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(54) **SHEET FEEDING APPARATUS, IMAGE READING APPARATUS AND IMAGE FORMING APPARATUS**

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(57) **ABSTRACT**

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A sheet feeding apparatus is disclosed. This sheet feeding apparatus includes: a feeding roller configured to feed sheets; a conveying roller configured to convey the sheets fed by the feeding roller; a separation roller configured to form a nip portion by being pressed on the conveying roller, and to separate one by one the sheets at the nip portion, the sheets being conveyed by the conveying roller; a guide configured to guide the sheets fed by the feeding roller to the nip portion; and a holder configured to hold the separation roller and the guide, and to be detachably attachable to the sheet feeding apparatus. The guide adheres to the holder and the separation roller is replaceable on the holder that has been removed from the sheet feeding apparatus.

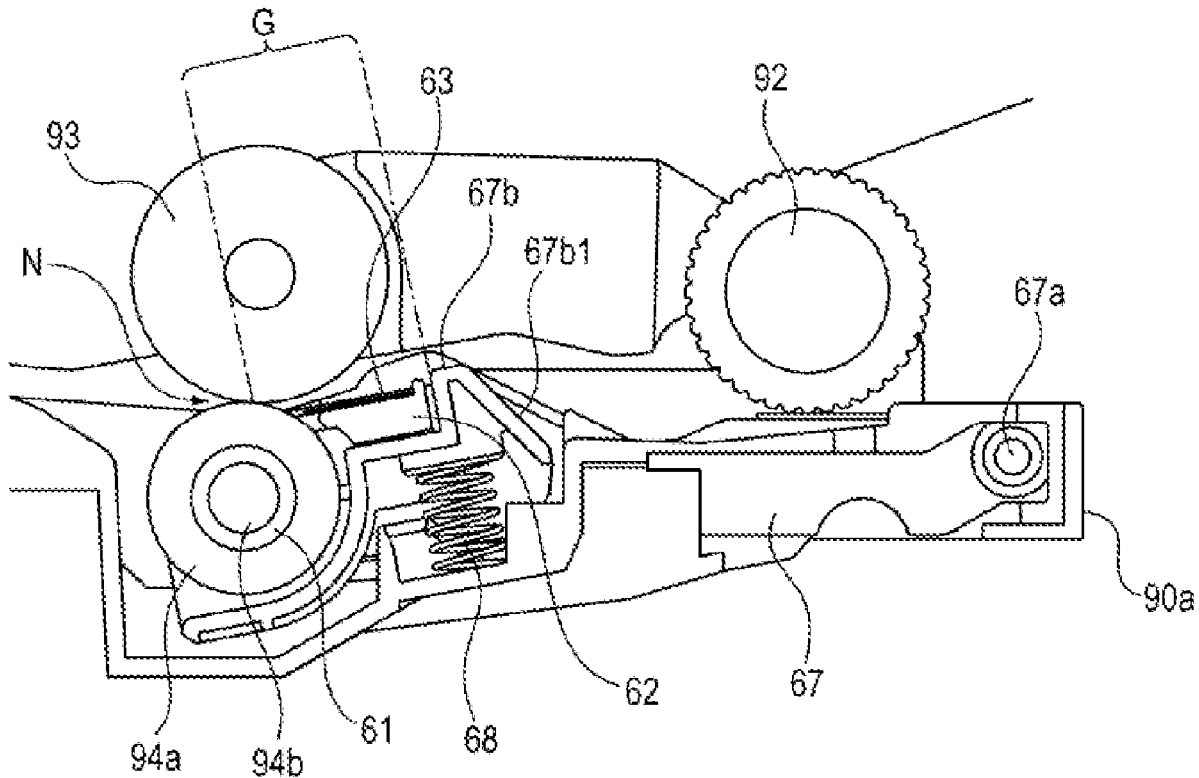
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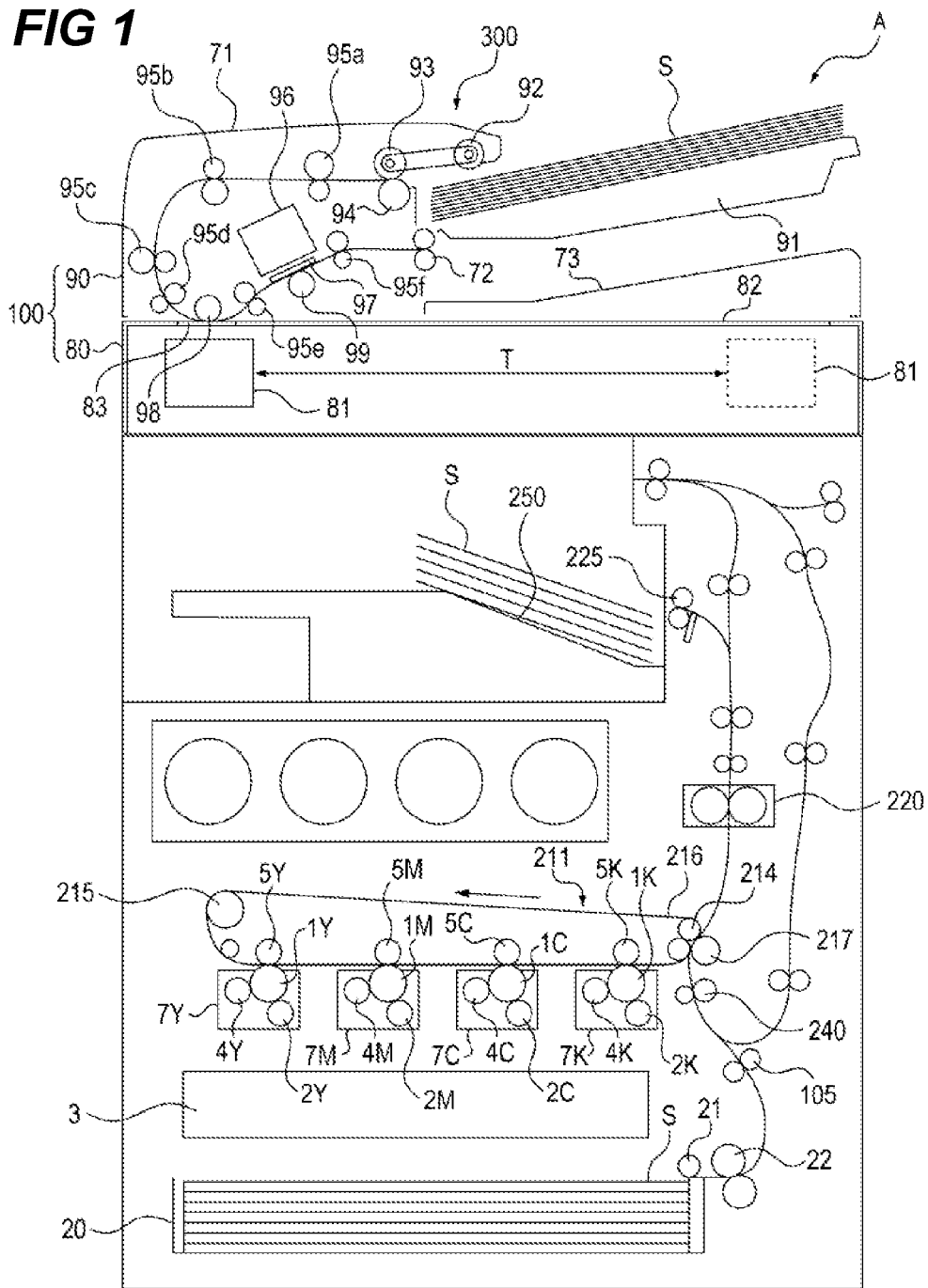


