Claims:

1. A developing device usable with an electrophotographic image forming apparatus, said apparatus including a driving shaft rotatable by a motor and having a rotating force applying portion, and a rotary member, said developing device being mountable to the rotary member, and said developing device being movable in a direction substantially perpendicular to an axial direction of the driving shaft in response to movement of the rotary member in one direction with said developing device mounted to the rotary member, wherein said driving shaft is not movable in a direction perpendicular to an axix thereof, said developing device comprising:

i) a developing roller for developing an electrostatic latent image formed on an electrophotographic photosensitive drum, said developing roller being rotatable about an axis, wherein said developing roller is contacted to and separated from said electrophotographic photosensitive member drum in response to movement of said rotary member; and

ii) a coupling member for transmitting a rotating force to said developing roller, said coupling member including, a rotating force receiving portion engageable with the rotating force applying portion to receive a rotating force from the driving shaft, and a rotating force transmitting portion for transmitting the rotating force received through said rotating force receiving portion to said developing roller, said coupling member being capable of taking a rotational force transmitting angular position for transmitting the rotational force for rotating said developing roller to said developing roller, a pre-engagement angular position which is taken before said coupling member is engaged with the rotating force applying portion and in which said coupling member is inclined away from said rotational force transmitting angular position, and a disengaging angular position which is taken for said coupling member to disengage from the driving shaft and in which said coupling member is inclined away from the rotational force transmitting angular position in a direction opposite to said pre-engagement angular position,

wherein in response to a movement of said developing device when the rotary member moves in said one direction, said coupling member moves from the pre-engagement angular position to the rotational force transmitting angular position, and wherein when the rotary member makes a further movement in said one direction, in response to the further movement, said coupling member is moved from said rotational force transmitting angular position to said disengaging angular position to disengage said

coupling member from said driving shaft, and

wherein said developing roller is contacted to said electrophotographic photosensitive member in response to the movement of said developing device in a state that developing roller is being rotated through engagement between said coupling member and said rotating force applying portion.

2. An electrophotographic image forming apparatus for forming an image on a recording material, said electrophotographic image forming apparatus comprising:

i) a driving shaft rotatable by a motor and having a rotating force applying portion, wherein said driving shaft is not movable in a direction perpendicular to an axix thereof;

ii) a rotary member;

iii) a developing device which is movable in a direction substantially perpendicular to an axial direction of the driving shaft in response to movement of the rotary member in a state that developing device is mounted to said rotary member, in response to the moment of said rotary member, said developing roller including

a developing roller for developing an electrostatic latent image formed on an electrophotographic photosensitive drum, said developing roller being rotatable about an axis, wherein said developing roller is contacted to and separated from said electrophotographic photosensitive member drum in response to movement of said rotary member;

iv) a coupling member for transmitting a rotating force to said developing roller, said coupling member including a rotating force receiving portion engageable with the rotating force applying portion to receive a rotating force from the driving shaft, and a rotating force transmitting portion for transmitting the rotating force received through said rotating force receiving portion to said developing roller, said coupling member being capable of taking a rotational force transmitting angular position for transmitting the rotational force for rotating said developing roller to said developing roller, a pre-engagement angular position which is taken before said coupling member is engaged with the rotating force applying portion and in which said coupling member is inclined away from said rotational force transmitting angular position, and a disengaging angular position which is taken for said coupling member to disengage from the driving shaft and in which said coupling member is inclined away from the rotational force transmitting angular position in a direction opposite to said pre-engagement angular position to disengage from the driving shaft,

wherein in response to a movement of said developing device when the rotary member moves in said one direction, said coupling member moves from the pre-engagement angular position to the rotational force transmitting angular position, and wherein when the rotary member makes a further movement in said one direction, in response to the further movement, said coupling member is moved from said rotational force transmitting anglar position to said disengaging angular position to disengage said coupling member from said driving shaft, and

wherein said developing roller is contacted to said electrophotographic photosensitive member in response to the movement of said developing device in a state that developing roller is being rotated through engagement between said coupling member and said rotating force applying portion.

