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(71) Applicant: **Seiko Epson Corporation**
Shinjuku-ku
Tokyo (JP)

(72) Inventor: **MOMOSE, Seigo**
Suwa-shi, Nagano 392-8502 (JP)

(74) Representative: **Miller Sturt Kenyon**
9 John Street
London WC1N 2ES (GB)

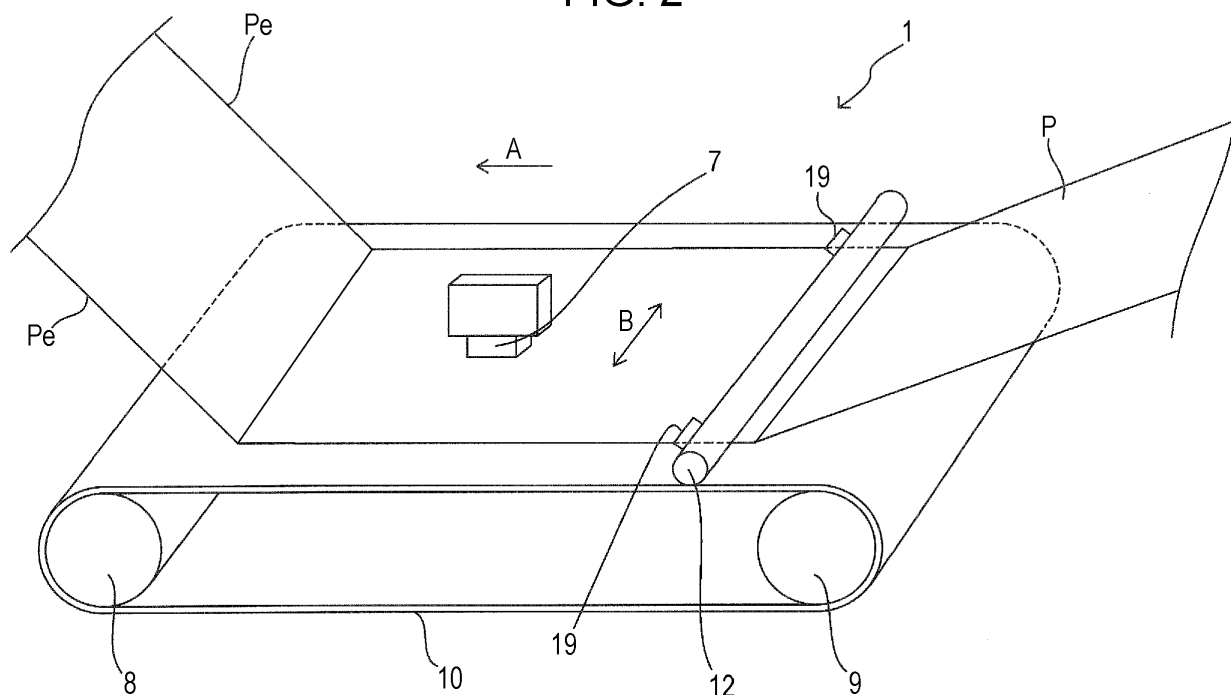
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(54) **RECORDING DEVICE**

(57) A recording device includes an adhesive belt which is able to support and transport a recording medium, a roller which presses the recording medium to the

adhesive belt, and a removing section for removing extraneous matter adhering to the roller.

FIG. 2



Description

BACKGROUND

1. Technical Field

[0001] The present invention relates to a recording device.

2. Related Art

[0002] A recording device including a transport mechanism which transports a recording medium by mounting the recording medium on an adhesive belt has been used. Among such recording devices, there is disclosed a recording device which is provided with a roller for pressing the recording medium to the adhesive belt.

[0003] For example, JP-A-2014-168880 discloses a recording device including a pressure roller which is able to press a recording medium to an adhesive belt.

[0004] There are various types of recording medium and when a recording medium has a fibrous material, end sections thereof have fluff in some cases. In a case where recording is performed on a recording medium where the end sections have fluff, ink discharge failures may occur as a result of fluff interfering with a recording head and image quality may be reduced by fluff which adheres to an image forming portion of the recording medium and by ink which is discharged from the recording head and adheres to fluff.

[0005] Therefore, the recording device described in JP-A-2014-168880 has a configuration in which the effects of fluff are suppressed at an end section of a recording medium.

[0006] Meanwhile, in a recording device provided with a roller for pressing a recording medium to an adhesive belt, an adhesive from the adhesive belt may adhere to the fluff or the like. Furthermore, the fluff or the like may adhere to the roller from the recording medium. Thus, there occurs a further problem in which extraneous matter adhering to the roller may also adhere to the recording medium.

[0007] When such extraneous matter adhering to the roller adheres to the recording medium in this manner, there is a possibility that the extraneous matter interferes with the recording head, which may cause ink ejection failure or other failures.

SUMMARY

[0008] An advantage of some aspects of the invention is to suppress a problem that may occur as a result of extraneous matter adhering to a roller for pressing a recording medium against an adhesive belt and further adhering to the recording medium.

[0009] A recording device of an aspect of the invention includes an adhesive belt which supports and transports a recording medium, a roller which presses the recording

medium to the adhesive belt, and a removing section which removes extraneous matter adhering to the roller.

[0010] According to the aspect, the removing section may be arranged at a position at which extraneous matter adhering to the roller at a position in contact with an end section of the recording medium in the width direction is removable.

[0011] According to the aspect, the removing section may be movable in the width direction of the recording medium.

[0012] According to the aspect, the removing section may be movable during transportation of the recording medium.

[0013] According to the aspect, a plurality of removing sections may be included.

[0014] According to the aspect, the removing section may be a blade which removes extraneous matter by being in contact with the roller.

[0015] According to the aspect, the removing section may remove extraneous matter by causing a contact portion having adhesion to be in contact with the roller.

[0016] According to the aspect, the removing section may be a roll wound so that an adhesive surface is positioned on the outer side.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] Embodiments of the invention will now be described by way of example only with reference to the accompanying drawings, wherein like numbers reference like elements.

