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(54) SHEET SIDE GUIDING DEVICE, SHEET FEEDING DEVICE AND IMAGE FORMING APPARATUS

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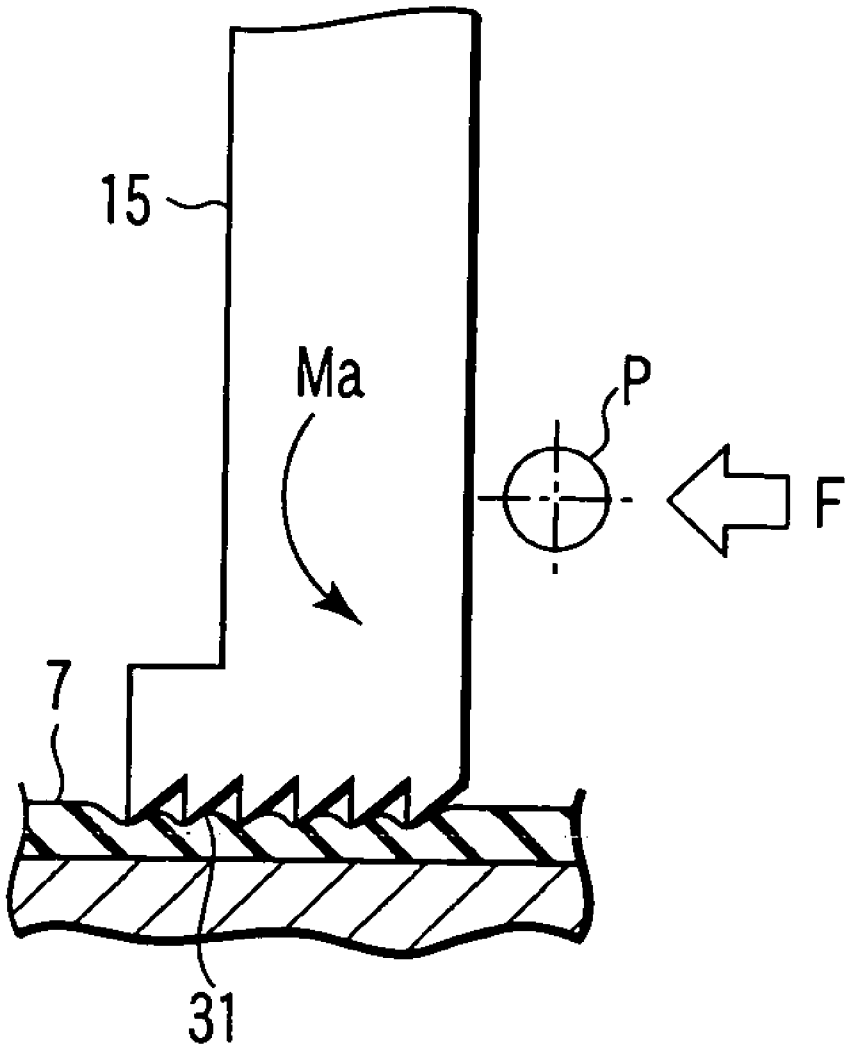
(57) **ABSTRACT**

The sheet side guiding device includes a tray on which sheets are placed, a side guide provided on the tray to be slidable in a direction normal to the feeding direction of the sheet and configured to guide side portions of the sheets to be fed, a rubber sheet provided on the tray in the sliding direction of the side guide, a lever provided pivotably on the side guide via a pivot mechanism and an engagement stopper nail portion provided for the end portion of the lever and configured to detachably engage with the rubber sheet to lock the side guide to the tray.



