

PHOTOSENSITIVE BELT RECEIVING CASE

Background of the Invention

The present invention relates to a case for receiving a photosensitive belt in a printer or a photocopying machine.

A general printing apparatus such as a printer or a photocopying machine, as shown in FIG. 1, includes a photosensitive belt 10 having a surface on which an image to be printed is formed by a developing unit 20 while circulating while being supported by a plurality of rollers 11, 12 and 13 installed in the main body of the printing apparatus. If the photosensitive belt 10 is used for a long time, the accuracy of the formed picture is lowered. Thus, the photosensitive belt 10 used for a predetermined time must be replaced with a new belt. During such a replacement, in the prior art, the photosensitive belt 10 is manually combined with the rollers 11, 12 and 13. Accordingly, the replacement is difficult because of the significantly flexible photosensitive belt. Furthermore, the photosensitive belt may not be properly replaced, so a malfunction of the printing apparatus may occur.

Summary of the Invention

To solve the above problems, it is an object of the present invention to provide a photosensitive belt receiving case which can facilitate the replacement and installation of the photosensitive belt.

To accomplish the above object, there is provided a photosensitive belt receiving case comprising: a sidewall having a predetermined shape; an outer wall which extends from the edge of the sidewall, and on which a

plurality of grooves are formed at opposing sides of a portion combined with the sidewall; and an inner wall extending from the sidewall parallel to the outer wall inside the outer wall, and having a plurality of grooves which face the grooves of the outer wall, wherein a photosensitive belt is received between the outer and inner walls and the edge of the photosensitive belt is partially exposed through the grooves.

Brief Description of the Drawings

The above object and advantage of the present invention will become more apparent by describing in detail a preferred embodiment thereof with reference to the attached drawings in which:

FIG. 1 is a schematic diagram of a photosensitive belt installed inside a general printing apparatus;

FIG. 2 is a perspective view of a photosensitive belt receiving case according to the present invention;

FIG. 3 is a cross-sectional view, taken along line III-III, of FIG. 2; and

FIG. 4 is a cross-sectional view for illustrating a procedure for loading a photosensitive belt in the main body of a printing apparatus using the photosensitive belt receiving case according to the present invention.

Detailed Description of the Invention

Referring to FIGS. 2 and 3, a photosensitive belt receiving case 200 according to the present invention has one open side 204, an oval sidewall 201, an external wall 202 extending from the edge of the sidewall 201,

and an internal wall 203 formed parallel to the inner surface of the external wall 202. The photosensitive belt 300 is inserted between the external and internal walls 202 and 203.

A plurality of corresponding grooves 220 are formed on opposite edges of the external and internal walls 202 and 203 at the open side 204. Thus, the edges of the received photosensitive belt 300 is exposed through the grooves 220. A knob hole 201a for picking up the case 200 manually is formed on the sidewall 201. Also, the photosensitive belt receiving case of the present invention can further include a coverlid 210 coupled to the open side 204 to cover the external wall 202 in order to protect the photosensitive belt 300 received in the case.

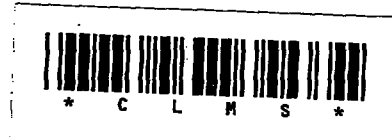
The photosensitive belt received in the photosensitive belt receiving case according to the present invention is loaded in a printing apparatus including a photosensitive belt loading device shown in FIG. 4. Referring to the drawing, the photosensitive belt loading device included in a main body 100 of a printing apparatus comprises a guide protrusion 120 which is formed in the main body 100 of the printing apparatus and inserts into the groove 220 formed on the inner wall 203 of the photosensitive belt receiving case 200 (see FIG. 2), and a solenoid cylinder 130 facing the guide protrusion 120. Here, during loading of the photosensitive belt 300, the solenoid cylinder 130 clamps the end of the photosensitive belt 300 which is exposed through the groove 200. Reference numeral 140 denotes a sensor for detecting entry of the photosensitive belt 300.

When a new photosensitive belt is loaded in the main body 100 of the printing apparatus, the photosensitive belt receiving case 200 having the photosensitive belt 300 is inserted into the main body 100 of the

printing apparatus through an opening 110, as shown in FIG. 4. Here, the guide protrusion 120 is inserted into the groove 220 (see FIG. 3) formed on the inner wall 203 of the case 200, to thus set the case 200. Also, the end of the photosensitive belt 300 exposed through the groove 220 is placed on the upper surface of the guide protrusion 120. The position of the photosensitive belt 300 in this state is detected by the sensor 140.

In such a state, the solenoid cylinder 130 is lowered to press the upper surface of the end of the photosensitive belt 300 exposed through the groove 220 against the guide protrusion 120. Here, when the case 200 is pulled out of the main body 100 of the printing apparatus through the opening 110, the photosensitive belt 300 is clamped by the guide protrusion 120 and the solenoid cylinder 130 and then slides out of the case 200. Then, the solenoid cylinder 130 returns to its original position, thereby completing the loading of the photosensitive belt 300.

As described above, the photosensitive belt receiving case according to the present invention receives a flexible photosensitive belt in a fixed shape. Thus, during replacement and loading of the photosensitive belt, only the case is inserted into the main body of the printing apparatus, so that the photosensitive belt can be simply loaded.



What is claimed is:

1. A photosensitive belt receiving case comprising:
a sidewall having a predetermined shape;
an outer wall which extends from the edge of said sidewall, and on which a plurality of grooves are formed at opposing sides of a portion combined with said sidewall; and
an inner wall extending from said sidewall parallel to said outer wall inside said outer wall, and having a plurality of grooves which face said grooves of said outer wall,
wherein a photosensitive belt is received between said outer and inner walls and the edge of said photosensitive belt is partially exposed through said grooves.
2. A photosensitive belt receiving case as claimed in claim 1, wherein a knob hole for grabbing said photosensitive belt receiving case is formed on said sidewall.
3. A photosensitive belt receiving case as claimed in claim 1, further comprising a coverlid combined to cover said outer wall.