3. A rotating force transmitting part usable with a developing cartridge, said developing cartridge being mountable to a developing cartridge carrying member of a main assembly of an electrophotographic image forming apparatus including a driving shaft, and movable in a direction substantially perpendicular to an axial direction of the driving shaft, developing cartridge being provided with a regulating member including a permitting portion and a regulating portion, said rotating force transmitting part comprising:

a recess provided at one longitudinal end of said rotating force transmitting part and engageable with the driving shaft when said developing cartridge is mounted to the main assembly of the apparatus;

a spherical portion provided at the other end;

a plurality of projections interposing a center of said recess and projected away from said spherical portion in a longitudinal direction of said rotating force transmitting part for receiving the rotational force from the driving shaft which is provided in the main assembly of the apparatus such that it does not move in a direction substantially perpendicular to the axial direction of said driving shaft in a state that developing cartridge is mounted to the main assembly of the apparatus;

a first projected portion projected from said spherical portion away from said one end, said projected portion being revolvable between said permitting portion for permitting substantial revolution of said rotating force transmitting part and said regulating portion for regulating an inclination angle position of said rotating force transmitting part in a state that rotating force transmitting part is mounted to said developing cartridge, and

a plurality of second projected portions provided between said

projections and said first projected portion and interposing said spherical portion, said second projected portions being projected outwardly from spherical portion, said second projected portions are effective to transmit the rotational force received from the driving shaft by the projections to the developing roller.

Claims:

1. A developing device usable with an electrophotographic image forming apparatus, said apparatus including a driving shaft rotatable by a motor and having a rotating force applying portion, and a movable member, said developing device being mountable to the movable member, and said developing device being movable in one direction substantially perpendicular to an axial direction of the driving shaft in response to movement of the movable member in the one direction with said developing device mounted to the movable member, wherein said driving shaft is not movable in a direction perpendicular to an axis thereof, said developing device comprising:

i) a developing roller for developing an electrostatic latent image formed on an electrophotographic photosensitive drum, said developing roller being rotatable about an axis, wherein said developing roller is contacted to and separated from said electrophotographic photosensitive member drum in response to movement of said movable member; and

ii) a coupling member for transmitting a rotating force to said developing roller, said coupling member including, a rotating force receiving portion engageable with the rotating force applying portion to receive a rotating force from the driving shaft, and a rotating force transmitting portion for transmitting the rotating force received through said rotating force receiving portion to said developing roller, said coupling member being capable of taking a rotational force transmitting angular position for transmitting the rotational force for rotating said developing roller to said developing roller, a pre-engagement angular position which is taken before said coupling member is engaged with the rotating force applying portion and in which said coupling member is inclined away from said rotational force transmitting angular position, and a disengaging angular position which is taken for said coupling member to disengage from the driving shaft and in which said coupling member is inclined away from the rotational force transmitting angular position in a direction opposite to said pre-engagement angular position,

wherein in response to a movement of said developing device when the movable

member moves in the one direction, said coupling member moves from the pre-engagement angular position to the rotational force transmitting angular position, and wherein when the movable member makes a further movement in the one direction, in response to the further movement, said coupling member is moved from said rotational force transmitting angular position to said disengaging angular position to disengage said coupling member from said driving shaft, and

wherein said developing roller is contacted to said electrophotographic photosensitive member in response to the movement of said developing device in a state that developing roller is being rotated through engagement between said coupling member and said rotating force applying portion.

2. The developing device according to Claim 1, wherein said coupling member moves from said rotational force transmitting angular position to said disengaging angular position so that part of said coupling member circumvents the driving shaft in response to movement of said developing device in said one direction substantially perpendicular to the axis of said developing roller.

3. The developing device according to Claim 1 or 2, wherein said coupling member has a recess in which a rotational axis of said coupling member extends, and said recess is opposite to a free end of said driving shaft in a state that said coupling member is in said rotational force transmitting angular position.

