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Search: TAC=(Electrophotographic w1 image and forming and device and cartridge and position and unit)

Records: 117 (1-117 of 117)

Export type: Family Export

1. Family 57661137 (US8873996 BA)

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Title

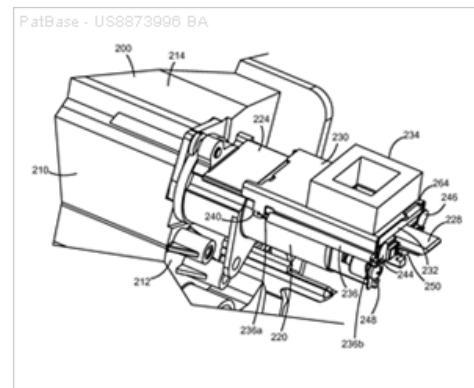
[EN] TONER SYSTEM FOR AN IMAGE FORMING DEVICE INCLUDING A TONER CARTRIDGE HAVING A SHUTTER WITH BYPASSING ACTUATION

Abstract

[EN] A toner system according to one example includes a developer unit and a toner cartridge. The developer unit includes a toner reservoir, an inlet port and a shutter. The toner cartridge includes a toner reservoir, an outlet port and an engagement member having a first engagement surface and a second engagement surface. The first engagement surface is positioned to receive an actuation force from a feature of an image forming device. The second engagement surface is positioned proximate the outlet port to engage the shutter of the developer unit. The engagement member is movable from a first position to a second position upon receiving the actuation force. As the engagement member moves from the first position to the second position when the toner cartridge is mated with the developer unit, the second engagement surface protrudes from the front of the toner cartridge and opens the shutter of the developer unit.

Probable Patent Assignee: LEXMARK INT INC

Earliest Publication Date: 20141028



2. Family 50793964 (US2012070186 AA)

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Title

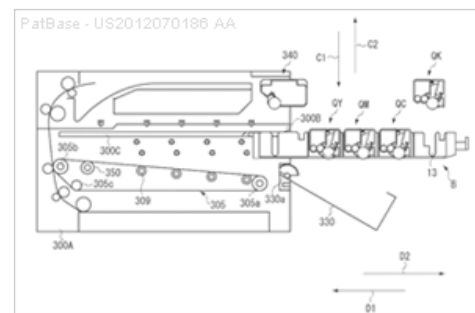
[EN] ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract

[EN] An electrophotographic image forming apparatus for forming an image on a recording medium includes a cartridge configured to store developer, a transfer member located opposite an electrophotographic photosensitive member and configured to transfer a developed image formed on the electrophotographic photosensitive member to the recording medium, a supporting member that is movable, while supporting the cartridge, between an image forming position where image formation is conducted inside an apparatus body of the electrophotographic image forming apparatus and an attachment/detachment position which is spaced away from the image forming position and where attachment/detachment of the cartridge is feasible, and a waste developer container supported so as to be attachable/detachable with respect to the supporting member, having a cleaning member configured to remove the developer from a surface of the transfer member, and configured to store the developer removed by the cleaning member.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20120322



3. Family 54260433 (US2013170864 AA)

[View in PatBase](#)**Title**

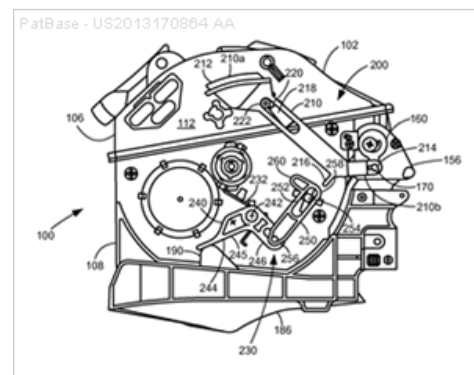
[EN] TONER CARTRIDGE HAVING A SHUTTER LOCK MECHANISM

Abstract

[EN] A toner cartridge for use in an image forming device according to one example embodiment includes a housing having a reservoir for containing toner therein. The housing has an exit port in fluid communication with the reservoir. A shutter is positioned at the exit port that is movable between an open position and a closed position. The shutter is biased toward the closed position. A linkage is operatively connected to the shutter to open the shutter upon being actuated by a first engagement feature in the image forming device. An interlock is operatively engaged with the linkage and biased toward a locked position preventing the linkage from opening the shutter. The interlock is movable to an unlocked position that is disengaged with the linkage when the interlock is actuated by a second engagement feature in the image forming device permitting the linkage to open the shutter.

Probable Patent Assignee: LEXMARK INT INC

Earliest Publication Date: 20130704



4. Family 28169802 (US2002006292 AA)

[View in PatBase](#)

Title

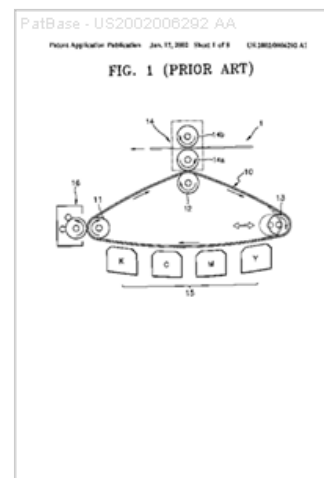
[EN] PHOTSENSITIVE BELT CARTRIDGE OF ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS AND PHOTSENSITIVE BELT INSTALLATION DEVICE AND METHOD EMPLOYING SAME

Abstract

[EN] A photosensitive belt installation device of an electrophotographic image forming apparatus that includes a soft cartridge which rolls up for storage, and an installation guide member which selectively attaches to the image forming apparatus. When unrolled, the cartridge, allows the simple installation of a photosensitive belt into the imaging forming apparatus. The soft cartridge is a flexible cartridge having a shape of the endless track of a belt unit of the imaging forming apparatus, and is open on both sides. The unrolled soft cartridge supports the photosensitive belt during installation, as one open side of the soft cartridge is fitted over a sloping surface of the installation guide member attached to the front frame of the belt unit. The soft cartridge is completely pushed around the belt unit along a sloping surface of the installation guide member. The photosensitive belt remains around the belt unit as the soft cartridge is pulled out. The installation guide member is then be removed from the front of the belt unit.

Probable Patent Assignee: S PRINTING SOLUTION CO LTD

Earliest Publication Date: 20020109



5. Family 28608644 (US2003049036 AA)

[View in PatBase](#)

Title

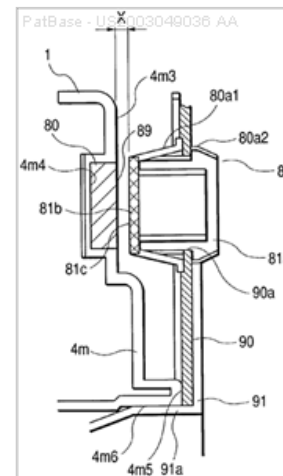
[EN] PROCESS CARTRIDGE, UNIT, AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract

[EN] A process cartridge and a unit include a cover member, a memory element provided on the cover member, and a unit abutting portion. The process cartridge and the unit can be detachably mounted to the main body of an electrophotographic image forming apparatus. The main body of an electrophotographic image forming apparatus includes a main body base member and communication means. The process cartridge and the unit are positioned to a predetermined location by the unit abutting portion abutting against the main body base member, when the process cartridge and the unit are mounted to the main body of the electrophotographic image forming apparatus. In this state, the storage element is disposed at a position facing the communication means and can communicate with it in a non-contacting manner.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20030313



6. Family 31720813 (US2005047820 AA)

[View in PatBase](#)

Title

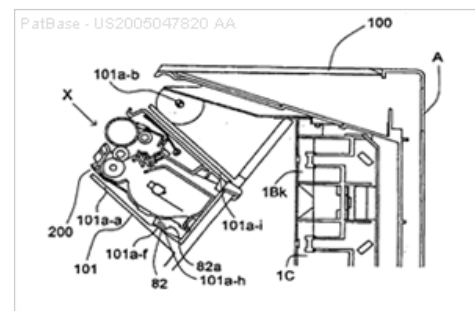
[EN] PROCESS CARTRIDGE, POSITIONING MECHANISM THEREFOR AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract

[EN] A process cartridge which is capable of being carried on a movable guide, which is movable relative to a main assembly of an electrophotographic image forming apparatus and which is provided in the main assembly, the movable guide being movable from a receiving position toward a mount position in interrelation with movement of the movable guide, includes an electrophotographic photosensitive drum; process means actable on the drum; a cartridge frame; a first positioning portion to be positioned relative to a main assembly, when the cartridge is mounted to the main assembly, the first positioning portion extending outwardly from the framee adjacent the one longitudinal end of the drum; a second positioning portion to be positioned relative to the main assembly, when the cartridge is mounted to the main assembly, the second positioning portion extending outwardly from the framee adjacent the other longitudinal end of the drum; a first portion to be carried, provided at one longitudinal end of the drum, for being supported by the movable guide, the first portion to be carried being disposed on a bottom surface of the framee; a second portion to be carried, provided at the other longitudinal end of the drum, for being supported by the movable guide, the second portion to be carried being disposed on a bottom surface of the framee; and a third positioning portion provided on at least one of the first portion to be carried and the second portion to be carried at a leading side with respect to a mounting direction in which the cartridge is mounted to the main assembly, wherein the third positioning portion has a first rotation stopper surface for stopping rotation of the cartridge about the first positioning portion and the second positioning portion by abutting to the movable guide.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20050303



7. Family 28287829 (US2002131792 AA)

[View in PatBase](#)

Title

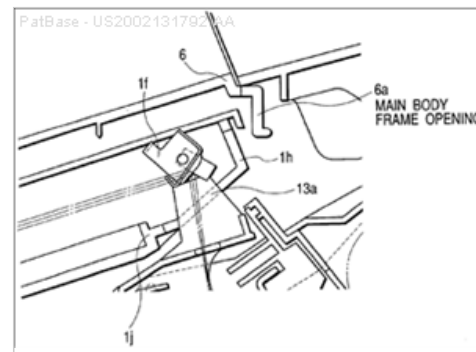
[EN] PROCESS CARTRIDGE, IMAGE FORMING APPARATUS AND IMAGE FORMING SYSTEM

Abstract

[EN] A process cartridge detachably attachable to the main body of an electrophotographic image forming apparatus having a laser beam applying member, a shutter for shutting off the optical path of a laser beam emitted from the laser beam applying member, a main body abutting portion for moving the shutter to a retracted position retracted from a shutting-off position for shutting off the optical path, a main body frame provided upstream of the shutter with respect to the attachment direction of the process cartridge, and an opening portion provided in the main body frame has an electrophotographic photosensitive drum, process means for acting on the electrophotographic photosensitive drum, and a cartridge abutting portion adapted, when the process cartridge is to be attached to the main body of an electrophotographic image forming apparatus functionally differing from the main body of the image forming apparatus, to abut against a main body frame provided on the main body of the functionally different image forming apparatus to thereby block the attachment of the process cartridge, and when the process cartridge is to be attached to the main body of the image forming apparatus, to pass through the opening portion and abut against the main body abutting portion to thereby move the shutter to the retracted position.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20020919



8. Family 41931589 (US2008170880 AA)

[View in PatBase](#)

Title

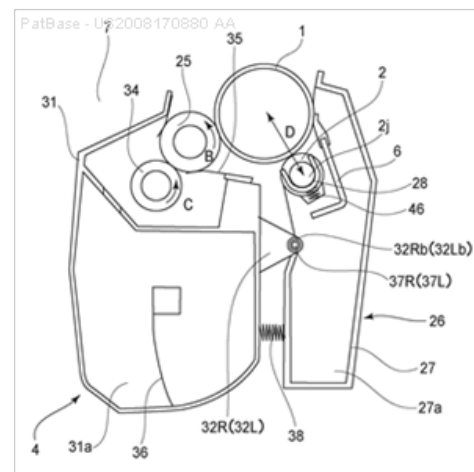
[EN] DEVELOPING APPARATUS, PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract

[EN] A process cartridge is detachably mountable to a main assembly of the electrophotographic image forming apparatus. The main assembly includes first and second transmitters, a cartridge positioner, a movable member, and a lock. The cartridge includes a photosensitive drum, a developing roller, a drum coupler transmitting a first driving force to the drum of the mounted cartridge and a shaft coupler, transmitting a second driving force from the second transmitter with a deviation permitted between axes of the second transmitter and the roller. The shaft coupler includes an engager engaging the second transmitter and receiving the second driving force for the mounted cartridge. When the cartridge is moved by the movable member, the engager is positioned to the lock and the distance between the engager and roller axes is smaller when the cartridge is positioned to the positioner than when the engager is positioned by a cartridge holding portion.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20080619



9. Family 59284925 (US2015139698 AA)

[View in PatBase](#)

Title

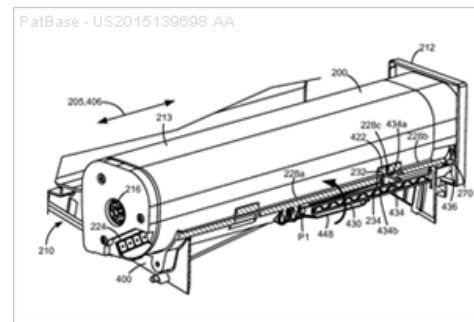
[EN] ELECTROPHOTOGRAPHIC IMAGE FORMING DEVICE LATCHING SYSTEM FOR RETAINING A REPLACEABLE UNIT

Abstract

[EN] An electrophotographic image forming device according to one example embodiment includes a tray having a storage area extending between a front end and a rear end of the tray. The tray has an opening at the front end permitting insertion and removal of a replaceable unit into and out of the storage area. A biasing member biases the replaceable unit toward the front end of the tray. A latch on the tray is movable between a latched position restraining the replaceable unit from moving toward the front end of the tray and an unlatched position freeing the replaceable unit to move toward the front end of the tray permitting removal of the replaceable unit from the storage area. A latch releasing mechanism on the replaceable unit unlatches the latch on the tray for removing the replaceable unit from the storage area.

Probable Patent Assignee: LEXMARK INT INC

Earliest Publication Date: 20150521



10. Family 8924578 (US5884124 A)

[View in PatBase](#)

Title

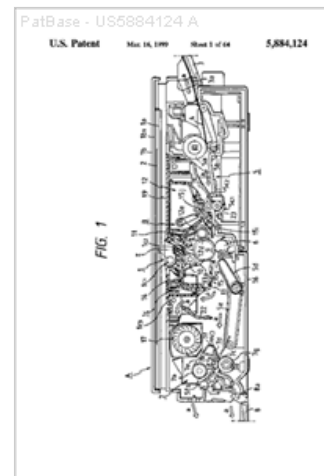
[EN] DIP SHEET ADHERING METHOD, CLEANING DEVICE, PROCESS AND IMAGE FORMING APPARATUS

Abstract

[EN] A method is disclosed for attaching a sheet for receiving toner removed from an image bearing member to a frame. The method includes the steps of adhering the sheet to the frame, using an adhesive, while bending the frame and releasing the frame after the sheet is adhered to the frame. A toner-guiding sheet for guiding toner removed from an image bearing member to a toner-receiving unit is also disclosed. The sheet is widened near a central portion in a longitudinal direction so that the sheet edge will conform to the bent shape of an attachment surface. A cleaning device is also disclosed. The cleaning device may include a frame and a sheet attached to the frame by an adhesive in a condition that a tension force is applied to the sheet. Further, the cleaning device may include a cleaning container having a wall that is thinner at a position near an attachment surface for a sheet than at a position away from the attachment surface, to facilitate bending of the attachment surface during application of a sheet to the attachment surface.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 19930526



11. Family 32140892 (US2005176299 AA)

[View in PatBase](#)

Title

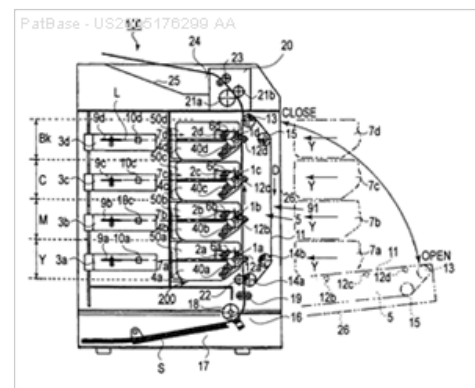
[EN] UNIT DETACHABLY MOUNTABLE TO ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract

[EN] A unit detachably mountable to a main assembly of the electrophotographic image forming apparatus, the electrophotographic image forming apparatus including a main assembly electrical contact and a rotatable electrical contact supporting member for supporting the main assembly electrical contact, the unit including a unit electrical contact for electrically connecting with the main assembly electrical contact when the unit is mounted to the main assembly of the apparatus; and an engaging portion for engagement with the electrical contact supporting member when the unit is inserted into the main assembly of the apparatus, the engaging portion being effective to cause a rotational motion of the electrical contact supporting member in a direction crossing with an engaging direction in which the engaging portion is brought into engagement with the electrical contact supporting member, when the unit is being inserted into the main assembly of the apparatus, wherein a sliding motion is imparted between the unit electrical contact and the main assembly electrical contact by the engaging portion causing the rotational motion of the electrical contact supporting member, with the unit electrical contact and the main assembly electrical contact being contacted to each other.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20050803



12. Family 64829167 (US9563169 BA)

[View in PatBase](#)

Title

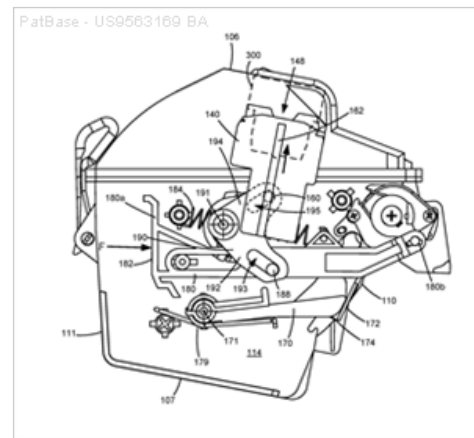
[EN] REPLACEABLE UNIT FOR AN ELECTROPHOTOGRAPHIC IMAGE FORMING DEVICE HAVING A RETRACTABLE ELECTRICAL CONNECTOR

Abstract

[EN] A replaceable unit for an electrophotographic image forming device according to one example includes a housing having a toner reservoir. An electrical connector mounted on the housing is movable between a retracted position and an operative position. The electrical connector includes an electrical contact for contacting a corresponding electrical contact in the image forming device. The electrical contact is electrically connected to processing circuitry on the housing. In the retracted position, the electrical connector is tucked into a portion of the housing. In the operative position, the electrical connector is exposed to permit the electrical contact to contact the corresponding electrical contact in the image forming device. A linkage is operatively connected to the electrical connector and includes an engagement surface accessible on an exterior of the housing to receive an actuation force. Movement of the actuation linkage moves the electrical connector between the retracted position and the operative position.

Probable Patent Assignee: LEXMARK INT INC

Earliest Publication Date: 20170207



13. Family 71860972 (US10126705 BA)

[View in PatBase](#)**Title**

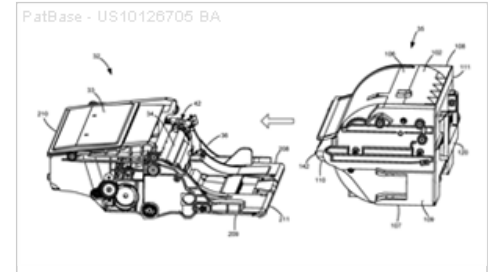
[EN] AUTOMATIC LATCHING OF A TONER CARTRIDGE TO AN IMAGING UNIT OF AN ELECTROPHOTOGRAPHIC IMAGE FORMING DEVICE IN RESPONSE TO DETECTION OF AN ERROR CONDITION

Abstract

[EN] An imaging system for an electrophotographic image forming device according to one example embodiment includes a movable latch positioned to selectively couple a replaceable toner cartridge and a replaceable imaging unit together such that the toner cartridge and the imaging unit are removable from the image forming device as a single unit and to selectively decouple the toner cartridge and the imaging unit such that the toner cartridge and the imaging unit are separately removable from the image forming device. A controller is configured to actuate the latch to couple the toner cartridge and the imaging unit together in response to the controller detecting an error condition requiring removal of both the toner cartridge and the imaging unit from the image forming device in order to permit removal of the toner cartridge and the imaging unit from the image forming device as a single unit.