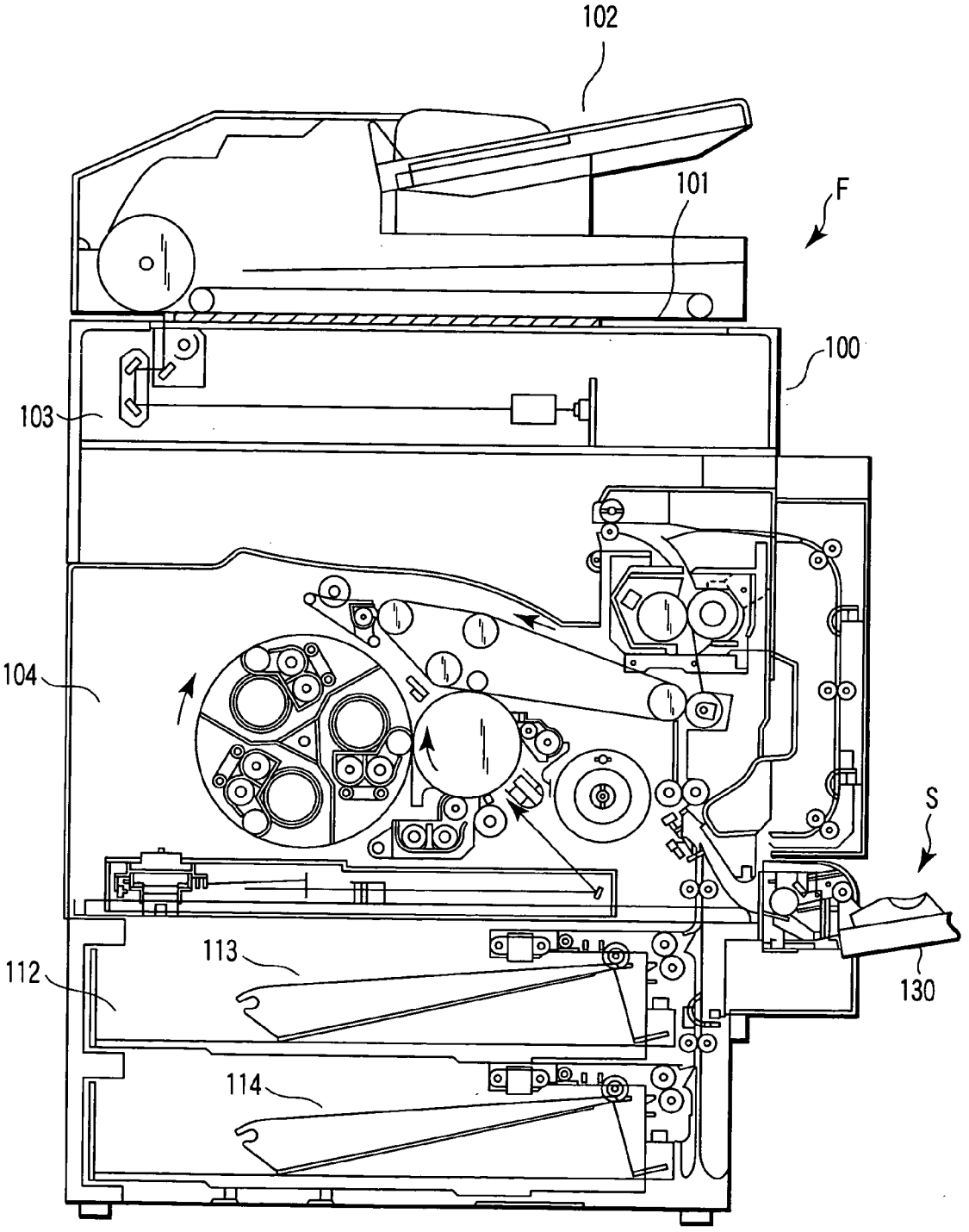


FIG. 1

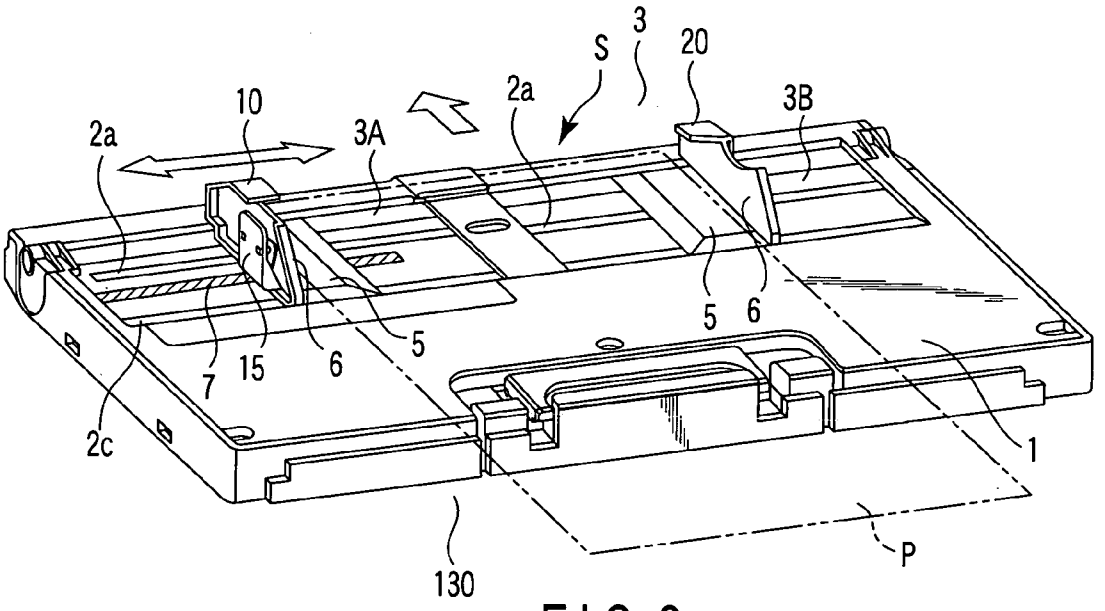

3
S
20
10
2a
2a
3B
3A
5
6
7
15
6
5
2c
1
130
P

FIG. 2

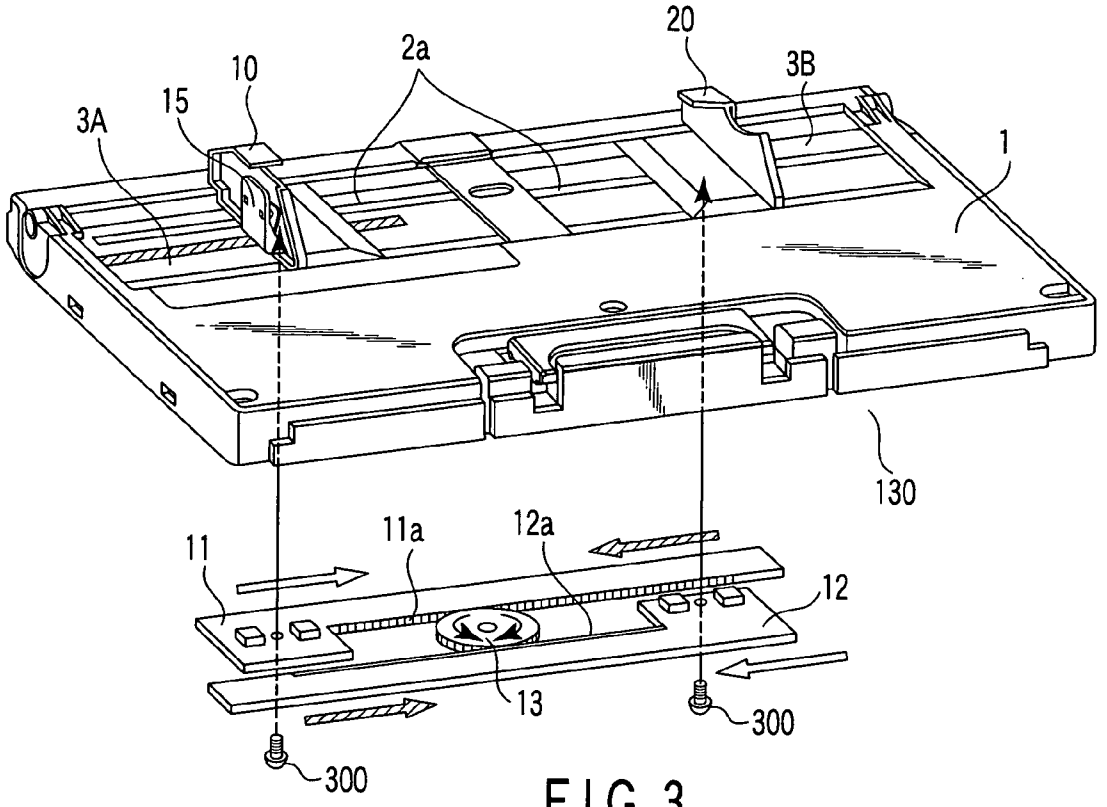

20
2a
10
3B
15
3A
1
130
11
11a
12a
12
13
300
300

FIG. 3

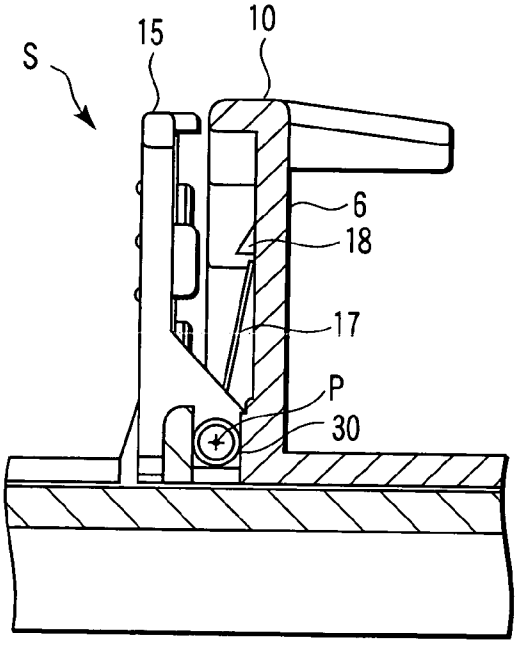


FIG. 4

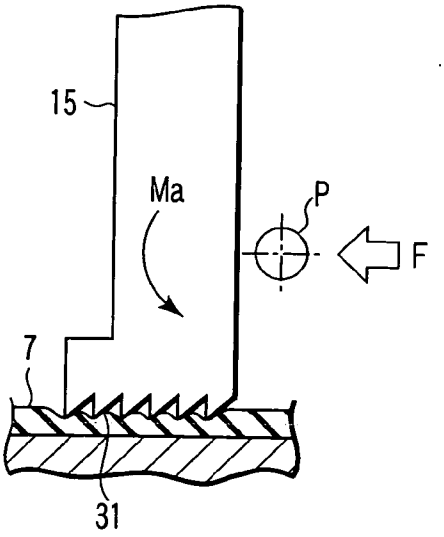


FIG. 6

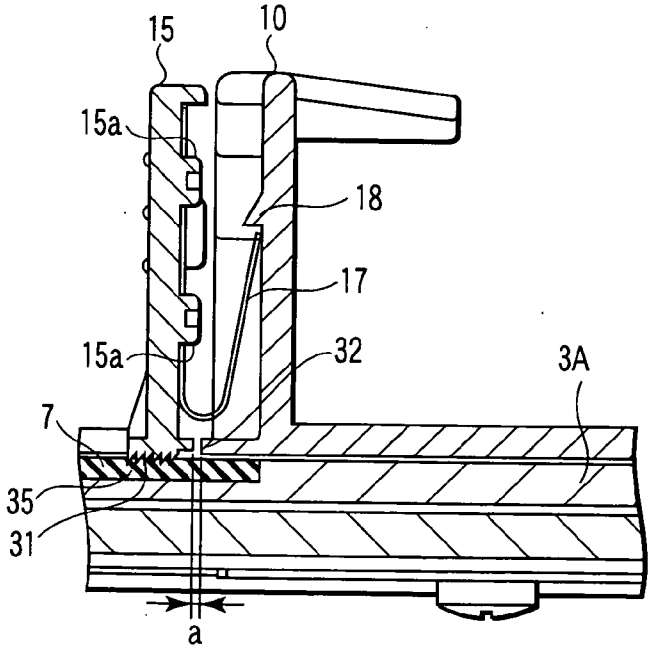


FIG. 5

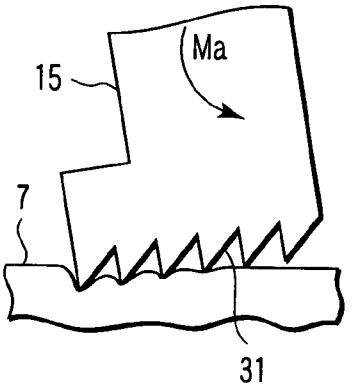


FIG. 7

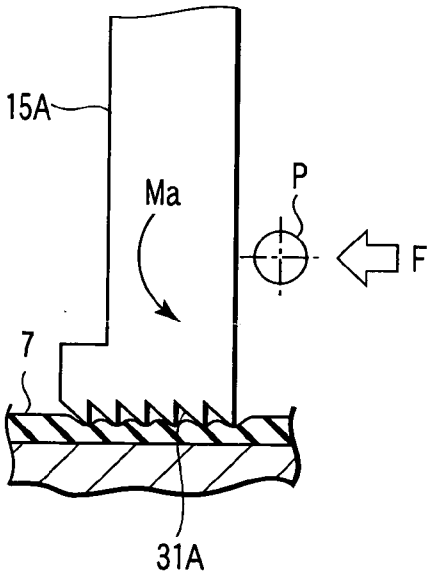


FIG. 8

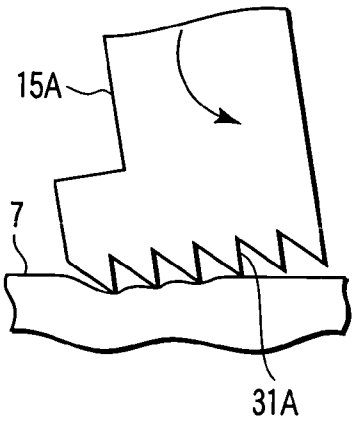


FIG. 9

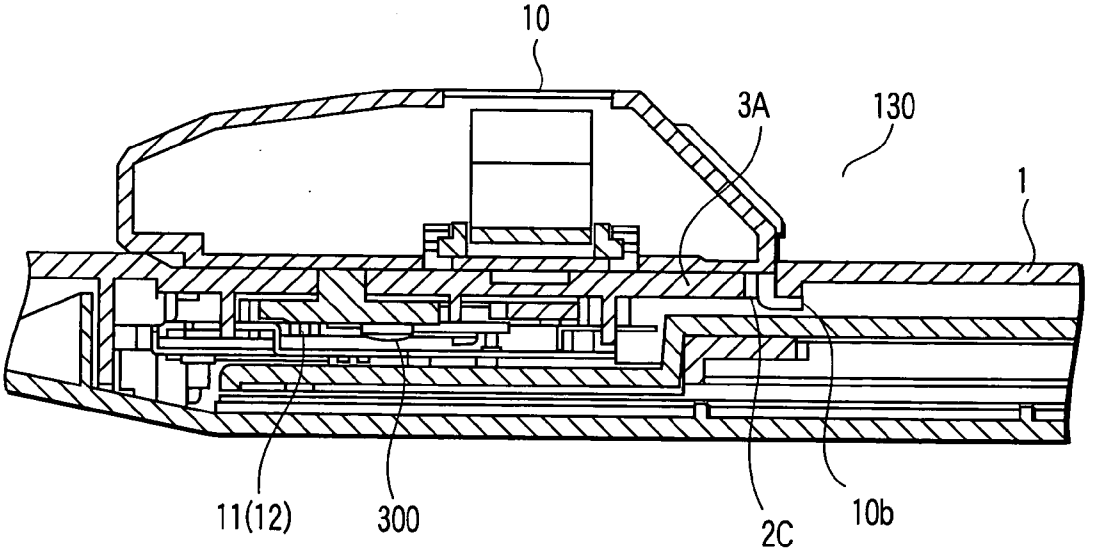


FIG. 10

SHEET SIDE GUIDING DEVICE, SHEET FEEDING DEVICE AND IMAGE FORMING APPARATUS

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is based upon and claims the benefit of priority from prior Japanese Patent Application No. 2003-307431, filed Aug. 29, 2003, the entire contents of which are incorporated herein by reference.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention relates to a sheet side guiding device placed on a tray, which guides sheets of an original or copy sheets fed from the tray, to suit the lateral sides of the sheets in their width direction, as well as a sheet feeding device and an image forming apparatus.

