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(54) **SYSTEM AND METHOD FOR CUTTING AND SPOOLING A WEB OF PAPER.**

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Description

This invention relates to an apparatus and method for cutting a travelling web of paper being wound on one spool and transferring the web to an empty spool while the web continues to travel.

It is a general practice in the paper industry to produce a continuous sheet or web of paper which is wound onto large spools. In order to have a continuous operation it is, of course, necessary to have a system for instantaneously switching from winding the web of paper onto a full roll to an empty roll, particularly at modern speeds of paper production. In US-A-2,461,246 there is shown a method of feeding a tape onto the rotating empty roll core and causing it to be spirally wrapped on that core as it stretches tight across the travelling web of paper and cuts the paper, with the cut edge being led onto the empty roll supported by the cutting tape. Subsequent improvements have dealt with methods of stringing the tape for cutting and feeding, and the use of various types of tapes, as shown for example in US-A-4,414,258 where there is described a tape made of repulpable paper woven into a tape which did not interfere with the paper making process since the paper wound adjacent the roll is waste and is recycled. The most recent improvement is disclosed in my US-A-4,659,029 which describes the use of a repulpable paper fiber tape in an elongated guideway to direct the tape under a travelling web of paper and direct the tape into the nip of an empty spool so as to cut the web of paper and start it rolling onto the empty spool.

More particularly, US-A-4659029 describes an apparatus for cutting with a tape a travelling web of paper being wound on a first spool and transferring that travelling web onto an empty spool by attaching said tape to said empty spool, comprising:

means for supplying a cutting tape;

an elongated guideway for said cutting tape extending beneath and across the path of travel of said web, said elongated guideway having an elongated open slot facing towards said path of travel of said web and having opposite open ends adjacent the side edges of said travelling web, said guideway being adapted to receive said tape delivered slidingly into one said open end and to deliver said tape from said other open end beyond the edge of the travelling web; and

adhesive applying means located adjacent said one open end of said guideway for applying an adhesive without any covering thereon to a surface of said cutting tape before said cutting tape enters said one open end of said guideway.

US-A-4659029 further describes a method of cutting a travelling web of paper being wound on a spool and transferring the web after cutting to an

empty spool, the method including feeding a cutting tape into an elongated guideway positioned beneath and extending laterally across the web of paper, applying adhesive without any covering thereon to a portion of the cutting tape at its forward end prior to feeding the cutting tape into the guideway, recovering the tape from the far end of the guideway and introducing it into the nip between the empty spool and the roller driving that spool with the adhesive portion contacting the empty spool, to cause the tape automatically to spirally wrap around the empty spool while cutting the web of paper.

The present invention aims to provide further improvements in cutting apparatus and cutting methods of the kind taught in US-A-4659029.

More particularly, the apparatus of the present invention is characterized in that the adhesive applying means are arranged to apply adhesive to a surface of the cutting tape which faces away from the slot of the guideway, and in that the guideway provides a supporting surface on which cutting tape can slide through the guideway, the supporting surface being disposed to be out of contact with the surface of the cutting tape to which adhesive is applied by the adhesive applying means whereby the cutting tape can slide through the guideway without adhesive adhering thereto.

The method of cutting a travelling web of paper in accordance with the present invention is characterized in that the cutting tape is slid through the guideway on a support surface with its adhesive portion facing and out of contact with the support surface.

In preferred embodiments of the apparatus of the present invention, a clamping means releasably grips the cutting tape after the forward end exits the far end of the guideway and selective means releases the clamping means to permit the end of the cutting tape to be caught by the nip and spiral the cutting tape about the empty roll thereby cutting and transferring the paper web.