Probable Patent Assignee: LEXMARK INT INC

Earliest Publication Date: 20181113



14. Family 61899305 (US9291989 BA)

[View in PatBase](#)

Title

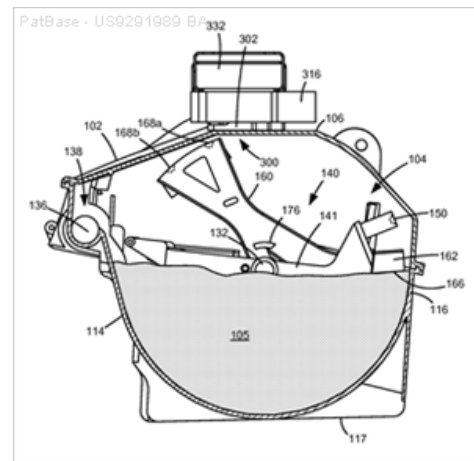
[EN] REPLACEABLE UNIT FOR AN ELECTROPHOTOGRAPHIC IMAGE FORMING DEVICE HAVING AN ENGAGEMENT MEMBER FOR POSITIONING A MAGNETIC SENSOR

Abstract

[EN] A replaceable unit for an electrophotographic image forming device according to one embodiment includes a housing having a top, a bottom, a front, and a rear positioned between a first side and a second side of the housing. The housing has a reservoir for storing toner. A rotatable shaft is positioned within the reservoir and has an axis of rotation. A magnet in the reservoir is movable in response to rotation of the shaft. An engagement member is positioned on an exterior of the top of the housing. The engagement member is aligned with a point in a path of movement of the magnet in the reservoir. The engagement member has a front surface that is unobstructed to contact and push a housing in the image forming device supporting a magnetic sensor to an operating position of the magnetic sensor during insertion of the replaceable unit into the image forming device.

Probable Patent Assignee: LEXMARK INT INC

Earliest Publication Date: 20160322



15. Family 3210718 (US5168308 A)

[View in PatBase](#)

Title

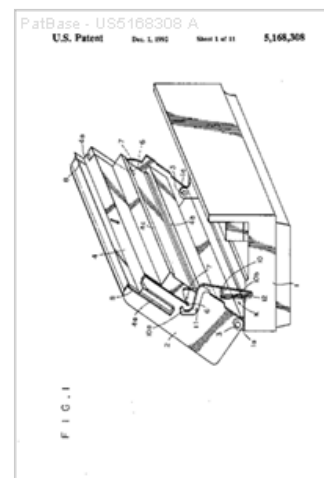
[EN] CLAMSHELL-TYPE ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract

[EN] A clamshell-type electrophotographic image forming apparatus wherein a drum cartridge (4) by which a photosensitive drum (5) is supported is removably accommodated in a clamshell-type opening/closing unit (2) provided on a base plate (1) so as to be opened and closed. The position of a drum shaft (6) of the photosensitive drum (5) is limited by positioning device (K) which operates according to the opening or closing, or accommodating or removal of the clamshell opening/closing unit. The drum cartridge (500) is permitted to be attached or detached in a direction at right angles with the axial direction of a support shaft (702) about which a clamshell opening/closing unit (700) turns and the developing cartridge (D) is permitted to be attached or detached in a direction in parallel with the axial direction of the support shaft (702). A drive gear (804) of the developing unit (D) is opposed to a drive gear (805) of the side of a main body, and the drum cartridge (500) that is attached, causes the developing unit (D) to be pushed, such that the drive gear (804) of the developing unit (D) meshes with the drive gear (805) of the side of the main, body.

Probable Patent Assignee: KONISHIROKU PHOTO IND

Earliest Publication Date: 19910206



16. Family 34855605 (US2007160388 AA)

[View in PatBase](#)

Title

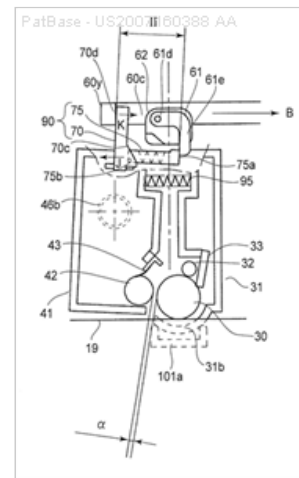
[EN] PROCESS CARTRIDGE AND IMAGE FORMING APPARATUS

Abstract

[EN] A process cartridge detachably mountable to a main assembly of an electrophotographic image forming apparatus, the main assembly including an opening, a door movable between a close position for closing the opening and an open position for opening the opening, a first force application member movable with movement of the door from the open position to the closing position and a second force application member movable by a driving force from a driving source, the process cartridge includes an electrophotographic photosensitive drum; a developing roller for developing an electrostatic latent image formed on the electrophotographic photosensitive drum; a drum unit containing the electrophotographic photosensitive drum; a developing unit which contains the developing roller and which is movable relative to the drum unit such that developing roller is movable between a contact position in which the developing roller is contacted to the electrophotographic photosensitive drum and a spaced position in which the developing roller is spaced from the electrophotographic photosensitive drum; and a force receiving device including a first force receiving portion for receiving a force from the first force application member by movement of the door from the open position to the close position in the state that process cartridge is mounted to the main assembly of the apparatus through the opening, and a second force receiving portion movable from a stand-by position by movement of the first force receiving portion by a force received from the first force application member, wherein the second force receiving portion takes a projected position for receiving a force from the second force application member to move the developing unit from the contact position to the spaced position, the projected position being higher than the stand-by position.

Probable Patent Assignee: CANON INC

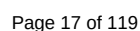
Earliest Publication Date: 20070712



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[EN] DEVELOPING CARTRIDGE

[EN] A developing cartridge for developing a latent image formed on the photosensitive member, which is detachably mountable to a main assembly of an electrophotographic image forming apparatus, includes a cartridge frame; a developing device for developing, with toner, the latent image formed on the photosensitive member of the main assembly of the apparatus when mounted to the main assembly of the electrophotographic image forming apparatus; a driving force receptor for receiving, from the main assembly, a driving force for rotating the developing means when the cartridge is mounted to the main assembly, the driving force receptor being provided and exposed adjacent one end of the cartridge frame portion in a longitudinal direction of the developing means; a toner accommodating portion for accommodating the toner; a shutter movable between a closing position for covering a portion of the developing device exposed from the cartridge frame and an opening position for exposing the developing device; and a locking member for releasably locking the shutter at the closing position, the locking member being provided in the cartridge frame portion adjacent the one end.

Earliest Publication Date: 19970910

18. Family 85761503 (US2021200142 AA)

[View in PatBase](#)

Title

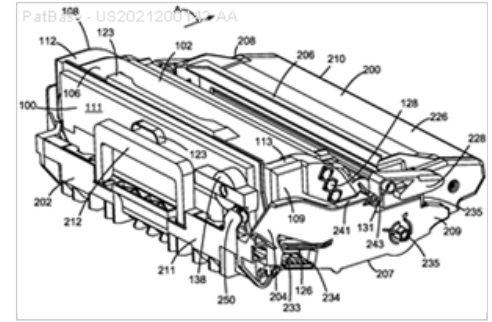
[EN] REPLACEABLE UNITS OF AN ELECTROPHOTOGRAPHIC IMAGE FORMING DEVICE HAVING A SHIPPING OR STORAGE SEPARATOR

Abstract

[EN] A toner cartridge according to one embodiment includes a body having a reservoir for storing toner and a rotatable developer roll mounted on the body and in fluid communication with the reservoir. A portion of an outer surface of the developer roll is exposed along a front of the body for supplying toner from the reservoir to a corresponding photoconductive drum on an imaging unit when the toner cartridge is installed on the imaging unit in an operative position of the toner cartridge relative to the imaging unit. A first engagement member positioned on a rear of the body is configured to engage a corresponding second engagement member on the imaging unit when the toner cartridge is installed on the imaging unit to retain the toner cartridge in a storage position of the toner cartridge relative to the imaging unit with the developer roll spaced away from the photoconductive drum.

Probable Patent Assignee: LEXMARK INT INC

Earliest Publication Date: 20210701



19. Family 64272449 (US2016357126 AA)

[View in PatBase](#)

Title

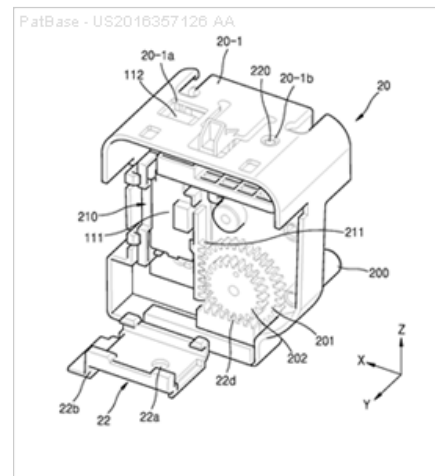
[EN] DEVELOPER CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS INCLUDING THE SAME

Abstract

[EN] Provided is a developer cartridge attachable to and detachable from a main body of an image forming apparatus. The developer cartridge includes: a memory unit including a contact portion moved to a first position hidden inside the developer cartridge and a second position protruding outside the developer cartridge; an operating portion configured to move the contact portion to the first position and the second position; an outlet configured to discharge a developer; and a first shutter having an opening position and a closing position for opening and closing the outlet and moved to the closing position and the opening position when the contact portion is moved to the first position and the second position.

Probable Patent Assignee: HP PRINTING KOREA CO LTD

Earliest Publication Date: 20161207



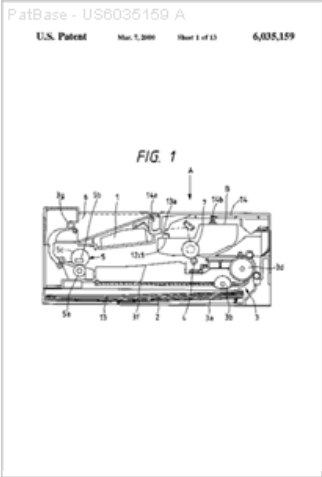
20. Family 12261314 (US6035159 A)

[View in PatBase](#)

Title
[EN] PROCESS CARTRIDGE WITH AXIALLY SHIFTABLE DRIVE COUPLING

Abstract
[EN] An electrophotographic image forming apparatus which forms an image on a recording medium and to which a process cartridge can detachably be mounted includes (a) a cartridge mounting portion capable of detachably mounting a process cartridge including an electrophotographic photosensitive drum, a process device acting on the photosensitive drum, and a projection having a first-twisted-polygonal prism shape provided on one longitudinal end of the photosensitive drum, (b) a rotatable rotary member having a first twisted hole of polygonal cross-section, (c) a rotatable coupling shaft supported for axial movement and being provided at its one end with a second-twisted-polygonal prism shape fitted into the first twisted hole of the rotary member, and being provided at its other end with a second twisted hole of polygonal cross-section for engaging with and disengaging from the projection having the first-twisted-polygonal prism shape and having substantially the same twisted angle and twisted direction as those of the first-twisted-polygonal prism shape, (d) a spring member for biasing the coupling shaft toward the photosensitive drum, (e) an axial direction shifter for shifting the second twisted hole and the projection having the first-twisted-polygonal prism shape relative to each other between a first position and a second position, and (f) a conveyor for conveying the recording medium.

Probable Patent Assignee: CANON INC
Earliest Publication Date: 19980401



21. Family 79709371 (US10698363 BA)

[View in PatBase](#)

Title

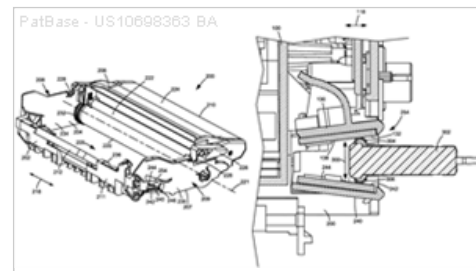
[EN] ELECTRICAL CONNECTION FOR AN IMAGING UNIT OF AN ELECTROPHOTOGRAPHIC IMAGE FORMING DEVICE

Abstract

[EN] An imaging unit for an electrophotographic image forming device includes a housing having a rotatable photoconductive drum. A frame at a rear of the housing is positioned to matably receive a toner cartridge and is open to a portion of an outer surface of the photoconductive drum. An electrical contact is positioned along a first side wall of the frame for contacting a corresponding electrical contact in the image forming device and is electrically connected to processing circuitry on the housing. The electrical contact of the imaging unit faces upward and is unobstructed from above. A cam surface is positioned along an inner side of the first side wall of the frame for contacting an electrical connector of the toner cartridge and moving the electrical connector of the toner cartridge from a retracted position to an operative position upon mating of the toner cartridge with the imaging unit.

Probable Patent Assignee: LEXMARK INT INC

Earliest Publication Date: 20200630



22. Family 17035648 (US5055881 A)

[View in PatBase](#)

Title

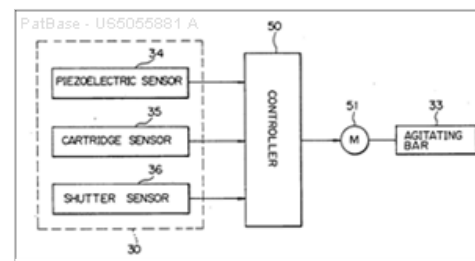
[EN] DEVICE FOR SUPPLYING A TONER TO A DEVELOPING UNIT

Abstract

[EN] A toner supply device loaded with a removable toner cartridge for supplying a toner to a developing unit of an electrophotographic image forming apparatus. When the toner is fed from the toner cartridge to the toner supply device, an agitating member incorporated in the toner supply device is operated for a predetermined period of time to agitate the toner. The device supplies the toner evenly and rapidly to the developing unit after crushing hard masses of the toner or removing local concentration of the toner which are apt to occur in the cartridge.

Probable Patent Assignee: RICOH CO LTD

Earliest Publication Date: 19910408



23. Family 15204535 (US6253036 BA)

[View in PatBase](#)

Title

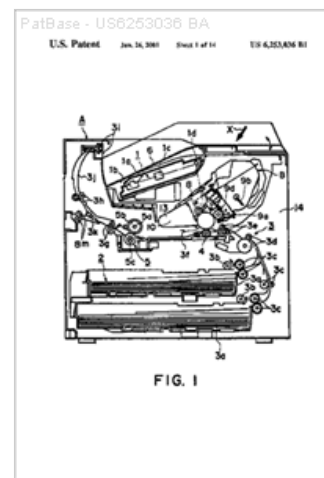
[EN] ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS, PROCESS CARTRIDGE, DEVELOPING DEVICE AND MEASURING PART

Abstract

[EN] A process cartridge detachably mountable to an electrophotographic image forming apparatus, the process cartridge including (a) an electrophotographic photosensitive member; (b) process means actable on the electrophotographic photosensitive member; (c) a measuring electrode member having input-side and output-side electrodes having at least one juxtaposed portions, the measuring electrode member being disposed at such a position that it is contacted to a developer; (d) a reference electrode member having input-side and output-side electrodes having at least one juxtaposed portion, the reference electrode member being disposed at such a position that it is out of contact to the developer; (e) an output contact for the measuring electrode member, connected electrically to the output side electrode of the measuring electrode member; (f) an output contact for the reference electrode member, connected electrically to the output side electrode of the reference electrode member; and (g) a common input contact connected electrically to the input side electrodes of the measuring electrode member and the reference electrode member.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20000409



24. Family 14113150 (US6397017 BA)

[View in PatBase](#)

Title

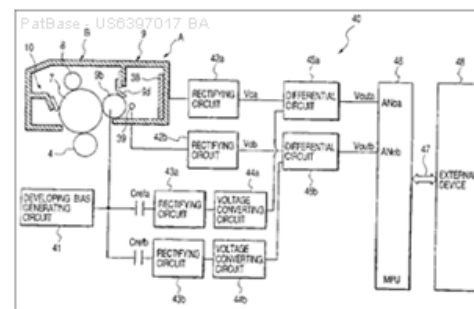
[EN] DEVELOPER AMOUNT DETECTING METHOD, DEVELOPING DEVICE, PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract

[EN] A developer amount detecting method for detecting a developer amount for developing an electrostatic latent image formed on an electrophotographic photosensitive member includes a first process for successively detecting the amount of the developer contained in a containing portion by counting the number of individual image signals for forming dots of an image by a main body of an electrophotographic image forming apparatus; and a second process for successively detecting the developer amount by the apparatus main body by transmitting an electric signal according to the amount of the developer contained in the containing portion to the apparatus main body.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20010223



25. Family 78879064 (US10649389 BA)

[View in PatBase](#)

Title

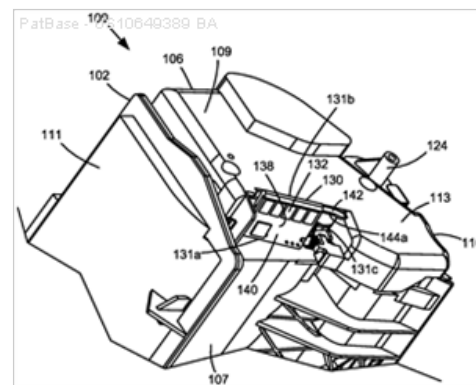
[EN] ELECTRICAL CONNECTORS OF A REPLACEABLE UNIT OF AN ELECTROPHOTOGRAPHIC IMAGE FORMING DEVICE

Abstract

[EN] An assembly for an image forming device includes a first replaceable unit and a second replaceable unit matable with the first replaceable unit. One of the first and second replaceable units includes a reservoir for storing toner and the other of the first and second replaceable units is configured to receive toner from the one of the first and second replaceable units. An electrical connector on the first replaceable unit is movable between a retracted position and an operative position. The electrical connector on the first replaceable unit includes an electrical contact for contacting a corresponding electrical contact in the image forming device when the electrical connector is in the operative position. A cam on the second replaceable unit is positioned to engage the electrical connector and to cause the electrical connector to move from the retracted position to the operative position when the first and second replaceable units mate.

Probable Patent Assignee: LEXMARK INT INC

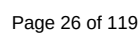
Earliest Publication Date: 20200512



[View in PatBase](#)

[EN] DRIVE COUPLER ACTUATION VIA REPLACEABLE UNIT INSERTION IN AN IMAGE FORMING DEVICE

[EN] A system for an electrophotographic image forming device includes a first replaceable unit and a second replaceable unit. A drive coupler in the image forming device is movable between a retracted position and an operative position. In the retracted position, the drive coupler is disengaged from a drive interface of the first replaceable unit when the first replaceable unit is installed in the image forming device. In the operative position, the drive coupler is engaged with the drive interface when the first replaceable unit is installed in the image forming device for providing rotational force to the drive interface. A movable drive linkage in the image forming device is operatively connected to the drive coupler to move the drive coupler from the retracted position to the operative position upon the movable drive linkage receiving an actuation force from the insertion of the second replaceable unit into the image forming device.

Earliest Publication Date: 20181113

27. Family 31949432 (US2005111876 AA)

[View in PatBase](#)

Title

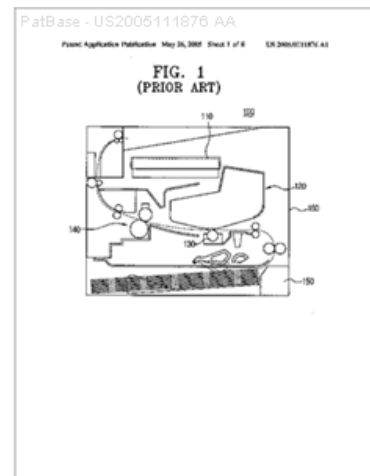
[EN] DEVELOPING CARTRIDGE AND AN ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS HAVING THE SAME

Abstract

[EN] A developing cartridge includes a casing having a toner chamber, a feeding roller installed within the toner chamber, a developing roller supplied with a toner from the feeding roller, and a sealing film interposed between the developing roller and the feeding roller. The sealing film blocks a movement of the toner toward a gap between the developing roller and a bottom of the toner chamber, so that the toner does not leak out through the gap between the developing roller and the bottom of the toner chamber.

Probable Patent Assignee: S PRINTING SOLUTION CO LTD

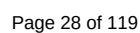
Earliest Publication Date: 20050526



[View in PatBase](#)

[EN] ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS AND PROCESS CARTRIDGE

[EN] A wrong insertion preventing mechanism of simple construction is realized without requiring any sensor for discriminating the incompatibility of a process cartridge to the main body of an image forming apparatus. When an improper cartridge which does not match in function with the main body of the apparatus is wrongly inserted, a cam portion for opening and closing a shutter comes into engagement with a wrong insertion preventing engagement portion in the opening portion of the main body of the apparatus and the shutter is opened, whereby the wrong insertion of the cartridge is blocked. In the case of a proper cartridge, it is inserted without the shutter being opened in the opening portion of the main body of the apparatus, and with the operation of closing an openable and closable member, the cartridge is inserted into the inner part of the main body of the apparatus together with a moving guide and the shutter is opened at a proper position.