4. The developing device according to Claim 1 or 2, wherein when said coupling member is in said rotational force transmitting angular position, said rotating force receiving portion is engaged, in a direction of rotation of said coupling member, with the rotating force applying portion which is projected in a direction perpendicular to the axial direction of said driving shaft and by which said coupling member receives a rotating force from the driving shaft to rotate.

5. The developing device according to Claim 4, wherein said coupling member moves from said rotational force transmitting angular position to said disengaging angular position to disengage from the driving shaft in one direction so that part of said coupling member circumvents the driving shaft in response to movement of said developing device in said one direction substantially perpendicular to the axis of said developing roller.

6. The developing device according to Claim 1 or 2, wherein a plurality of said rotational force receiving portions are provided on a phantom circle having a center on the rotational axis of said coupling member at positions substantially diametrically opposite to each other.

7. The developing device according to Claim 3, wherein said coupling member has a circular flat portion at a free end thereof, and said recess is disposed at a central portion of said circular flat portion, and said recess includes an expanding portion expanding toward a free end thereof.

8. The developing device according to Claim 7, wherein said rotational force receiving portion is provided projected at each of two positions of an edge portion of said circular flat portion interposing the central portion, wherein the rotational force applying portion is provided projected in a direction perpendicular to the axis of the driving shaft at each of two positions opposite to each other, and wherein said coupling member receives a rotational force from the driving shaft to rotate by one of said rotational force receiving portions engaging to one of the rotational force applying portion and by the other of rotational force receiving portions engaging to the other of the rotational force applying portions, said one of said rotational force receiving portions being opposed to the other of said rotational force receiving portions, and said one of said rotational force applying portions being opposed to the other of said rotational force applying portions.

9. The developing device according to Claim7, further comprising an elastic member for elastically urging said coupling member with such an elastic force as to permit said coupling

member to move from said pre-engagement angular position to said rotational force transmitting angular position to maintain said coupling member at said pre-engagement angular position and as to permit said coupling member to move from said rotational force transmitting angular position to said disengaging angular position.

10. The developing device according to Claim 1 or 2, wherein said coupling member is provided in a position away from the axis of said developing roller with respect to a direction perpendicular to the axis of said developing roller.

11. The developing device according to Claim 9, further comprising a driving force transmission portion, and wherein said rotating force transmitting portion is disposed in a side opposite from said rotating force receiving portion, and wherein the rotating force received by said rotating force receiving portion is transmitted to said developing roller through said rotating force transmitting portion and said driving force transmission member.

12. The developing device according to Claim 1 or 2, wherein said developing device contains a yellow color developer, a magenta color developer, a cyan color developer or a black color developer, and is a developing cartridge detachably mountable to said movable member in the form of a developing rotary.

13. An electrophotographic image forming apparatus for forming an image on a recording material, said electrophotographic image forming apparatus comprising:

i) a driving shaft rotatable by a motor and having a rotating force applying portion, wherein said driving shaft is not movable in a direction perpendicular to an axis thereof;

ii) a movable member;

iii) a developing device which is movable in one direction substantially perpendicular to an axial direction of the driving shaft in response to movement of the movable member in a

state that developing device is mounted to said movable member, said developing device including

iii-i) a developing roller for developing an electrostatic latent image formed on an electrophotographic photosensitive drum, said developing roller being rotatable about an axis, wherein said developing roller is contacted to and separated from said electrophotographic photosensitive member drum in response to movement of said movable member;

iii-ii) a coupling member for transmitting a rotating force to said developing roller, said coupling member including, a rotating force receiving portion engageable with the rotating force applying portion to receive a rotating force from the driving shaft, and a rotating force transmitting portion for transmitting the rotating force received through said rotating force receiving portion to said developing roller, said coupling member being capable of taking a rotational force transmitting angular position for transmitting the rotational force for rotating said developing roller to said developing roller, a pre-engagement angular position which is taken before said coupling member is engaged with the rotating force applying portion and in which said coupling member is inclined away from said rotational force transmitting angular position, and a disengaging angular position which is taken for said coupling member to disengage from the driving shaft and in which said coupling member is inclined away from the rotational force transmitting angular position in a direction opposite to said pre-engagement angular position to disengage from the driving shaft,