[0004] 2. Description of the Related Art

[0005] Image forming apparatus such as a copy machine, scanner and facsimile include a tray on which originals, copy sheets, or the like etc. are placed. The sheets placed on the tray are fed one by one to an image formation processing unit of an image forming apparatus in accordance with a sheet feeding signal, where an image is formed on a sheet.

[0006] The tray is equipped with a guiding device for suiting the side edges of the sheets placed thereon in order to feed them to the image formation processing unit in a proper position. The sheets have various sizes such as B5, A4 and A3. The guiding device is designed to guide sheets by their side edges in accordance with the width dimension of the sheets.

[0007] Jpn. Pat. Appln. KOKAI Publication No. 11-79418 discloses a sheet side guiding device and a technique of an image processing apparatus that uses this guiding device. In the guiding device, a rack-shaped engagement sections are provided on the surface side of a tray along the longitudinal direction of grooves formed in the tray, and engagement control units are provided for side guides that are slidable along the longitudinal direction of the grooves. The engagement control units are provided with engagement nails that detachably engage with the engagement units.

[0008] It should be noted that the above-described techniques employs a rachet structure in which the displacement of the side guides is controlled as the engagement nails engage with the engagement units. If an external force is applied to the side guides in a direction that opens the side guides (that is, a direction in which the side guides move away from the side edges of sheets placed on the tray), the displacement of the side guides can be controlled.

[0009] The rachet structure includes rachet teeth provided at a predetermined pitch and bottoms each formed between adjacent rachet teeth, and the engagement nails engage with the bottoms each formed between the adjacent teeth.