Preferred embodiments of the present invention will now be described in detail with reference to the accompanying drawings, in which:

FIG. 1 is a perspective view of the system of rollers employed in the paper industry to wind the paper web onto rolls, and showing a first embodiment of the present apparatus used to transfer the leading edge of the web to an empty spool;

FIG. 2 is a schematic illustration of a first embodiment for applying adhesive to the cutting tape;

FIG. 3 is a schematic illustration of a second embodiment for applying adhesive to the cutting tape;

FIG. 4 is a cross sectional view taken at 4-4 of FIG. 1;

FIG. 5 is a top plan view of the cutting tape;

FIG. 6 is a schematic illustration of a third embodiment for applying adhesive to the cutting tape;

FIG. 7 is a top plan view of double-sided adhesive tape used in an embodiment of this invention;

FIG. 8 is a side elevational view of the tape of FIG. 7;

FIG. 9 is a schematic illustration of a fourth embodiment for applying adhesive to the cutting tape;

FIG. 10 is a cross section taken at 10--10 of FIG. 9; and

FIG. 11 is a partial perspective view showing another clamping means to feed the cutting tape into the nip.

The general features of the illustrated embodiments of this invention are best seen and understood by reference to FIG. 1 which shows the general type of equipment employed in a paper manufacturing plant to wind-up the manufactured paper on rolls for storage and use elsewhere. A continuous web of paper 20 travels at a relatively rapid rate of speed to a combination of spools upon which the paper is rolled. Paper web 20 advances toward tension roll 21 mounted in journals on supports 22, leading web 20 over driving roll 23 and winding about spool 24 turning in the direction of arrow 25. Driving roll 23 turns in the direction of arrow 26 and is pressed against the paper roll on spool 24 causing it to rotate in the indicated direction. When spool 24 has been filled to the desired capacity with paper from web 20, it is necessary to cut web 20 laterally, transfer the leading cut edge to an empty spool 27, and start the web winding on that spool in the direction of arrow 28 to eventually produce another filled spool, such as spool 24. Empty spool 27 is positioned vertically above the location shown in FIG. 1 until it is ready to accept paper from web 20 and begin winding it up. Spool 27, which may or may not be separately rotated as known in the art, is lowered until it contacts driving roll 23 and rotates with it, as shown in FIG. 1. The cut edge of web 20 is then pushed into the nip 29 between empty spool 27 and driving roll 23, causing it to be wound onto spool 27 and to cause a transfer of the paper web thereto.

The illustrated apparatus of this invention generally includes a means for supplying a cutting tape 30 to the far edge of empty spool 27 and for causing that tape to wrap around spool 27 in a spiral fashion so as to cut web 20 and cause the cut edge to be introduced onto spool 27 and be wrapped about spool 27. A supply of cutting tape

30 is preferably maintained on a removable drum 31 in a housing 32 which also serves to support a cutting means 33 which, at the appropriate time, cuts tape 30 from the large supply on drum 31. It will be appreciated that only a definite length of tape, longer than the width of web 20, is needed to cut across web 20 laterally and to cause the cut edge to begin wrapping itself upon empty spool 27, and thus at the appropriate place tape 30 is cut and further tape is not needed until spool 27 becomes filled with paper and must be replaced by another empty spool. Tape 30 passes through cutting means 33, adhesive application means 39 (shown outside of housing 32 for illustration purposes only and preferably located within the confines of housing 32, as would, be understood by persons having ordinary skill in the art) and into forward end 36' of a guideway 34 propelled by a driving means, e.g., hand crank 35 to cause the free end of tape 30 to move completely across the width of web 20 underneath that web in guideway 34 until it reaches the far end 36 where the free end 37 of tape 30 is made available to be inserted into nip 29 between spool 27 and driving roll 23. As seen in FIG. 5, an adhesive strip 38 is applied to forward end 37 of tape 30 so that when it is introduced into nip 29 it will adhere to the surface of empty spool 27. In a preferred embodiment a clamping means in the form of a mechanical arm 40 is mounted on a stand 41 and has a hand 42 which grips tape 30, and on command extends hand 42 toward nip 29 until tape 30 is caught in nip 29 and is adhered to the surface of empty spool 27. A frictional resistance is then applied to the tape 30 adjacent near end 44, e.g., the frictional resistance produced when tape 30 is dislodged from guideway 34, causing the tape 30 to spiral across the length of empty spool 27 and cut through web 20 as it does so and causes a transference of web 20 onto empty spool 27.