Earliest Publication Date: 20031204

29. Family 11176554 (US6115569 A)

[View in PatBase](#)

Title

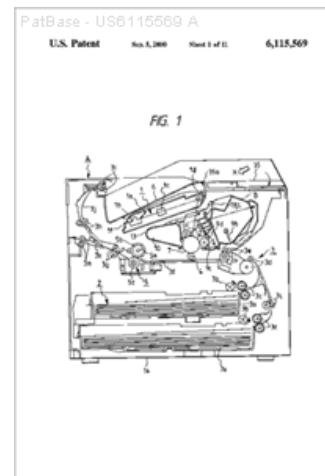
[EN] PROCESS CARTRIDGE HAVING PROJECTION MEMBERS FOR MAINTAINING THE POSTURE OF THE PROCESS CARTRIDGE WHEN THE PROCESS CARTRIDGE IS MOUNTED ON THE BODY OF AN IMAGE FORMING APPARATUS

Abstract

[EN] The present invention relates to a process cartridge removably mounted on a body of an electrophotographic image forming apparatus. The process cartridge includes an electrophotographic photosensitive drum, a process device acting on the electrophotographic photosensitive drum, a cartridge frame having side surfaces, and projection members for maintaining a posture of the process cartridge when the process cartridge is mounted on the body of the image forming apparatus. The projection members project outwardly from the side surfaces of the cartridge frame substantially in a same direction as an axis of the electrophotographic photosensitive drum. The projection members are positioned at a portion adjacent to an upper surface of the process cartridge when the process cartridge is mounted on the main body of the image forming apparatus.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 19980128



30. Family 63123024 (US2017322512 AA)

[View in PatBase](#)

Title

[EN] CARTRIDGE, PHOTOSENSITIVE MEMBER UNIT AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

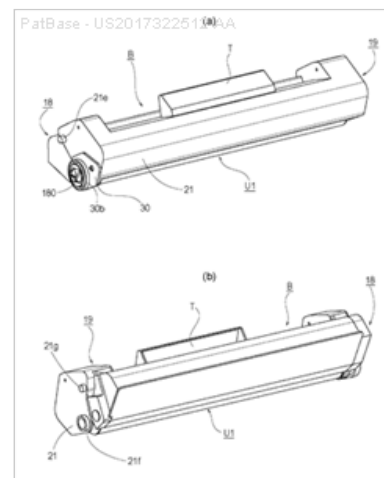
Abstract

[EN] The present invention provides a cartridge which is dismountable from the main assembly without deteriorating usability performance in a predetermined direction substantially perpendicular to the rotational axis of an image bearing member, the main assembly being not provided with the mechanism for moving the main assembly side engaging portion in the rotational axis direction in response to the opening and closing operation of the main assembly cover of the main assembly.

With the movement of the cartridge in such a direction perpendicular to the rotational axis of the image bearing member in the dismounting of the cartridge from the main assembly of the electrophotographic image forming apparatus, the coupling member movable in a direction parallel with the rotational axis of the image bearing member enters a inside of a recess of the main assembly side engaging portion provided in the main assembly of the apparatus to receive a rotational force from the main assembly side engaging portion.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20160811



31. Family 42908262 (US2009035012 AA)

[View in PatBase](#)

Title

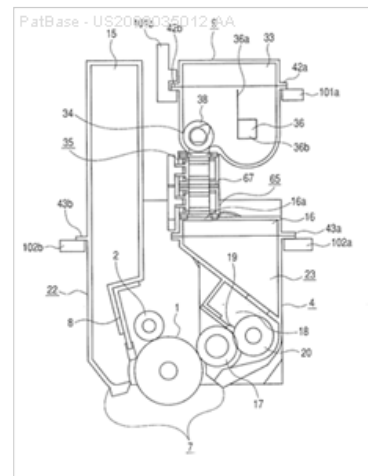
[EN] DEVELOPER SUPPLYING CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract

[EN] A developer supplying cartridge including a supply developer containing portion, a developer supplying port for supplying the developer in the supply developer containing portion to the developing device via a supplied port of the developing device, and a supplying port shutter unit that opens and closes the developer supplying port and that includes a housing member covering the developer supplying port, a cylindrical member which is rotatably disposed in the housing member, and provided with a through-hole corresponding to the developer supplying port, and which assumes, by its rotation, a developer supply allowing position where the developer supplying port and the through-hole communicate with each other and a developer supply stopping position where the developer supplying port is closed, and a scraping member which is abutted on an outer circumferential surface of the cylindrical member to scrape off the developer adhering to the outer circumferential surface.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20090205



32. Family 11055459 (US6097908 A)

[View in PatBase](#)

Title

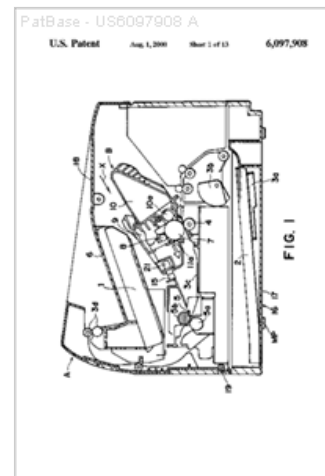
[EN] ELECTRICAL CONNECTOR, PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract

[EN] An electrical connector electrically connectable with a main assembly connector, provided in a main assembly of an electrophotographic image forming apparatus includes storing member for storing information; a plurality of electrical contacts for separably connecting with a contact of the main assembly connector, when they are connected electrically with the main assembly connector; wherein the storing member is electrically connected with each of the electrical contacts with lead lines.

Probable Patent Assignee: CANON INC

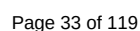
Earliest Publication Date: 19970812



[View in PatBase](#)

[EN] COLOR ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

[EN] A color electrophotographic image forming apparatus for forming an image on a recording material, wherein a plurality of cartridges are detachably mountable to a main assembly of the apparatus, the apparatus includes a cartridge supporting member movable between an inside position inside the main assembly of the apparatus while supporting the cartridge and an outside position outside the main assembly of the apparatus; an opening for permitting the cartridge supporting member between the inside position and the outside position; an openable member movable between a close position for closing the opening and an open position for opening the opening; positioning urging device for urging in the of positioning the cartridge to a positioning portion of the main assembly of the apparatus by closing the openable member and for releasing the cartridge from the urging by opening the openable member; and spacing urging device for urging the cartridge in a direction of spacing from the positioning portion; wherein an urging force of the spacing urging device is smaller than a resultant force of an urging force of the positioning urging device and a force applied to the spacing urging device by a weight the cartridge and is larger than the force applied to the spacing urging device by the weight the cartridge.

Earliest Publication Date: 20100923

34. Family 44814254 (US2010080615 AA)

[View in PatBase](#)

Title

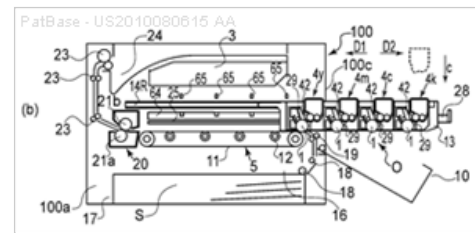
[EN] ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract

[EN] An electrophotographic image forming apparatus includes an electrophotographic photosensitive drum; a developing cartridge including a developing roller for developing a latent image formed on the drum, a developer accommodating portion for accommodating a developer to be used by the developing roller to develop the electrostatic latent image, and a developing roller shutter movable between a protecting position for covering a part of a peripheral surface of the developing roller and a retracted position, retracted from the protecting position, for exposure the part of the peripheral surface of the developing roller, wherein the developing cartridge is detachably mountable to a main assembly of the apparatus; a cartridge supporting member movable, while detachably mounting the developing cartridge, between an inside position which is inside of the main assembly of the apparatus to Mount the developing cartridge to the main assembly of the apparatus and an outside position which is outside of the main assembly of the apparatus to remove the developing cartridge from the main assembly of the apparatus; a force receiving portion, provided on the developing cartridge, for receiving a force for moving the developing roller shutter from the protecting position to the retracted position; and a force applying portion provided in the main assembly of the apparatus, wherein when the cartridge supporting member is moved from the outside position to the inside position, the force receiving portion contacts to the force applying portion to move the cartridge supporting member from the outside position to the inside position, in interrelation with which the force receiving portion contacted to the force applying portion receives the force from the force applying portion, thus moving the developing roller shutter from the protecting position to the retracted position.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20100401



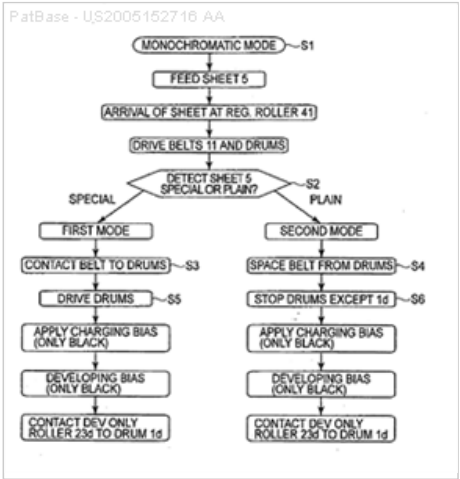
35. Family 32066347 (US2005152716 AA)

[View in PatBase](#)

Title
[EN] IMAGE FORMING APPARATUS

Abstract
[EN] A color electrophotographic image forming apparatus for forming an image on a recording material, includes (i) a mounting portion for detachably mounting a plurality of process cartridges each including an electrophotographic photosensitive drum and a developing roller for developing an latent image formed on the drum, wherein developing roller is movable between a contact state where the developing roller is contacted to the drum and a spaced state where the developing roller is spaced from the drum, wherein the cartridges develop the latent images with colors different from each other; (ii) switching means for switching the developing rollers between the contact state and the spacing state when the cartridges are set in the mounting portions; (iii) a feeding belt for feeding the recording material along all of the drums of the cartridges set in the mounting portion; (iv) control means for switching, in accordance with a kind of the recording material in a monochromatic mode operation, between a first mode in which the feeding belt is placed at a first position for contacting to all of the drums of the cartridges and a second mode in which the feeding belt is placed at a second position position wherein the feeding belt contacts only the drum of the cartridge which develops the latent image for image formation, wherein in the monochromatic modes the image is formed on the recording material through development only one of the cartridges, and wherein in a cartridge in which no development is performed in the monochromatic mode, the switching means is in the spaced state.

Probable Patent Assignee: CANON INC
Earliest Publication Date: 20050713



36. Family 12084329 (US6029031 A)

[View in PatBase](#)

Title

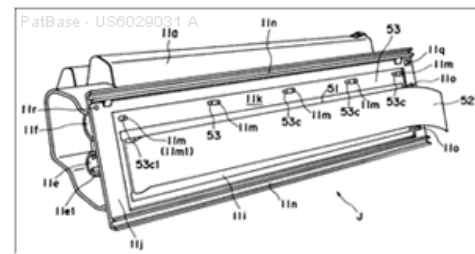
[EN] PROCESS CARTRIDGE AND REMANUFACTURING METHOD

Abstract

[EN] A recycling method for a process cartridge and a process cartridge produced thereby are provided. The method includes the steps of dismounting a coupling member that couples a first unit and a second unit of the process cartridge so as to separate the first unit and the second unit; machining a connecting portion between a developing device frame of the second unit and a developer frame of the second unit so as to separate the developing device frame and the developer frame from each other without damage to dowels of the developer frame, the dowels are provided in a recessed portion for fitting into holes formed in a seal mounting plate of the process cartridge to thereby position and mount the seal mounting plate; mounting a seal that seals a developer supply opening provided in a developer accommodation portion to supply, to a developing roller of the process cartridge, developer accommodated in the developer accommodation portion; refilling a developer into the developer accommodation portion before or after the mounting step; and recoupling the first unit and the second unit using a coupling member.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 19970307



37. Family 33533565 (US5828929 A)

[View in PatBase](#)

Extended Family Number: 30820226

Title

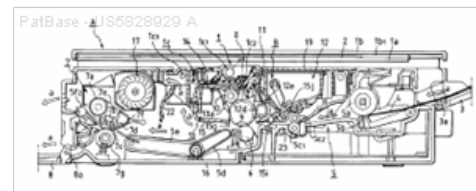
[EN] IMAGE FORMING SYSTEM AND PROCESS CARTRIDGE HAVING PARTICULAR ARRANGEMENT OF ELECTRICAL CONTACTS

Abstract

[EN] A process cartridge is mountable to an image forming system and includes an image bearing member; a developing bias contact for applying a developing bias to a developing device; an earthing contact for earthing the image bearing member; and a charging bias contact for applying a charging bias to a charging device. The developing bias contact, the earthing contact, and the charging bias contact are arranged in an area corresponding to an end portion of the image bearing member in a longitudinal direction of the image bearing member, such that (i) the developing bias contact is arranged at a first side of the image bearing member in a direction orthogonal to the longitudinal direction of the image bearing member, and (ii) the earthing contact and the charging bias contact are arranged at a second side of the image bearing member in the orthogonal direction.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 19981027



38. Family 12311816 (US6075957 A)

[View in PatBase](#)

Title

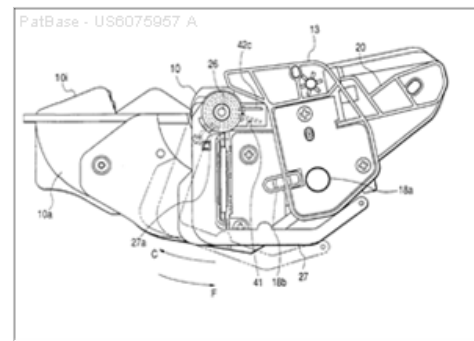
[EN] PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract

[EN] A process cartridge which can detachably be mounted to an electrophotographic image forming apparatus, and which includes a cartridge frame, an electrophotographic photosensitive member, a process device acting on the photosensitive member, a shutter for covering a portion of the photosensitive member exposed from the cartridge frame, a support member for supporting one longitudinal end of the shutter to the cartridge frame for shifting movement between an operation position where the photosensitive member is covered by the shutter and a retract position retracted from the operation position, a support member engagement portion provided on the support member to attach the support member to the cartridge frame, and a frame engagement portion provided on the cartridge frame to attach the support member engagement portion to the cartridge frame.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 19990608



39. Family 11715982 (US5956546 A)

[View in PatBase](#)

Title

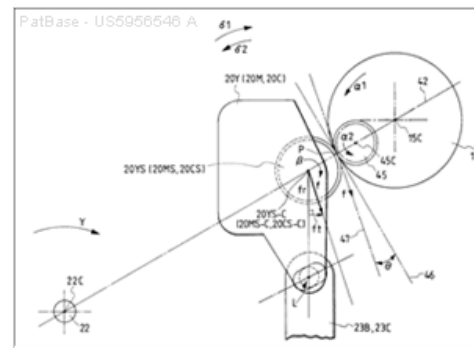
[EN] ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS HAVING FIRST AND SECOND MOUNTING MEANS TO ALLOW SMOOTH MOVEMENT OF A DEVELOPING ROLLER

Abstract

[EN] An electrophotographic image forming apparatus capable of forming a multicolor image on a recording medium, includes a first mounting arrangement for detachably mounting a photosensitive member cartridge having an electrophotographic photosensitive member, and a second mounting arrangement for detachably mounting a developing cartridge having a developer roller for developing a latent image formed on said electrophotographic photosensitive member. The developer cartridge is swingably provided about a swing center so that the cartridge is shiftable in parallel with an axis of said electrophotographic photosensitive member.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 19970905



40. Family 44050929 (US2009297211 AA)

[View in PatBase](#)

Title

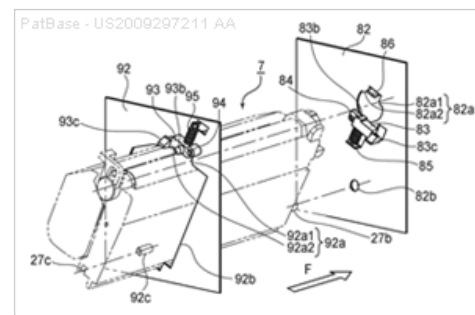
[EN] PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract

[EN] A process cartridge is detachably mountable to a main assembly of an electrophotographic image forming apparatus. The cartridge includes an electrophotographic photosensitive drum, a drum unit supporting the drum, a developing unit supporting a developing roller and swingably coupled with the drum unit, drum and developing roller rotating force receiving portions, first and second positionable portions positioned at first and second main assembly side positioning portions by contacting by an urging force of first and second main assembly side urging members, a developing device spacing force receiving portion, first and second cartridge side rotation regulating portions for limiting rotation of the drum unit by abutting first and second main assembly side rotation regulating portions when the drum and developing roller rotating force receiving portions receive the rotating forces or when the developing device spacing force receiving portion receives the urging force from the main assembly.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20091202



41. Family 15204320 (US6275668 BA)

[View in PatBase](#)

Title

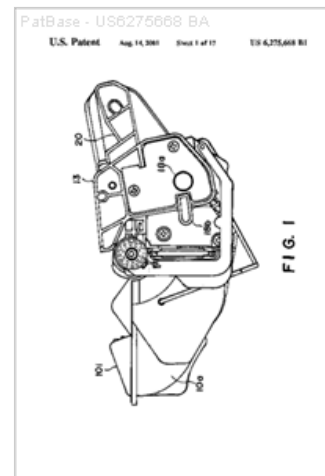
[EN] DEVELOPING DEVICE, PROCESS CARTRIDGE AND ELECTRICAL CONTACT PART

Abstract

[EN] An electrical contact part supplies a bias voltage to a developing roller usable in a process cartridge detachably mountable to a main assembly of an electrophotographic image forming apparatus. The apparatus includes an electrophotographic photosensitive member, a developing roller for developing an electrostatic latent image formed on the electrophotographic photosensitive member, an electroconductive flange engaged to one end portion of the developing roller, and a driving portion, provided at one end portion of the flange, for rotating the developing roller. The electrical contact part includes (a) a connecting portion electrically connectable with a cartridge-side electrode which is provided in the process cartridge and which is connectable with a main assembly side electrode provided in the main assembly of the apparatus when the process cartridge is detachably mounted to the main assembly of the apparatus; and (b) a projected portion projected at a side opposite from a side at which the connecting portion is connectable to the cartridge side electrode and insertable to between the flange and the driving portion.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 19991124



42. Family 85484489 (US2021181670 AA)

[View in PatBase](#)

Title

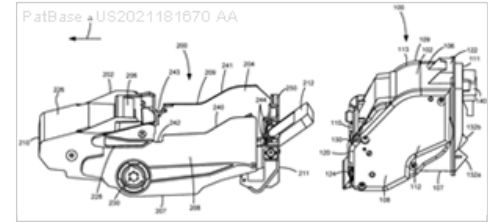
[EN] TONER CARTRIDGE LATCHING

Abstract

[EN] A first replaceable unit is provided for use with a second replaceable unit in an electrophotographic image forming device. The first replaceable unit includes a latch movable between a latching position for latching the first replaceable unit to the second replaceable unit and an unlatching position for permitting the first replaceable unit to separate from the second replaceable unit. The latch is positioned to contact a latch catch on the second replaceable unit in order to prevent the first replaceable unit from separating from the second replaceable unit when the first replaceable unit is mated with the second replaceable unit and the latch is in the latching position. The latch includes a cam follower surface for contacting a camming surface on the second replaceable unit during mating of the first replaceable unit with the second replaceable unit to cause the latch to move toward the latching or unlatching position.

Probable Patent Assignee: LEXMARK INT INC

Earliest Publication Date: 20210617



43. Family 74102931 (US2019121256 AA)

[View in PatBase](#)

Title

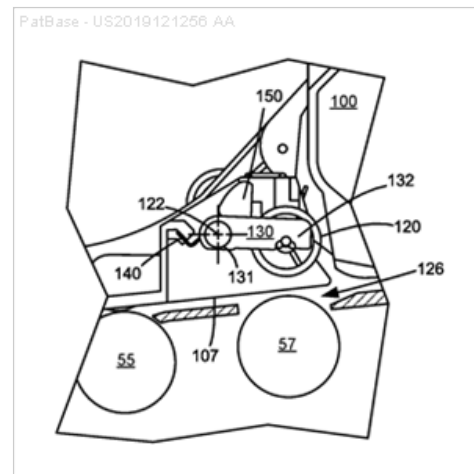
[EN] TONER CARTRIDGE HAVING A BIASING ASSEMBLY FOR BIASING A MEDIA FEED ROLL IN AN ELECTROPHOTOGRAPHIC IMAGE FORMING DEVICE

Abstract

[EN] A toner cartridge according to one example embodiment includes a housing having a reservoir for holding toner and an outlet in fluid communication with the reservoir for exiting toner from the toner cartridge. A resiliently deflectable cam is positioned on an exterior portion of the housing to contact a media feed roll assembly when the toner cartridge is installed in the image forming device for biasing the media feed roll assembly into contact with a corresponding media feed roll in the image forming device to form a media feed nip in the image forming device.