Fig. 1 is a schematic side view illustrating a recording device of Example 1 of the invention.

Fig. 2 is a schematic perspective view illustrating the recording device of Example 1 of the invention.

Fig. 3 is a schematic plan view illustrating the recording device of Example 1 of the invention.

Fig. 4 is a schematic plan view illustrating a recording device of Example 2 of the invention.

Fig. 5 is a schematic plan view illustrating a recording device of Example 3 of the invention.

Fig. 6 is a schematic plan view illustrating a recording device of Example 4 of the invention.

Fig. 7A is a schematic view illustrating a removing section of the recording device of Example 4 of the invention.

Fig. 7B is a schematic view of the removing section illustrating the recording device of Example 4 of the invention.

DESCRIPTION OF EXEMPLARY EMBODIMENTS

EXAMPLE 1 (Fig. 1 to Fig. 3)

[0018] Below, a recording device according to examples of the invention will be described in detail with reference to the accompanying drawings.

[0019] First, an overview of a recording device 1 according to Example 1 of the invention will be provided.

[0020] Fig. 1 is a schematic side view of the recording device 1 according to Example 1.

[0021] The recording device 1 of the example includes a feeding section 2, a transport mechanism 3, a recording mechanism 4, a cleaning mechanism 15, and a winding mechanism 18. The feeding section 2 is able to feed out a roll R1 of a recording medium P for recording. The transport mechanism 3 transports the recording medium P in a transport direction A using an adhesive belt 10 which supports the recording medium P on a support surface F to which an adhesive is adhered. The recording mechanism 4 performs recording by causing a recording head 7 to reciprocate and scan in an intersecting direction B which intersects the transport direction A of the recording medium P. The cleaning mechanism 15 is provided for cleaning the adhesive belt 10. The winding mechanism 18 has a winding shaft 17 which winds the recording medium P and a cutter 16 which cuts the recording medium P which is wound.

[0022] The feeding section 2 includes a rotating shaft 5 also functioning as setting positions of the roll R1 of the recording medium P in order to perform recording, and it is possible to feed out the recording medium P from the roll R1 set on the rotating shaft 5 to the transport mechanism 3 via a driven roller 6. Here, when the recording medium P is fed out to the transport mechanism 3, the rotating shaft 5 rotates in a rotation direction C.

[0023] The transport mechanism 3 includes the adhesive belt 10 where the recording medium P fed out from the feeding section 2 is mounted and transported, a transport roller 8 which moves the adhesive belt 10, and a driven roller 9. The recording medium P is mounted by being pressed (pressurized) and in firm contact with the support surface F of the adhesive belt 10 using a pressure roller 12. Here, when the recording medium P is transported, the transport roller 8 rotates in the rotation direction C.

[0024] In addition, a blade 19 as a removing section which is able to remove extraneous matter adhering to the pressure roller 12 is provided. Details of the blade 19 will be described later.

[0025] The recording mechanism 4 has a carriage motor (not illustrated) which causes a carriage to which the recording head 7 is mounted to reciprocate in the intersecting direction B. Here, the intersecting direction B is a direction which is orthogonal with regard to the paper surface in Fig. 1.

[0026] During recording, the recording head 7 performs recording by reciprocating scanning. However, the transport mechanism 3 stops transporting of the recording medium P during the recording and scanning (during movement of the recording head 7). In other words, reciprocating scanning of the recording head 7 and transporting of the recording medium P are alternately performed during recording. That is, the transport mechanism 3 intermittently transports the recording medium P

to correspond to reciprocating scanning of the recording head 7 during recording.

[0027] The recording device 1 of the example includes the recording mechanism 4 which causes the recording head 7 to perform recording by reciprocating scanning. However, the recording device 1 is not limited to a recording mechanism with such a configuration. The recording device 1 may include a recording mechanism which has a so-called line head provided with a nozzle row that discharges ink in a direction which intersects the transport direction A.

[0028] The cleaning mechanism 15 for the adhesive belt 10 has a cleaning unit 13 which is configured by joining a plurality of cleaning rollers in a direction of the axis of rotation and a tray 14 containing a cleaning agent for cleaning the cleaning unit 13.

[0029] The winding mechanism 18 is a mechanism for winding the recording medium P on which recording is performed and which is transported from the transport mechanism 3 via the driven roller 11, and it is possible to wind the recording medium P as a roll R2 by setting a paper tube or the like for winding on the winding shaft 17 and wrapping the recording medium P around the paper tube or the like.

[0030] Next, described are removing sections, which are able to remove extraneous matter adhering to the pressure roller 12.

[0031] Fig. 2 is a schematic perspective view of the recording device 1 of the example, and Fig. 3 is a schematic plan view of the recording device 1 of the example.

[0032] As illustrated in Fig. 2 and Fig. 3, the recording device 1 of the example includes the adhesive belt 10 which supports and transports the recording medium P, a roller (the pressure roller 12) for pressing the recording medium P to the adhesive belt 10, and the blades 19 as the removing sections to remove extraneous matter adhering to the pressure roller 12. Therefore, the recording device 1 has a configuration with which a problem occurring as a result of extraneous matter adhering to the pressure roller 12 and then adhering to the recording medium P may be suppressed.

[0033] Here, an "adhesive belt" is a belt having the support surface F, for supporting the recording medium P, onto which an adhesive is applied to hold the recording medium P by firm contact with the recording medium P and to be able to peel off the recording medium P.

[0034] As in the recording device 1 of the example, in the case where the removing sections for removing extraneous matter adhering to the pressure roller 12 are the blades 19 for removing extraneous matter by being in contact with the pressure roller 12, extraneous matter may be scraped off and removed from the pressure roller 12. By adopting a configuration of scraping extraneous matter off the pressure roller 12, it is possible to suppress re-adhering of extraneous matter from the blades 19 to the pressure roller 12.