[0010] For the convenience of the manufacturing of parts, it is usually necessary to ensure about 0.5 to 0.7 mm for the pitch of the rachet teeth. If an engagement nail is locating at a position opposite to a rachet tooth, the position of the engagement nail must be displaced. In other words, the engagement position of the engagement tooth is controlled with reference to the pitch of the rachet teeth, and the positions of the side guides can be locked only in units of pitch.

[0011] Some types of the sheet side guiding device are designed to guide one side of sheets with a fixed side guide and the other side edge with a slide-adjustable side guide to fit the size of the sheets. Other types are designed to guide both sides of sheets with slide-adjustable side guides to fit the width of the sheets with reference to the center position of the sheets in their width direction.

[0012] In the case of the former type of the guiding device, the engagement position displaces in units of the pitch of the rachet teeth. In the case of the latter type, the side guides on both sides are usually coupled to each other by a rack and pinion to move symmetrically, and therefore the engagement position displaces in units of a double of the pitch of the rachet.

[0013] In both types of the guiding device, it is difficult to position and fix the side guides to fit perfectly with side edges of sheets of various sizes.

BRIEF SUMMARY OF THE INVENTION

[0014] The present invention has been proposed in consideration of the above-described circumstances, and the object thereof is to provide a sheet side guiding device that can position and fix the side guides in a stepless manner, as well as a sheet feeding device and an image forming apparatus.

[0015] According to an aspect of the present invention, there is provided a sheet side guiding device comprising: a tray on which sheets are placed; a guide member, provided on the tray to be slidable in a direction normal to a sheet feeding direction, configured to guide side portions of the sheets to be fed; an elastic member provided on the tray in a sliding direction of the guide member; a lever provided pivotably on the guide member via a pivot mechanism; and an engagement stopper nail portion, provided for an pivot end portion of the lever, configured to detachably engage with the elastic member to lock the guide member to the tray.

[0016] Additional objects and advantages of the invention will be set forth in the description which follows, and in part will be obvious from the description, or may be leaned by practice of the invention. The objects and advantages of the invention may be realized and obtained by means of the instrumentalities and combinations particularly pointed out hereinafter.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING

[0017] The accompanying drawings, which are incorporated in and constitute a part of the specification, illustrate presently preferred embodiments of the invention, and together with the general description given above and the detailed description of the preferred embodiments given below, serve to explain the principles of the invention.

[0018] **FIG. 1** is a diagram schematically showing the structure of a digital copying machine according to an embodiment of the present invention;

[0019] **FIG. 2** is a perspective view of a tray equipped with a sheet side guiding device;

[0020] **FIG. 3** is an exploded perspective view of the sheet side guiding device;

[0021] **FIG. 4** is a cross sectional view of portions of the first side guide and lever;

[0022] **FIG. 5** is a cross sectional view of the first side guide and lever;

[0023] **FIG. 6** is a diagram showing the relationship between a force applied to the lever and the operation of an engagement stopper nail portion;

[0024] **FIG. 7** is a diagram showing the state in which the engagement stopper nail portion is brought into contact with a rubber sheet;

[0025] **FIG. 8** is a diagram showing the relationship between a force applied to the lever and the operation of an engagement stopper nail portion in a comparative example;

[0026] **FIG. 9** is a diagram showing the state in which the engagement stopper nail portion is brought into contact with a rubber sheet in the comparative example shown in **FIG. 8**; and

[0027] **FIG. 10** is a diagram showing a cross section of the first side guide according to the embodiment of the present invention when viewed from a front direction.

DETAILED DESCRIPTION OF THE INVENTION

[0028] Embodiments of the present invention will now be described in detail with reference to accompanying drawings.

[0029] **FIG. 1** shows the entire structure of a digital copying machine F, which is an image forming apparatus equipped with a manual sheet feeding device S, according to an embodiment of the present invention.

[0030] The digital copying machine F comprises a main body **100**, and an original tray **101** on which originals are placed one by one is provided on an upper surface portion of the main body **100**. An automatic original feeding unit **102** that automatically feeds originals onto the original tray **101** is provided on the original tray **101**.

[0031] An image reading unit (scanner) **103** that reads an image of an original placed on the original tray **101** is provided underneath the original tray **101**. An image forming unit **104** that forms an image of an original read by the image reading unit **103** is provided underneath the image reading unit (scanner) **103**. A sheet feeding unit **112** is provided underneath the image forming unit **104**. The sheet feeding unit **112** includes sheet feeding cassettes **113** and **114**.

[0032] In the meantime, a manual sheet feeding unit S is provided at a lower section of a lateral surface of the main body **100**. The manual sheet feeding unit S is provided with a sheet side guiding device that guides sides of sheets in the width direction for various sizes of sheets as will be described in detail later.

[0033] A sheet fed from the sheet feeding cassette **113** or **114**, or the manual sheet feeding unit S is conveyed to the image forming unit **104**, where an image is formed on the sheet.

[0034] **FIG. 2** is a perspective view showing the manual sheet feeding unit S.

[0035] The manual sheet feeding unit S includes a tray **130**. A sheet P is placed on the tray **130** and the sheet is fed in a direction indicated by the arrow. The tray **130** is provided with a guide device that guides both side of the sheet P that has been fed thereto.

[0036] The tray **130** includes a table plate **1** and first and second support plates **3**A and **3**B are formed to be integrated with the table plate **1**. A first side guide **10** and a second side guide **20** that form the guiding device are movably supported on the support plates **3**A and **3**B, respectively. The first and second side guides **10** and **20** move in directions that are normal to the sheet feeding direction.

[0037] The support plates **3**A and **3**B each have a guide groove portion **2***a* used to guide the movement of the side guides **10** and **20**. The guide groove portions **2***a* are through holes made in the plates over respective regions where the side guides **10** and **20** are movable respectively.