Probable Patent Assignee: LEXMARK INT INC

Earliest Publication Date: 20190425



44. Family 67934615 (US2019129356 AA)

[View in PatBase](#)

Title

[EN] PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

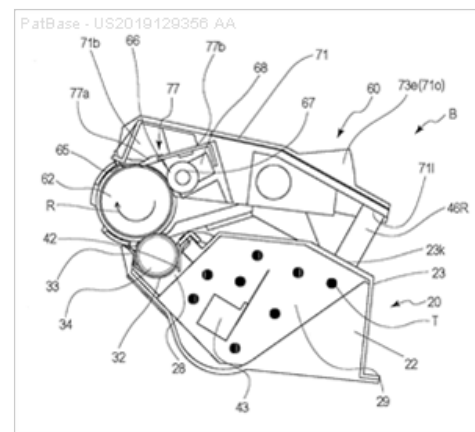
Abstract

[EN] To provide a structure for the process cartridge for receiving input of driving force from outside thereof.

The main assembly of the electrophotographic image forming apparatus includes a driving output member provided with an output gear portion and an output coupling portion. The process cartridge that can be mounted to and dismounted from the main assembly of the electrophotographic image forming apparatus includes a photosensitive member, an input coupling portion provided at the end of the photosensitive member and capable of coupling with the output coupling portion, and an input gear portion capable of meshing with the output gear portion.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20171221



45. Family 11262978 (US6336018 BA)

[View in PatBase](#)

Title

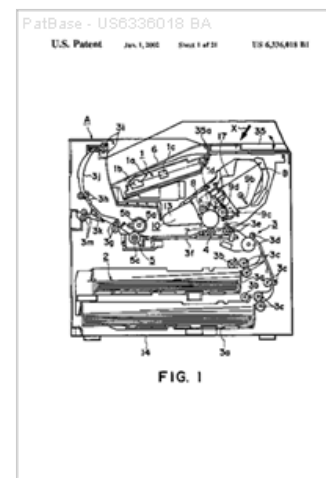
[EN] ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS, PROCESS CARTRIDGE, AND DRIVE MOUNT FOR PHOTSENSITIVE DRUM

Abstract

[EN] 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.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 19980401



46. Family 47900996 (US2010322676 AA)

[View in PatBase](#)

Title

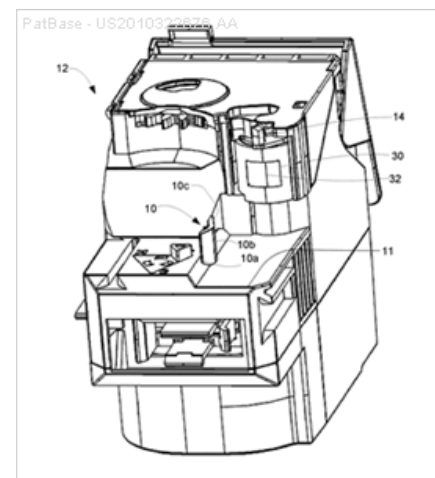
[EN] CARTRIDGE ALIGNMENT MEMBER FOR ALIGNING WITH A DEVELOPER UNIT IN AN ELECTROPHOTOGRAPHIC IMAGE FORMING DEVICE

Abstract

[EN] An alignment member is externally disposed on a toner cartridge for alignment with a developer unit in an electrophotographic image forming device. In one embodiment of the invention, the alignment member includes a first portion to properly align the developer unit relative to the toner cartridge and a second portion to maintain the proper alignment of the developer unit. The alignment ensures proper installation of the toner cartridge into the image forming device and prevents undesirable spill of toner.

Probable Patent Assignee: LEXMARK INT INC

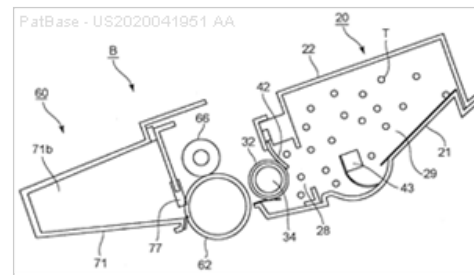
Earliest Publication Date: 20101223



[View in PatBase](#)

[EN] DRUM UNIT, CARTRIDGE, PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

[EN] To provide a process cartridge, a drum unit capable of receiving a driving force from the main assembly, and an image forming apparatus including the process cartridge. A cartridge is provided with a movable member having a driving force receiving portion. The movable member moves between an advanced position and a retracted position.

Earliest Publication Date: 20180920

48. Family 44125674 (US2011038649 AA)

[View in PatBase](#)

Title

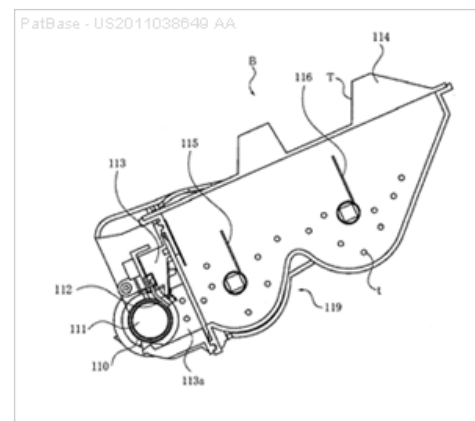
[EN] CARTRIDGE, AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS WHICH USES CARTRIDGE

Abstract

[EN] 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.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20091217



49. Family 11029849 (US5937242 A)

[View in PatBase](#)

Title

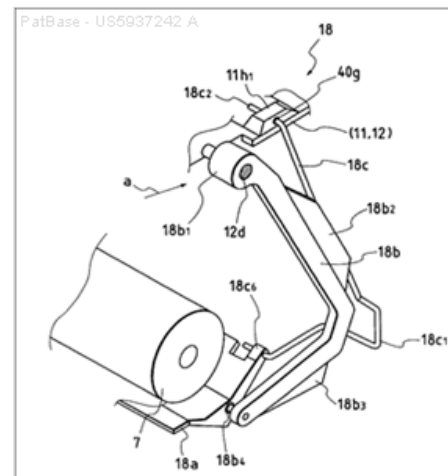
[EN] PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract

[EN] A process cartridge detachably mountable to a main body of an electrophotographic image forming apparatus includes a cartridge frame, an electrophotographic photosensitive member supported by the cartridge frame, a process device supported by the cartridge frame to act on the electrophotographic photosensitive member, and a shutter member for protecting a portion of the electrophotographic photosensitive member exposed from the cartridge frame. It further includes a first connection member to connect the cartridge frame and the shutter member. The first connection member is rotatable with respect to the cartridge frame and is detachably attached to the cartridge frame. Also provided is a second connection member to connect the cartridge frame and the shutter member. It is rotatable with respect to the cartridge frame and is attached to the cartridge frame while regulating an axial movement of the second connection member during rotation of the second connection member.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 19980821



50. Family 28634036 (US2003108358 AA)

[View in PatBase](#)

Title

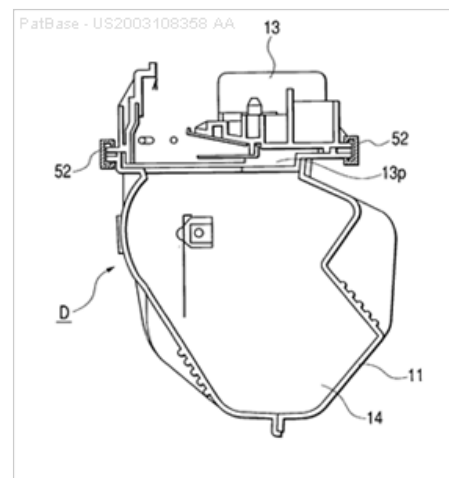
[EN] METHOD OF REMANUFACTURING PROCESS CARTRIDGE AND DEVELOPING DEVICE

Abstract

[EN] A method of remanufacturing a process cartridge includes a step of removing a pin to thereby separate a drum unit and a developing container, a step of separating a developing frame and a developer frame from each other to thereby separate the developing container, a step of resupplying the developer to a developer containing portion of the developer frame, a step of superposing a reseal member on end portion seal members provided at lengthwise one end and other end of a developer supply opening for supplying the developer contained in a developer containing portion to a developing roller, and interposing the reseal member on each of widthwise one end and other end of the developer supply opening along the lengthwise direction of the developer supply opening, and reuniting the developing frame and the developer frame, and a step of reuniting the reconstructed developing container and the drum unit.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20030612



51. Family 15015803 (US5708913 A)

[View in PatBase](#)

Title

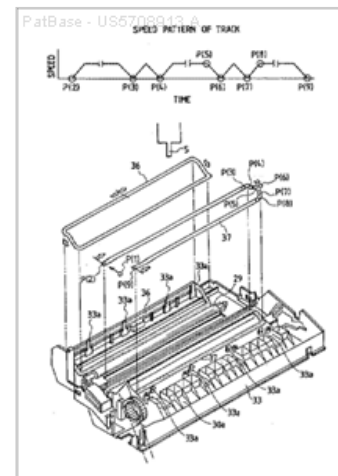
[EN] COATING APPARATUS, PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract

[EN] A coating apparatus for coating liquid-form material to be solidified as an elastomer on a coated member in order to form a seal member for preventing toner leakage, includes an injection member for injecting the liquid-form material on the coated member, a holder for holding the coated member, a driver for causing relative movement between the injection member and the holder, and a controller for controlling the driver to change the relative movement between the injection member and the holder.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 19960820



52. Family 44129424 (US2009317132 AA)

[View in PatBase](#)

Title

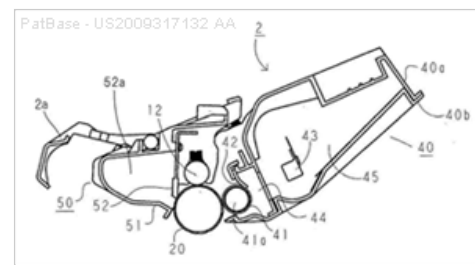
[EN] PROCESS CARTRIDGE, ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS AND ELECTROGRAPHIC PHOTORESENSITIVE DRUM UNIT

Abstract

[EN] A process cartridge is detachably mountable to a main assembly of an electrophotographic image forming apparatus including a driving shaft having a rotational force applying portion by moving in a direction substantially perpendicular to an axis of the driving shaft. The cartridge includes an electrophotographic photosensitive drum, a coupler engageable with the rotational force applying portion to receive a rotational force for rotating the drum and taking transmitting, pre-engagement, and disengaging positions, and a regulator regulating an inclination angle of the coupler. During cartridge mounting, the coupler moves from the pre-engagement to the transmitting position to oppose the driving shaft, and during cartridge dismounting, the coupler moves from the transmitting to the disengaging position to disengage from the driving shaft.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20091223



53. Family 93526781 (US2022308496 AA)

[View in PatBase](#)

Title

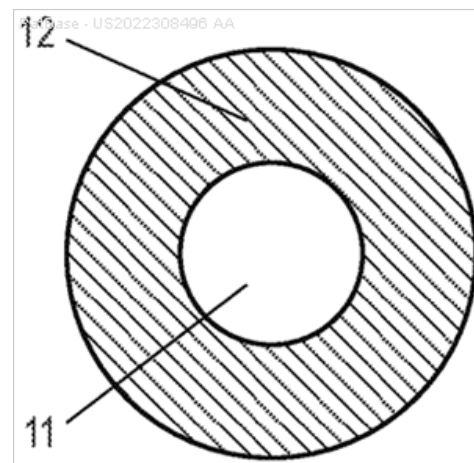
[EN] ELECTROPHOTOGRAPHIC MEMBER, ELECTROPHOTOGRAPHIC PROCESS CARTRIDGE, AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract

[EN] An electrophotographic member includes an electro-conductive substrate and an elastic layer containing inorganic particles and a binder resin. The electrophotographic member has a protrusion on an outer surface of the electrophotographic member containing the inorganic particles. At least part of the inorganic particles contained in the protrusion are exposed to a surface of the protrusion, and the binder resin is present among the inorganic particles contained in the protrusion. An elastic modulus E1 of the elastic layer is equal to or above 1000 MPa.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20220929



54. Family 33533462 (US5659847 A)

[View in PatBase](#)

Extended Family Number: 30820226

Title

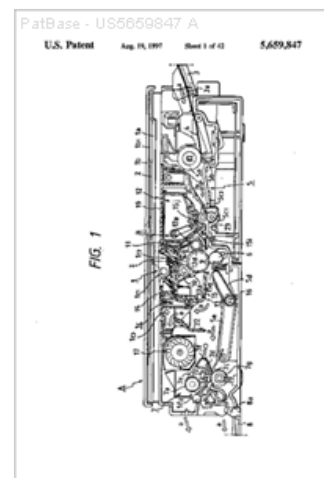
[EN] PROCESS CARTRIDGE HAVING POSITIONING MEMBER FOR POSITIONING OPTICAL DEVICE

Abstract

[EN] A process cartridge includes a first upper and second lower frame, separably engageable to each other, an image bearing member, a process means acting on the image bearing member, and a positioning device for positioning an optical unit of an image forming apparatus when the process cartridge is mounted within the image forming apparatus. With this arrangement, the present invention can provide a process cartridge and an image forming apparatus capable of mounting the process cartridge, which can form an image with higher quality than that of the conventional techniques, without distorting the image. The positioning member is located on the second lower frame and passes through openings formed on the first upper frame in order to position the optical unit.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 19940112



55. Family 44451315 (US2010054823 AA)

[View in PatBase](#)

Title

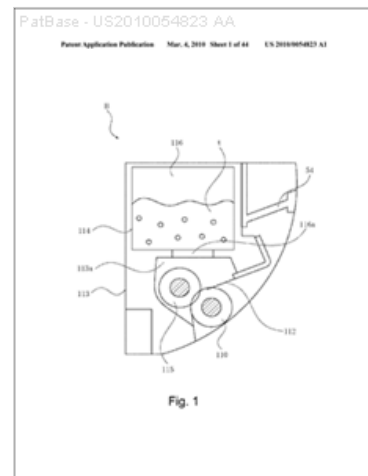
[EN] DEVELOPING DEVICE, DEVELOPING CARTRIDGE, ROTATIONAL FORCE TRANSMITTING PART AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract

[EN] 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.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20100304



56. Family 10774091 (US5923918 A)

[View in PatBase](#)

Title

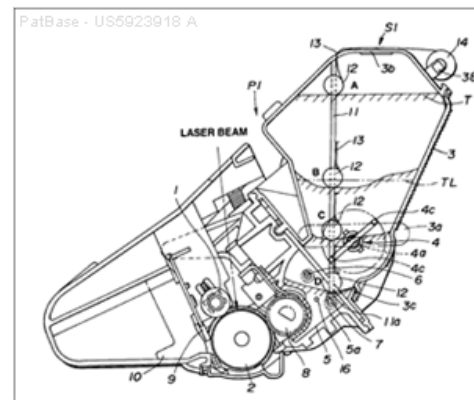
[EN] DEVICE FOR NOTIFYING A REMAINING AMOUNT OF A DEVELOPER, A PROCESS CARTRIDGE, AND AN ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract

[EN] A developer-remaining-amount notifying device for notifying a remaining amount of a developer accommodated in a developer accommodating unit and used for developing a latent image formed on an electrophotographic photosensitive member is provided. The device includes a position detection member positionable near an upper surface of an accumulated layer of the developer accommodated in the developer accommodating unit, a regulating member, and a notification device. The regulating member regulates a moving direction of the position detection member such that the position detection member moves substantially linearly in accordance with a gradual decrease of the developer accommodated in the developer accommodating unit as the developer is used for development. The notification device notifies a remaining amount of the developer accommodated in the developer accommodating unit in accordance with a position of the position detection member.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 19980714



57. Family 68729756 (US2019187608 AA)

[View in PatBase](#)

Title

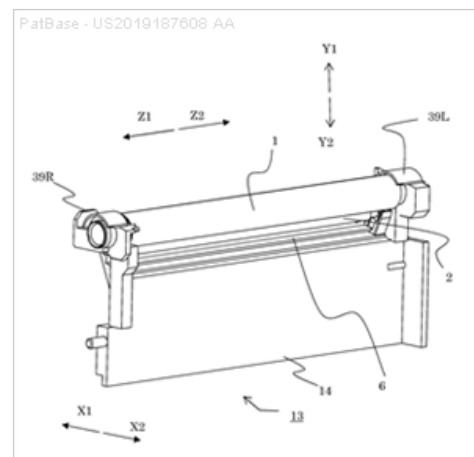
[EN] DRUM UNIT, CARTRIDGE, ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS AND COUPLING MEMBER

Abstract

[EN] A drum unit detachably mountable to a main assembly of an electrophotographic image forming apparatus includes a photosensitive drum and a coupling member provided on the photosensitive drum. The coupling member includes a driving force receiving portion and a supporting portion movably supporting the driving force receiving portion. The supporting portion includes a first extended portion and a second extended portion which extend at least in an axial direction of the photosensitive drum.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20180301



58. Family 11278436 (US6061535 A)

[View in PatBase](#)

Title

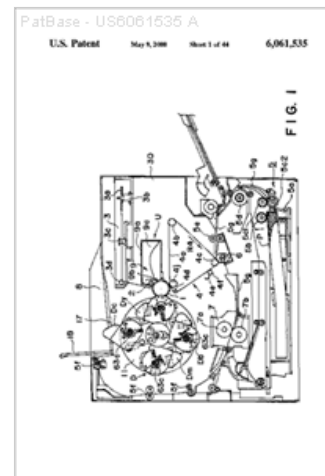
[EN] DEVELOPING CARTRIDGE, FOR A REVOLVER TYPE DEVELOPING DEVICE, WITH SENSING MEANS FOR SENSING THE REMAINING TONER

Abstract

[EN] A developing cartridge for developing a latent image formed on the photosensitive member, wherein the developing cartridge is detachably mountable to a main assembly of an electrophotographic image forming apparatus, the developing cartridge includes a cartridge frame; a developing member for developing a latent image formed on the photosensitive member; a driving force receiving member for receiving driving force for rotating the developing member from the main assembly of the apparatus when the developing cartridge is mounted to the main assembly, the driving force receiving member being exposed from a portion of the cartridge adjacent one longitudinal end of the developing member; a developing bias contact for receiving a developing bias to be applied to the developing member from the main assembly when the cartridge is mounted to the main assembly; a toner accommodating portion for accommodating the toner to be used for development by the developing member; a first light-transmissive member and a second light-transmissive member, provided at a portion of the cartridge frame corresponding to the toner accommodating portion adjacent the other longitudinal end of the developing member, for detecting that remaining amount of the toner accommodated in the toner accommodating portion becomes smaller than a predetermined amount, wherein the first light-transmissive member is effective to introduce light emitted from the main assembly into the toner accommodating portion, and the second light-transmissive member is effective to direct the light having passed through the toner accommodating portion toward the main assembly.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 19990107



59. Family 59460544 (US2016370757 AA)

[View in PatBase](#)

Title

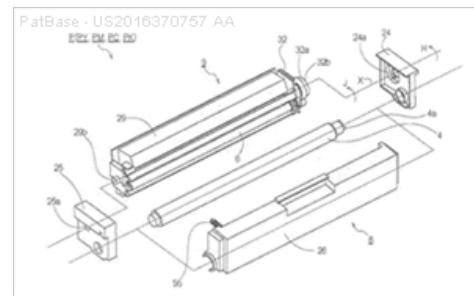
[EN] CARTRIDGE, PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract

[EN] A process cartridge detachably mountable to a main assembly of an electrophotographic image forming apparatus, includes a rotatable photosensitive drum; a rotatable developing roller configured to develop image formed on the drum, the developing roller being capable of contacting to and spacing from the drum; an urging force receiving portion configured to receive, from a main assembly side urging member, an urging force for spacing the developing roller from the drum; a cartridge side drive transmission member capable of the coupling with a main assembly side drive transmission member and configured to receive, from the main assembly side drive transmission member, a rotational force for rotating the developing roller; and a decoupling member capable of urging the cartridge side drive transmission member by the urging force received by the urging force receiving portion to decouple the cartridge side drive transmission member from the main assembly side drive transmission member.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20150611



60. Family 12546796 (US5537187 A)

[View in PatBase](#)

Title

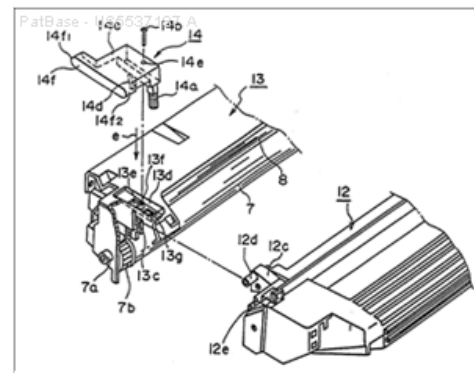
[EN] PROCESS CARTRIDGE HAVING A FRAME CONNECTING MEMBER WITH A GUIDE PORTION, AND IMAGE FORMING APPARATUS USING SAME

Abstract

[EN] A process cartridge removably mountable to an image forming apparatus, including an image bearing member, a process unit acting on the image bearing member, a first frame having the image bearing member, a second frame having the process unit, and a connection assembly for connecting the first frame to the second frame. The connection assembly has a guide portion for guiding the process cartridge to a mounting position when the process cartridge is mounted to the image forming apparatus.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 19950704



61. Family 68077060 (US2018004126 AA)

[View in PatBase](#)

Title

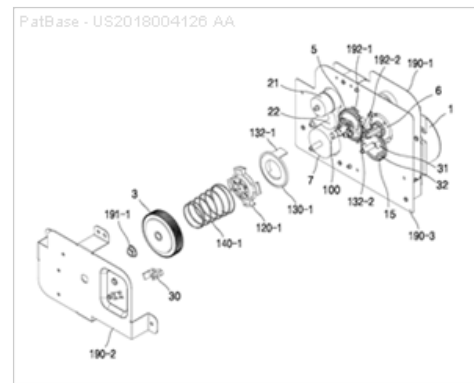
[EN] DRIVING DEVICE AND IMAGE FORMING APPARATUS INCLUDING THE SAME

Abstract

[EN] An electrophotographic image forming apparatus includes a driving device including a first gear and a second gear, a power transmitter configured to transfer a rotational force applied in one direction from the motor to the first and second gears; a cam configured to set the power transmitter to one of a release mode in which the motor is disconnected from the first and second gears, a first connection mode in which one of the first and second gears is connected to the motor, and a second connection mode in which the other of the first and second gears is connected to the motor; and a clutch configured to selectively transfer the rotational force applied in the one direction from the motor to the cam.