wherein in response to a movement of said developing device when the movable member moves in said one direction, said coupling member moves from the pre-engagement angular position to the rotational force transmitting angular position, and wherein when the movable member makes a further movement in said one direction, in response to the further movement, said coupling member is moved from said rotational force transmitting angular position to said disengaging angular position to disengage said coupling member from said driving shaft, and

wherein said developing roller is contacted to said electrophotographic photosensitive member in response to the movement of said developing device in a state that developing

roller is being rotated through engagement between said coupling member and said rotating force applying portion.

14. The electrophotographic image forming apparatus according to Claim 13, wherein said coupling member moves from said rotational force transmitting angular position to said disengaging angular position so that part of said coupling member circumvents the driving shaft in response to movement of said developing device in the one direction substantially perpendicular to the axis of said developing roller.

15. The electrophotographic image forming apparatus according to Claim 13 or 14, wherein said coupling member has a recess in which a rotational axis of said coupling member extends, and said recess is over a free end of said driving shaft in a state said coupling member is in said rotational force transmitting angular position.

16. The electrophotographic image forming apparatus according to Claim 13 or 14, wherein when said coupling member is in said rotational force transmitting angular position, said rotating force receiving portion is engaged, in a direction of rotation of said coupling member, with the rotating force applying portion which is projected in a direction perpendicular to the axial direction of said driving shaft, said coupling member by which said coupling member receives a rotating force from the driving shaft to rotate.

17. The electrophotographic image forming apparatus according to Claim 16, wherein said coupling member moves from said rotational force transmitting angular position to said disengaging angular position to disengage from the driving shaft by the further movement of the movable member in said one direction so that part of said coupling member circumvents the driving shaft in response to movement of said developing device in the one direction substantially perpendicular to the axis of said developing roller.

18. The electrophotographic image forming apparatus according to Claim 13 or 14, wherein a plurality of rotational force receiving portions are provided on a phantom circle having a center on the rotational axis of said coupling member at positions substantially diametrically opposite to each other.

19. The electrophotographic image forming apparatus according to Claim 15, wherein said coupling member has a circular flat portion at a free end thereof, and said recess is disposed at a central portion of said circular flat portion, said recess includes an expanding portion expanding toward a free end thereof.

20. The electrophotographic image forming apparatus according to Claim 19, wherein said rotational force receiving portion is provided projected at each of two positions of an edge portion of said circular flat portion interposing the central portion, wherein the rotational force applying portion is provided projected in a direction perpendicular to the axis of the driving shaft at each of two positions opposite to each other, and wherein said coupling member receives a rotational force from the driving shaft to rotate by one of said rotational force receiving portions engaging to one of the rotational force applying portion and by the other of rotational force receiving portions engaging to the other of the rotational force applying portions, said one of said rotational force receiving portions being opposed to the other of said rotational force receiving portions, and said one of said rotational force applying portions being opposed to the other of said rotational force applying portions.

21. The electrophotographic image forming apparatus according to Claim 20, further comprising an elastic member for elastically urging said coupling member with such an elastic force as to permit said coupling member to move from said pre-engagement angular position to said rotational force transmitting angular position to maintain said coupling member at said pre-engagement angular position and as to permit said coupling member to moves from said rotational force transmitting angular position to said disengaging angular position.

22. The electrophotographic image forming apparatus according to Claim 13 or 14, wherein said coupling member is provided in a position away from said axis of said developing roller with respect to a direction perpendicular to said axis of said developing roller.

23. The electrophotographic image forming apparatus according to Claim 21, further comprising a driving force transmission portion, and wherein said rotating force transmitting portion is disposed in a side opposite from said rotating force receiving portion, and wherein the rotating force received by said rotating force receiving portion is transmitted to said developing roller through said rotating force transmitting portion and said driving force transmission member.

24. The electrophotographic image forming apparatus according to Claim 13 or 14, wherein said developing device contains a yellow color developer, a magenta color developer, a cyan color developer or a black color developer, and is a developing cartridge detachably mountable to said movable member in the form of a developing rotary.