FIG. 2 is a schematic illustration of a first embodiment of the adhesive applicator 39 of FIG. 1. Cutting tape 30 is in a channel guide 43 anywhere between cutter 33 and preferably the near end 44 of the main elongated guideway 34. An opening 45 in channel guide 43 exposes the central portion of the lower surface of tape 30. Roller 46 is suitably rotatably mounted so that its outer surface is in opening 45 with its outer portions also immersed in a pool of liquid adhesive 47 in reservoir 48. Above tape 30 in vertical alignment with opening 45 is a pressure roller 49 mounted on arms 50 which are selectively movable from a retracted remote upward position 51 (shown in broken lines) to a downward pressure position as shown in solid lines in FIG. 2. The pressure position presses tape 30 downwardly to contact roller 46 causing adhesive 47 to be coated onto the

bottom surface of tape 30 for a selected length and width, preferably an adhesive strip, such as illustrated by 38 in FIG. 5. Strip 38 is spaced inwardly of the side edges of the tape 30 so that the adhesive will not contact the guideways through which it passes, as hereinafter more fully described. In FIG. 3 there is a second embodiment of the adhesive applicator. Tape 30 passes in a channel guide 52 having an opening 53 in the lower side to expose tape 30 to the action of spray nozzles 54 which spray adhesive 55 onto tape 30. In one version of this system, cutter 33 would be located immediately forward of opening 53 so that when the preceding length of tape 30 is cut, the adhesive 55 may be applied to form a strip of adhesive coating immediately behind the cut and thereby will form the forward end 37 (see FIG. 1) for the next length of tape 30 to be used in cutting the web 30 and starting it to roll onto empty spool 27. Another version would be to advance the tape 30 after cutting to a position where the adhesive 55 is applied prior to advancing the tape through main elongated guideway 34.

In FIG. 4 there is shown a preferred design of guideway 34 for use with adhesive applicators which apply the adhesive to the underneath surface of tape 30 as in FIGS. 2, 3 and 6. The purpose of applying the adhesive to the lower surface of tape 30 is that when using certain designs of mechanical arm 40 with a telescopically extensible hand 42 it is easier to present tape 30 to hand 42 with the adhesive side facing hand 42 so it can be fed into nip 29 with the adhesive side facing upward to contact empty spool 27. More importantly in paper making, the attendant side of the machine is the near side where housing 32 and spool 31 of tape 30 is located, with the far side having the belts and pulleys to drive the rolls, etc. Refilling the spool 31 with tape, adding adhesive to reservoir 48 and the like from the near side enhances the efficiencies of the disclosed apparatus and method and greatly increases the safety in use. Guideway 34 has an internal channel 56 with a rectangular cross section designed to permit tape 30 to slide lengthwise therein. An elongated slot 57 is parallel to channel 56 and communicates between channel 56 and the outside atmosphere. When tape 30 has been caught in nip 29 and starts to wind on empty spool 27 tape 30 will be pulled laterally out of channel 56 through slot 57, and thereby produces the frictional resistance necessary to cause tape 30 to wind spirally around spool 27 cutting web 20 and starting the cut edge to wrap onto spool 27. In this embodiment of the invention there is an undercut recess 58 which is as wide as the adhesive coating 38. In this way tape 30 can slide through guideway 34 in channel 56 with its adhesive-free edges 61 (see Fig.5) supported on surfaces 56a of the chan-

nel 56 ie without having the adhesive coating adhere to any guideway 34. An added feature is the provision of a resilient flap cover 59 held in place by spring clip 60. Flap cover 59 keeps dirt out of channel 56 and yet will flex upwardly and not inhibit the removal of tape 30 through slot 57 when that occurs during cutting of the paper web. Also, flap cover 59 provides protection from debris and moisture of the paper tape 30 during its travel through guideway 34.