Probable Patent Assignee: HP PRINTING KOREA CO LTD

Earliest Publication Date: 20180104



62. Family 55025359 (US2013287452 AA)

[View in PatBase](#)

Title

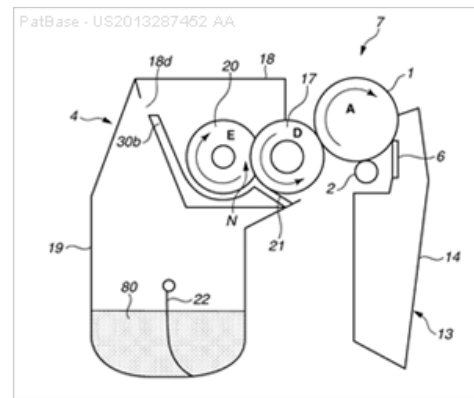
[EN] DEVELOPMENT DEVICE, PROCESS CARTRIDGE, AND IMAGE FORMING APPARATUS

Abstract

[EN] In a development device in which a developer containing unit underlies a development chamber, a supplying member in the development chamber forms a nip portion with a developer carrier and the developer carrier and the supplying member rotate in the direction in which their respective surfaces move from an upper end to a lower end of the nip portion.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20131030



63. Family 41952324 (US2008152388 AA)

[View in PatBase](#)

Title

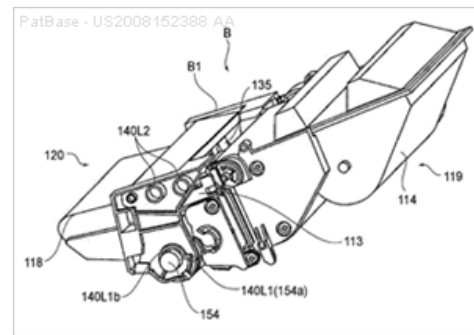
[EN] PROCESS CARTRIDGE, ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS, AND ELECTROPHOTOGRAPHIC PHOTSENSITIVE DRUM UNIT

Abstract

[EN] 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.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20080626



64. Family 52812887 (US2013343785 AA)

[View in PatBase](#)

Title

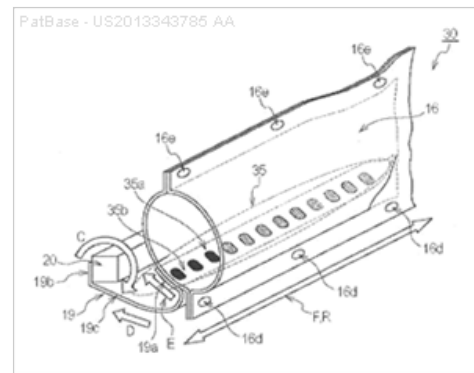
[EN] DEVELOPER ACCOMMODATING UNIT, PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract

[EN] A developer accommodating unit for accommodating a developer for image formation includes a flexible container provided with an opening 35a for permitting discharge of the developer, a frame for accommodating the flexible container and for accommodating the developer to be discharged from the flexible container, and an urging member 21 for urging a developer accommodating bag toward the frame for accommodating the developer accommodating bag 16. By this, it is possible to satisfactorily effect discharge of the developer from the flexible developer accommodating bag 16.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20130117



65. Family 62537603 (US2017261926 AA)

[View in PatBase](#)

Title

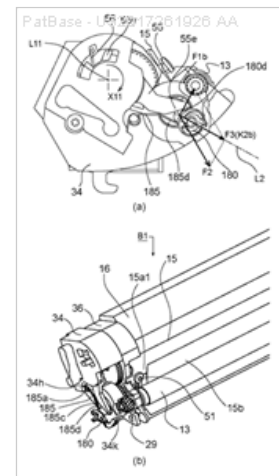
[EN] CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract

[EN] In a cartridge structure employing an inclinable coupling member engaging with a rotational force transmitting portion of an electrophotographic image forming apparatus, the coupling member is unable to engage with the rotational force transmitting portion of the electrophotographic image forming apparatus when the mounting and dismounting direction and the developing/spacing direction relative to the electrophotographic image forming apparatus of different from each other. under the circumstances, a coupling lever **55** contacting and retracting relative to the coupling member **180** in interrelation with the mounting and dismounting operation of a developing cartridge **B1**, and a coupling spring **56** for the coupling lever **55** to apply an urging force to the coupling member **180** are provided

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20160602



66. Family 42001508 (US2008260428 AA)

[View in PatBase](#)

Title

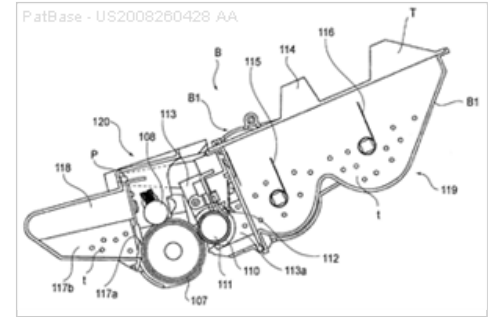
[EN] ROTATIONAL FORCE TRANSMITTING PARTS

Abstract

[EN] 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.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20080710



67. Family 72961677 (US10185247 BA)

[View in PatBase](#)

Title

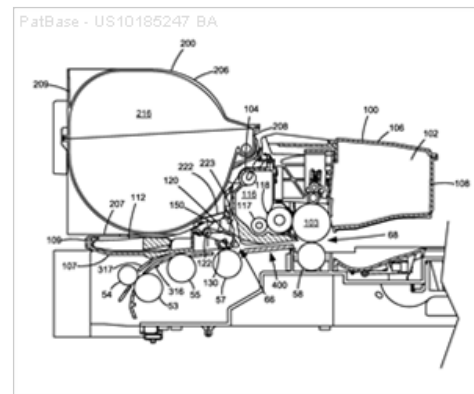
[EN] TONER CARTRIDGE HAVING A MEDIA FEED ROLL ASSEMBLY

Abstract

[EN] A toner cartridge according to one example embodiment includes a housing having a reservoir for holding toner and an outlet in fluid communication with the reservoir for exiting toner from the toner cartridge. A rotatable media feed roll is positioned on an exterior portion of the housing to engage a corresponding media feed roll in the image forming device when the toner cartridge is installed in the image forming device for forming a media feed nip with the corresponding media feed roll in the image forming device when the toner cartridge is installed in the image forming device.

Probable Patent Assignee: LEXMARK INT INC

Earliest Publication Date: 20190122



68. Family 81129891 (US2021382434 AA)

[View in PatBase](#)

Title

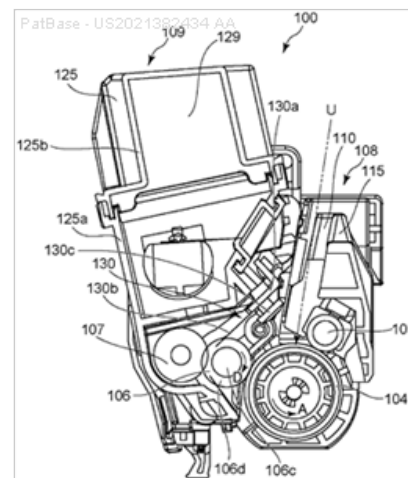
[EN] ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS, CARTRIDGE AND DRUM UNIT

Abstract

[EN] [Problem to be solved] To further develop conventional technique. [Solution] a cartridge includes a casing, a photosensitive drum and a coupling. the coupling includes a driving force receiving portion for receiving a driving force by engagement with a driving force application member, a braking force receiving portion for receiving in braking force by engagement with a braking force application member, and a guide for moving the braking force application member relative to the driving force application member.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20200924



69. Family 12013423 (US5890036 A)

[View in PatBase](#)

Title

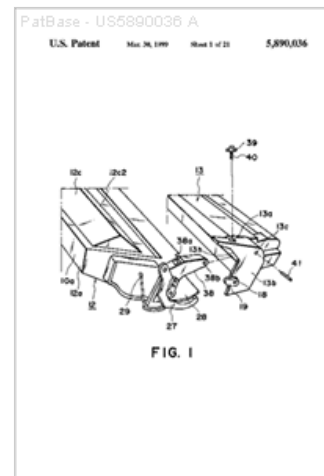
[EN] PROCESS CARTRIDGE, PROCESS CARTRIDGE ASSEMBLY METHOD, AND IMAGE FORMING APPARATUS

Abstract

[EN] A process cartridge detachably mountable to a main assembly of an image forming apparatus includes a cartridge frame; an electrophotographic photosensitive member; a process device actable on the electrophotographic photosensitive member; a toner accommodating portion for accommodating toner for developing a latent image formed on the electrophotographic photosensitive member; a filling opening for filling the toner to the toner accommodating portion, wherein the filling opening is openably sealed by a cap; a transfer opening for permitting transfer of a toner image formed on the electrophotographic photosensitive member onto a recording material, wherein the transfer opening is provided on the cartridge frame; a protection cover for protecting the electrophotographic photosensitive member; a supporting member for supporting the protection cover so that the protection cover is movable between a protection position in which the protection cover covers the transfer opening and a retracted position in which it opens the transfer opening; a mounting member mounted to the cartridge frame so as to be opposed to the cap mounted to the filling opening.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 19961030



70. Family 55979272 (US2014072330 AA)

[View in PatBase](#)

Title

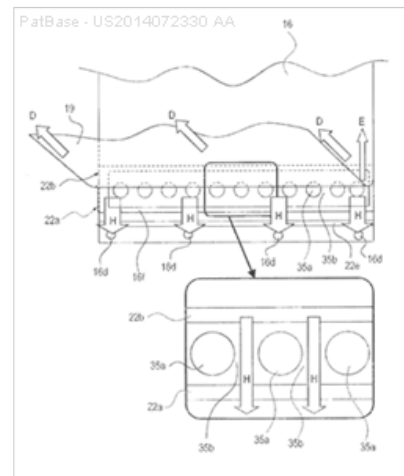
[EN] DEVELOPER ACCOMMODATING UNIT, PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract

[EN] A developer accommodating unit includes: a flexible container including an opening for permitting discharge of a developer; a sealing member for forming a bonding portion between itself and the flexible container; an unsealing member; and an accommodating container. The bonding portion includes a first bonding portion extending in a longitudinal direction of the sealing member at a periphery of the opening in an upstream side of a peeling direction of the sealing member, a second bonding portion extending in the longitudinal direction at the periphery of the opening in a downstream side of the peeling direction, and a third bonding portion bonded upstream of the first bonding portion with respect to the peeling direction. When the sealing member exposes the opening, the bonding portion is peeled in the order of the third bonding portion, the first bonding portion and the second bonding portion.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20140313



71. Family 64288125 (US2018074454 AA)

[View in PatBase](#)

Title

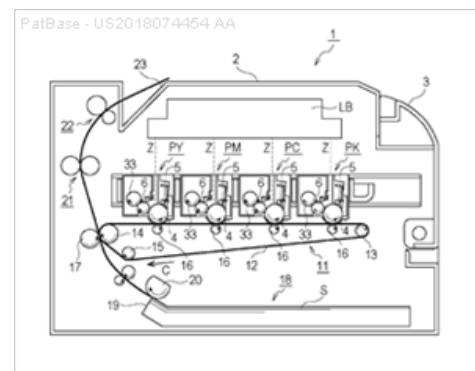
[EN] CARTRIDGE, PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract

[EN] A process cartridge detachably mountable to an electrophotographic image forming apparatus including a main assembly side drive transmission member and a main assembly side urging member, the cartridge including a rotatable photosensitive drum; a rotatable developing roller for developing a latent image formed on the drum, the developing roller contactable to and spaceable from the drum; an urging force receiving portion for receiving an urging force from the urging member to space the roller from the drum; a cartridge side drive transmission portion capable of coupling with the main assembly side drive transmission member to receive a rotational force for rotating the roller; a releasing member capable of urging the main assembly side drive transmission member to decouple the cartridge side drive transmission member from the main assembly side drive transmission member by the urging force receiving portion receiving the urging force from the main assembly side urging member.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20161208



72. Family 77411908 (US2020026216 AA)

[View in PatBase](#)

Title

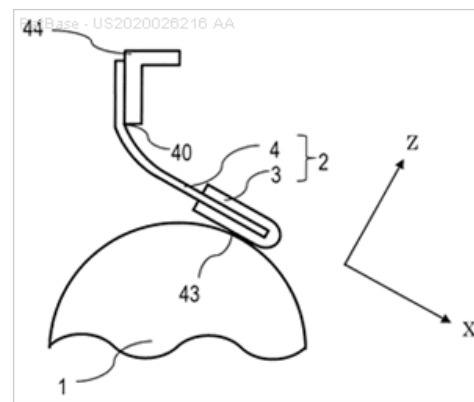
[EN] DEVELOPER REGULATING MEMBER, DEVELOPING DEVICE, PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract

[EN] To provide a developer regulating member which can generate a uniform frictional charge even on a developer having a small size. A developer regulating member for regulating the thickness of the layer of a developer carried on the surface of a developer carrier, having: a regulating portion contacting with the developer, wherein the regulating portion includes a thermoplastic acrylic resin, and the thermoplastic acrylic resin has a first endothermic peak having a peak top at +50 degrees centigrade or more and a second endothermic peak having a peak top at +20 degrees centigrade or less on the differentiation curve of a DSC curve obtained when the temperature is raised from -100 degrees centigrade to 150 degrees centigrade at a rate of temperature rise of 20.0 degrees centigrade /min using differential scanning calorimetry (DSC).

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20200123



73. Family 11046347 (US6011941 A)

[View in PatBase](#)

Title

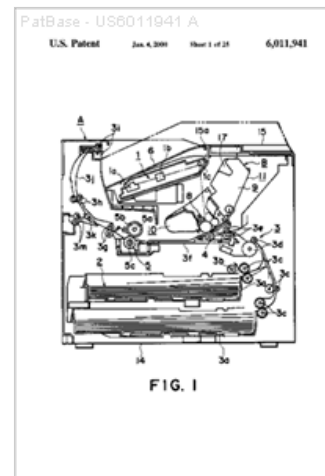
[EN] PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract

[EN] A process cartridge which is detachably mountable to a main assembly of an image forming apparatus includes an electrophotographic photosensitive member, a process device actable on the photosensitive member, a memory element, and a cartridge connector for electrically connecting the memory with the main assembly when the process cartridge is mounted to the main assembly. The cartridge connector is electrically connectable with a main assembly connector provided in the main assembly. The cartridge also includes a contact portion for moving a shutter for protecting the main assembly connector from a protecting position to a retracted position in response to mounting of the process cartridge to the main assembly.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 19980825



74. Family 59510317 (US2015168870 AA)

[View in PatBase](#)

Title

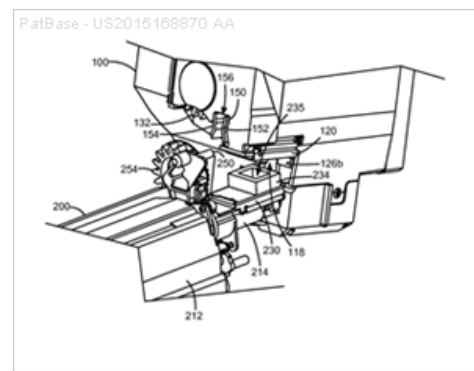
[EN] TONER CARTRIDGE HAVING AN ALIGNMENT MEMBER FOR ALIGNING WITH A DEVELOPER UNIT IN AN ELECTROPHOTOGRAPHIC IMAGE FORMING DEVICE

Abstract

[EN] A toner cartridge for use with a developer unit of an image forming device according to one example embodiment includes a housing having a front, a rear, a top, a bottom, a first side and a second side. The housing has a reservoir for holding toner. An outlet port is positioned on the housing for transferring toner from the reservoir to the developer unit. An alignment slot on the front of the housing is open at a bottom end of the alignment slot to receive an alignment pin of the developer unit. The alignment slot has a width that narrows from the bottom end of the alignment slot to a middle section of the slot and that widens from the middle section of the alignment slot to a top end of the alignment slot.

Probable Patent Assignee: LEXMARK INT INC

Earliest Publication Date: 20150617



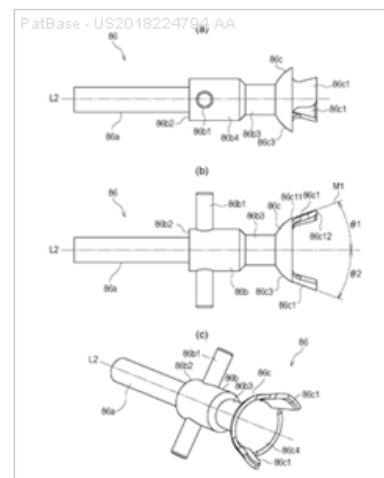
[View in PatBase](#)

[EN] DRUM UNIT, PROCESS CARTRIDGE AND IMAGE FORMING APPARATUS

[EN] A drum unit usable with a process cartridge includes a photosensitive drum having an axis L1; and a coupling member having an axis L2 and connected to an end portion of the photosensitive drum, the coupling member being provided with a projection extending toward an end portion of the coupling member, wherein the coupling member is movable along the axis L2 between a first position, and a second position in which the projection is closer to the photosensitive drum than in the first position, wherein the projection is provided with a force receiving portion for receiving a rotational force and an outer surface facing away from the axis L2, and wherein at least a part of the outer surface is more distant from the axis L2 as is further from the photosensitive drum in a direction of the axis L1.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20170406



76. Family 41960106 (US5903803 A)

[View in PatBase](#)

Extended Family Number: 31987792

Title

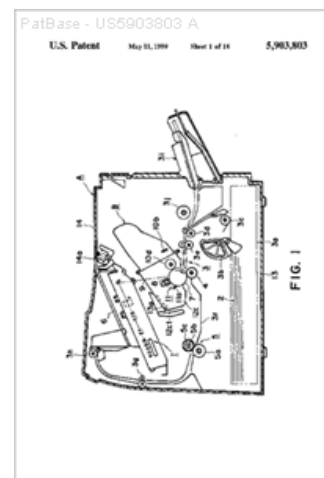
[EN] PROCESS CARTRIDGE, ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS, DRIVING FORCE TRANSMISSION PART, AND ELECTROPHOTOGRAPHIC PHOTOSENSITIVE DRUM

Abstract

[EN] 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.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 19961024



77. Family 52812880 (US2013308973 AA)

[View in PatBase](#)

Title

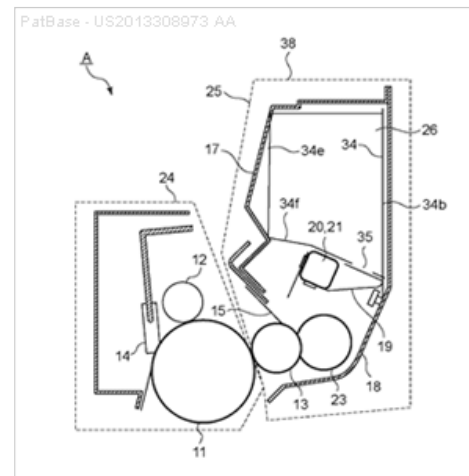
[EN] DEVELOPER ACCOMMODATING UNIT, PROCESS CARTRIDGE,
ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract

[EN] With respect to an unsealing direction in which exposure of a discharging portion 35 advances, a fixing portion 34g of a developer accommodating member 34 is provided in a range of a region of a connecting portion 35b of the discharging portion 35.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20130116



78. Family 15886629 (US5734949 A)

[View in PatBase](#)

Title

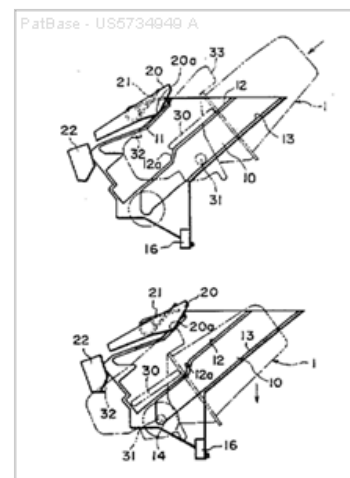
[EN] PROCESS CARTRIDGE AND IMAGE FORMING APPARATUS USABLE WITH THIS PROCESS CARTRIDGE

Abstract

[EN] A process cartridge is detachably mountable to an image forming apparatus for forming an image on a recording material. The process cartridge includes an image bearing member, a process device for acting on the image bearing member, which includes a developing device for developing an image on the image bearing member, a frame, and a projection disposed on the upper surface of the frame and extending toward the developing device, the projection having (i) an upward inclined surface, (ii) a flat surface continuing from the upper inclined surface, and (iii) a downward inclined surface that is inclined toward the developing device.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 19921230



79. Family 81129904 (US2021397122 AA)

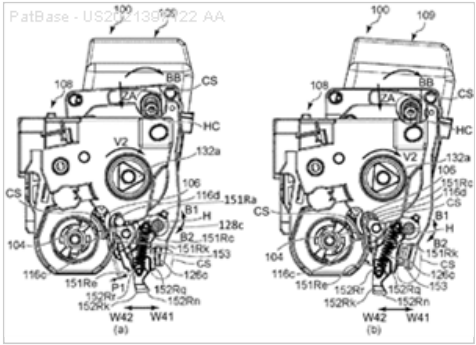
[View in PatBase](#)

Title
[EN] ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS AND CARTRIDGE

Abstract
[EN] [Problem to be solved] To further develop a prior art cartridge.

