03G21/18 (Core/Invention); G03G21/18 (Core/Non-invention); G03G (Subclass/Invention)

International class (IPC 1-7): G03G15/08 G03G21/18

CPC: G03G21/1821 G03G21/00 G03G15/0808 G03G15/0896 G03G21/1853 G03G21/186 G03G2221/1657

European class: G03G15/08S G03G21/18H1V G03G21/18H2C S03G221/16K2

US class: 1/1 399/111 399/119 399/119P

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JP class F-Index: G03G15/00/554 G03G15/00/556 G03G21/16/176 G03G21/18/153 G03G21/18/160 G03G21/18/142 G03G15/00/550 G03G15/08/390/A F16D3/16/P

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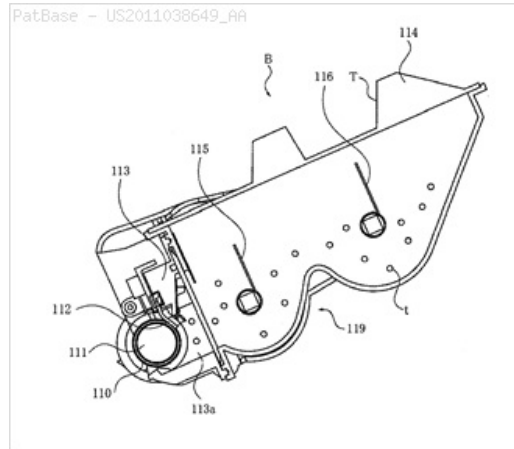
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Abstract:

A cartridge for use with a main assembly of an electrophotographic image forming apparatus, the main assembly including a driving shaft having a rotational force applying portion, wherein the cartridge is dismountable from the main assembly in a direction substantially perpendicular to an axial direction of the driving shaft, the cartridge including i) a developing roller for developing an electrostatic latent image formed on an electrophotographic photosensitive drum, the developing roller being rotatable about an axis thereof; and ii) a coupling member engageable with the rotational force applying portion to receive a rotational force for rotating the developing roller, the coupling member being capable of taking a rotational force transmitting angular position for transmitting the rotational force for rotating the developing roller to the developing roller and a disengaging angular position in which the coupling member is inclined away from the rotational force transmitting angular position, wherein when the cartridge is dismounted from the main assembly of the electrophotographic image forming apparatus in a direction substantially perpendicular to the axis of the developing roller, the coupling member moves from the rotational force transmitting angular position to the disengaging angular position.



8) Family number: 32285719 (US2005220476A)

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Title: PROCESS CARTRIDGE, METHOD OF ASSEMBLING PROCESS CARTRIDGE, AND CONNECTING MEMBER
Priority: JP20040099503 20040330 JP20040099504 20040330 JP20040144839 20040514
JP20040253011 20040831 JP20040273534 20040921 US20040960117 20041008
US20050233067 20050923

Family:	Publication number	Publication date	Application number	Application date
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	CN1677261 B	20120328	CN200410090388	20041112
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Probable Assignee: CANON INC

Assignee(s):(std): CANON KK

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

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

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

International class (IPC 8-9): F16D1/104 G03G15/00 G03G15/02 G03G15/08 G03G21/00 G03G21/16 G03G21/18 G03G5/00 (Advanced/Invention); G03G15/00 G03G15/02 (Advanced/Non-invention); F16D1/00 G03G15/00 G03G15/02 G03G15/08 G03G21/00 G03G21/16 G03G21/18 G03G5/00 (Core/Invention)

International class (IPC 1-7): F16D1/104 G03G15/00 G03G15/02 G03G15/08 G03G21/18 G03G5/00

CPC: F16D1/104 G03G15/757 G03G21/1853 G03G21/186 G03G2221/1657 G03G15/80 G03G21/181 G03G21/1871 G03G2221/166 G03G2221/1861 G03G15/0812 G03G2215/0634 G03G21/1839 G03G2221/1884