FIG. 5 shows tape 30 with a coating 38 where adhesive has been applied at forward end 37. It may be seen that the lengthwise edges 61 are not covered with adhesive and thereby are available to support tape 30 as it slides in channel 56 as clearly shown in FIG. 4.

A third embodiment of a means for applying adhesive to tape 30 is shown in FIGS. 6-8. Tape 30 is supported in a channel 62 having an opening 63 to expose the underneath side of tape 30. Hold down roller 64 maintains a slight pressure downward on tape 30 above opening 63. Supply spindle 65 carries a roll of double-sided pressure-sensitive tape 66 which includes a continuous release binder 67 and a plurality of lengths of pressure sensitive adhesive preferably separated from each successive length 68 by a short space 69 where no adhesive is on release binder 67. Tape 66 is fed from spindle 65 over pressure roller 70 rotatably mounted on arms 71 which can move from the downward inoperative position 72 (in broken lines) to the upward operative position in solid lines. As tape 66 passes between roller 70 and tape 30, the adhesive section 68 is pressed onto tape 30 while release tape 67 is rolled onto spool 73. When a section 68 of adhesive is applied to tape 30, arms 71 move to the inoperative position 72 and spindle 65 is stopped until needed again. Spindle 65 is shown as driving spool 73 by belt 74. It is to be understood that the double sided adhesive may simply be perforated, rather than spaced, in which event the trailing adhesive length 68 will be parted from the adhesive length 68 applied to tape 30 due to advancement of tape 30 after roller 70 moves to its inoperative position 72.

In FIGS. 9-10 there is shown a fourth embodiment for applying adhesive to tape 30 employing a double-sided pressure sensitive tape 66 as shown in FIGS. 7 and 8. A pressure roller 75 is mounted to apply pressure to tape 30 while in channel guide 43 lying above a length of double-sided adhesive tape 66 also in channel guide 43. After release tape 67 is peeled away, tape 30 is left with a specific portion of its bottom side coated with adhesive as at 38 in FIG. 5 which is then available to be forwarded to the nip 29 of rolls 23 and 27 to cut web 20 and start spooling the web 20 on roll 27. In this embodiment double-sided adhesive tape 66 is

fed from spindle 65 into the undercut recess 58 at the bottom of channel guide 43 to a forward location 87, with release tape 67 between recess 58 and the upward facing strip of adhesive 68 see FIGS. 7-8). Tape 30 is then advanced in internal channel 56 over the top of tape 66 in recess 58 and stopped with its forward cut end at 87. Handle 80 is then pushed forward to position 81 where pressure roller 75 is pressing downward on tape 30 over the width of recess 58, and the handle 80 pushed forward to position 82. By reason of the pivoting about rollers 78 in rails 77 this movement causes roller 75 to press down tape 30 into recess 58 to contact adhesive portion 68 of double-sided tape 66 and cause adhesive tape 66 to stick to tape 30. Rolls 76 are sized to eventually touch the top of channel guide 43 and prevent roll 75 from applying more pressure on tape 30 than that necessary to pick up adhesive tape 66. Handle 80 is then pulled back to its original position and released in its upright position (solid lines) which allows tape 30 to return to its original undeformed flat condition not pressed into recess 58. In returning to its original position one of supports 79 pushes on head 83 causing contact pad 88 to touch contact plate 85 providing electric power to a means (not shown) to turn spool 73 in the direction or arrow 89. This causes release tape 67 to be stripped from the adhesive stuck to tape 30, and at the same time, to advance the next section 68 of two-sided adhesive tape 66 along recess 58 to forward position 87. The means of turning spindle 65 and spool 73 simultaneously is shown as a V-belt 86 operating in pulleys 90. Obviously other driving means such as gears, chain-and-sprocket, and the like can be employed for the same purpose. This finishes the cycle and prepares tape 30 for advancement to nip 29 to cut web 20 and start rolling it onto spool 27, while a new section of tape 30 is advanced to point 87 to have an adhesive spot applied to it.