[0035] Furthermore, as illustrated in Fig. 2 and Fig. 3, in plan view, the blades 19 are arranged at positions in-

cluding the end sections Pe in the width direction of the recording medium P (the positions corresponding to the end sections Pe in the width direction of the recording medium P). That is, the blades 19 are arranged at positions where extraneous matter adhering to the pressure roller 12 at positions in contact with the end sections Pe of the recording medium in the width direction is removable.

[0036] Here, the "width direction of the recording medium P" is a direction along the support surface F and refers to an intersecting direction B intersecting the transport direction A of the recording medium P.

[0037] The blades 19 of the example are arranged at positions where extraneous matter adhering to the pressure roller 12 at positions in contact with the end sections Pe of the recording medium P in the width direction is removable. Therefore, even if fluff of the end sections Pe in the width direction of the recording medium P adheres to the pressure roller 12 as extraneous matter, it is possible to effectively remove the fluff.

[0038] Furthermore, as illustrated in Fig. 2 and Fig. 3, the recording device 1 of the example includes a plurality of blades 19. Therefore, it is possible to effectively remove extraneous matter adhering to the pressure roller 12. Specifically, by arranging the blades 19 at positions of the pressure roller 12 corresponding to both the end sections Pe of the recording medium P in the width direction, it is possible to effectively remove fluff adhered to the pressure roller 12 from both the end sections Pe in the width direction of the recording medium P.

[0039] The recording device 1 of the example is configured on the premise that once extraneous matter is adhered to the blades 19, the blades 19 are manually cleaned by a user. However, for example, the recording device 1 may be configured with a cleaning mechanism for the blades 19 that periodically cleans the blades 19 automatically.

EXAMPLE 2 (Fig. 4)

[0040] Next, a recording device according to Example 2 of the invention will be described.

[0041] Fig. 4 is a schematic plan view of the recording device 1 according to Example 2 of the invention and is a diagram corresponding to Fig. 3 illustrating the recording device 1 of Example 1. Here, the constituent members which are common to Example 1 described above are illustrated with the same reference numerals. Thus, detailed description of these constituent members will be omitted.

[0042] Only the configuration of the removing sections in the recording device 1 of the example is different from that of the recording device 1 of Example 1.

[0043] The removing sections of the recording device 1 of Example 1 are the blades 19 which are provided in fixed states at positions corresponding to the end sections Pe in the width direction of the recording medium P assumed to be used.

[0044] Meanwhile, the recording device 1 of Example 2 includes a rail 20 which extends in the intersecting direction B. The recording device 1 of the example has a configuration in which the two blades 19 as the removing sections are manually movable by the user along the rail 20 in the intersecting direction B.

[0045] The recording device 1 of the example has a configuration in which a recording medium of a plurality of widths may be used. As described above, the blades 19 of the example are movable in the width direction of the recording medium P. Thus, the blades 19 may be arranged by being moved to positions at which fluff at the end sections Pe in the width direction of the recording medium P is effectively removed in accordance with the width of the recording medium P to be used.

EXAMPLE 3 (Fig. 5)

[0046] Next, a recording device according to Example 3 of the invention will be described.

[0047] Fig. 5 is a schematic plan view of the recording device 1 according to Example 3 of the invention and is a diagram corresponding to Fig. 3 illustrating the recording device 1 of Example 1. Here, the constituent members which are common to Examples 1 and 2 described above are illustrated with the same reference numerals. Thus, detailed description of these constituent members will be omitted.

[0048] Only the configuration of the removing sections in the recording device 1 of the example is different from those of the recording device 1 of Examples 1 and 2.

[0049] The removing sections of the recording device 1 of Example 2 are the blades 19 which are manually movable by the user along the rail 20 which extends in the intersecting direction B.

[0050] Meanwhile, a removing section of the recording device 1 of Example 3 is a blade 19 which moves in the intersecting direction B during transportation of the recording medium P by control of a control section which is not illustrated, along the rail 20 which extends in the intersecting direction B.

[0051] In this way, the blade 19 is movable during transportation of the recording medium P. Therefore, for example, by continuously moving the blade 19 over the entire pressure roller 12 during transportation of the recording medium P in the width direction (the intersecting direction B) of the recording medium P, it is possible to continuously remove extraneous matter on the entire pressure roller 12. That is, it is possible to particularly and effectively suppress the adhesion of extraneous matter to the recording medium P.

[0052] Note that the blade 19 of the example is arranged to be in contact with the pressure roller 12 in a direction along the intersecting direction B. This is due to the rotational speed of the pressure roller 12 being fast with respect to the moving speed of the blade 19 in the intersecting direction B. However, for example, in the case where the rotational speed of the pressure roller 12

is slow with respect to the moving speed of the blade 19 in the intersecting direction B, the blade 19 is arranged to be in contact with the pressure roller 12 in a direction intersecting the intersecting direction B. That is, the direction in which the blade 19 is in contact with the pressure roller 12 is not particularly limited.

EXAMPLE 4 (Fig. 6, Fig. 7A, Fig. 7B)

[0053] Next, a recording device according to Example 4 of the invention will be described.

[0054] Fig. 6 is a schematic plan view of a recording device 1 according to Example 4 of the invention and is a diagram corresponding to Fig. 3 illustrating the recording device 1 of Example 1. Furthermore, Fig. 7A and Fig. 7B are schematic views illustrating a removing section of the recording device 1 of Example 4. Fig. 7A is an external view of an adhesive roller 21 as the removing section of the example. Fig. 7B is an enlarged view of an adhesive layer portion D, which is a principal part of the adhesive roller 21. Here, the constituent members which are common to Examples 1 to 3 described above are illustrated with the same reference numerals. Thus, detailed description of these constituent members will be omitted.

[0055] Only the configuration of the removing sections in the recording device 1 of the example is different from those of the recording device 1 of Examples 1 to 3.

[0056] The removing sections of the recording device 1 of Examples 1 to 3 are configured with the blades 19 for removing extraneous matter by being in contact with the pressure roller 12.