[Solution] A cartridge includes a holding movable between a first position for stably holding a second unit in a spaced position by a first unit and a second position, and a contact force receiving portion capable of receiving a contact force for moving the holding portion from the first position toward the second position to move the second unit to a developing position, when the second unit is in the spaced position. When a predetermined tangential line is a tangential line of a surface of a photosensitive member at an intersection, which is more remote from a rotational center of a charging member, of intersections between a line connecting a rotational center of the charging member and a rotational center of the photosensitive member and the surface of the photosensitive member, as viewed along a direction of a rotational axis of the developing member, and the cartridge is divided by the predetermined tangential line into sections, a predetermined section is a section in which the rotational center of the charging member does not exist, and as viewed along the rotational axis of the developing member when the second unit is in the spaced position, the contact force receiving portion is in the predetermined section.

Probable Patent Assignee: CANON INC
Earliest Publication Date: 20200924



80. Family 42770859 (US2009003875 AA)

[View in PatBase](#)

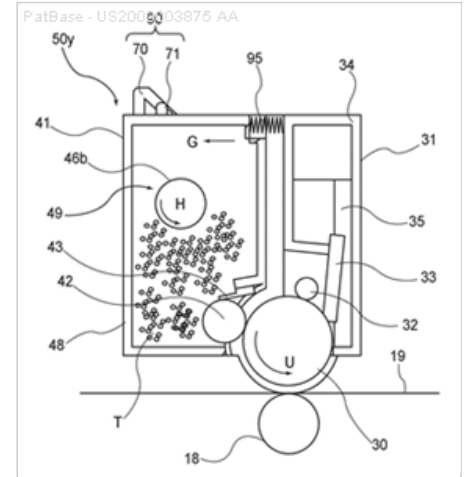
Title

[EN] PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract

[EN] A process cartridge detachably mountable to a main assembly of an electrophotographic image forming apparatus, includes an electrophotographic photosensitive drum; developing roller for developing an electrostatic latent image formed on the electrophotographic photosensitive drum; drum frame supporting the electrophotographic photosensitive drum; a developing frame supporting the developing roller, the developing frame is movable relative to the drum frame and is capable of taking a contacting position in which the developing roller is in contact with the electrophotographic photosensitive drum; and a force receiving device including a first force receiving portion for receiving a first external force and a second force receiving portion for receiving a second external force, wherein the second force receiving portion is movable relative to the developing frame, wherein the second force receiving portion is placed in a stand-by position retracted from an operating position by the first force receiving portion receiving the first external force, and is movable from the stand-by position to the operating position for moving the developing frame from the contacting position to the spacing position, wherein a distance through which the second force receiving portion moves to the operating position is larger than a distance through which the first force receiving portion is mo

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20090101

81. Family 14371710 (JP9068833 A2)

[View in PatBase](#)

Title

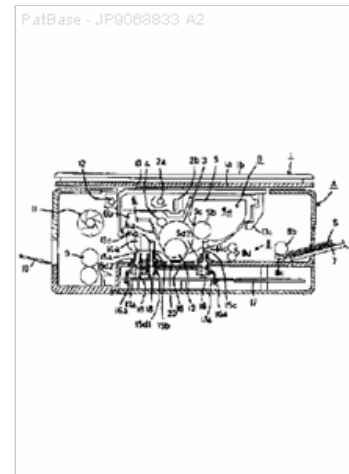
[EN] ELECTROPHOTOGRAPHIC IMAGE FORMING DEVICE

Abstract

[EN] PROBLEM TO BE SOLVED: To surely electrically connect an image forming unit and a device main body by retreating a contact member with which the contact part of an image forming unit can come in contact before the image forming unit is loaded, and moving the contact member to a regular position after it is loaded. SOLUTION: As for a process cartridge (image forming unit) B, an electrifying contact part 14a, a developing contact part 14b and a drum contact part 14c respectively electrically connected to an electrifying roller 4, a developing roller 5b and a photoreceptor drum 3 are exposed from the frame body of the cartridge. When the cartridge B is loaded in the device main body A, the contact parts 14a to 14c respectively come into contact with the pin-like contact members 15a to 15c provided on the device main body A side. The members 15a to 15c are held by a contact holder 16 so that they can move to a retreat position and the regular position with respect to a base plate 17 fixed in the device main body A. When the cartridge B is loaded in the device main body A, the members 15a to 15c are temporarily retreated, and they are restored to the regular position after the cartridge B is loaded therein.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 19970311



82. Family 36080354 (US2007223970 AA)

[View in PatBase](#)

Title

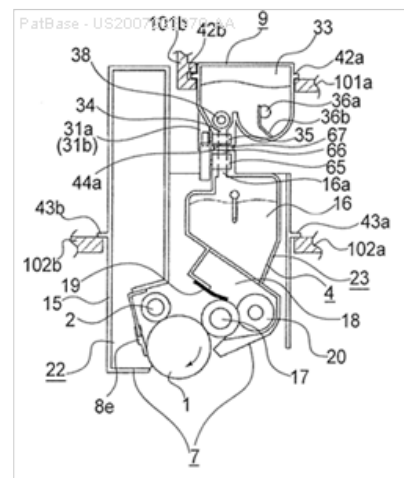
[EN] PROCESS CARTRIDGE, DEVELOPER SUPPLY CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract

[EN] A developer supply cartridge supplies a developer into a process cartridge, and is detachably mountable to a main assembly of an electrophotographic image forming apparatus. The process cartridge includes a drum, a developing roller, a receiving-side shutter portion opening and closing a developer receiving opening, a receiving-side movable portion to move the receiving-side shutter portion, and a regulating member for regulating movement of the receiving-side movable portion. The developer supply cartridge includes a supplying-side developer accommodating portion, a developer supply opening supplying the developer from the supplying-side developer accommodating portion into the process cartridge through the developer receiving opening, a supplying-side shutter portion opening and closing the developer supply opening, and a supplying-side movable portion to open the supplying-side shutter portion when the developer supply cartridge enters the main assembly and the process cartridge is set in the main assembly, by engagement with the receiving-side movable portion.

Probable Patent Assignee: CANON INC

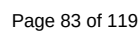
Earliest Publication Date: 20070916



[View in PatBase](#)

[EN] PROCESS CARTRIDGE AND IMAGE FORMING APPARATUS

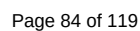
[EN] A process cartridge detachably mountable to a main assembly of an electrophotographic image forming apparatus includes a drum unit, containing a drum, movably connected to a developing unit containing a developing roller between a contact position where the roller contacts the drum and a spaced position where the roller is spaced from the drum, a drum coupler engaging a first main assembly drive transmitter transmitting a first rotational driving force to the drum, when the process cartridge is mounted to the main assembly, a shaft coupler transmitting a second rotational driving force, with a deviation permitted between an axis of a second main assembly drive transmitter and an axis of the roller, from the second main assembly drive transmission member to the roller when the cartridge is mounted to the main assembly.

Probable Patent Assignee: CANON INC**Earliest Publication Date:** 20080612

[View in PatBase](#)

[EN] CARTRIDGE AND DRUM UNIT FOR ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

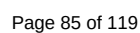
[EN] A cartridge mountable to a printer, said printer including a coupling guide contactable to a coupling of the cartridge to guide the coupling member. A case of the cartridge is provided with a hole for exposing a free end portion of the coupling to an outside of the cartridge, and a retracted portion provided in downstream of the hole with respect to the mounting direction of the cartridge. When the cartridge is mounted to a main assembly of the printer, the coupling guide enters the retracted portion from which the coupling member has retracted.

Earliest Publication Date: 20150319

[View in PatBase](#)

[EN] DEVELOPER CONVEYING DEVICE AND DEVELOPMENT DEVICE, TONER CARTRIDGE, AND CLEANING UNIT THAT ARE PROVIDED WITH DEVELOPER CONVEYING DEVICE

[EN] A developer conveying device comprising: a developer conveying cylinder; and a screw-shaped shaft, wherein the screw-shaped shaft includes a rotating shaft that is journaled in an upstream wall portion and a downstream wall portion, which are included in the developer conveying cylinder, and a spiral blade that is mounted on an outer circumferential surface of the rotating shaft; the rotating shaft includes a conical portion that thickens gradually toward the downstream side; and the spiral blade includes an agitating blade portion whose lead angle increases gradually toward the downstream side.

Earliest Publication Date: 20111228

86. Family 11911749 (JP10282752 A2)

[View in PatBase](#)

Title

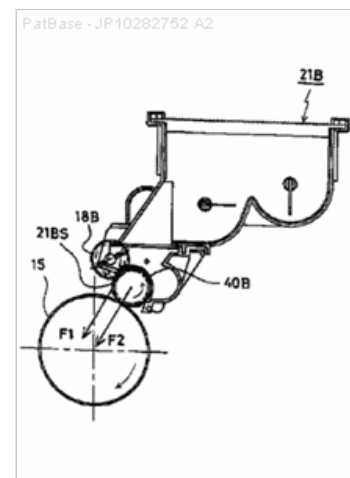
[EN] ELECTROPHOTOGRAPHIC IMAGE FORMING DEVICE AND PROCESS CARTRIDGE

Abstract

[EN] PROBLEM TO BE SOLVED: To prevent the occurrence of a deviation in the relative position between a toner carrier and an electrophotographic photoreceptor by configuring such that the toner carrier is pressed toward the center of the rotation of the electrophotographic photoreceptor, when a driving force is transmitted to the toner carrier. SOLUTION: This electrophotographic image forming device is constituted so that engagement pressure when the roller gear 40B of a developing roller 21BS is engaged with a black developing unit driving gear 18B, to receive rotational driving force is in a direction nearly parallel with a line that links the centers of a photoreceptive drum 15 and the developing roller 21BS. Thus, when the roller gear 40B receives the driving force from the black developing unit driving gear 18B, engagement force F1 is exerted on the roller gear 40B. The developing roller 21BS also receives force F2 being in parallel with the engagement force F1 and toward the center of the rotation of the drum 15, by the engagement force F1, to rotate while being pressed toward the center of the rotation of the photoreceptive drum with a gap roller. Therefore, the occurrence of a position deviation, that is, the torsional states of the axis lines of the developing roller 21BS and the drum 15 is prevented.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 19981023



87. Family 31960459 (US2005115043 AA)

[View in PatBase](#)

Title

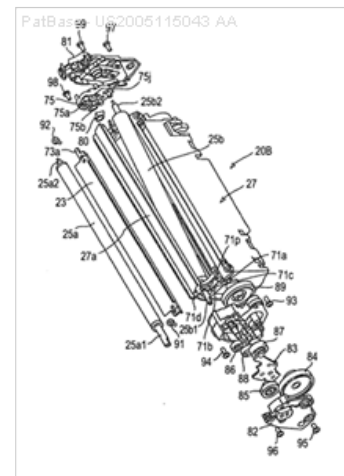
[EN] REMANUFACTURING METHOD FOR PROCESS CARTRIDGE

Abstract

[EN] A process cartridge remanufacturing method including the steps of: (a) separating photosensitive drum and developing units; (b) dismounting a first side cover member; (c) a dismounting a first gear group from a first bearing member; (d) dismounting a supporting member from the first bearing member; (e) dismounting a second gear group from the first bearing member; (f) dismounting the first bearing member; (g) dismounting a developing roller; (h) dismounting a developing blade; (i) filling a developer into a developer accommodating portion; (j) mounting the developing blade; (k) mounting the developing roller; (l) mounting the second gear group, (m) mounting the supporting member; (n) mounting the first gear group; (o) mounting the first side cover member; and (p) rotatably connecting the photosensitive drum and developing units.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20050601



88. Family 8840213 (US5371575 A)

[View in PatBase](#)

Title

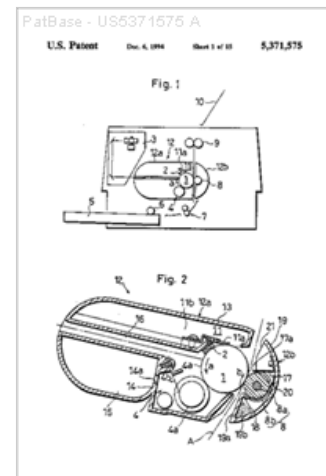
[EN] ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS WITH DETACHABLE IMAGING CARTRIDGE

Abstract

[EN] The present invention provides an image forming apparatus comprising a main assembly and an imaging cartridge detachable from the main assembly. The imaging cartridge includes a first unit and a second unit, both of which are separable from each other, a toner image carrier provided in the first unit, and a charging device provided in the second unit for transferring a toner image on the toner image carrier onto a copy sheet, wherein the charging device includes a charging roller. The present invention also provides an imaging cartridge detachable from the main assembly of an image forming apparatus. The imaging cartridge comprises a first unit and a second unit wherein the second unit is separable from the first unit, a toner image carrier provided in the first unit, and a charging device provided in the second unit for transferring a toner image on the toner image carrier onto a copy sheet.

Probable Patent Assignee: MINOLTA CO

Earliest Publication Date: 19930212



89. Family 15705549 (US6246848 BA)

[View in PatBase](#)

Title

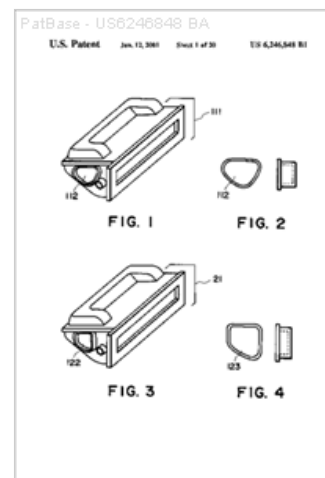
[EN] TONER CONTAINER CAP, TONER CONTAINER, AND PROCESS CARTRIDGE

Abstract

[EN] A toner accommodation container includes a toner containing portion for containing toner; a toner filling opening, formed in a side surface of said toner containing portion, for filling the toner into said toner containing portion; wherein said filling opening has a non-circular configuration substantially corresponding to a configuration of the side surface.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 19980318



90. Family 84529566 (US2022244658 AA)

[View in PatBase](#)

Title

[EN] ELECTROPHOTOGRAPHIC ELECTRO-CONDUCTIVE MEMBER, PROCESS CARTRIDGE, AND ELECTROPHOTOGRAPHIC IMAGE FORMING DEVICE

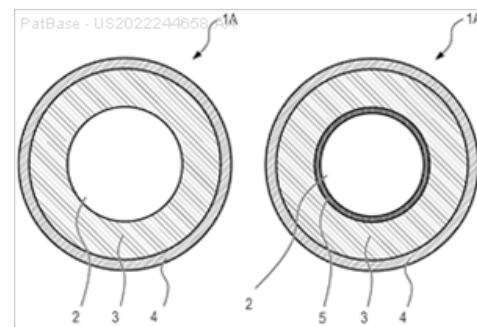
Abstract

[EN] Provided is an electrophotographic electro-conductive member including a support having an electro-conductive outer surface, and an electro-conductive layer. The electro-conductive layer has a matrix containing a crosslinked product of a first rubber and domains containing a crosslinked product of a second rubber and an electron conductive agent. When measuring an impedance by applying alternating voltage between the outer surface of the support and a platinum electrode on an outer surface of the electro-conductive layer while changing a frequency, a slope at specific frequencies is -0.8 to -0.3

in a double logarithmic plot, and an impedance at specific frequency range is $1.0 \times 10^4 \Omega$ to $1.0 \times 10^{11} \Omega$. When measuring an impedance by applying alternating voltage between the outer surface of the support and a platinum electrode on an outer surface of the electro-conductive layer while changing a frequency, an impedance at specific frequency range is $1.0 \times 10^5 \Omega$ to $1.0 \times 10^{11} \Omega$.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20210422



91. Family 44232897 (US2010034561 AA)

[View in PatBase](#)

Title

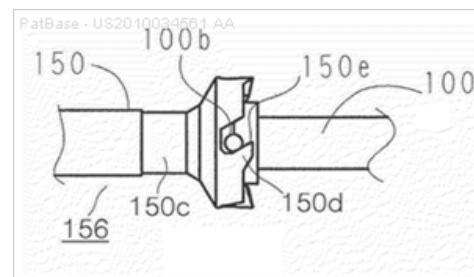
[EN] DISMOUNTING AND MOUNTING METHODS FOR COUPLING AND ELECTROPHOTOGRAPHIC PHOTSENSITIVE DRUM UNIT

Abstract

[EN] 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.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20100114



92. Family 33378211 (US2006216061 AA)

[View in PatBase](#)

Title

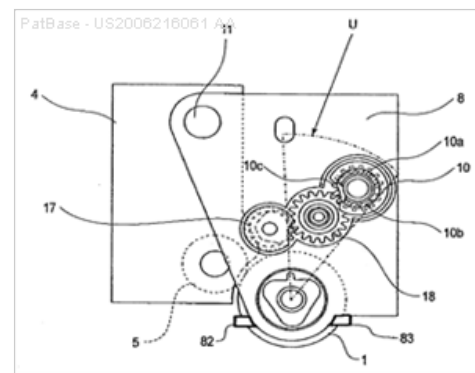
[EN] PROCESS CARTRIDGE AND IMAGE FORMING APPARATUS

Abstract

[EN] A process cartridge detachably mountable to a main assembly of an electrophotographic image forming apparatus, includes an electrophotographic photosensitive drum; a developing roller for developing a latent image formed on the drum with a developer while being in contact with the drum; a drum unit for supporting the drum, wherein the drum unit is positioned relative to the main assembly when the process cartridge is set in the main assembly; a developing unit supporting the developing roller and movable together with the drum unit between a contact position in which the developing roller and the drum are in contact to each other to develop the is electrostatic latent image and a spaced position in which the developing roller and the drum are spaced away from each other; a drum driving force receiving portion, provided in the drum unit, for receiving, from the main assembly, a drum driving force for rotating the drum when the process cartridge is set in the main assembly; a movable member which is movable to move the developing unit between the contact position and the spaced position; and a movable member driving force receiving portion provided in the drum unit for receiving, from the main assembly, a movable member driving force for moving the movable member when the process cartridge is mounted in the main assembly.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20060927



93. Family 58889094 (US2015098716 AA)

[View in PatBase](#)

Title

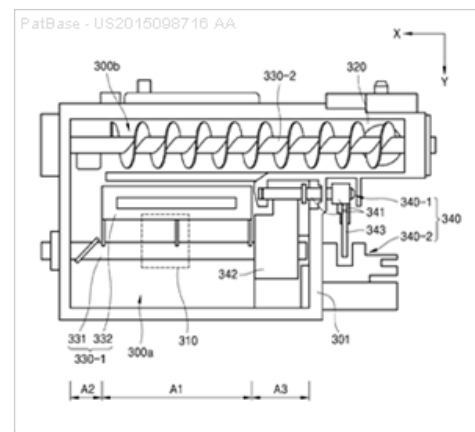
[EN] ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract

[EN] Provided is an electrophotographic image forming apparatus including: a toner buffer unit arranged between a toner cartridge and a developing unit to receive toner from the toner cartridge and supply the toner to the developing unit; and a toner level detection unit. The toner buffer unit includes a first buffer unit connected to the toner cartridge. A first conveyance member including a rotation shaft and a conveyance wing provided in the rotation shaft and transporting the toner in a radial direction is provided in the first buffer unit. The toner buffer unit includes an elevation plate provided in the first buffer unit and elevated according to a toner level, and a sensor unit detecting a location of the elevation of the elevation plate. The elevation plate is located to be spaced apart from the conveyance wing in an axial direction of the rotation shaft.