Several embodiments have been shown for applying a strip of adhesive to cutting tape 30. It is to be understood that other means may be equally operative and are intended to be included in this invention. The means shown in FIGS. 2, 3, 6, 9 and 10 are preferred embodiments, but other means, mechanical, manual, or otherwise are operative. It is only necessary to this invention that the adhesive strip be applied before the tape reaches near end 44 of guideway 34. This is a safety measure to permit all operations to be controlled by an operator located adjacent near end 44 without ever needing to be present at the far end of guideway 34.

Another clamping means is shown in FIG. 11. An angle support structure 155 extends outwardly from far end 36 (having a different bend or configu-

ration from end 36 of FIG. 1) of guideway 34. A motor 156 and gear box 157 provide the power to rotate knurled cylinder 158 mounted on a shaft 159. Tape 30 moves forward between cylinder 158 and table 160 pivotally mounted at 159 to structure 155 until forward cutting tape end 37 extends beyond table 160. Movement of tape 30 is then stopped by table 160 being pressed upward against cylinder 158 causing a large loop 161 of tape 30 to build up behind cylinder 158. Table 160 is pivoted about pin 162 by the upward movement of a head (not shown) connected to a fluid operated cylinder 164. Table 160 moves from its normal position to an upward position shown in FIG. 11 where it presses tape 30 against cylinder 158 to stop forward movement of tape 30. When the operator wants to introduce leading end 37 into the nip 29 cylinder 158 is caused to rotate in the direction of arrow 168 against an idler roller (not shown) in table 160 and thereby to advance leading end 37. When leading end 37 contacts nip 29 the tape 30 is pulled sideways away from the clamping means and is wrapped spirally around roll 27, cutting web 20 and starting the cut edge of web 20 to be rolled up onto spool 27.

Claims

1. Apparatus for cutting with a tape a travelling web (20) of paper being wound on a first spool (24) and transferring that travelling web onto an empty spool (24) by attaching said tape to said empty spool, comprising
 - means (31) for supplying a cutting tape (30);
 - an elongated guideway (34) for said cutting tape (30) extending beneath and across the path of travel of said web (20), said elongated guideway (34) having an elongated open slot (57) facing towards said path of travel of said web and having opposite open ends (36,36') adjacent the side edges of said travelling web, said guideway being adapted to receive said tape (30) delivered slidingly into one said open end (36') and to deliver said tape (30) from said other open end (36) beyond the edge of the travelling web; and
 - adhesive applying means (39) located adjacent said one open end (36') of said guideway (34) for applying an adhesive without any covering thereon to a surface of said cutting tape (30) before said cutting tape enters said one open end (36') of said guideway (34);
 characterized in that:
 - said adhesive applying means (39) are arranged to apply adhesive to a surface of said cutting tape (30) which faces away from said slot (57) of said guideway (34), and

in that said guideway (34) provides a supporting surface (56a) on which said cutting tape (30) can slide through said guideway (34), said supporting surface (56a) being disposed to be out of contact with said surface of said cutting tape (30) to which adhesive is applied by said adhesive applying means (39) whereby said cutting tape (30) can slide through said guideway without adhesive adhering thereto.

2. Apparatus according to Claim 1, wherein said adhesive applying means (39) is adapted to apply adhesive to a central lengthwise surface portion of said cutting tape (30), leaving lengthwise edge portions of the tape on each side thereof free of applied adhesive.

3. Apparatus according to Claim 1 or Claim 2, wherein said adhesive applying means (39) comprise means (65,70,71,75,80) for applying a double-sided pressure sensitive adhesive tape (66) onto the surface of said cutting tape (30) before said tape enters said guideway (34).

4. Apparatus according to Claim 3, wherein said adhesive applying means (39) comprises means (65) for dispensing a double-sided, pressure sensitive adhesive tape (66) on a release binder (67); and means (70,71; 75,80) for pressing together said adhesive tape (66) and said cutting tape to transfer said adhesive tape (66) to said cutting tape (30) and for pulling said release binder (67) away from said adhesive tape (66), to leave said adhesive tape (66) on said cutting tape (30) to provide said adhesive thereon.