FIG 2A

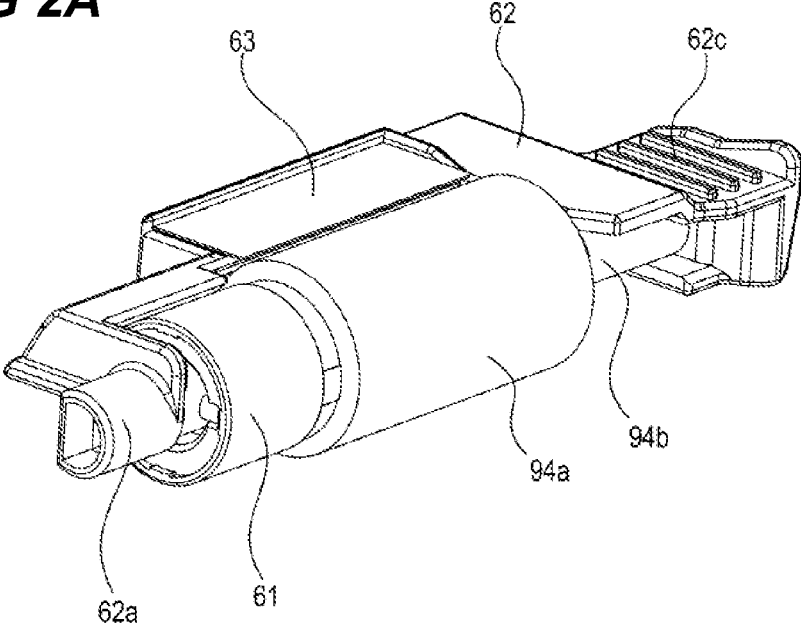


FIG 2B

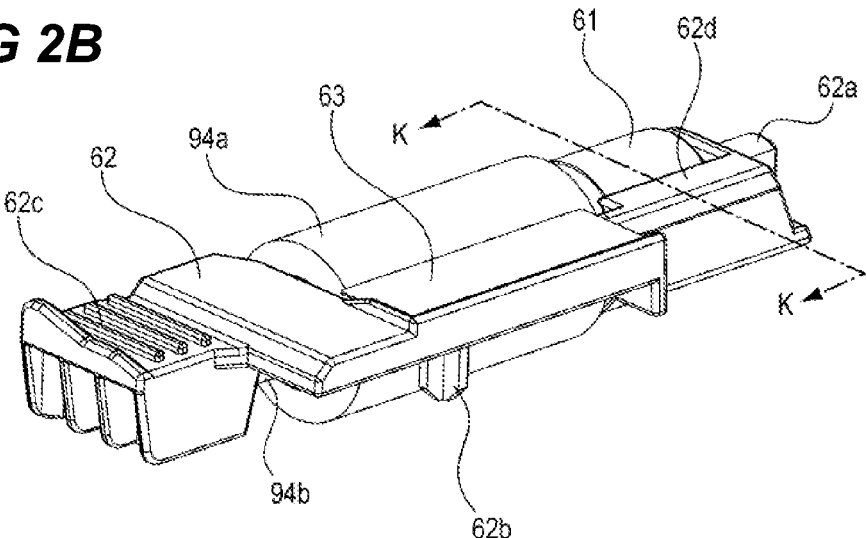


FIG 3

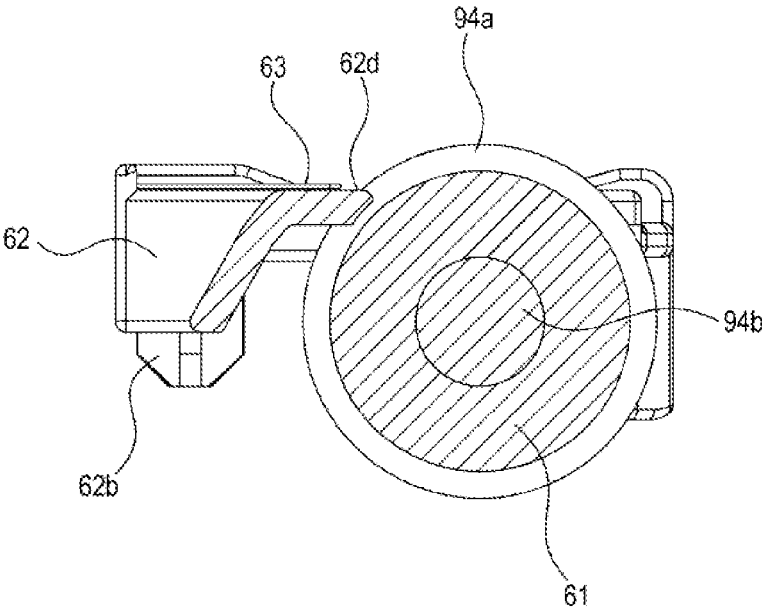


FIG 4

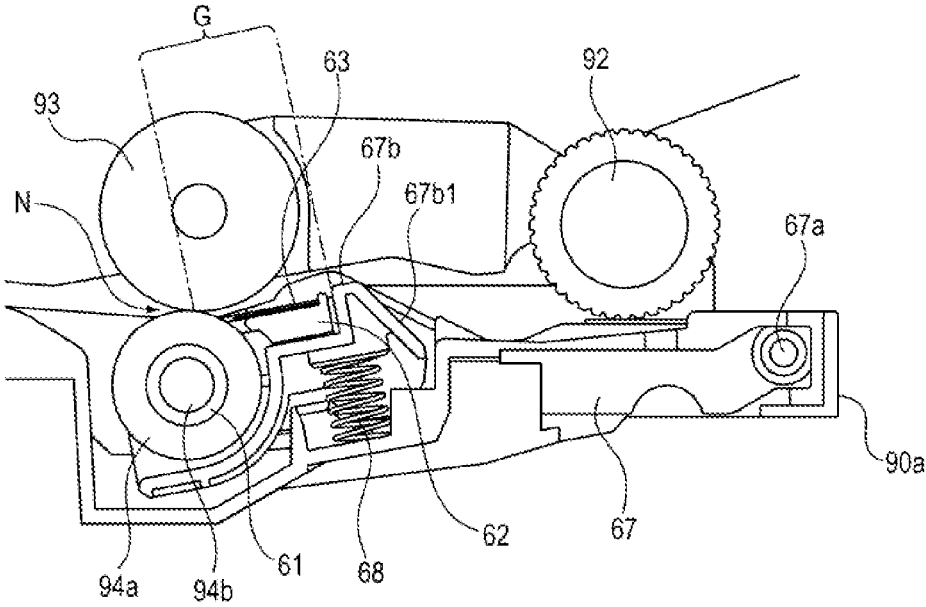


FIG 5

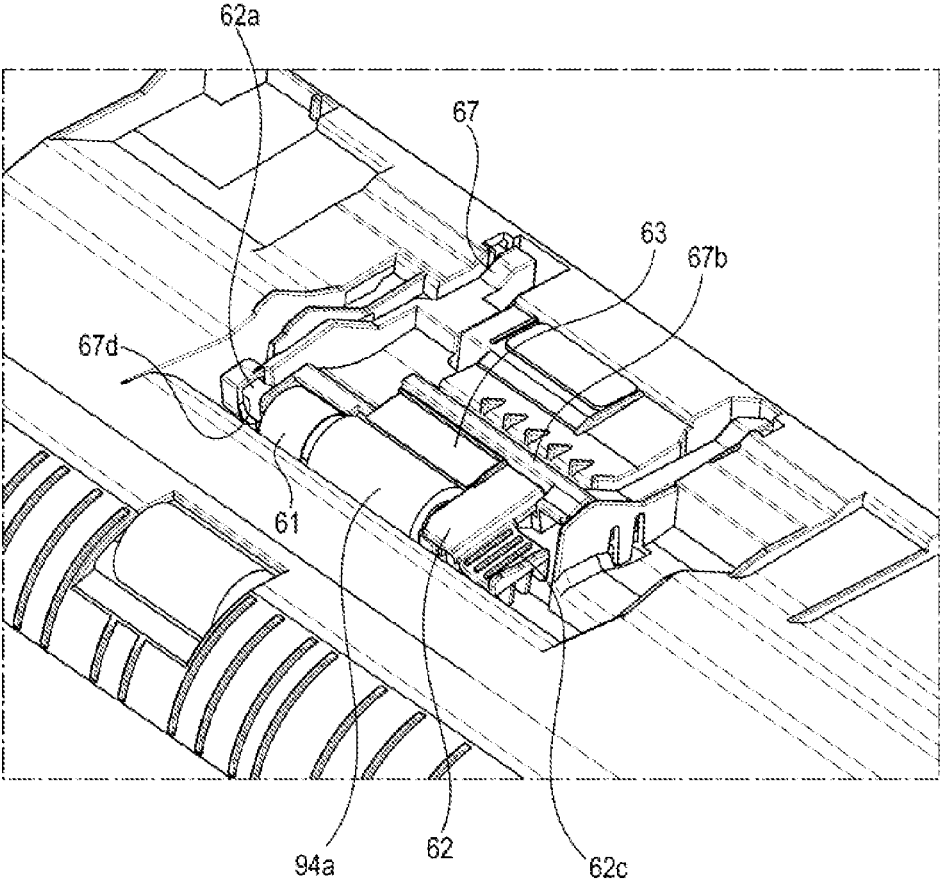


FIG 6

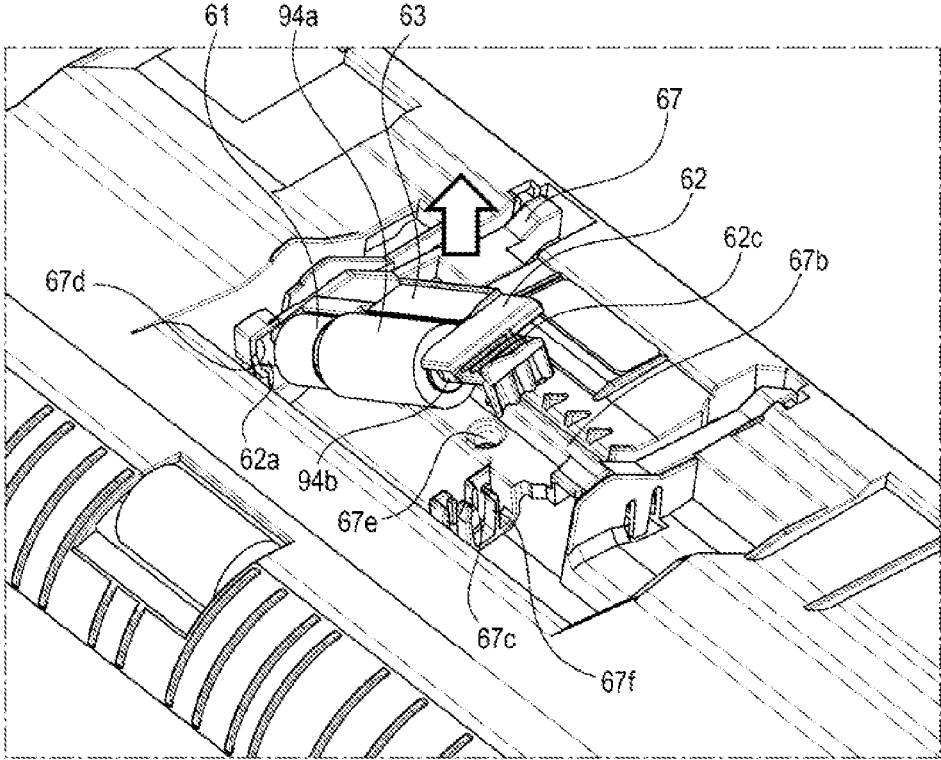
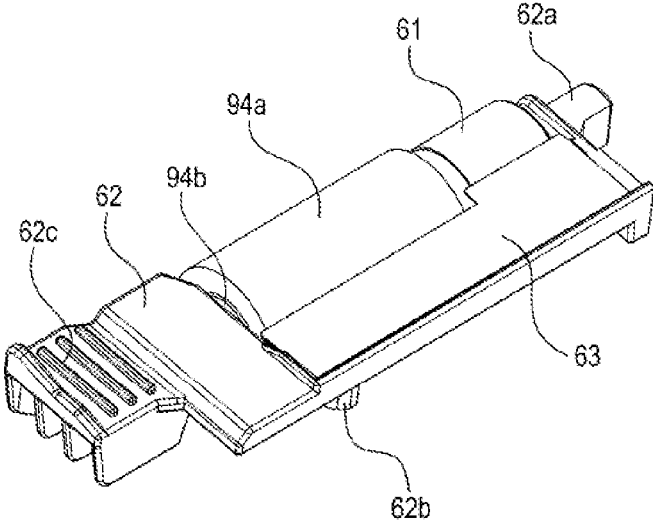


FIG 7



SHEET FEEDING APPARATUS, IMAGE READING APPARATUS AND IMAGE FORMING APPARATUS

BACKGROUND OF THE INVENTION

Field of the Invention

[0001] The present invention relates to a sheet feeding apparatus suitable for an image forming apparatus such as an electrophotographic copying machine that forms an image on a sheet using an electrophotographic process or a laser beam printer, or an image reading apparatus such as a scanner.

Description of the Related Art

[0002] Conventionally, the image reading apparatus that reads an image on a sheet while conveying the sheet has a sheet feeding apparatus that feeds the sheet toward an image reading portion. The configuration of the sheet feeding apparatus