25. A developing device usable with an electrophotographic image forming apparatus, said apparatus including a driving shaft rotatable having a rotating force applying portion, and a rotatable rotary, said developing device being movable in one direction substantially perpendicular to an axial direction of the driving shaft in response to rotation of said rotary with said developing device mounted to said rotary, wherein the driving shaft is not movable in said one direction substantially perpendicular to an axial direction of said driving shaft, said developing device comprising:

i) a developing roller for developing an electrostatic latent image formed on an electrophotographic photosensitive member drum;

ii) a developer accommodating portion for accommodating a developer for use by said developing roller to developing the electrostatic latent image;

iii) a coupling member for transmitting a rotating force to said developing roller in a state that developing cartridge is mounted to said rotary, said coupling member including a rotating force receiving portion for engaging with the rotating force applying portion to

receive the rotating force from the driving shaft, said coupling member being capable of taking a rotational force transmitting angular position for transmitting the rotational force for rotating said developing roller to said developing roller, a pre-engagement angular position which is taken before said coupling member is engaged with the rotating force applying portion and in which said coupling member is inclined away from said rotational force transmitting angular position, and a disengaging angular position which is taken for said coupling member to disengage from the driving shaft and in which said coupling member is inclined away from the rotational force transmitting angular position in a direction opposite to said pre-engagement angular position;

iv) a rotatable cylindrical member for supporting said coupling member so that said coupling member is capable of taking said rotational force transmitting angular position, said pre-engagement angular position, and said disengaging angular position, said cylindrical member being capable of transmitting the rotating force from said coupling member toward said developing roller;

v) a regulating portion, disposed inside of said cylindrical member as seen in an axial direction of said developing roller, for regulating said coupling member at said pre-engagement angular position;

wherein in response to a movement of said developing device when the rotary moves in the one direction, said coupling member moves from said pre-engagement angular position to said rotational force transmitting angular position, and

wherein when the rotary makes a further movement in the one direction, in response to the further movement, said coupling member is moved from said rotational force transmitting angular position to said disengaging angular position to disengage said coupling member from said driving shaft, and

wherein said developing roller is contacted to said electrophotographic photosensitive member in response to the movement of said developing device in a state that developing roller is being rotated through engagement between said coupling member and said rotating force applying portion.

26. The developing device according to Claim 25, wherein said coupling member is provided with a projection at a trailing end which is opposite from said rotating force receiving portion, and wherein when said projection is in contact with said regulating portion, said coupling member is positioned at said pre-engagement angular position.

27. The developing device according to Claim 25 or 26, further including an elastic member for elastically urging said coupling member to position said coupling member at said pre-engagement angular position.

28. The developing device according to Claim 25, further comprising a circular portion for rotatably supporting said cylindrical member, wherein said regulating portion is surrounded by said circular portion as seen in the axial direction of said developing roller.

29. The developing device according to Claim 28, further comprising a developer supplying roller for supplying to said developing roller a developer accommodated in said developer accommodating portion, wherein said cylindrical member being provided with a first gear portion for transmitting the rotating force receiving from the driving shaft to said developing roller, a second gear portion for transmitting the rotating force to said developer supplying roller.

30. The developing device according to Claim 25 or 26, wherein said coupling member is provided, at a free end side where said rotating force receiving portion is provided, with a circular flat portion and a circular recess provided at a center of said circular flat portion, wherein said recess is engaged with the free end of the driving shaft in a state that coupling member is in the rotational force transmitting angular position.

31. The developing device according to Claim 30, wherein said rotating force receiving portion is projected from an edge of said circular flat portion and is provided at each of the positions opposed to each other interposing the center of said circular flat portion.

32. The developing device according to Claim 25 or 26, wherein said coupling member is provided, at a rear end side which is opposite from the free end side, a spherical configuration portion which is revolvably mounted to an inside of said cylindrical member, and wherein a rotating force transmitting portion is projected from said spherical configuration portion in a direction perpendicular to an axial direction of said coupling member.