5. Apparatus according to Claim 4, comprising a channel guide (62;43) for conducting said cutting tape (30) in a direction parallel to said adhesive tape (66), and wherein said adhesive tape dispensing means comprises a spindle (65) for mounting a supply roll of said double-sided pressure sensitive adhesive tape (66), said supply roll being adapted to selectively dispense lengths (68) of said adhesive tape therefrom, and means (70) for introducing said adhesive tape (66) below said cutting tape (30) in said channel guide (62;43) and aligned lengthwise therewith.

6. Apparatus according to Claim 1 or Claim 2, wherein said adhesive applying means (39) comprises nozzle means (54) for spraying a liquid adhesive onto the surface of said cutting tape (30) before said tape enters said guideway (34).

7. Apparatus according to Claim 1 or Claim 2, wherein said adhesive applying means (39) comprises roller means (46) for applying a liquid adhesive onto the surface of said cutting tape (30) before said tape enters said guideway (34).

8. Apparatus according to any one of Claims 2-7, wherein said guideway (34) has an elongated recess (56,58) parallel to said slot (57), said recess (56) providing said supporting surface (56a) to support said cutting tape (30) on its lengthwise edge portions (61) with the central lengthwise portion of the cutting tape (30) being spaced from a lower wall of said recess (56,58).

9. Apparatus according to any preceding claim, which additionally comprises a remotely controlled mechanical arm (40) which is adapted to grip the cutting tape (30) behind the adhesive coated surface at the forward end as the cutting tape (30) exits from the guideway (34) and feeds the forward end into contact with the empty spool (27).

10. Apparatus according to Claim 1, further comprising clamping means (40,42; 155-164) for releasably gripping the tape adjacent the forward end thereof to prevent movement of the tape after the forward end has exited from the guideway (34), and selectively releasing the tape to permit forward movement of the forward end into the nip between the empty spool (27) and the cooperating roller (23) driving the empty spool (27).

11. A method of cutting a travelling web (20) of paper being wound on a spool (24) and transferring the web after cutting to an empty spool (27), the method including feeding a cutting tape (30) into an elongated guideway (34) positioned beneath and extending laterally across the web (20) of paper, applying adhesive without any covering thereon to a portion of the cutting tape (30) at its forward end prior to feeding the cutting tape into the guideway (34), recovering the tape from the far end of the guideway (34) and introducing it into the nip (29) between the empty spool (27) and the roller (23) driving that spool with the adhesive portion (38) contacting the empty spool, to cause the tape automatically to spirally wrap around the empty spool while cutting the web of paper; wherein the method is characterized in that the cutting tape (30) is slid through the guideway (34) on a support surface (56a) with the adhesive portion (38) facing and out of

contact with said support surface (56a).

12. A method according to Claim 11, wherein the adhesive is applied to the cutting tape (30) by contacting the cutting tape (30) with a pressure sensitive adhesive (66) coated onto a release binder (67), and stripping away the release binder (67).
13. A method according to Claim 11, wherein the adhesive is applied to the cutting tape (30) by spraying adhesive onto the cutting tape (30).
14. A method according to Claim 11, wherein the adhesive is applied to the cutting tape (30) by passing the cutting tape (30) into contact with an applicator roller (46) which receives a coating of liquid adhesive from a supply thereof.