is known that includes a feeding roller that feeds sheets, a conveying roller that conveys the sheets fed by the feeding roller, a separation roller that forms a separation nip portion by pressing the conveying roller, and that separates one by one at the separation nip portion the sheets conveyed by the conveying roller.

[0003] Further, Japanese Patent Application Laid-Open No. 2017-052573 discloses the configuration in which a sheet-like guide is provided upstream of the separation nip portion in the sheet feeding direction to guide the sheets.

[0004] However, although the separation roller and the sheet-like guide are attached to a common part, when the separation roller should be replaced, it is necessary to remove a sheet holder attached by snap-fit from the common part due to the positional relationship between the separation roller and the sheet-like guide.

[0005] When such a snap-fit mechanism is adopted, there is difficulty in terms of positional accuracy between the separation roller and the sheet-like guide because there exists a certain amount of play between the sheet holder and the common part. This problem cannot be ignored when the diameter of the separation roller is reduced.

SUMMARY OF THE INVENTION

[0006] A representative configuration of a sheet feeding apparatus according to the present invention, comprises:

[0007] a feeding roller configured to feed sheets;

[0008] a conveying roller configured to convey the sheets fed by the feeding roller;

[0009] a separation roller configured to form a nip portion by being pressed on the conveying roller, and to separate one by one the sheets at the nip portion, the sheets being conveyed by the conveying roller;

[0010] a guide configured to guide the sheets fed by the feeding roller to the nip portion; and

[0011] a holder configured to hold the separation roller and the guide, and to be detachably attachable to the sheet feeding apparatus,

[0012] wherein the guide adheres to the holder and the separation roller is replaceable on the holder that has been removed from the sheet feeding apparatus.

