CLAIMS

1. A replaceable unit for an electrophotographic image forming device, comprising:

a housing having a reservoir for storing toner;

a rotatable shaft positioned within the reservoir and having an axis of rotation; and

a first magnet and a second magnet connected to the shaft and rotatable around the axis of rotation in response to rotation of the shaft, the first magnet and the second magnet passing near at least a portion of an inner wall of the housing forming the reservoir during rotation of the first and second magnets,

wherein an amount of angular offset between the first magnet and the second magnet varies depending on an amount of toner in the reservoir.

2. The replaceable unit of claim 1, wherein the first magnet is substantially axially aligned with the second magnet with respect to the axis of rotation.

3. The replaceable unit of claim 1, wherein the first magnet is substantially radially aligned with the second magnet with respect to the axis of rotation.

4. The replaceable unit of claim 1, further comprising a first linkage rotatable with the shaft and rotatable independent of the shaft between a forward rotational stop and a rearward rotational stop, the second magnet mounted on the first linkage, the second magnet is spaced angularly rearward from the first magnet when the first linkage is at the forward rotational stop.

5. The replaceable unit of claim 4, further comprising a second linkage fixed to rotate with the shaft, the first magnet mounted on the second linkage.

6. The replaceable unit of claim 4, wherein the first linkage has a paddle member leading the first magnet in an operative rotational direction of the shaft and the second magnet trails the first magnet in the operative rotational direction of the shaft.

7. The replaceable unit of claim 4, wherein the first linkage is biased by a biasing member in an operative rotational direction of the shaft toward the forward rotational stop.

8. A replaceable unit for an electrophotographic image forming device, comprising:

a housing having a reservoir for storing toner;

a rotatable shaft positioned within the reservoir and having an axis of rotation;

a first magnet rotatable with the shaft; and

a sensing linkage rotatable with the shaft and rotatable independent of the shaft between a forward rotational stop and a rearward rotational stop, the sensing linkage having a paddle member leading the first magnet in an operative rotational direction of the shaft and a second magnet trailing the first magnet in the operative rotational direction of the shaft.

9. The replaceable unit of claim 8, wherein the first magnet is substantially axially aligned with the second magnet with respect to the axis of rotation.

10. The replaceable unit of claim 8, wherein the first magnet is substantially radially aligned with the second magnet with respect to the axis of rotation.

11. The replaceable unit of claim 8, wherein the first magnet and the second magnet pass near at least a portion of an inner wall of the housing forming the reservoir during rotation of the first magnet and the sensing linkage.

12. The replaceable unit of claim 8, further comprising a fixed linkage fixed to rotate with the shaft, the first magnet mounted on the fixed linkage.

13. The replaceable unit of claim 8, wherein the sensing linkage is biased by a biasing member in an operative rotational direction of the shaft toward the forward rotational stop.

14. The replaceable unit of claim 8, wherein the second magnet is spaced angularly rearward from the first magnet when the sensing linkage is at the forward rotational stop.

15. A replaceable unit for an electrophotographic image forming device, comprising:

a housing having a reservoir for storing toner;

a rotatable shaft positioned within the reservoir and having an axis of rotation;

a first linkage fixed to rotate with the shaft;

a first magnet on the first linkage detectable by a magnetic sensor when the replaceable unit is installed in the image forming device;

a second linkage rotatable with the shaft and rotatable independent of the shaft between a forward rotational stop and a rearward rotational stop; and

a second magnet on the second linkage substantially axially aligned with the first magnet and detectable by the magnetic sensor when the replaceable unit is installed

in the image forming device, the second magnet is spaced angularly rearward from the first magnet when the second linkage is at the forward rotational stop.

16. The replaceable unit of claim 15, wherein the first magnet is substantially radially aligned with the second magnet with respect to the axis of rotation.

17. The replaceable unit of claim 15, wherein the first magnet and the second magnet pass near at least a portion of an inner wall of the housing forming the reservoir during rotation of the first linkage and the second linkage.

18. The replaceable unit of claim 15, wherein the second linkage has a paddle member leading the first magnet in an operative rotational direction of the shaft and the second magnet trails the first magnet in the operative rotational direction of the shaft.

19. The replaceable unit of claim 15, wherein the second linkage is biased by a biasing member in an operative rotational direction of the shaft toward the forward rotational stop.

CLAIMS

1. A replaceable unit for an electrophotographic image forming device, comprising:

a housing having a reservoir for storing toner;

a rotatable shaft positioned within the reservoir and having an axis of rotation;

a first magnet and a second magnet connected to the rotatable shaft and rotatable around the axis of rotation in response to rotation of the rotatable shaft, the first magnet and the second magnet passing near at least a portion of an inner wall of the housing forming the reservoir during rotation of the first and second magnets, wherein an amount of angular offset between the first magnet and the second magnet varies depending on an amount of toner in the reservoir; and

a first linkage rotatable with the rotatable shaft and rotatable independent of the rotatable shaft between a forward rotational stop and a rearward rotational stop, the second magnet mounted on the first linkage, the second magnet is spaced angularly rearward relative to an operative rotational direction of the rotatable shaft from the first magnet when the first linkage is at the forward rotational stop.