[0057] Meanwhile, the removing sections of Example 4 are configured to remove extraneous matter by using adhesive rollers 21 being in contact with the pressure roller 12.

[0058] As illustrated in Fig. 6, the adhesive rollers 21 which are removing sections of the example are configured to remove extraneous matter adhering to the pressure roller 12 by causing a contact portion 22 (an adhesive surface 24) having adhesion to be in contact with the pressure roller 12. With such a configuration, extraneous matter is removed from the pressure roller 12 by being attached to the adhesive rollers 21.

[0059] Specifically, the adhesive roller 21 of the example is formed of a roll of adhesive tape (an adhesive layer) having an adhesive surface 24 and a backing 25 as illustrated in Fig. 7B and wound around the winding shaft 23 so that the adhesive surface 24 which is the contact portion 22 in contact with the pressure roller 12 is on an outer side, as illustrated in Fig. 7A. Thus, the contact portion 22 against the pressure roller 12 is a roll in which the adhesive surface 24 is wound so as to be positioned on the outer side. Therefore, extraneous matter is able to be removed from the pressure roller 12 by being attached to the adhesive surface 24, and in addition, in the case where the adhesive strength is reduced by a large quantity of extraneous matter being attached to the ad-

hesive surface 24, for example, a new adhesive surface 24 may easily be made to appear by flipping one rotation of the adhesive layer off the adhesive roller 21, thus causing the capability of removing extraneous matter to recover easily.

[0060] For clarity of the configuration of the adhesive tape, in Fig. 7B, the adhesive layer is illustrated such that there are spaces between portions of the adhesive tape. However, the spaces are not necessarily provided and the layer may be provided without any space. Furthermore, the spaces may be provided with a protective layer for the adhesive surface 24 as necessary.

[0061] It should be noted that the invention is not limited to the above examples, but may be variously modified within the scope of the invention as defined in the embodiments. It goes without saying that such modifications are also included within the scope of the invention.

[0062] The foregoing has been described in detail with reference to specific examples of the invention. Here, the invention will be summarized.

[0063] The recording device 1 of the first aspect of the invention includes an adhesive belt 10 which supports and transports a recording medium P, a roller 12 for pressing the recording medium P to the adhesive belt 10, and a removing section 19 (21) which removes extraneous matter adhering to the roller 12.

[0064] Here, the term "adhesive belt" refers to a belt having a support surface F, for supporting the recording medium P, onto which an adhesive is applied to hold the recording medium P by firm contact with the recording medium P and to be able to peel off the recording medium P.

[0065] According to the aspect, the recording device 1 includes the removing section 19 (21) which removes extraneous matter adhering to the roller 12 which presses the recording medium P to the adhesive belt 10. Therefore, it is possible to suppress a problem that may occur as a result of extraneous matter adhering to a roller 12 and further adhering to the recording medium P.

[0066] The recording device 1 of a second aspect of the invention is the recording device 1 of the first aspect, where removing sections 19 (21) are arranged at positions where extraneous matter adhering to the roller 12 at the positions in contact with end sections Pe of the recording medium P in the width direction is removable.

[0067] Here, "the width direction of the recording medium P" refers to a direction along the support surface F of the recording medium P at a position of the roller 12, which is an intersecting direction B which intersects a transport direction A of the recording medium P.

[0068] According to the aspect, the removing sections 19 (21) are arranged at positions where extraneous matter adhering to the roller 12 at the positions in contact with the end sections Pe of the recording medium P in the width direction is removable. Therefore, even if fluff of the end sections Pe in the width direction of the recording medium P adheres to the pressure roller 12 as extraneous matter, it is possible to effectively remove the

fluff.

[0069] The recording device 1 of the third aspect of the invention is the recording device of the first aspect, where the removing section 19 (21) is movable in the width direction of the recording medium P.

[0070] According to the aspect, the removing section 19 (21) is movable in the width direction of the recording medium P. Therefore, even if the recording device 1 has a configuration of using a recording medium P of a plurality of widths, the removing section 19 (21) is movable to a position at which fluff of the end sections Pe in the width direction of the recording medium P may effectively be removed in accordance with the width of the recording medium P to be used.

[0071] The recording device 1 of the fourth aspect of the invention is the recording device of the third aspect, where the recording section 19 (21) is movable during transportation of the recording medium P.

[0072] According to the aspect, the removing section 19 (21) is movable during transportation of the recording medium P. Therefore, for example, by continuously moving the removing unit 19 (21) over the entire roller in the width direction of the recording medium P during transportation of the recording medium P, it is possible to continuously remove extraneous matter from the entire roller 12. That is, it is possible to suppress the extraneous matter adhering to the recording medium P particularly effectively.

[0073] The recording device 1 of the fifth aspect of the invention is the recording device of any one of the first to the fourth aspects, where a plurality of removing sections 19 (21) are included.

[0074] According to the aspect, the plurality of removing sections 19 (21) are included. Therefore, it is possible to effectively remove extraneous matter adhering to the roller 12. For example, by arranging the removing sections 19 (21) at positions of the roller 12 corresponding to both of the end sections Pe of the recording medium P in the width direction, it is possible to effectively remove fluff adhering to the roller 12.

[0075] The recording device 1 of the sixth aspect of the invention is the recording device of any one of the first to the fifth aspects, where the removing sections are blades 19 which remove the extraneous matter by being in contact with the roller 12.

[0076] According to the aspect, the removing sections are the blades 19 which remove the extraneous matter by being in contact with the roller 12. Therefore, it is possible to remove the extraneous matter by scraping the extraneous matter off the roller 12.

[0077] The recording device 1 of the seventh aspect of the invention is the recording device of any one of the first to the fifth aspects, where the removing sections 21 remove the extraneous matter by causing the contact portion 22 having adhesion to be in contact with the roller 12.

[0078] According to the aspect, the removing sections 21 remove the extraneous matter by causing the contact

portion 22 having adhesion to be in contact with the roller 12. Therefore, it is possible to remove the extraneous matter from the roller 12 by attaching the extraneous matter to the contact portion 22.