[0013] This configuration improves the positional precision of the separation roller and the guide, improves sheet feeding performance, and facilitates the replaceability of the separation roller.

[0014] Further features of the present invention will become apparent from the following description of exemplary embodiments with reference to the attached drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] FIG. 1 is a schematic cross-sectional view of an image forming apparatus.

[0016] FIGS. 2A and 2B are a perspective view of a separation roller unit.

[0017] FIG. 3 is a cross-sectional view of the separation roller unit.

[0018] FIG. 4 is a schematic cross-sectional view of the image reading unit.

[0019] FIG. 5 is a perspective view showing the case where the separation roller unit is mounted on a sheet feeding apparatus.

[0020] FIG. 6 is a perspective view showing the case where the separation roller unit is removed from the sheet feeding apparatus.

[0021] FIG. 7 is a view showing another configuration of the sheet-like guide.

DESCRIPTION OF THE EMBODIMENTS

<Image Forming Apparatus>

[0022] Hereinafter, the overall configuration of the image forming apparatus A including the sheet feeding apparatus according to the present invention will be described together with the image forming operation with reference to the drawings. The dimensions, materials, shapes, and relative arrangements of the components described below are not intended to limit the scope of the present invention only to them unless otherwise specified.

[0023] FIG. 1 is a schematic cross-sectional view of the image forming apparatus A. As shown in FIG. 1, the image forming apparatus A is provided with the image forming portion 211 that forms an image on the sheet S. The image forming portion 211 includes the process cartridges 7 (7Y, 7M, 7C, and 7K), the laser scanner unit 3, the primary transfer rollers 5 (5Y, 5M, 5C, and 5K), the intermediate transfer belt 216, the secondary transfer roller 217, the secondary transfer counter roller 214, the drive roller 215 and so on.

[0024] The process cartridges 7 are configured to be detachably attachable to the image forming apparatus A. The process cartridges 7 for respective colors include the photosensitive drums 1 (1Y, 1M, 1C, and 1K), the charging rollers 2 (2Y, 2M, 2C, and 2K), and the developing rollers 4 (4Y, 4M, 4C, and 4K), respectively.

[0025] The image reading apparatus 100 that reads an image of a document is provided at the upper portion of the image forming apparatus A. The image reading apparatus 100 includes the reader 80 and the ADF 90 (Automatic Document Feeder). The reader 80 reads the image of a document placed on the document table glass 82. The ADF 90 automatically conveys a document placed on the document tray 91 to read the image. The detailed configuration of the image reading apparatus 100 will be described later.

[0026] Next, the image forming operation of the image forming apparatus A will be described. When forming an image, an image forming job signal is first input to the control portion (not shown). As a result, the sheet S stored in the sheet cassette 20 is conveyed to the registration roller 240 by the pickup roller 21, the feeding roller 22, and the conveying roller 105. Thereafter, the sheet S is sent at a predetermined timing by the registration roller 240 to the secondary transfer portion formed by the secondary transfer roller 217 and the secondary transfer counter roller 214.

[0027] On the other hand, in the image forming portion 211, the surface of the photosensitive drum 1Y is first charged by the charging roller 2Y. Thereafter, the laser scanner unit 3 irradiates the surface of the photosensitive drum 1Y with laser light according to the image data of the document read by the image reading apparatus 100, and forms an electrostatic latent image on the surface of the photosensitive drum 1Y. Then, yellow toner is attached to the electrostatic latent image formed on the surface of the photosensitive drum 1Y by the developing roller 4Y, and a yellow toner image is formed on the surface of the photosensitive drum 1Y. The toner image formed on the surface of the photosensitive drum 1Y is primarily transferred to the intermediate transfer belt 216 by applying a bias to the primary transfer roller 5Y.

[0028] By the same process, magenta, cyan, and black toner images are also formed on the photosensitive drums 1M, 1C, and 1K, respectively. Then, by applying a bias to the primary transfer rollers 5M, 5C, and 5K, these toner images are transferred superposedly on the yellow toner image on the intermediate transfer belt 216. As a result, a full-color image is formed on the surface of the intermediate transfer belt 216.

[0029] Thereafter, the full-color toner image is sent to the secondary transfer portion by the intermediate transfer belt 216 that is rotated by the driving force transmitted from the driving roller 215. Then, a bias is applied to the secondary transfer roller 217 at the secondary transfer portion, so that the full-color toner image on the intermediate transfer belt 216 is transferred to the sheet S.

[0030] Next, the sheet S to which the toner image has been transferred is conveyed to the fixing device 220 where the sheet S is subjected to a fixing process of heating and pressing. As a result, the toner image on the sheet S is fixed on the sheet S. Thereafter, the sheet S to which the image is fixed is discharged to the discharge tray 250 by the discharge roller 225.

<Image Reading Apparatus>

[0031] Next, the configuration of the image reading apparatus 100 will be described.

[0032] As shown in FIG. 1, the reader 80 includes the image reading unit 81 (image reading portion) that optically reads the image data of the sheet S that is a document and converts the image data into an electric signal, the document table glass 82, and the platen glass 83. The image reading unit 81 is moved by a driving unit (not shown) in the direction of the arrow T in the space below the document table glass 82 and the platen glass 83.

[0033] When the image data of the sheet S should be read with the reader 80, a user first places the sheet S on the document table glass 82. Thereafter, the image reading unit 81 reads the image data of the sheet S by irradiating the sheet S with light while moving in the direction of the arrow T,

receiving the reflected light, and converting it to an electric signal. The ADF 90 is rotatably supported on the reader 80. After rotating the ADF 90 upward to open it, a user can get access to the document table glass 82.