[0038] The first side guide **10** is movably fit into the guide groove portion **2***a* of the first support plate **3**A and the second side guide **20** is movably fit into the guide groove portion **2***a* of the second support plate **3**B. Each of the first and second side guides **10** and **20** is formed to have substantially an L shape, which is formed of a bottom plate portion **5** and a guide wall **6** standing straight up from one side end of the bottom plate portion **5**.

[0039] A lever **15** is provided for the guide wall **6** of the first side guide **10**. A rubber sheet **7**, which is an elastic member used for registration, is mounted on the first support plate **3**A along the moving direction of the first side guide **10**. A lower end surface of the lever **15** is brought into contact with the rubber sheet **7** to be opposite thereto. An example of the material of the rubber sheet **7** is a CR rubber member having a hardness of 45 to 60 degrees. The surface of the rubber sheet **7** is closely grained and is made substantially plane. The level **15** is formed of a synthetic resin material such as plastic, and its hardness is set to be higher than that of the rubber sheet **7**.

[0040] **FIG. 3** is a perspective view showing the interlocking mechanism between the first and second side guides **10** and **20**.

[0041] The interlocking mechanism includes first and second racks **11** and **12** placed in parallel with and face each other. The first rack **11** is fixed to the bottom plate portion **5** of the first side guide **10** with a screw **300**. The second rack **12** is fixed to the bottom plate portion **5** of the second side guide **20** with a screw **300**. Each screw **300** is pierced through to the respective guide groove portion **2***a*. A pinion gear **13** is interposed between the first and second racks **11** and **12** to engage with these racks.

[0042] With this structure, when the first side guide **10** is moved to, for example, the right in the illustration shown in **FIG. 3**, the first rack **11** is moved in the same direction to rotate the pinion gear **13** in a clockwise direction. Then, as the pinion gear **13** rotates, the second rack **12** is moved. Due to the movement of the second rack **12**, the second side guide **20** is moved to the left in the illustration shown in **FIG. 3**. In other words, the first and second side guides **10**

and **20** are moved in the respective directions that they become closer to each other each by the same moving amount.

[**0043**] On the other hand, when the first side guide **10** is moved to, for example, the left in the illustration shown in **FIG. 3**, the first rack **11** is moved in the same direction to rotate the pinion gear **13** in a counter-clockwise direction. Then, as the pinion gear **13** rotates, the second rack **12** is moved. Due to the movement of the second rack **12**, the second side guide **20** is moved to the right in the illustration shown in **FIG. 3**. In other words, the first and second side guides **10** and **20** are moved in the respective directions that they become apart from each other each by the same amount. In the above-described manner, the first and second side guides **10** and **20** are moved in the respective directions that they part from each other with respect to the pinion gear **13** at the center.

[**0044**] **FIGS. 4 and 5** are cross sectional views of an installation structure of the lever **15** to the first side guide **10**.

[**0045**] The lever **15** is mounted pivotably via a pivot mechanism **30** to a lower portion of the guide wall **6** of the first side guide **10**. The upper end portion of the lever **15** is a free end and the lever is pivoted on a pivot P with respect to the first side guide **10**.

[**0046**] A plate spring (elastic member) **17** is interposed between the first side guide **10** and the lever **15**. The plate spring **17** is formed to have substantially a U shape. A half portion of the plate spring **17** is set in projecting portions **15***a* formed on an inner surface of the lever **15** while being fit with these portions, and an end portion of the other half portion is set to abut against a protruding portion **18** formed on the wall surface of the first side guide **10**. In other words, the plate spring **17** serves to elastically urge the lever **15** to pivot in the counter-clockwise direction on the pivot P.

[**0047**] A lower end surface portion of the lever **15** has an engagement stopper nail portion **31** formed thereon as shown in **FIG. 5**. The lever **15** and the engagement stopper nail portion **31** form an engagement portion **35** together.

[**0048**] The engagement stopper nail portion **31** digs into the rubber sheet **7** on the first support plate **3**A so as to fixate the lever **15** and the first side guide **10**.

[**0049**] It should be noted that the engagement stopper nail portion **31** digging into the rubber sheet **7** means, in this embodiment, a state in which the surface of the rubber sheet **7** is deformed to depress by the engagement stopper nail portion **31**. Therefore, when the engagement stopper nail portion **31** is released from the rubber sheet **7**, the rubber sheet **7** restores its original state by the elastic force of itself.

[**0050**] A stopper portion **32** that projects towards the lever **15** is formed integrally at a lower end portion of the guide wall **6** of the first side guide **10**. Before the first side guide **10** is set on the support plate **3**A, the stopper portion **32** serves to regulate the pivoting amount of the lever **15**, which is pivoted by the elastic force of the spring plate **17**, by making the end portion the lever abut against the stopper portion **32**. When the first side guide **10** is set on the support plate **3**A, the engagement stopper nail portion **31** of the lever **15** digs into the rubber sheet **7**, thus creating a certain gap a between the lever **15** and stopper **32**.

[**0051**] It should be noted here that the rubber sheet **7** may be damaged if the engagement stopper nail portion **31** digs in excessively for a hardness of the rubber sheet **7**. In order to avoid this, the digging amount of the nail portion is adjusted by the stopper portion **32**.

[**0052**] **FIGS. 6 and 7** are schematic diagrams showing the stopper nail portion **31** provided on the lever **15** and the pivot P to illustrate how they are related with each other in terms of position.