[0079] The recording device 1 of the eighth aspect of the invention is the recording device of the seventh aspect, where the removing section 21 is a roll wound so that an adhesive surface 24 is positioned on the outer side.

[0080] According to the aspect, the removing section 21 is a roll wound so that the adhesive surface 24 is positioned on the outer side. Therefore, in the case where the adhesive strength is reduced by extraneous matter adhering to the adhesive surface 24, a new adhesive surface 24 may easily be made to appear. Thus, the capability of removing extraneous matter may easily be recovered.

Claims

1. A recording device (1) comprising:

an adhesive belt (10) for supporting and transporting a recording medium (P);
a roller (12) for pressing the recording medium to the adhesive belt; and
a removing section (19, 21) for removing extraneous matter adhering to the roller.

2. The recording device according to Claim 1, wherein the removing section (19, 21) is arranged at a position at which extraneous matter adhering to the roller at a position in contact with an end section (Pe) of the recording medium in the width direction is removable.

3. The recording device according to Claim 1, wherein the removing section (19, 21) is movable in the width direction of the recording medium.

4. The recording device according to Claim 3, wherein the removing section (19, 21) is movable during transportation of the recording medium.

5. The recording device according to any one of the preceding claims, wherein a plurality of removing sections are included.

6. The recording device according to any one of the preceding claims, wherein the removing section is a blade (19) for removing the extraneous matter by being in contact with the roller.

7. The recording device according to any one of claims 1 to 5, wherein the removing section (21) is arranged to remove the extraneous matter by causing a contact portion (22)

thereof having adhesion to be in contact with the roller.

8. The recording device according to Claim 7, wherein the removing section is a roll wound so that an adhesive surface (24) is positioned on the outer side. 5

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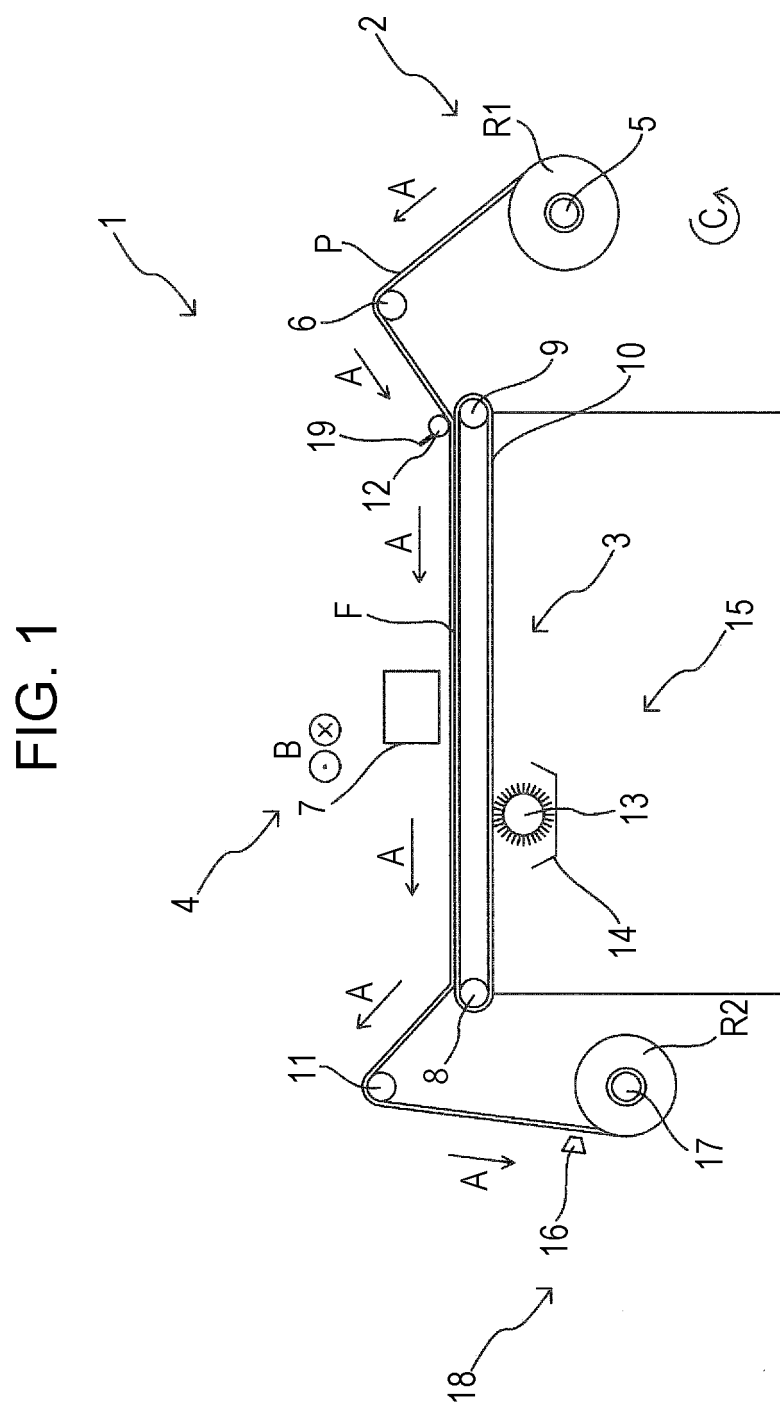