33. An electrophotographic image forming apparatus for forming an image on a recording material, said apparatus comprising:

i) a driving shaft including a rotating force applying portion;

ii) a rotatable rotary;

iii) the developing device of Claim 25.

34. The electrophotographic image forming apparatus according to Claim 33, wherein said coupling member is provided with a projection at a trailing end which is opposite from said rotating force receiving portion, and wherein when said projection is in contact with said regulating portion, said coupling member is positioned at said pre-engagement angular position.

35. The electrophotographic image forming apparatus according to Claim 33 or 34, the developing device further including an elastic member for elastically urging said coupling member to position said coupling member at said pre-engagement angular position.

36. An electrophotographic image forming apparatus according to Claim 33, the developing device further comprising a circular portion for rotatably supporting said cylindrical member, wherein said regulating portion is surrounded by said circular portion as seen in the axial direction of said developing roller.

37. The electrophotographic image forming apparatus according to Claim 36, the developing device further comprising a developer supplying roller for supplying to said developing roller a developer accommodated in said developer accommodating portion, wherein said cylindrical member being provided with a first gear portion for transmitting the rotating force receiving from the driving shaft to said developing roller, a second gear portion for transmitting the rotating force to said developer supplying roller.

38. The electrophotographic image forming apparatus according to Claim 33 or 34, wherein said coupling member is provided, at a free end side where said rotating force receiving portion is provided, with a circular flat portion and a circular recess provided at a center of said circular flat portion, wherein said recess is engaged with the free end of the driving shaft in a state that coupling member is in the rotational force transmitting angular position.

39. The electrophotographic image forming apparatus according to Claim 38, wherein said rotating force receiving portion is projected from an edge of said circular flat portion and is provided at each of the positions opposed to each other interposing the center of said circular flat portion.

40. The electrophotographic image forming apparatus according to Claim 33 or 34, wherein said coupling member is provided, at a rear end side which is opposite from the free end side, a spherical configuration portion which is revolvably mounted to an inside of said cylindrical member, and wherein a rotating force transmitting portion is projected from said spherical configuration portion in a direction perpendicular to an axial direction of said coupling member.

41. A rotating force transmitting part usable with a developing cartridge, said developing cartridge being mountable to a main assembly of an electrophotographic image forming apparatus including a driving shaft, and movable in one direction substantially perpendicular to an axial direction of the driving shaft, said developing cartridge being provided with a regulating portion, said rotating force transmitting part comprising:

a recess provided at one longitudinal end of said rotating force transmitting part and engageable with the driving shaft when said developing cartridge is mounted to the main assembly of the apparatus;

a spherical portion provided at the other longitudinal end of said rotating force transmitting part;

a plurality of first projections interposing a center of said recess and projected away from said spherical portion in a longitudinal direction of said rotating force transmitting part for receiving the rotational force from the driving shaft which is provided in the main assembly of the apparatus such that it does not move in a direction substantially perpendicular to the axial direction of said driving shaft in a state that said developing cartridge is mounted to the main assembly of the apparatus;

a second projection projected from said spherical portion away from said one end of said longitudinal direction of said rotating force transmitting part, said second projection being capable of contacting to the regulating portion for regulating a maximum inclination

angle position of said rotating force transmitting part in a state that said rotating force transmitting part is mounted to said developing cartridge; and

a plurality of third projections provided between said first projections and said second projection and interposing said spherical portion, said third projections being projected outwardly from said spherical portion, said third projected portions are effective to transmit the rotational force received from the driving shaft by the first projections to the developing roller.

42. The rotating force transmitting part according to Claim 41, further comprising a circular flat portion at a free end side where said first projections are provided, wherein said recess is provided at a center of said circular flat portion, said first projections project from an edge of said circular flat portion and are opposed to each other interposing the center of said circular flat portion.

43. The rotating force transmitting part according to Claim 42, wherein said first projections are provided on a phantom circle about the center.

44. The rotating force transmitting part according to Claim 43, wherein said second and third projections have columnar shapes.