[0034] The ADF 90 includes the document tray 91 on which the sheets S, which are documents, are stacked, the feeding roller 92 for feeding sheets S stacked on the document tray 91 (stacking portion), and the conveying roller 93 for conveying the sheets S fed by the feeding roller 92. The ADF 90 also includes the sheet conveying rollers 95 (95a to 95f) that convey the sheets S conveyed by the conveying roller 93. The feeding roller 92 is configured to be able to be lifted and lowered by a moving mechanism (not shown). When the feeding roller 92 should feed the sheets S, the pickup roller 92 is lowered and comes into contact with one of the sheets S stacked on the document tray 91.

[0035] Further, the ADF 90 includes the separation roller 94a that presses the conveying roller 93 to form the separation nip portion N where the separation roller 94a separates one by one the sheets S conveyed to the conveying roller 93. The torque limiter 61 is attached to the separation shaft 94b that rotatably supports the separation roller 94a (refer to FIG. 2). The document tray 91, the conveying roller 93, and the separation roller 94a constitute the sheet feeding apparatus 300 that feeds the sheet S toward the image reading unit 81, together with the holder 62, the sheet-like guide 63, the supporting member 67, and so on, which will be described later.

[0036] When one sheet S enters the separation nip portion N, the torque input to the conveying roller 93 is transmitted to the separation roller 94a with the frictional force of the sheet S, so that a torque above a predetermined value is applied to the separation roller 94a. As a result, the transmission of torque between the separation roller 94a and the torque limiter 61 is cut off, and the separation roller 94a is driven to rotate in the feeding direction of the sheet S by the rotation of the conveying roller 93.

[0037] In contrast, when two sheets S enter the separation nip portion N, slippage occurs between the two sheets S and the torque of the conveying roller 93 escapes, so that a torque above a predetermined value is not applied to the separation roller 94a. As a result, the rotation of the separation roller 94a is restricted by the load of the torque limiter 61. The sheet S that is in contact with the separation roller 94a is then separated from the sheet S that is in contact with the conveying roller 93, and the sheets S are separated one by one.

[0038] The ADF 90 further includes the image reading unit 96 (image reading portion) that optically reads the image of the sheet S that is a document and converts the image data into an electric signal. The platen glass 97 is provided at a position facing the image reading unit 96. Further, in the ADF 90, the platen rollers 98 and 99 are provided at positions facing the platen glasses 83 and 97, respectively.

[0039] The ADF 90 further includes the opening/closing cover 71 that supports the feeding roller 92 and the conveying roller 93. The opening/closing cover 71 is rotatably supported on a support shaft (not shown) of the apparatus main body of the ADF 90. The opening/closing cover 71 can be rotated between an open position at which the opening/closing cover 71 is open from the apparatus main body of the ADF 90 and a closed position at which the opening/closing cover 71 is closed to the apparatus main body of the ADF 90.

The opening/closing cover 71 forms a conveying path for the sheet S when the opening/closing cover 71 is located at the closed position, and the conveying path is opened and the separation roller 94a is exposed when the opening/closing cover 71 is located at the open position. The closed position of the opening/closing cover 71 is a pressing position where the separation nip N is formed by the conveying roller 93 and the separation roller 94a. The open position of the opening/closing cover 71 is a separating position where the pressing of the separation nip N formed by the conveying roller 93 and the separation roller 94a is released.

[0040] When the image of the sheet S is read by the ADF 90, the sheets S stacked on the document tray 91 are first conveyed to the first reading position by the feeding roller 92, the conveying roller 93, and the sheet conveying rollers 95a to 95d while being separated one by one by the separation roller 94a. The first reading position is located between the platen glass 83 and the platen roller 98. Next, the image of the first surface of the sheet S is read by the image reading unit 81 at the first reading position.

[0041] Next, the sheet S is conveyed by the sheet conveying rollers 95e to a second reading position located between the platen glass 97 and the platen roller 99. When an instruction is provided from a user that the image on the second surface of the sheet S should be read, the image reading unit 96 reads the image on the second surface of the sheet S at the second reading position. Thereafter, the sheet S is conveyed by the sheet conveying rollers 95f and discharged onto the discharge tray 73 by the discharge rollers 72.

<Separation Roller Unit>

[0042] Next, the detailed configuration of the separation roller unit will be described.

[0043] FIGS. 2A and 2B are a perspective view of the separation roller unit viewed at different angles. FIG. 3 is a cross-sectional view of the separation roller unit cut by the K-K cross-section shown in FIG. 2B. The separation roller unit includes the separation roller 94a, the separation shaft 94b, the torque limiter 61, the holder 62, and the sheet-like guide 63. As shown in FIGS. 2A, 2B and 3, the separation roller 94a is pressed against the conveying roller 93 to form the separation nip portion N, and is in contact with the sheet S to separate the sheet S. The separation roller 94a and the torque limiter 61 are rotatably supported by the separation shaft 94b.

[0044] The torque limiter 61 is arranged at a position adjacent to the separation roller 94a in the direction of the rotation axis of the separation roller 94a. The outer diameter of the torque limiter 61 is smaller than that of the separation roller 94a, so that the torque limiter 61 does not interfere with the sheet S passing by the separation roller 94a.

[0045] Further, the holder 62 for holding the separation shaft 94b is provided, and the holder 62 has the grip portion 62c for an operator who replaces the separation roller unit to grip. The holder 62 holds the separation roller 94a via the separation shaft 94b. An uneven portion is formed on the grip portion 62c for an operator to easily grip the grip portion 62c with fingers.