FIG. 2

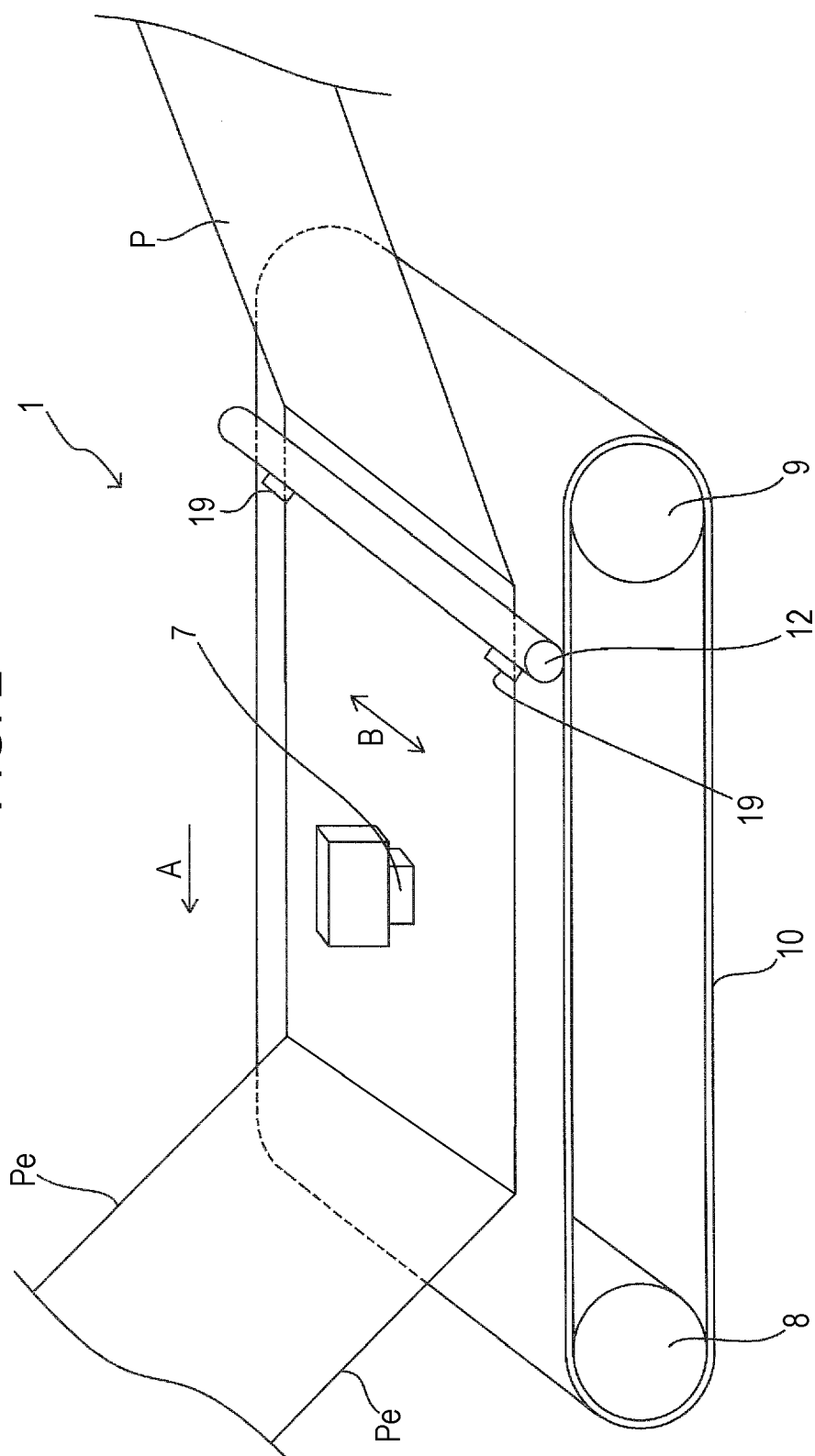


FIG. 3

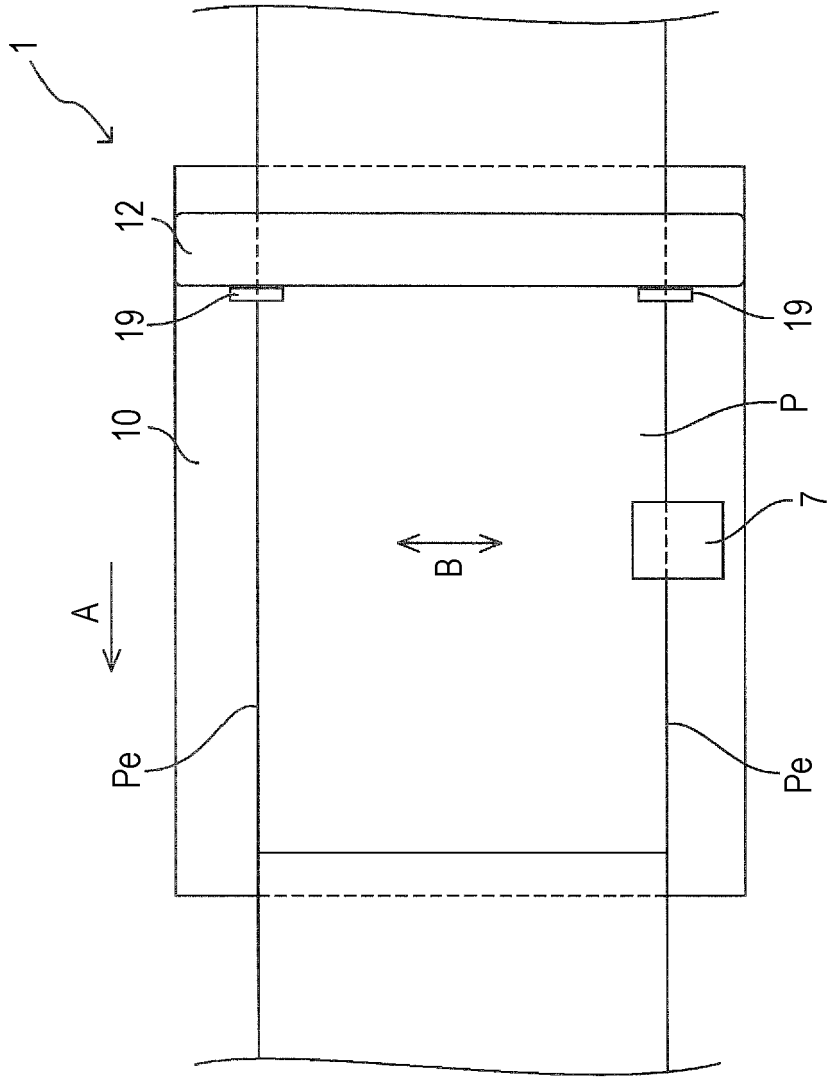


FIG. 4

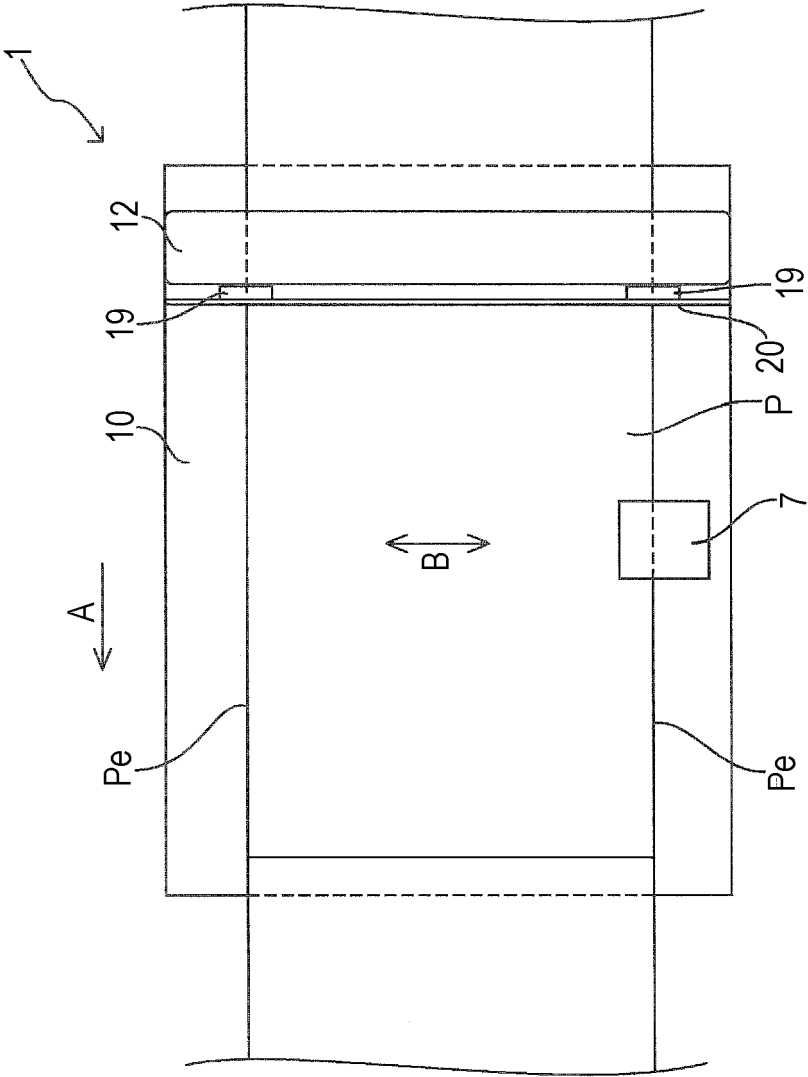


FIG. 5

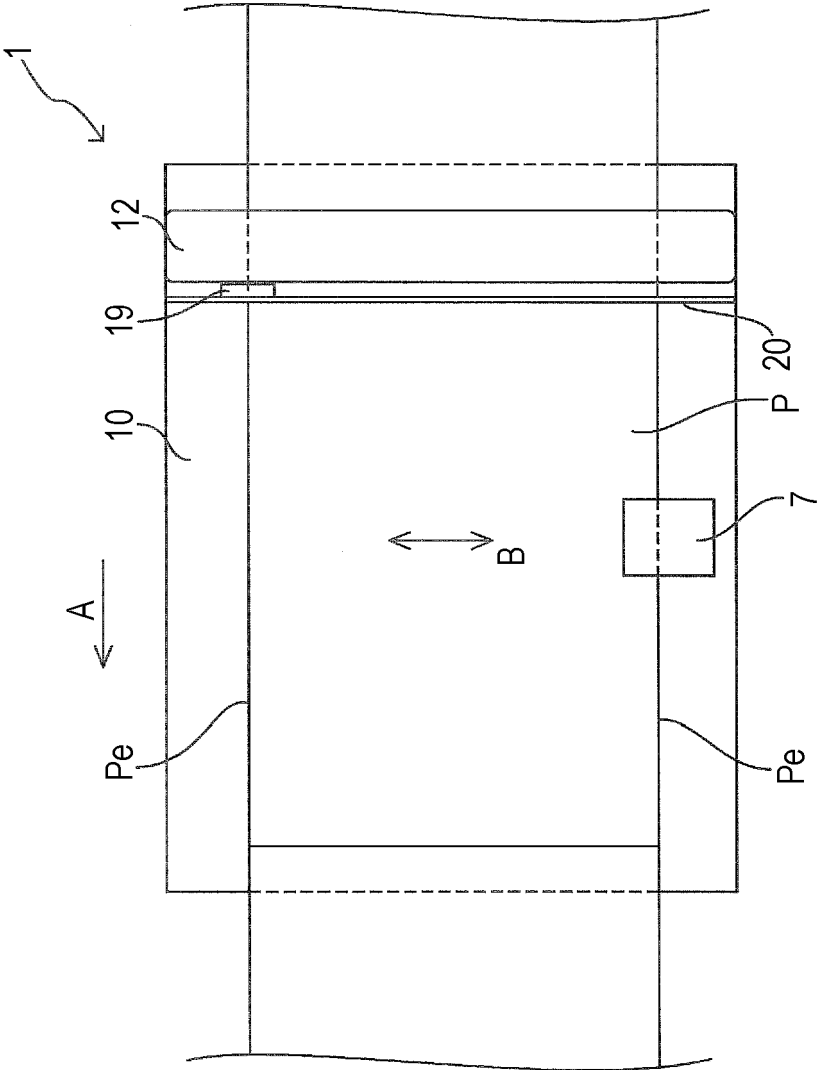


FIG. 6

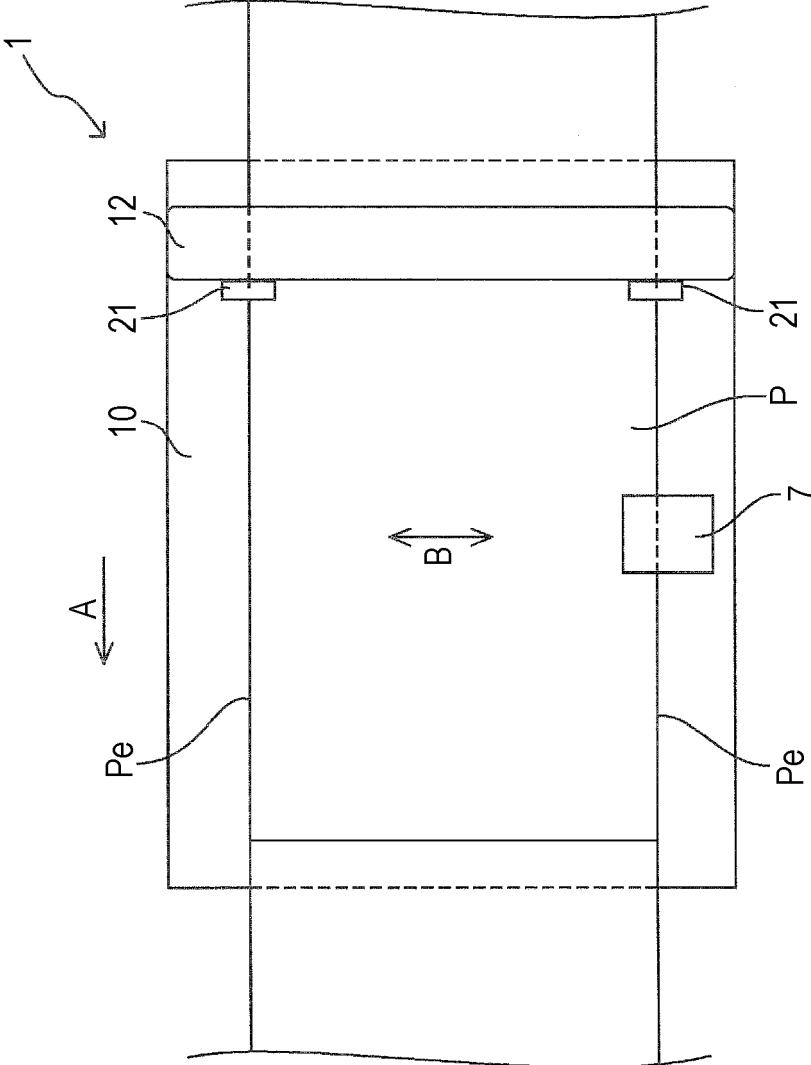


FIG. 7A

