CLAIMS

Claim 1. A flange member comprising:

a press-fitted portion configured to be press-fitted in an end-opening portion at an end of a hollow and cylindrical sleeve member in an axial direction of the sleeve member;

an axle opening portion including an axle opening into which a shaft member is inserted at a position corresponding to a central axis of the sleeve member when the press-fitted portion is press-fitted in the end-opening portion; and

a linking portion extending in a direction parallel to a circular cross section of the sleeve member upon press fitting of the flange member, the linking portion connecting the axle opening portion to the press-fitted portion,

wherein the linking portion includes a stress-absorbing portion configured to be deformed so as to absorb a stress to which an outer peripheral surface of the press-fitted portion is subjected upon contact with an inner peripheral surface of the sleeve member when the press-fitted portion is press-fitted in the end-opening portion, thus preventing

the stress from being transmitted to the axle opening portion via the linking portion.

Claim 2. The flange member according to claim 1, wherein at least one of the stress-absorbing portions is disposed on an arbitrary imaginary line drawn from a circumference of an imaginary projected circle to the axle opening portion, the imaginary projected circle being a projection of the outer peripheral surface of the press-fitted portion on an imaginary plane perpendicular to the axial direction and including the linking portion.

Claim 3. The flange member according to claim 1, wherein the stress-absorbing portion includes an opening through the ~~connecting~~linking portion in the axial direction.

Claim 4. The flange member according to claim 3, wherein the opening is filled with a resilient material that is more readily deformable than a material of the linking portion.

Claim 5. The flange member according to claim 1, wherein the stress-absorbing portion

includes a concave portion having a thickness less than a thickness of portions of the linking portion around the concave portion.

Claim 6. The flange member according to claim 2, wherein a boundary between the stress-absorbing portion and portions around the stress-absorbing portion includes a substantially straight side that perpendicularly intersects a radius of the imaginary projected circle.

Claim 7. The flange member according to claim 2, wherein the stress-absorbing portion includes a substantially straight side that perpendicularly intersects an imaginary line extending in a radial direction of the circular cross section when the flange member is press-fitted in the sleeve member.

Claim 8. The flange member according to claim 2, wherein the number of the stress-absorbing portions disposed on a circumference at the same distance from a center position of the axle opening in a radial direction of the circular cross section

when the flange member is press-fitted in the sleeve member is 2 or more and 180 or less.

Claim 9. The flange member according to claim 2, wherein the number of the stress-absorbing portions that intersect an imaginary line drawn from a central position of the axle opening to a circumference of the imaginary projected circle is 2 or more and 33 or less.

Claim 10. The flange member according to claim 1, wherein, when the flange member is press-fitted in the sleeve member, an interval between the stress-absorbing portions adjacent to each other on a circumference having the same distance from a central position of the axle opening in a radial direction of the circular cross section is 1 mm or more and 280 mm or less.

Claim 11. The flange member according to claim 1, wherein an interval of the stress-absorbing portions adjacent to each other that intersect an imaginary line drawn from a central position of the axle opening to a circumference of the imaginary projected circle is 1 mm or more and 130 mm or less.

Claim 12. A photosensitive drum comprising:

a hollow and cylindrical sleeve member having a photosensitive layer on an outer peripheral surface of the sleeve member; and

the flange member according to claim 1 press-fitted in an end-opening portion at an end of the sleeve member in an axial direction of the sleeve member.

Claim 13. A process cartridge that can be attached to or detached from an image forming apparatus main body, the process cartridge comprising:

a photosensitive body;

a charging unit configured to charge the photosensitive body;

a latent-image forming unit configured to form an electrostatic latent image on a surface of the photosensitive body charged by the charging unit;

a developing unit configured to attach toner onto the electrostatic latent image formed by the latent-image forming unit;

a transfer unit configured to transfer a toner image formed by the developing unit onto a ~~transfer~~transferred body;

a cleaning unit configured to remove the toner from the surface of the photosensitive body after the toner image is transferred onto the transferred body,

wherein the photosensitive body includes the photosensitive drum according to claim 12.

Claim 14. An image forming apparatus comprising:

a photosensitive body;

a charging unit configured to charge the photosensitive body;

a latent-image forming unit configured to form an electrostatic latent image on a surface of the photosensitive body charged by the charging unit;

a developing unit configured to attach toner to the electrostatic latent image formed by the latent-image forming unit;

a transfer unit configured to transfer a toner image formed by the developing unit onto a transferred body;

a cleaning unit configured to remove the toner from the surface of the photosensitive body after the toner image is transferred onto the transferred body,

wherein the photosensitive body includes the photosensitive drum according to claim 12.

Claim 15. An image forming method comprising:

uniformly charging a surface of a photosensitive body;

forming an electrostatic latent image on the charged surface of the photosensitive body;

forming a toner image by supplying toner to the electrostatic latent image formed on the surface of the photosensitive body; and

transferring the toner image formed on the surface of the photosensitive body onto a ~~transfer~~transferred body,

wherein the photosensitive body includes the photosensitive drum according to claim 12.