[0046] The separation shaft 94b is attached to the holder 62 by press fitting when both ends of the separation shaft 94b are inserted into the holder 62. That is, the holder 62 holds both ends of the separation roller 94a on the separation

shaft 94b in the direction of the rotation axis of the separation roller 94a. One end of the separation shaft 94b has a D-shaped cut portion (not shown) and fits with one end of the holder 62. The portion of the holder 62 on the other end of the separation shaft 94b is formed in a C-shape and the other end of the separation shaft 94b is attached to the holder 62 by press fitting. By releasing the press fitting of the separation shaft 94b by pulling out from the holder 62, the holder 62 and the separation shaft 94b can be separated. By doing so, the separation roller 94a can be replaced. The method of attaching the separation shaft 94b to the holder 62 is not limited to press fitting, and the separation shaft 94b may be fixed to the holder 62 using screws, for example.

[0047] The one end of the holder 62 has the D-shaped cut rotation restricting portion 62a that restricts rotation of the separation shaft 94b following the rotation of the separation roller 94a. The other end of the holder 62 is provided with the grip portion 62c. Further, the holder 62 has the guiding surface 62d for guiding the movement of the sheet S by being in contact with the lower surface of the sheet S, and the positioning boss 62b (the positioning portion) to be positioned with respect to the support member 67 (described later) to which the separation roller 94a is attached.

[0048] The sheet-like guide 63, which is a polyester sheet (PET sheet) with a thickness of 100 μm, is attached to the holder 62. The sheet-like guide 63 is applied to the holder 62 with double-sided adhesive tape. The function of the sheet-like guide 63 will be described later.

<Attachment/Detachment of Separation Roller Unit>

[0049] A force in the feeding direction of the sheet S by the conveying roller 93 and a force in the direction opposite to the feeding direction of the sheet S by the torque limiter 61 act on the separation roller 94a. Therefore, the separation roller 94a is more easily worn than the conveying roller 93 or the like on which only the force in the feeding direction of the sheet S acts. Therefore, it is often necessary to replace the separation roller 94a with a new one within a period shorter than the product life of the ADF 90. Next, the configuration for replacing the separation roller unit will be described.

[0050] FIG. 4 is a schematic cross-sectional view of the sheet feeding apparatus having the separation roller unit. FIG. 5 is a perspective view showing a state in which the separation roller unit is mounted on the support member 67. FIG. 6 is a perspective view of a state in which the separation roller unit is being removed from the support member 67. In addition, since the opening/closing cover 71 is located at the open position in FIGS. 5 and 6, the feeding roller 92 and the conveying roller 93 are not shown in these figures.

[0051] As shown in FIGS. 4 to 6, the separation roller unit is mounted on the support member 67. The mounting recess 67f is formed on the support member 67. The separation roller 94a is mounted on the support member 67 by fitting the separation shaft 94b of the separation roller unit into the mounting recess 67f. Further, the rotation restricting hole 67d is formed on the support member 67. The rotation restricting portion 62a of the holder 62 of the separation roller unit is fitted into the rotation restricting hole 67. The separation roller 94a is mounted on the support member 67 with the separation roller 94a being held by the holder 62 via the separation shaft 94b.

[0052] Further, a recess (not shown) is formed on the lower surface of the separation shaft **94b**. The separation roller **94a** is positioned with respect to the support member **67** by fitting the protruding portion **67c** formed on the support member **67** into the recess (not shown). Further, the support member **67** is rotatably supported by the rotating portion **67a** with respect to the frame body **90a** of the ADF **90**. Further, the support member **67** is urged by the spring **68** (an urging member). The separation roller **94a** mounted on the support member **67** is pressed against the conveying roller **93** by the urging force of the spring **68**.

[0053] Further, the positioning hole **67e** is formed on the support member **67**. When the separation roller unit is mounted on the support member **67**, the positioning boss **62b** of the holder **62** is fitted with the positioning hole **67e** of the support member **67**.

[0054] Further, the support member **67** has the guide portion **67b** that comes into contact with the lower surface of the sheet **S** fed by the feeding roller **92** and guides the sheet **S** to the separation nip portion **N**. Namely, the support member **67** works as a mounting portion which the separation roller unit is attached to and detached from, and a guide member for guiding the sheet **S** to the separation nip portion **N**. The guide portion **67b** of the support member **67** is exposed on the side of the conveying path of the sheet **S** and comes into contact with the sheet **S**. That is, the guide portion **67b** includes a portion arranged on the upstream side of the separation roller **94a** and the holder **62** in the feeding direction of the sheet **S**. The inclined surface **67b1** is formed on the guide portion **67b** of the support member **67**. This inclined surface **67b1** is inclined such that the more a position on the inclined surface **67b1** becomes downstream in the feeding direction of the sheet **S**, the larger the height of the inclined surface **67b1** at the position is. The sheets **S** that are double-fed by the feeding roller **92** are separated by the resistance of the inclined surface **67b1**.

[0055] When the separation roller unit is mounted on the support member **67**, the sheet-like guide **63** applied to the holder **62** is located at a position where the sheet-like guide **63** covers a portion of the gap **G** between the holder **62** and the separation nip portion **N** in the feeding direction of the sheet **S**. The sheet-like guide **63** is in contact with the lower surface of the sheet **S** to be conveyed to the separation nip portion **N** at the position between the holder **62** and the separation nip portion **N**, and guides the sheet **S** to the separation nip portion **N**.

[0056] With the provision of the sheet-like guide **63**, the accuracy of guiding the sheet **S** to the separation nip portion **N** is improved since the sheet **S** can be guided close to the separation nip portion **N**. As a result, it is suppressed that the leading end of the thin sheet **S** with a small amount of basis weight abuts against a portion of the separation roller **94a** or the conveying roller **93** other than the separation nip portion **N** and the sheet **S** is folded. Further, it is suppressed that the leading end of the thick sheet **S** with a large amount of basis weight abuts against one of the rollers to leave a scratch on it. Furthermore, it is suppressed that the sheet **S** enters the gap **G** between the separation holder **67** and the separation nip portion **N**, and the sheet **S** is folded.