Probable Patent Assignee: HP PRINTING KOREA CO LTD

Earliest Publication Date: 20150408



94. Family 23310727 (US5345294 A)

[View in PatBase](#)

Title

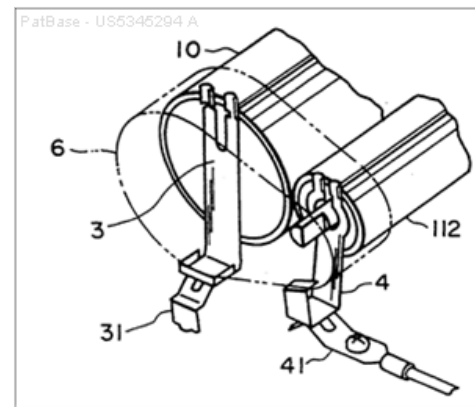
[EN] PROCESS CARTRIDGE AND IMAGE FORMING APPARATUS USING SAME

Abstract

[EN] A process cartridge detachably mountable to a main assembly of an image forming apparatus, includes a plurality of process device including at least one member having an electrically conductive cylinder; a supporting frame for supporting as a unit the plural process devices; and an electrode, in the supporting frame, having a first portion electrically contactable to the main assembly and a second portion press-contacted to an end surface of the cylindrical member.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 19920115



95. Family 28692884 (US5937240 A)

[View in PatBase](#)

Title

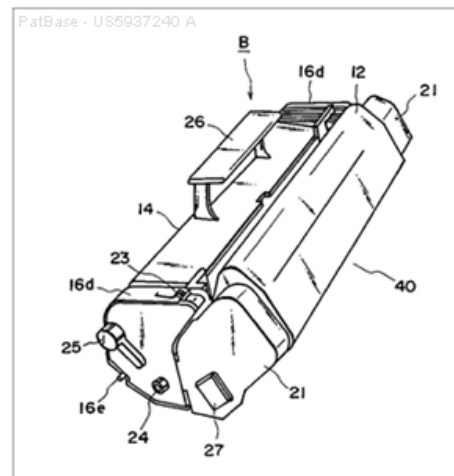
[EN] PROCESS CARTRIDGE HAVING POSITIONING MEMBERS AND IMAGE FORMING APPARATUS USING SUCH A PROCESS CARTRIDGE

Abstract

[EN] A process cartridge detachably mountable to a main assembly of an image forming apparatus includes an electrophotographic photosensitive member; a process device actable on the photosensitive member; a first projection for positioning the process cartridge relative to the main assembly when the process cartridge is mounted to the main assembly, the first projection being outwardly projected from a first frame adjacent an axial end of the photosensitive member; a second projection for functioning as a pivot when the process cartridge is removed from the main assembly, the second projection being outwardly projected from a first frame; a third projection for positioning the process cartridge relative to the main assembly when the process cartridge is mounted to the main assembly, the third projection being outwardly projected from a second frame adjacent another axial end of the photosensitive member; a fourth projection for functioning as a pivot when the process cartridge is removed from the main assembly, the fourth projection being outwardly projected from the second frame.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 19951029



96. Family 69736100 (US2018136604 AA)

[View in PatBase](#)

Title

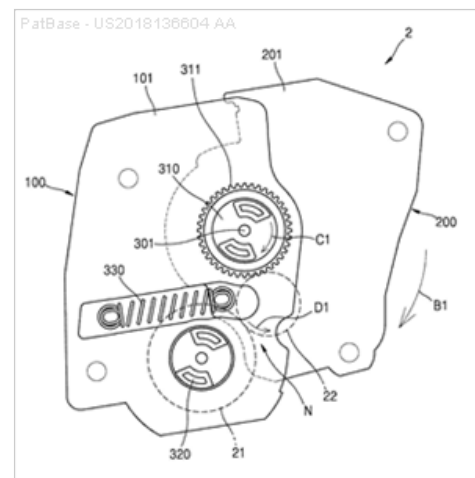
[EN] DEVELOPMENT CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS USING THE SAME

Abstract

[EN] Provided is a development cartridge mounted on a main body of an image forming apparatus. The development cartridge includes a photoconductive unit, a developing unit coupled to the photoconductive unit so as to rotate to a development position and a release position, and an elastic member that provides an elastic force to maintain the developing unit at the development position. A switching member is mounted on a rotation shaft of the developing roller to be rotatable about a rotation shaft of a developing roller. The switching member is switched to a first state where the switching member contacts an interfering portion of the photoconductive unit and rotates the developing unit to the release position and to a second state where the switching member is separated from the interfering portion and allows the developing unit to rotate to the development position due to the elastic force of the elastic member.

Probable Patent Assignee: HP PRINTING KOREA CO LTD

Earliest Publication Date: 20180516



97. Family 10779222 (US5450166 A)

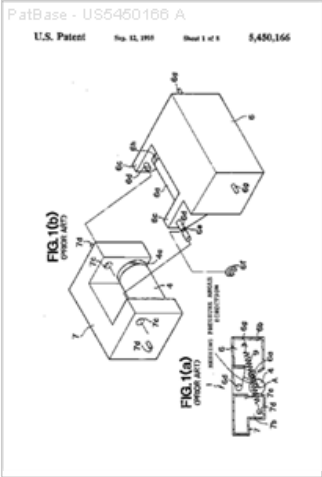
[View in PatBase](#)

Title
[EN] PROCESS CARTRIDGE, RECORDING APPARATUS, AND METHOD FOR ASSEMBLING PROCESS CARTRIDGE

Abstract
[EN] PCT No. PCT/JP92/00450 Sec. 371 Date Nov. 23, 1992 Sec. 102(e) Date Nov. 23, 1992 PCT Filed Apr. 10, 1992 PCT Pub. No. WO92/18910 PCT Pub. Date Oct. 29, 1992. The present invention realizes to shorten the assembling process of a process cartridge, by employing a first support member supporting an image bearing member, a second support member supporting a development unit for acting on the image bearing member to thereby develop an image of the image bearing member, a defining member for defining the rotary shaft between the first and second support members, and a compression spring for generating an elastic force between the image bearing member and the development unit.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 19921029



98. Family 43784623 (US2009245851 AA)

[View in PatBase](#)

Title

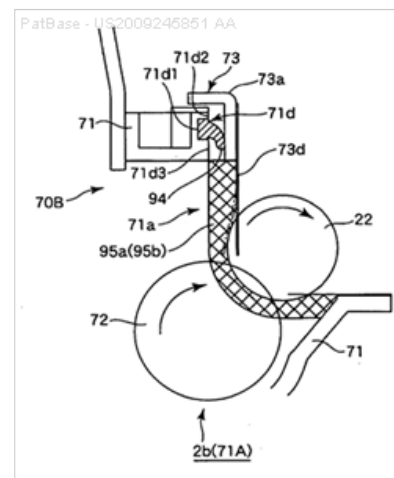
[EN] DEVELOPING DEVICE FRAME UNIT, DEVELOPING DEVICE, PROCESS CARTRIDGE, AND MANUFACTURING METHOD OF THE DEVELOPING DEVICE FRAME UNIT

Abstract

[EN] A developing device frame unit supporting a regulating member regulating the layer thickness of developer on a developer carrier. The unit includes a frame having a seal forming portion, first and second end seals contactable to the carrier surface to prevent carrier-axial-direction leaking of the developer, and a blade sealer sealing between the regulating member and the frame to prevent developer leaking when the regulating member is mounted. The blade sealer is an elastomer resin material which is injection-molded with a metal mold and in the seal forming portion where the end seals are provided. The blade sealer connects the end seals with each other, and a protrusion provided by a squeezed-out portion of the resin material is provided by injecting, into a space defined by the metal mold, the seal forming portion, and the end seals, a resin material volume larger than a volume of the space.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20091001



99. Family 33585103 (US2006245785 AA)

[View in PatBase](#)

Title

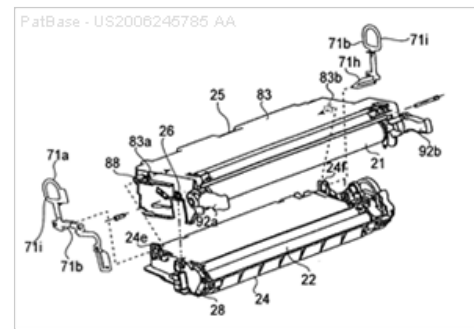
[EN] PROCESS CARTRIDGE AND IMAGE FORMING APPARATUS

Abstract

[EN] A process cartridge transportable when mounted in a main assembly of an electrophotographic image forming apparatus. The cartridge includes an electrophotographic photosensitive drum, a developing roller for developing an electrostatic latent image on the drum when in contact with the drum, a drum unit supporting the drum, a developing unit supporting the roller and connected with the drum unit for rotation between a contact position in contact with the drum and a separated position, a force receiving portion for receiving, from the main assembly, a force for moving the developing unit from the contact to the separated position, with the cartridge mounted in the main assembly, a separation member for maintaining the developing unit at a position where the developing roller and the drum are separated from each other, and a detection portion to detect the mounting of the separation member when the cartridge mounted in the main assembly.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20061101



100. Family 61342659 (KR20160002632 A)

[View in PatBase](#)

Title

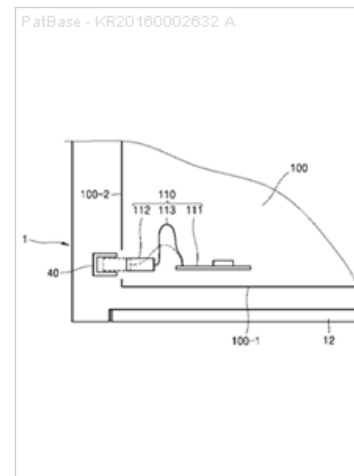
[EN] CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS USING THE SAME

Abstract

[EN] A disclosed cartridge is a cartridge detachable from the main body of an image forming device. The cartridge includes a memory unit which comprises a contact part for connecting the main body and is connected to the body to transmit the information of the cartridge to the main body. The contact part is shifted to a first position hidden in the cartridge and a second position protruding to the outside of the cartridge in order to be connected to a connection part prepared in the main body.

Probable Patent Assignee: SAMSUNG ELECTRONICS CO LTD

Earliest Publication Date: 20160108



101. Family 90140464 (US2023032591 AA)

[View in PatBase](#)

Title

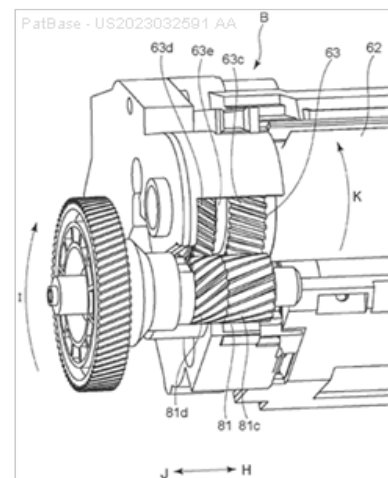
[EN] PHOTSENSITIVE MEMBER UNIT, CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract

[EN] A photosensitive member unit detachably mountable to a main assembly of an image forming apparatus, the image forming apparatus including a first main assembly side helical gear portion and a second main assembly side helical gear portion which are coaxially rotatable, the photosensitive member unit includes a photosensitive member rotatable about a rotational axis thereof; a first unit side helical gear portion for meshing engagement with the first main assembly side helical gear portion; and a second unit side helical gear portion for meshing engagement with the second main assembly side helical gear portion, wherein a twisting direction of a tooth of the second unit side helical gear portion is the same as the twisting direction of a tooth of first unit side helical gear portion, wherein a helix angle of the tooth of the second unit side helical gear portion is larger than a helix angle of the tooth of the first unit side helical gear portion, and wherein the first unit side helical gear portion and the second unit side helical gear portion are rotatable in a state in which the first unit side helical gear portion is in meshing engagement with the first main assembly side helical gear portion, and the second unit side helical gear portion is in meshing engagement with the second main assembly side helical gear portion.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20220303



102. Family 55161783 (US2013308971 AA)

[View in PatBase](#)

Title

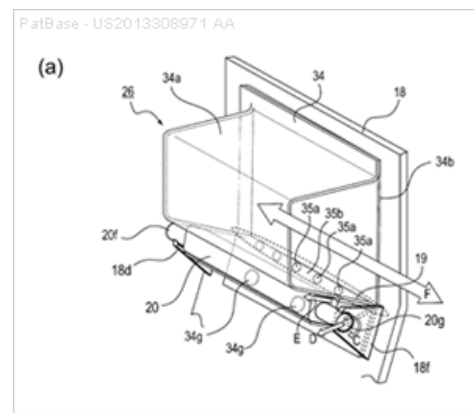
[EN] DEVELOPER ACCOMMODATING UNIT, DEVELOPING DEVICE, PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Abstract

[EN] A developer accommodating unit includes: a developer accommodating member, provided with an opening for permitting discharge of a developer, for accommodating the developer; a sealing member including a connecting portion for being connected to the developer accommodating member so as to seal the opening; and an unsealing member for exposing the opening by moving the sealing member to peel the connecting portion from the developer accommodating member. The connecting portion includes a first connecting portion and a second connecting portion with respect to a longitudinal direction thereof. When the connecting portion is peeled from the developer accommodating member, the unsealing member is flexed so that the first connecting portion is peeled earlier than the second connecting portion.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20131120



103. Family 96256531 (RU2021125551 A)

[View in PatBase](#)

Title

[MT] Drum assembly, the cartridge, the device forming the electrophotographic image and the clutch element

Abstract

[MT] [Source: Claim 1] 1. Drum Assembly for the cartridge comprises:

photosensitive drum; and a

clutch element operatively coupled to the photosensitive drum, the clutch element comprises:

an engagement element including a protrusion;

a retaining member comprising a cylindrical fragment, the retaining member is configured to removably hold an engagement element in such a way that an engagement element is moveable relative to the retaining element between the first position and a second position; and

a spring configured to bias the engagement element toward a first position,

wherein the end of the projection is located closer to the axis of rotation of the clutch element when the engagement element is in the first position than when the engagement element is in the second position;

and the end of the projection is located inside the cylindrical fragment when the engagement element is in the first position, and

wherein the grooved member is configured to transmit the driving force of the From the projection the photoconductor drum through the retaining element.

2. A drum unit according to claim. 1, wherein the retaining member comprises a stopper for stopping the movement of the engageable member relative to the retaining member when the engagement element is in the first position.

3. A drum unit according to claim. 2, wherein the engagement member is biased to the stopper by a spring.

4. A drum unit according to claim. 1, wherein the protrusion extends inwardly in the radial direction of the drum, when the projection is in the first position.

5. A drum unit according to claim. 1, wherein at least a portion of the engageable member is located inside the PC drum.

6. A drum unit according to claim. 1, wherein the spring is a coil spring.

7. A drum unit according to claim. 6, wherein the coil spring is a helical torsion spring.

8. A drum unit according to claim. 6, wherein the coil spring is a helical compression spring.

9. A drum unit according to claim. 1, wherein at least a portion of the spring is located inside of the photoconductor drum.

10. A drum unit according to claim. 1, wherein the retaining member is attached to the photoconductor drum.

11. A drum unit according to claim. 1, wherein the spring and the retaining member are separate members.

12. A drum unit according to claim. 1, wherein the spring and an engagement element are separate members.

13. A drum unit according to claim. 1, wherein the open space is formed in the clutch element between the end of the projection and the axis of rotation of the clutch element.

14. A drum unit according to claim. 1, wherein a portion of the cylindrical fragment is located inside the photoconductor drum, and a portion of the cylindrical fragment is located outside of the photoconductor drum.

15. A drum unit according to claim. 1, wherein the cylindrical fragment includes: (i) a first portion having a first outer diameter, and (ii) a second portion having a second outer diameter, said second outer diameter greater than the first outer diameter, and

wherein at least a portion of the first part is located outside the photoconductor drum and at least a portion of the second part is located inside of the photoconductor drum.

16. A drum unit according to claim. 1, wherein the cylindrical fragment includes: (i) a first end disposed outside the photosensitive drum,

and (ii) a second end disposed within the photosensitive drum, and

wherein the holding member includes a plug attached to the second end of the cylindrical portion.

17. A drum unit according to claim. 16, wherein the plug includes a surface facing the protrusion.

18. A cartridge, comprising:

a housing; and

drum assembly supported rotatably housing, a drum unit includes:

(i) The PC drum and (ii) the clutch element operatively coupled to the photosensitive drum, the clutch element comprises:

an engagement element including a protrusion;

a retaining member comprising a cylindrical fragment, the retaining member is configured to removably hold an engagement element in such a way that an engagement element is moveable relative to the retaining element between the first position and a second position; and

a spring configured to bias the engagement element toward a first position,

wherein the end of the projection is located closer to the axis of rotation of the clutch element when the engagement element is in the first position than when the engagement element is in the second position,

wherein the end of the projection is located inside the cylindrical fragment when the engagement element is in the The first position, and

wherein the grooved member is configured to transmit the driving force from the projection the photoconductor drum through the retaining element.

19. The cartridge of claim. 18, wherein the retaining member comprises a stopper for stopping the movement of the engageable member relative to the retaining member when the engagement element is in the first position.

20. The cartridge of claim. 19, wherein the engagement member is biased to the stopper by a spring.

21. The cartridge of claim. 18, wherein the protrusion extends inwardly in the radial direction of the drum when the engagement element is in the first position.

22. The cartridge of claim. 18, wherein at least a portion of the engageable member is located inside the PC drum.

23. The cartridge of claim. 18, wherein the spring is a coil spring.

24. The cartridge of claim. 23, wherein the coil spring is a helical torsion spring.

25. The cartridge of claim. 23, wherein the coil spring is a helical compression spring.

26. The cartridge of claim. 18, wherein at least a portion of the spring is located inside of the photoconductor drum.

27. The cartridge of claim. 18, wherein the retaining member is attached to the photoconductor drum.

28. The cartridge of claim. 18, wherein the spring and the retaining member are separate members.

29. The cartridge of claim. 18, wherein the spring and an engagement element are separate members.

30. The cartridge of claim. 18, wherein the open space is formed in the clutch element between the end of the projection and the axis of rotation of the clutch element.

31. The cartridge of claim. 18, wherein the part of the cylindrical fragment is located inside the photoconductor drum, and a portion of the cylindrical fragment is located outside of the photoconductor drum.

32. The cartridge of claim. 18, wherein the cylindrical fragment includes: (i) a first portion having a first outer diameter, and (ii) a second portion having a second outer diameter, said second outer diameter greater than the first outer diameter, and

wherein at least a portion of the first part is located outside the photoconductor drum and at least a portion of the second part is located inside of the photoconductor drum.

33. The cartridge of claim. 18, wherein the cylindrical fragment includes: (i) a first end disposed outside the photosensitive drum, and (ii) a second end disposed within the photosensitive drum, and

wherein the holding member includes a plug attached to the second end of the cylindrical portion.

34. The cartridge of claim. 33, wherein the plug includes a surface facing the protrusion.

35. A cartridge, comprising:

a housing; and a

developing roller rotatably supported the housing body; and a

coupling element operatively connected to the proyavochnym, roller clutch element includes:

an engagement element including a protrusion;

a retaining member comprising a cylindrical fragment, the retaining member is configured to removably hold an engagement element in such a way that an engagement element is moveable relative to the retaining element between the first position and a second position; and

a spring configured to bias the engagement element toward a first position,

wherein the end of the projection is located closer to the axis of rotation of the clutch element when the engagement element is in the first position than when the engagement element is in the second position,

wherein the end of the projection is located inside the cylindrical fragment when the engagement element is in the first position, and

wherein the grooved member is formed with a To transmit the driving force from the ridge to the developing roller via the retaining element.

36. The cartridge of claim. 35, wherein the retaining member comprises a stopper for stopping the movement of the engageable member relative to the retaining member when the engagement element is in the first position.

37. The cartridge of claim. 36, wherein the engagement member is biased to the stopper by a spring.

38. The cartridge of claim. 35, wherein the protrusion extends inwardly in the radial direction of the drum when the engagement element is in the first position.