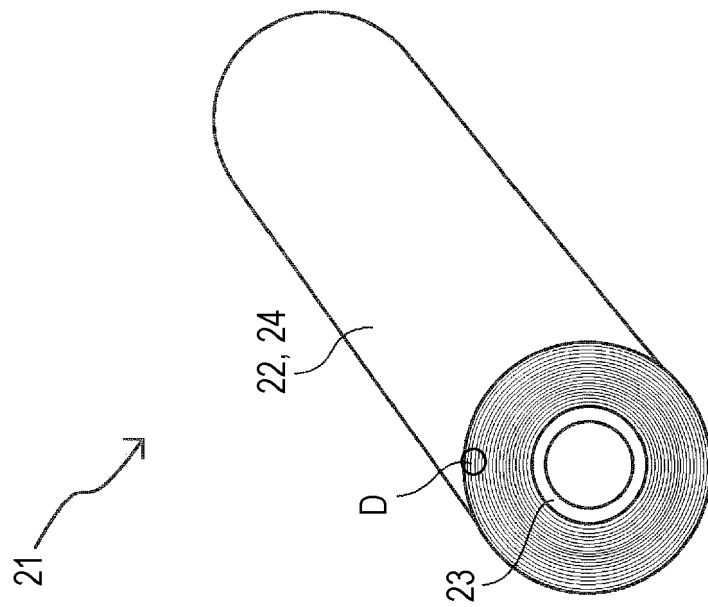
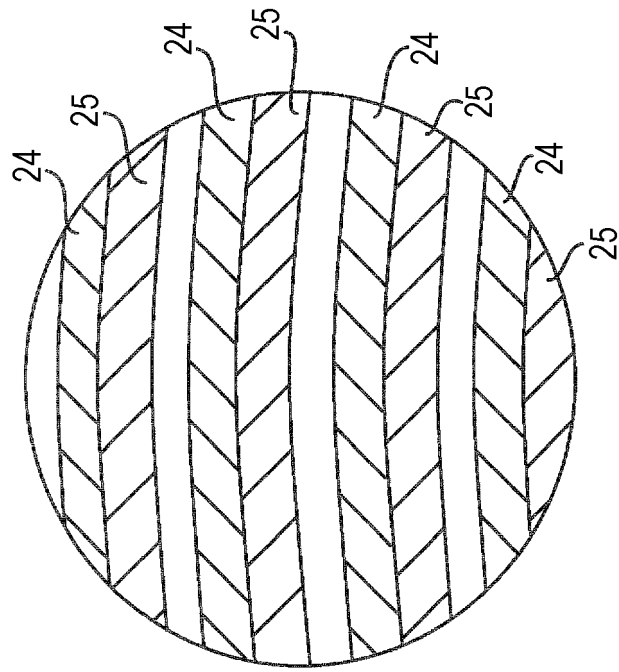


FIG. 7B





EUROPEAN SEARCH REPORT

 Application Number
EP 16 15 0347

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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 24 May 2016	Examiner Bacon, Alan
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EPO FORM 1503 03/82 (P04C01)

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EP 16 15 0347

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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