CLAIMS

Claim 1. A flange member comprising:

a press-fitted portion configured to be press-fitted in an end-opening portion at an end of a hollow and cylindrical sleeve member in an axial direction of the sleeve member;

an axle opening portion including an axle opening into which a shaft member is inserted at a position corresponding to a central axis of the sleeve member when the press-fitted portion is press-fitted in the end-opening portion; and

a linking portion extending in a direction parallel to a circular cross section of the sleeve member upon press fitting of the flange member, the linking portion connecting the axle opening portion to the press-fitted portion,

wherein the linking portion includes a stress-absorbing portion configured to be deformed so as to absorb a stress to which an outer peripheral surface of the press-fitted portion is subjected upon contact with an inner peripheral surface of the sleeve member when the press-fitted portion is press-fitted in the end-opening portion, thus preventing

the stress from being transmitted to the axle opening portion via the linking portion.

Claim 2. The flange member according to claim 1, wherein at least one of the stress-absorbing portions is disposed on an arbitrary imaginary line drawn from a circumference of an imaginary projected circle to the axle opening portion, the imaginary projected circle being a projection of the outer peripheral surface of the press-fitted portion on an imaginary plane perpendicular to the axial direction and including the linking portion.

Claim 3. The flange member according to claim 1, wherein the stress-absorbing portion includes an opening through the linking portion in the axial direction.

Claim 4. The flange member according to claim 3, wherein the opening is filled with a resilient material that is more readily deformable than a material of the linking portion.

Claim 5. The flange member according to claim 1, wherein the stress-absorbing portion

includes a concave portion having a thickness less than a thickness of portions of the linking portion around the concave portion.

Claim 6. The flange member according to claim 2, wherein a boundary between the stress-absorbing portion and portions around the stress-absorbing portion includes a substantially straight side that perpendicularly intersects a radius of the imaginary projected circle.

Claim 7. The flange member according to claim 2, wherein the stress-absorbing portion includes a substantially straight side that perpendicularly intersects an imaginary line extending in a radial direction of the circular cross section when the flange member is press-fitted in the sleeve member.

Claim 8. The flange member according to claim 2, wherein the number of the stress-absorbing portions disposed on a circumference at the same distance from a center position of the axle opening in a radial direction of the circular cross section

when the flange member is press-fitted in the sleeve member is 2 or more and 180 or less.

Claim 9. The flange member according to claim 2, wherein the number of the stress-absorbing portions that intersect an imaginary line drawn from a central position of the axle opening to a circumference of the imaginary projected circle is 2 or more and 33 or less.

Claim 10. The flange member according to claim 1, wherein, when the flange member is press-fitted in the sleeve member, an interval between the stress-absorbing portions adjacent to each other on a circumference having the same distance from a central position of the axle opening in a radial direction of the circular cross section is 1 mm or more and 280 mm or less.

Claim 11. The flange member according to claim 1, wherein an interval of the stress-absorbing portions adjacent to each other that intersect an imaginary line drawn from a central position of the axle opening to a circumference of the imaginary projected circle is 1 mm or more and 130 mm or less.

Claim 12. A photosensitive drum comprising:

a hollow and cylindrical sleeve member having a photosensitive layer on an outer peripheral surface of the sleeve member; and

the flange member according to claim 1 press-fitted in an end-opening portion at an end of the sleeve member in an axial direction of the sleeve member.

Claim 13. A process cartridge that can be attached to or detached from an image forming apparatus main body, the process cartridge comprising:

a photosensitive body;

a charging unit configured to charge the photosensitive body;

a latent-image forming unit configured to form an electrostatic latent image on a surface of the photosensitive body charged by the charging unit;

a developing unit configured to attach toner onto the electrostatic latent image formed by the latent-image forming unit;

a transfer unit configured to transfer a toner image formed by the developing unit onto a transferred body;

a cleaning unit configured to remove the toner from the surface of the photosensitive body after the toner image is transferred onto the transferred body,

wherein the photosensitive body includes the photosensitive drum according to claim 12.

Claim 14. An image forming apparatus comprising:

a photosensitive body;

a charging unit configured to charge the photosensitive body;

a latent-image forming unit configured to form an electrostatic latent image on a surface of the photosensitive body charged by the charging unit;

a developing unit configured to attach toner to the electrostatic latent image formed by the latent-image forming unit;

a transfer unit configured to transfer a toner image formed by the developing unit onto a transferred body;

a cleaning unit configured to remove the toner from the surface of the photosensitive body after the toner image is transferred onto the transferred body,

wherein the photosensitive body includes the photosensitive drum according to claim 12.

Claim 15. An image forming method comprising:

uniformly charging a surface of a photosensitive body;

forming an electrostatic latent image on the charged surface of the photosensitive body;

forming a toner image by supplying toner to the electrostatic latent image formed on the surface of the photosensitive body; and

transferring the toner image formed on the surface of the photosensitive body onto a transferred body,

wherein the photosensitive body includes the photosensitive drum according to claim 12.