2. The replaceable unit of claim 1, wherein the first magnet is substantially axially aligned with the second magnet with respect to the axis of rotation.

3. The replaceable unit of claim 1, wherein the first magnet is substantially radially aligned with the second magnet with respect to the axis of rotation.

4. The replaceable unit of claim 1, further comprising a second linkage fixed to rotate with the rotatable shaft, the first magnet mounted on the second linkage.

5. The replaceable unit of claim 1, wherein the first linkage has a paddle member leading the first magnet in an operative rotational direction of the rotatable shaft and the second magnet trails the first magnet in the operative rotational direction of the rotatable shaft.

6. The replaceable unit of claim 1, wherein the first linkage is biased by a biasing member in an operative rotational direction of the rotatable shaft toward the forward rotational stop.

7. A replaceable unit for an electrophotographic image forming device, comprising:

a housing having a reservoir for storing toner;

a rotatable shaft positioned within the reservoir and having an axis of rotation;

a first magnet rotatable with the rotatable shaft; and

a sensing linkage rotatable with the rotatable shaft and rotatable independent of the rotatable shaft between a forward rotational stop and a rearward rotational stop, the sensing linkage having a paddle member leading the first magnet in an operative rotational direction of the rotatable shaft and a second magnet trailing the first magnet in the operative rotational direction of the rotatable shaft.

8. The replaceable unit of claim 7, wherein the first magnet is substantially axially aligned with the second magnet with respect to the axis of rotation.

9. The replaceable unit of claim 7, wherein the first magnet is substantially radially aligned with the second magnet with respect to the axis of rotation.

10. The replaceable unit of claim 7, wherein the first magnet and the second magnet pass near at least a portion of an inner wall of the housing forming the reservoir during rotation of the first magnet and the sensing linkage.

11. The replaceable unit of claim 7, further comprising a fixed linkage fixed to rotate with the rotatable shaft, the first magnet mounted on the fixed linkage.

12. The replaceable unit of claim 7, wherein the sensing linkage is biased by a biasing member in an operative rotational direction of the rotatable shaft toward the forward rotational stop.

13. The replaceable unit of claim 7, wherein the second magnet is spaced angularly rearward relative to the operative rotational direction of the rotatable shaft from the first magnet when the sensing linkage is at the forward rotational stop.

14. A replaceable unit for an electrophotographic image forming device, comprising:

a housing having a reservoir for storing toner;

a rotatable shaft positioned within the reservoir and having an axis of rotation;

a first linkage fixed to rotate with the rotatable shaft;

a first magnet on the first linkage detectable by a magnetic sensor when the replaceable unit is installed in the image forming device;

a second linkage rotatable with the rotatable shaft and rotatable independent of the rotatable shaft between a forward rotational stop and a rearward rotational stop; and

a second magnet on the second linkage substantially axially aligned with the first magnet and detectable by the magnetic sensor when the replaceable unit is installed in the image forming device, the second magnet is spaced angularly rearward relative to an operative rotational direction of the rotatable shaft from the first magnet when the second linkage is at the forward rotational stop.

15. The replaceable unit of claim 14, wherein the first magnet is substantially radially aligned with the second magnet with respect to the axis of rotation.

16. The replaceable unit of claim 14, wherein the first magnet and the second magnet pass near at least a portion of an inner wall of the housing forming the reservoir during rotation of the first linkage and the second linkage.

17. The replaceable unit of claim 14, wherein the second linkage has a paddle member leading the first magnet in an operative rotational direction of the rotatable shaft and the second magnet trails the first magnet in the operative rotational direction of the rotatable shaft.

18. The replaceable unit of claim 14, wherein the second linkage is biased by a biasing member in an operative rotational direction of the rotatable shaft toward the forward rotational stop.

19. A replaceable unit for an electrophotographic image forming device, comprising:

a housing having a reservoir for storing toner;

a rotatable shaft positioned within the reservoir and having an axis of rotation;

a first linkage rotatable with the rotatable shaft and having a first magnet; and

a second linkage rotatable with the rotatable shaft and rotatable independent of the rotatable shaft between a forward rotational stop and a rearward rotational stop, the second linkage having a second magnet,

wherein the second linkage is biased by a biasing member in an operative rotational direction of the rotatable shaft toward the forward rotational stop and an amount of angular offset between the first magnet and the second magnet varies depending on an amount of toner in the reservoir.

20. The replaceable unit of claim 19, wherein the first magnet is substantially axially aligned with the second magnet with respect to the axis of rotation.

21. The replaceable unit of claim 19, wherein the first magnet is substantially radially aligned with the second magnet with respect to the axis of rotation.

22. The replaceable unit of claim 19, wherein the first magnet and the second magnet pass near at least a portion of an inner wall of the housing forming the reservoir during rotation of the first linkage and the second linkage.

23. The replaceable unit of claim 19, wherein the first linkage is fixed to rotate with the rotatable shaft.