[**0053**] When conveying a sheet while guiding the side edges of the sheet with the first and second side guides **10** and **20**, the sheet in some cases skews. When the sheet skews, the side guides **10** and **20** receives a force F in the direction that each guide is expanded outwards. At normal times, the lever **15** is urged by the plate spring **17** and therefore the engagement stopper nail portion **31** is held in a state in which it is pressed against the rubber sheet **7**. In this state, when the force F received by the side guide **10** is applied to the lever **15** via the pivot P, a counter-clockwise rotation moment Ma acts on the lever **15** in a direction in which the engagement stopper nail portion **31** further digs in the rubber sheet **7**.

[**0054**] As shown in **FIG. 7**, the lever **15** is inclined in the direction of the rotation moment Ma, and it is directed to the direction in which the engagement stopper nail portion **31** can easily dig in the rubber sheet **7** used for positioning. In other words, when the first side guide **10** receives the force in the direction in which the guide **10** is expanded outwards, the stopper nail portion **31** of the lever **15** serves as a resistant to the positioning rubber sheet **7** so as to regulate the displacement of the first side guide **10** as well as the second side guide **20**.

[**0055**] **FIGS. 8 and 9** are perspective views of a comparative example to the above-described embodiment of the present invention, which illustrates the positions of the engagement stopper nail portion **31**A of the lever **15**A and the pivot P with relative to each other.

[**0056**] This comparative example is different from the above-described embodiment in the point that the engagement stopper nail portion **31**A is formed to be directed in an opposite direction to that of the stopper nail portion **31** shown in **FIG. 6**. This comparative example is the same as the embodiment in the position of the pivot P and the other structure than the described point.

[**0057**] As shown in **FIG. 8**, when sheets are set to abut against the first side guide **10** and a force F is applied to the first side guide **10** in a direction in which the guide **10** is expanded outwards, a rotation moment Ma directed in a counter-clockwise direction with respect to the pivot P acts on the lever **15**A.

[**0058**] Consequently, the lever **15**A is inclined in the direction of the rotation moment Ma. However, with the structure in which the engagement stopper nail portion **31**A is formed to be directed in the opposite direction to that of the stopper nail portion **31** shown in **FIG. 6**, there acts less resistance on the positioning rubber sheet **7**. As a result, the first side guide **10** and the second side guide **2** are easily displaced.

[**0059**] **FIG. 10** is a cross sectional view showing the structure in which the first side guide **10** is installed on the first support plate **3**A, when viewed from a front direction.

[0060] The first support plate **3**A is provided with a plurality of guide groove portions **2***a* in which the first side guide **10** is slidably supported, as explained before.

[0061] A press piece portion **10***b* is integrated with an end of the first side guide **10**, and the press piece portion **10***b* is inserted to the guide groove portion **2***c* and bent in the horizontal direction to be brought into contact with the rear surface of the surface plate **1**.

[0062] When the engagement stopper nail portion **31** of the lever **15** of the first side guide **10** is stopped by the positioning rubber sheet **7** serving as a positioning elastic member, the nail portion receives an elastic repulsion force. The force acts on the first support plate **3**A of the first side guide **10** to float together with the lever **15**.

[0063] However, as it is, there is a gap created between the lower end of the first side guide **10** and the first support plate **3**A, which is not desirable in terms of appearance, and the smooth sliding of the first side guide **10** is impaired.

[0064] In order to avoid this, the press piece portion **10***b* is formed to be integrated with an end portion of the first side guide **10** as described above, thereby inhibiting the floating up of the first side guide **10**.

[0065] In this manner, there is no gap created between the lower end of the first side guide **10** and the first support plate **3**A, thereby making it possible to maintain its good appearance and retain the smooth sliding of the first side guide **10**.

[0066] Next, the operation of the sheet side guiding device having the above-described structure will now be described.

[0067] First, as shown in **FIG. 2**, sheets P are placed between the first and second side guides **10** and **20** on the tray **130**. When there is a gap between the sheets P and one or both of the first and second side guides **10** and **20**, the upper end portion of the lever **15** of the first side guide **10** is fingered to pivot the lever **15** on the pivot P in the clockwise direction. In this manner, the stopper nail portion **31** of the lever **15** is removed from the rubber sheet **7**, thereby releasing the lock. After releasing the lock, the first side guide **10** is slid to fit with the width of the sheets. Due to this adjustment, the second side guide **20** is moved at the same time by the same amount. Then, when both of the first and second side guides **10** and **20** reach the respective side edges of the sheets, the lever **15** is released from the finger. In this manner, the lever **15** is pivoted back in the counter-clockwise direction by the elastic force of the plate spring **17** to return to the original position. Thus, the engagement stopper nail portion **31** digs in the rubber sheet **7** as shown in **FIG. 6**, thereby fixating the lever **15** and the first side guide **10**. Further, as the first side guide **10** is fixated, the second side guide **20** is fixated as well by means of the first and second racks **11** and **12**.

[0068] As described above, according to this embodiment, the engagement stopper nail portion **31** of the lever **15** is made to dig in the rubber sheet **7** to fixate the lever **15**. With this structure, it is possible to position and fixate the first and second side guides **10** and **20** in a stepless manner.

[0069] Therefore, as compared to the conventional rachet structure, in which the guides can only be positioned and fixated in a stepwise manner, the first and second side guides **10** and **20** can be fixated while setting them to perfectly fit with the respective side edges of the sheets.

[0070] Further, the engagement stopper nail portion **31** is formed to be directed in a direction that the nails dig into the rubber sheet **7** against the force serving to outwardly expand the first and second side guides **10** and **20**. Thus, the first and second side guides **10** and **20** are not displaced along with the lever **15**, and they can be maintained certainly at predetermined positions respectively.