[0057] Further, as described above, the holder **62** has a configuration in which the separation shaft **94b** is held by both sides. As a result, the separation shaft **94b** can be stably held as compared with the configuration in which the separation shaft **94b** is held by a single side. Therefore, the

position accuracy between the holder **62** and the separation roller **94a** as well as the position accuracy between the sheet-like guide **63** and the separation nip portion **N** can be improved.

[0058] As in the present embodiment, it is preferable that the sheet-like guide **63** is disposed such that the sheet-like guide **63** is not in contact with the outer surface of the separation roller **94a**. When the sheet-like guide **63** is disposed such that the sheet-like guide **63** is in contact with the separation roller **94a**, the precision of guiding the sheet **S** to the separation nip portion **N** might be improved. However, in this case, there are concerns that the sheet-like guide **63** might work as resistance for the rotation of the separation roller **94a** and that scratches are made due to the contact of the sheet-like guide **63** with the separation roller **94a**. Taking these concerns into consideration, the above described configuration is adopted in this embodiment.

[0059] When replacing the separation roller **94a**, an operator performing the replacement grips the grip portion **62c** of the holder **62** holding the separation roller **94a** with fingers and lifts it upward. The separation roller **94a** is removed from the mounting recess **67f** of the support member **67** with the separation roller **94a** held by the holder **62**. At this time, the sheet-like guide **63** is removed from the support member **67** together with the separation roller **94a** since the sheet-like guide **63** is fixed to the holder **62**. As a result, it is suppressed that the sheet-like guide **63** is folded due to the interference between the separation roller **94a** and the sheet-like guide **63** when the separation roller **94a** is removed.

[0060] In the present embodiment, the guide surface **62d** of the holder **62** extends in the feeding direction of the sheet **S** toward the torque limiter **61** to narrow the gap between the torque limiter **61** and the support member **67** in the feeding direction of the sheet **S**. This configuration suppresses that the sheet **S** is folded by entering the gap. However, the present invention is not limited to this configuration and may adopt the configuration in which the guide surface **62d** of the holder **62** is further extended such that the guide surface **62d** covers the entire area of the torque limiter **61**.

[0061] Further, as shown in FIG. 7, the configuration may be adopted in which the sheet-like guide **63** is further widened such that the width of the sheet-like guide **63** in the direction of the rotation axis of the separation roller **94a** corresponds to the width of the combination of the separation roller **94a** and torque limiter **61**. Even with the configuration in which the sheet-like guide **63** covers at least a portion of the gap between the holder **62** and the torque limiter **61** in the feeding direction of the sheet **S**, the same effect as described above may be obtained.

[0062] The present embodiment exemplifies the sheet feeding apparatus **300** that feeds the sheet **S** toward the image reading units **81** and **96** provided in the ADF **90**. However, the present invention is not limited to this configuration. Namely, the configuration of the present embodiment may be applied to a sheet feeding apparatus that feeds a sheet toward the image forming portion **211** provided in the image forming apparatus **A**.

[0063] While the present invention has been described with reference to exemplary embodiments, it is to be understood that the invention is not limited to the disclosed exemplary embodiments. The scope of the following claims is to be accorded the broadest interpretation so as to encompass all such modifications and equivalent structures and functions.

[0064] This application claims the benefit of Japanese Patent Application No. 2019-211144, filed Nov. 22, 2019, which is hereby incorporated by reference herein in its entirety.

What is claimed is:

1. A sheet feeding apparatus, comprising:
 - a feeding roller configured to feed sheets;
 - a conveying roller configured to convey the sheets fed by the feeding roller;
 - a separation roller configured to form a nip portion by being pressed on the conveying roller, and to separate one by one the sheets at the nip portion, the sheets being conveyed by the conveying roller;
 - a guide configured to guide the sheets fed by the feeding roller to the nip portion; and
 - a holder configured to hold the separation roller and the guide, and to be detachably attachable to the sheet feeding apparatus,
 wherein the guide adheres to the holder, and the separation roller is replaceable on the holder that has been removed from the sheet feeding apparatus.
2. The sheet feeding apparatus according to claim 1, further comprising:
 - a separation shaft configured to rotatably support the separation roller,
 wherein the holder supports both end portions of the separation shaft.
3. The sheet feeding apparatus according to claim 1, further comprising:
 - an opening/closing cover configured to be movable between a pressing position at which the nip portion is formed and a separating position at which pressing of the nip portion is released and a sheet conveying path

is exposed, the opening/closing cover supporting the conveying roller and the feeding roller, wherein when the opening/closing cover is located at the separating position, the holder that holds the guide and the separation roller is detachably attachable to the sheet feeding apparatus.

4. The sheet feeding apparatus according to claim 3, further comprising:
 - a support member configured to support the holder in a detachably attachable manner; and
 - an urging member configured to urge the support member, wherein when the opening/closing cover is located at the pressing position, the conveying roller and the separation roller form the separation nip portion with an urging force of the urging member.
5. The sheet feeding apparatus according to claim 2, wherein a torque limiter is provided on the separation shaft at a position adjacent to the separation roller, and wherein the guide covers a portion of a gap between the holder and the torque limiter in a feeding direction of the sheets.
6. The sheet feeding apparatus according to claim 1, wherein the guide is a sheet-like guide.
7. An image reading apparatus, comprising:
 - an image reading portion configured to read an image of a sheet; and
 the sheet feeding apparatus according to claim 1, which feeds the sheet toward the image reading portion.
8. An image forming apparatus, comprising:
 - an image forming portion configured to form an image; and
 the sheet feeding apparatus according to claim 1, which feeds a sheet toward the image forming portion.

* * * * *