European class: F16D1/104 G03G15/08F3 G03G15/75F G03G15/80 G03G21/18C2 G03G21/18H G03G21/18H1V G03G21/18H2C G03G21/18H3P S03G215/06B S03G221/16K2 S03G221/16K3 S03G221/18P3A S03G221/18P4

US class: 399/111 399/111S 399/113 399/116 399/117 399/167 399/167P 399/284 399/284P 399/88 399/90 399/90P

JP class F-Term: 2H035 2H035/CB03 2H035/CB04 2H035/CD01 2H035/CD02 2H035/CD05 2H035/CD07 2H035/CD09 2H035/CD14 2H035/CG03 2H035/CZ01 2H068 2H068/EA07 2H068/FA27 2H171 2H171/FA02 2H171/FA03 2H171/FA05 2H171/FA07 2H171/FA09 2H171/FA11 2H171/FA13 2H171/GA04 2H171/GA12 2H171/GA15 2H171/JA23 2H171/JA27 2H171/JA29 2H171/JA31 2H171/JA40 2H171/JA48 2H171/JA51 2H171/KA06 2H171/KA08 2H171/KA11 2H171/KA13 2H171/KA17 2H171/KA22 2H171/KA23 2H171/KA25 2H171/KA26 2H171/LA08 2H171/MA04 2H171/MA07 2H171/MA13 2H171/PA02 2H171/PA06 2H171/PA13 2H171/PA14 2H171/PA17 2H171/QA03 2H171/QA04 2H171/QA08 2H171/QA11 2H171/QA13 2H171/QB03 2H171/QB15 2H171/QB32 2H171/QB35 2H171/QB38 2H171/QB49 2H171/QC03 2H171/QC05 2H171/SA11 2H171/SA14 2H171/SA18 2H171/SA22 2H171/SA26 2H171/SA32 2H171/SA37 2H077 2H077/AB03 2H077/AB14 2H077/AC04 2H077/AD02 2H077/AD06 2H077/AD13 2H077/AD17 2H077/AD23 2H077/AE03 2H077/BA08 2H077/BA09 2H077/BA10 2H077/EA14 2H077/EA15 2H077/GA04 2H077/GA13 2H077/AA14 2H171/FA12 2H171/FA15 2H171/FA17 2H171/FA22 2H171/FA28 2H171/GA03 2H171/GA11 2H171/HA08 2H171/HA23 2H171/JA06 2H171/JA43 2H171/JA52 2H171/KA05 2H171/KA29 2H171/QB16 2H171/QB19 2H171/QC22 2H171/QC26 2H171/SA19 2H171/SA35 2H171/WA02 2H171/WA06 2H171/WA07 2H171/WA10 2H171/WA16 2H171/WA21 2H171/WA23

JP class F-Index: G03G15/00/650 G03G15/00/651 G03G15/00/657 G03G21/00/350 G03G5/00/101 G03G15/00/556 G03G21/18/121 G03G21/18/157 G03G21/18/167 G03G15/08/226 G03G15/08/504/A G03G15/08/220 G03G15/08/506/A G03G21/16/104 G03G21/16/133 G03G21/18/142

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Abstract:

A process cartridge detachably mountable on a main body of an electrophotographic image forming apparatus, and including a first unit for supporting an electrophotographic photosensitive member and a charging member for acting on the photosensitive member, a second unit provided with a force imparting portion, an electrically conductive connecting member for pivotally connecting the first unit and the second unit together, and an electrically conductive member provided in the first unit, wherein the electrically conductive connecting member receives a bias to be supplied from the main body to the charging member when the process cartridge is mounted on the main body, the electrically conductive member is provided in contact with the connecting member to supply the charging member with the bias received by the connecting member when the process cartridge is mounted on the main body, and the force imparting portion imparts to the electrically conductive member an urging force for the electrically conductive member to urge the connecting member by the first unit and the second unit being moved relative to each other in the lengthwise direction thereof.