[0071] It should be noted that the above-described embodiment has such a structure that the first and second side guides **10** and **20** are slid in opposite directions from each other by the same amount as shown in **FIG. 3**; however the invention is not limited to this structure, but it can take a structure, for example, that one of the side guides is fixated and only the other one is formed to be slidable. In this case, naturally, the lever **15** is provided for the slidable side guide.

[0072] Further, in the above-described embodiment, the lever **15** is formed as a separate member from the first side guide **10**; however it is possible that the lever function can be equipped in a part of the side guide **10** itself. In other words, in this alternative version, an engagement stopper nail portion is provided for the lower end portion of the side guide **10** and an urging force to make the stopper nail portion to dig into the positioning rubber sheet **7** is applied at all times. Then, the engagement stopper nail portion is released from the positioning rubber sheet **7** as needed, for example, when sliding the side guide **10**.

[0073] It is alternatively possible to take such a structure that the lever **15**, pivot mechanism **30** and plate spring **17** are formed to be integrated with the first side guide **10**.

[0074] Further, in the above-described embodiment, the lever **15** is provided at a longitudinal center of the first side guide **10**; however the lever **15** may be provided on either one of the longitudinal end portions of the first side guide **10**.

[0075] Furthermore, the engagement stopper nail portion **31** may be formed longer in the longitudinal direction of the rubber sheet **7**.

[0076] In the embodiment, the sheet-like rubber material is used as the positioning elastic member **7**; however it is alternatively possible to use a thick block-like rubber material.

[0077] Further, in the embodiment, the sheet side guiding device S is provided for the tray **130**, which is a manual sheet feeding unit. However, the present invention is not limited to this structure, but the guiding device S may be provided for the above-described automatic original sheet feeding unit **102** or within the sheet feeding cassettes **113** and **114** in the feeding unit **112**.

[0078] Further, in the embodiment, the sheet side guiding device is used for the digital copying machine F; however the guiding device may be used for ordinary analog-mode copying machines. In fact, the present invention can be applied to all types of image forming apparatus including scanners and facsimiles.

[0079] Further, the present invention is not limited to the above-described embodiment, but naturally it can be modified into various versions within such a scope where the essence of the invention remains.

[0080] Additional advantages and modifications will readily occur to those skilled in the art. Therefore, the

invention in its broader aspects is not limited to the specific details and representative embodiments shown and described herein. Accordingly, various modifications may be made without departing from the spirit or scope of the general inventive concept as defined by the appended claims and their equivalents.

What is claimed is:

1. A sheet side guiding device comprising:

a tray on which sheets are placed;

a guide member provided on the tray to be slidable in a direction normal to a sheet feeding direction and configured to guide side portions of the sheets to be fed;

an elastic member provided on the tray along a sliding direction of the guide member;

a lever provided pivotably on the guide member via a pivot mechanism; and

a nail portion provided for an end portion of the lever and configured to detachably engage with the elastic member.

2. The sheet side guiding device according to claim 1, wherein a surface of the elastic member, with which the nail portion engages, is made substantially plane.

3. The sheet side guiding device according to claim 1, wherein the guide member comprises a regulating portion configured to regulate floating-up of the guide member from the tray.

4. The sheet side guiding device according to claim 1, wherein the lever is elastically urged by an urging member in a direction in which the end portion of the lever abuts against the guide member, and

the guide member includes a stopper portion that receives the end portion of the lever urged.

5. The sheet side guiding device according to claim 1, wherein a pivot of the pivot mechanism that supports the lever rotatably is provided at a position where the nail portion resists against the elastic member while the guide member receives a force in a direction in which the guide member moves away from a side edge of the sheets to incline the lever.

6. The sheet side guiding device according to claim 5, wherein the nail portion points in a direction in which the engagement stopper nail portion serves to resist against the elastic member while the guide member receives a force in a direction in which the guide member moves away from a side edge of the sheets to incline the lever.

7. The sheet side guiding device according to claim 1, wherein the elastic member is a rubber sheet.

8. The sheet side guiding device according to claim 1, wherein the lever is formed of a synthetic resin material.

9. The sheet side guiding device according to claim 1, wherein the nail portion is harder than the rubber sheet.

10. The sheet side guiding device according to claim 1, wherein the guide member includes first and second side guides that guide respective sides of the sheets, and the first and second side guides are movable in directions in which the side guides move away from the sides of the sheets by a same amount.

11. The sheet side guiding device according to claim 1, wherein the lever is integrated with the guide member.

12. The sheet side guiding device according to claim 1, wherein the lever is provided at substantially a central portion of the guide member in the paper feeding direction.

13. A sheet feeding device comprising:

a tray on which sheets are placed;

a sheet feeder configured to feed the sheets placed on the tray to a sheet receiving portion;

a guide member provided on the tray to be slidable in a direction normal to a sheet feeding direction and configured to guide side portions of the sheets to be fed;

an elastic member provided on the tray in a sliding direction of the guide member;

a lever provided pivotably on the guide member via a pivot mechanism; and

a nail portion provided for an end portion of the lever and configured to detachably engage with the elastic member.

14. An image forming apparatus comprising:

a tray on which sheets are placed;

a sheet feeder configured to feed the sheets placed on the tray;

an image forming unit configured to form an image on a sheet fed by the sheet feeder;

a guide member provided on the tray to be slidable in a direction normal to a sheet feeding direction and configured to guide side portions of the sheets to be fed;

an elastic member provided on the tray in a sliding direction of the guide member;

a lever provided pivotably on the guide member via a pivot mechanism; and

a nail portion provided for an end portion of the lever and configured to detachably engage with the elastic member.

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