39. The cartridge of claim. 35, wherein the spring is a coil spring.

40. The cartridge of claim. 39, wherein the coil spring is a helical torsion spring.

41. The cartridge of claim. 39, wherein the coil spring is a helical compression spring.

42. The cartridge of claim. 35, wherein at least a portion of the spring is located inside of the photoconductor drum.

43. The cartridge of claim. 35, further comprising a supply roller configured to supply the toner in the developing roller,

wherein the grooved member is configured to transmit the driving force to the developing roller via feed roll.

44. The cartridge of claim. 43, further comprising a gear formed with the possibility to transmit driving force from the supply roll to the developing roller.

45. The cartridge of claim. 44, wherein the feed roll comprises a shaft and the retaining member is attached to the shaft of the feed roller.

46. The cartridge of claim. 35, wherein the spring and the retaining member are separate members.

47. The cartridge of claim. 35, wherein the spring and an engagement element are separate members.

48. The cartridge of claim. 35, wherein the open space is formed in the clutch element between the end of the projection and the axis of rotation of the clutch element.

Earliest Publication Date: 20230228

104. Family 14171951 (JP8339149 A2)

[View in PatBase](#)

Title

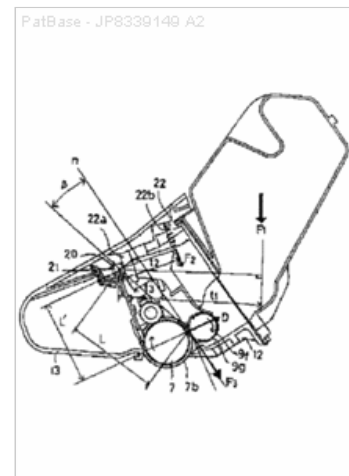
[EN] PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING DEVICE

Abstract

[EN] PURPOSE: To optimize the pressurizing force value of a developer carrier an electrophotographic photoreceptor, and to prevent to an image defect while maintaining a specified space between the photoreceptor and the carrier, by specifying placing position of a frame body for supporting the developer carrier. CONSTITUTION: A turning shaft 20 is disposed in a position on a bitten side of engaging pressure angle between gears of the photoreceptor drum 7 and a developing roller to the extent of about 0 to 6 degrees, and located in the position to the extent of about 50 to 70mm from a contact point between the photoreceptor drum 7 and a spacer ring 9f. Thus, rotary moment acts upon a developing unit even by rotating the developing roller therefore, the developing roller is pushed to the photoreceptor drum 7 through the spacer ring 9f. Thereby, the spacer ring 9f provided on both ends of the developing roller is held in contact with a non-image forming area on the both ends of the photoreceptor drum 7, hence the space between the photoreceptor drum 7 and the developing roller is maintained.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 19961224

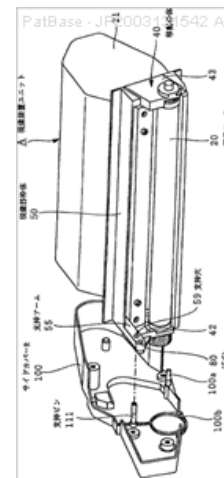


[View in PatBase](#)

[EN] PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING DEVICE

[EN] PROBLEM TO BE SOLVED: To improve image quality more by constituting a frame body which holds a developing roller so that the developing roller is made so movable as to swing to at least one side of a photoreceptor, suppressing deformation of a swing support part supporting the movable frame body by reinforcing the swing support member, and stabilizing the position where the developing roller abuts against the photoreceptor drum. SOLUTION: A support hole 59 is formed in a support arm 55 of a developing unit frame body 50 which supports one swing frame body 42 of the moving frame body 40 holding the developing roller 20 swingably through an engagement pin 80 and a support pin 111 is formed at the position of a side cover 100, coupling the flanks of a photoreceptor unit and a developing device unit A, corresponding to the support hole 59. When the side cover 100 is coupled with the photoreceptor unit and developing device unit A, the support pin 111 is fitted into the support hole 59 of the support arm 55. The support arm 55 is supported by the side cover 100 and reinforced to stabilize the position where the developing roller abuts against the photoreceptor drum.

Earliest Publication Date: 20030509



106. Family 33533759 (US6118961 A)

[View in PatBase](#)

Extended Family Number: 30820226

Title

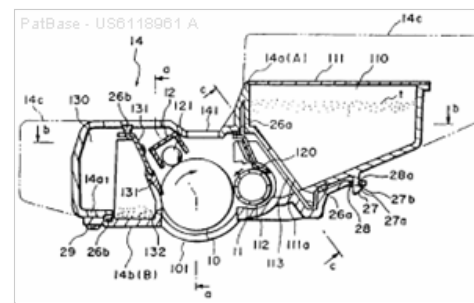
[EN] DETACHABLE TWO-FRAME PROCESS CARTRIDGE FOR AN IMAGE FORMING APPARATUS

Abstract

[EN] A process cartridge detachably mountable to an image forming apparatus includes an image bearing member; process device actable on the image bearing member; a first frame containing the image bearing member and the process device; and a second frame engageable with and disengageable from the first frame and containing a developer container.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20000912



107. Family 23392751 (JP2002149038 A2)

[View in PatBase](#)

Title

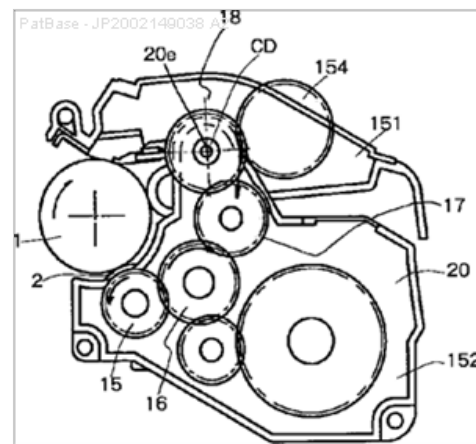
[EN] PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING DEVICE

Abstract

[EN] PROBLEM TO BE SOLVED: To prevent the oscillation of a developing unit from being transmitted to a cleaning unit and to prevent deformation of a container by the driving force of the developing unit. SOLUTION: In the device, a driving input gear 18 is provided to the developing unit 152 in order to drive the cleaning unit 151 and a developing unit 152 separately. A boss for supporting the driving input gear 18 is provided and a through hole 20e for connecting the units 151 and 152 is provided in its center. A driving input part of the developing unit 152 is constituted at a position of connection when connection is made.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20020522



108. Family 65752186 (KR101739382 B1)

[View in PatBase](#)

Title

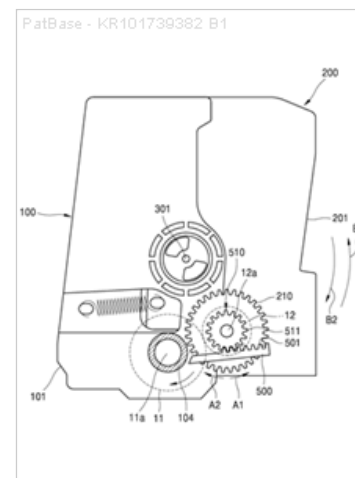
[EN] DEVELOPMENT CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS USING THE SAME

Abstract

[EN] Disclosed is a development cartridge attached to and detached from a body of an image forming device. The development cartridge comprises: a photosensitive unit including a photosensitive drum; a development unit including a development roller, and connected with the photosensitive unit to be rotated around a hinge axis; a driving gear rotated in a first direction for printing and in a second direction which is opposite to the first direction; a driving member coaxially disposed with the driving gear, and rotated by the driving gear; a first unidirectional clutch for connecting the driving member and the driving gear only when the driving gear is rotated in the second direction; and a first moving member connected with the driving member, and capable of reciprocating between a first position having a development nip formed therein and a second position for releasing the development nip.

Probable Patent Assignee: S PRINTING SOLUTION CO LTD

Earliest Publication Date: 20170524



109. Family 69108318 (US2019219947 AA)

[View in PatBase](#)

Title

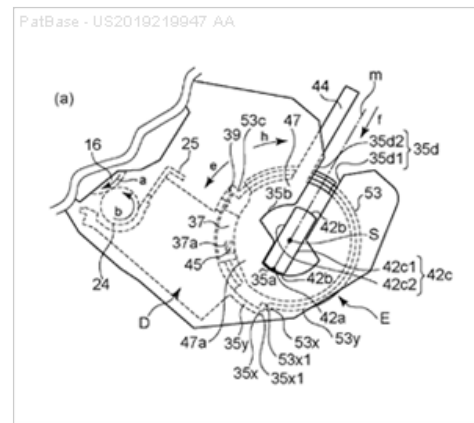
[EN] TONER CARTRIDGE AND TONER SUPPLYING MECHANISM

Abstract

[EN] To develop a conventional structure of a toner cartridge. The toner cartridge includes a container and an open/close member. The container includes an accommodating portion for accommodating toner, and a discharge opening. The open/close member includes a closing portion for closing the discharge opening, and a closing force receiving portion. The open/close member is movable relative to the container between a closing position for causing the closing portion to close the discharge opening and an opening position for causing the closing portion to open the discharge opening. The open/close member includes a leading end portion and a trailing end portion which are on downstream and upstream sides of the open/close member with respect to a closing direction in which the open/close member moves to close the discharge opening, respectively. An open/close member extends from the leading end portion to the trailing end portion in a range exceeding 180 degrees of a circumference of the container, as the toner cartridge is seen in the longitudinal direction of the container. The closing force receiving portion receives a force for moving the open/close member from the opening position to the closing position when the toner cartridge is dismantled from the receiving apparatus.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20180405



110. Family 11873863 (JP10274915 A2)

[View in PatBase](#)

Title

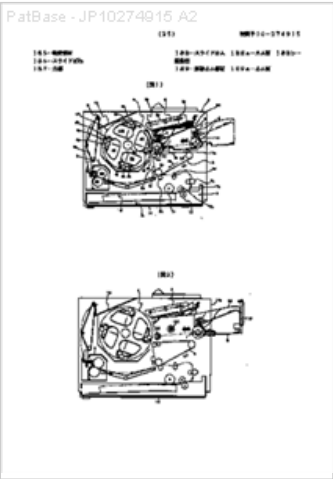
[EN] ELECTROPHOTOGRAPHIC IMAGE FORMING DEVICE AND DRIVING DEVICE

Abstract

[EN] PROBLEM TO BE SOLVED: To accurately position a cartridge and a unit to a driving device, in the driving of these process cartridge and intermediate transfer body unit by a shaft coupling. SOLUTION: Pipe-like members 124 and 128 are provided in the driving unit 119 of an image forming device and shaft coupling members 150 and 154 are provided movably forward/backward, in the centers of the pipe-like members 124 and 128. Then, the positioning part 11h of the process cartridge B is abutted on the inner peripheries of the pipe-like members, to fit/position the pipe-like members to the side plate 14q of a device main body. The intermediate transfer body unit 5 is positioned similarly. The driving unit 5 is accurately positioned to the device main body and the cartridge B and the intermediate transfer body unit 5 are accurately positioned to the driving unit 119.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 19981013



111. Family 12363641 (JP11024361 A2)

[View in PatBase](#)

Title

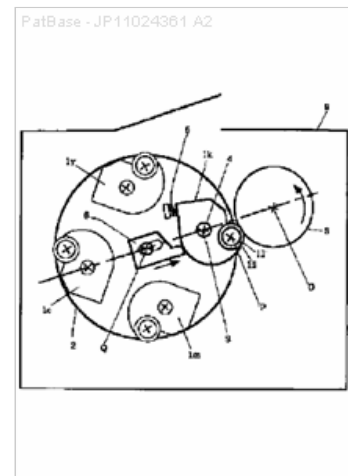
[EN] ELECTROPHOTOGRAPHIC IMAGE FORMING DEVICE AND DEVELOPING CARTRIDGE

Abstract

[EN] PROBLEM TO BE SOLVED: To minimize change in the attitude of each developing unit and change in the position of a development pole, which are caused by change in the stopping position of a rotary drum, in a multicolor image forming device having a developing-unit replacement means of a rotary system. SOLUTION: A pivot S for the swing of the developing unit 1k is set on a straight line connecting a pivot Q for the rotation of the rotary drum 2 and a pivot O for the rotation of a photoreceptor drum 3, or near the straight line. Thus, in the use of magnetic toner, the direction of the development pole can be almost fixed within the permissible range of the stopping position of the rotary drum 2. Also, in the use of nonmagnetic toner, the permissible range of the stopping position of the rotary drum 2 can be made wide.

Probable Patent Assignee: CANON INC

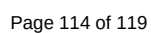
Earliest Publication Date: 19990129



[View in PatBase](#)

[EN] ELECTROPHOTOGRAPHIC IMAGE FORMING DEVICE, DEVELOPING DEVICE AND TONER SUPPLY CONTAINER

[EN] PROBLEM TO BE SOLVED: To improve the removing property of a toner cartridge for supply from a developing unit by preventing the developing unit from being moved in an inserting direction in an image forming device from a supply position when a hopper cover is closed in the image forming device constituted so that the inserting and pulling-out direction of the developing unit and the sliding direction of the hopper cover are identical when toner is supplied. SOLUTION: An image forming device main body is provided with an obstruction member 105 so that it can be moved up and down. When a toner supply container is inserted in a developing device 50, a sensor 126 is actuated by a light shielding rib 39 and the obstruction member 105 is lowered and put in an engagement part 51 by a solenoid 122. Even when the developing device 50 is pressed by the toner supply container inserted in a right angle direction to the plane of the figure, it is locked by the obstruction member 50. Then, when the toner supply container is removed, the obstruction member 105 is elevated.

Earliest Publication Date: 20000630

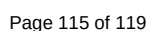
[View in PatBase](#)

[EN] ELECTROPHOTOGRAPHIC IMAGE FORMING DEVICE AND DEVELOPING CARTRIDGE

[EN] PROBLEM TO BE SOLVED: To accurately position developing cartridges by providing rotary center members which can be rocked in parallel with the center axis of the rotation of a photoreceptor drum, in both end parts and positioning both end parts in a developing cartridge switching mechanism.

SOLUTION: In an optical unit 101, a latent image is formed on the image carrier (photoreceptor drum) 100 as a drum-like photoreceptor provided in a process cartridge 102. The latent image is developed by a developing cartridge 104Y rotationally moved to a developing position facing the image carrier 100, by the cull cell 103 of the rotary developing cartridge switching mechanism and development is repeated by respective developing cartridges 104M, 104C and 104B, to form a multicolor image on an intermediate transfer belt 106. At this time, a state where the developing cartridges 104 are stopped to face the image carrier 100, the rotation for developing of a developing sleeve and the engagement with/disengagement from the developing cartridges 104, of a drive connecting member in an input part for driving force are attained by the switching mechanism for the developing cartridges 104 with one motor.

Earliest Publication Date: 19990226



114. Family 63372154 (US2017329279 AA)

[View in PatBase](#)

Title

[EN] CARTRIDGE

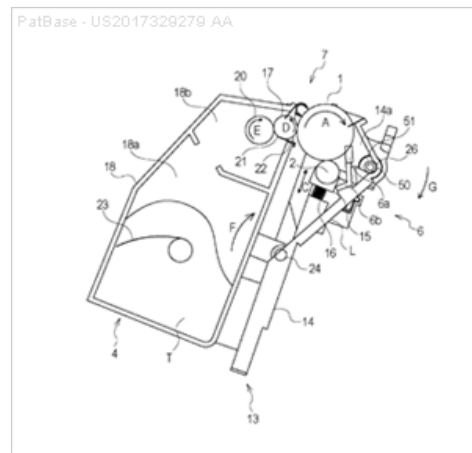
Abstract

[EN] A rotational force is transmitted to a main assembly side feeding member for feeding the toner into a main assembly side toner accommodating portion from a coupling member provided on a cartridge.

The cartridge includes a photosensitive drum, a discharge opening configured to discharge the toner removed from the photosensitive drum toward the main assembly side feeding member, and a coupling member configured to transmit the rotational force to the main assembly side feeding member. The coupling member is movable between a first position for transmitting the rotational force to the main assembly side feeding member and a second position retracted from the first position.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20160901



115. Family 24632553 (JP2002328563 A2)

[View in PatBase](#)

Title

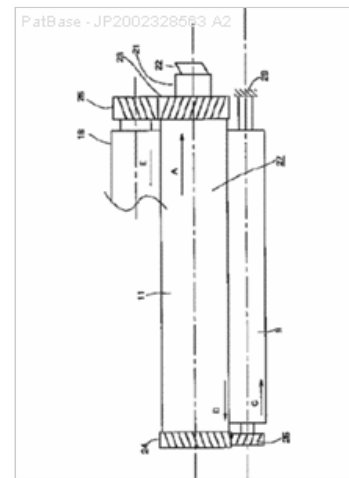
[EN] PROCESS CARTRIDGE, ELECTROPHOTOGRAPHIC IMAGE FORMING DEVICE AND ELECTROPHOTOGRAPHIC PHOTORECEPTOR DRUM UNIT

Abstract

[EN] PROBLEM TO BE SOLVED: To improve the positional accuracy of a transfer means. SOLUTION: The twist direction of the projection part 22 of a drum flange 21 fixed at the end part of a photoreceptor drum 11 is made to be the same as that of a transfer roller driving gear 24. In this case, the projection part 22 is a triangular pole twisted in an axial direction, the projection part 22 is drawn into the twisted recessed part of a driving shaft(not shown in figure) of the device main body by thrust (in a direction shown by an arrow A) arising at rotating. The gear 24 is a helical gear. Since thrust by the tooth load of the transfer roller gear 25 attached to the transfer roller 9 works in a direction shown by an arrow C, the transfer roller 9 comes into a thrust check 29, then, the axial position of the roller 9 is fixed.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20021115



116. Family 44129831 (US2009317129 AA)

[View in PatBase](#)

Title

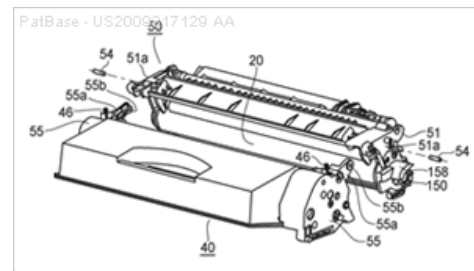
[EN] PROCESS CARTRIDGE AND ELECTROSTATIC IMAGE FORMING APPARATUS

Abstract

[EN] A process cartridge is detachably mountable to a main assembly of an electrophotographic image forming apparatus, which includes a rotating force applying portion. The cartridge includes an electrophotographic photosensitive drum, a developing roller, a first frame unit supporting the drum, a second frame unit supporting the roller and swingably connected with the first frame unit, a coupling, mounted to the drum, for receiving a rotating force for rotating the drum from the rotating force applying portion when the cartridge is mounted to the main assembly, first, second and third cartridge side portions to be positioned engageable respectively with first, second and third main assembly side positioning portions provided in the main assembly to regulate movement of the first frame unit in a longitudinal direction of the drum or to position the drum in a radial direction when the cartridge is mounted to the main assembly, and first unit side and drum side regulating portions.

Probable Patent Assignee: CANON INC

Earliest Publication Date: 20091223



117. Family 8578001 (US6064843 A)

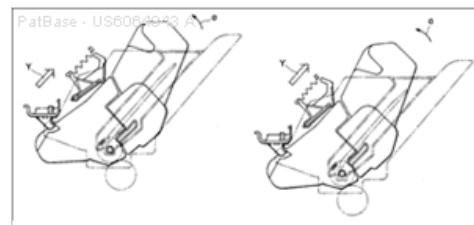
[View in PatBase](#)

Title

[EN] PROCESS CARTRIDGE AND IMAGE FORMING APPARATUS

Abstract

[EN] A process cartridge detachably mountable to a main assembly of an image forming apparatus includes an electrophotographic photosensitive member; a process cartridge actable on the photosensitive member; a cartridge frame; a first projection for positioning the process cartridge relative to the main assembly when the process cartridge is mounted to the main assembly, the first projection being outwardly projected from a first frame of the cartridge frame adjacent an axial end of the photosensitive member; a second projection for positioning the process cartridge relative to the main assembly when the process cartridge is mounted to the main assembly, the second projection being outwardly projected from a second frame of the cartridge frame adjacent another axial end of the photosensitive member; a confining contact portion, in the cartridge frame, for contacting a first fixed portion of the main assembly and cooperating with the first projection and second projection to correctly position the process cartridge relative to the main assembly, when the process cartridge is mounted to the main assembly; and a releasing contact portion, in the cartridge frame, for contacting a second fixed portion of the main assembly to provide a pivot of rotation of the process cartridge, when the process cartridge is demounted from the main assembly.



Probable Patent Assignee: CANON INC

Earliest Publication Date: 19951027