Patentansprüche

1. Vorrichtung zum Schneiden einer sich fortbewegenden Papierbahn (20), die auf eine erste Spule (24) aufgespult wird, mit einem Band und zum Umlegen der sich fortbewegenden Bahn auf eine leere Spule (24), indem das Band an der leeren Spule befestigt wird, mit einer Einrichtung (31) zum Zuführen eines Schneidbandes (30);
einer länglichen Führungsbahn (34) für das Schneidband (30), die sich unterhalb und quer zur Bewegungsbahn der Bahn (20) erstreckt, wobei die längliche Führungsbahn (34) einen länglichen, offenen Schlitz (57), der zur Bewegungsbahn der Bahn hinweist, und gegenüberliegende offene Enden (36, 36') hat, die den Seitenrändern der sich fortbewegenden Bahn benachbart sind, wobei die Führungsbahn geeignet ist das Band (30) aufzunehmen, das gleitend in das eine offene Ende (36') eingeführt wird, und dieses Band (30) aus dem anderen Ende (36) neben dem Rand der sich fortbewegenden Bahn abzugeben; und mit einer Einrichtung (39) zum Auftragen von Klebstoff, die neben dem einen offenen Ende (36') der Führungsbahn (34) angeordnet ist, zum Auftragen eines Klebstoffes ohne jede Abdeckung auf diesem, auf eine Fläche des Schneidbandes (30), bevor das Schneidband in das eine offene Ende (36') der Führungsbahn (34) eintritt;
dadurch gekennzeichnet, daß:
die Einrichtung (39) zum Auftragen von Klebstoff angeordnet ist, um Klebstoff auf eine Fläche des Schneidbandes aufzutragen, die von dem Schlitz (57) der Führungsbahn (34) wegweist, und
daß die Führungsbahn (34) eine Stützflä-

che (56a) bildet, auf der das Schneidband (30) durch die Führungsbahn (34) gleiten kann, wobei die Stützfläche (56a) so angeordnet ist, daß sie die Fläche des Schneidbandes (30), auf die der Klebstoff von der Einrichtung (39) zum Auftragen von Klebstoff aufgetragen wird, nicht berührt, wobei das Schneidband (30) durch die Führungsbahn gleiten kann, ohne daß Klebstoff an dieser anhaftet.

2. Vorrichtung nach Anspruch 1, bei der die Einrichtung (39) zum Auftragen von Klebstoff geeignet ist, Klebstoff auf einen mittigen, länglichen Oberflächenteil des Schneidbandes (30) aufzutragen, wobei längliche Randteile des Bandes auf beiden Seiten desselben von aufgetragenem Klebstoff freibleiben.
3. Vorrichtung nach Anspruch 1 oder Anspruch 2, bei der die Einrichtung (39) zum Auftragen von Klebstoff eine Einrichtung (65, 70, 71, 75, 80) zum Aufbringen eines doppelseitigen, drucksensitiven Klebstoffbandes (66) auf die Fläche des Schneidbandes (30) aufweist, bevor dieses Band in die Führungsbahn (34) eintritt.
4. Vorrichtung nach Anspruch 3, bei der die Vorrichtung (39) zum Auftragen von Klebstoff eine Einrichtung (65) zum Abgeben eines doppelseitigen, drucksensitiven Klebebandes (66) auf einen Schutzstreifen (67) und Einrichtungen (70, 71, 75, 80) zum Aneinanderpressen des Klebebandes (66) und des Schneidbandes besitzt, um das Klebeband (66) auf das Schneidband (30) zu übertragen, und zum Abziehen des Schutzstreifens (67) vom Klebeband (66), um das Klebeband (66) auf dem Schneidband (30) zu belassen, damit darauf Klebstoff vorgesehen ist.
5. Vorrichtung nach Anspruch 4, mit einem Führungskanal (62, 43) zum Führen des Schneidbandes (30) in einer Richtung parallel zum Klebeband (66), bei der die Einrichtung zum Abgeben des Klebebandes eine Achse (65) für das Aufnehmen einer Vorratsrolle mit doppelseitigem, drucksensitivem Klebeband (66) besitzt, wobei die Vorratsrolle geeignet ist, von sich selektiv Längen (68) des Klebebandes abzugeben, und mit einer Einrichtung (70) zum Einführen des Klebebandes (66) in den Führungskanal unter dem Schneidband (30) und mit diesem in Längsrichtung fluchtend.
6. Vorrichtung nach Anspruch 1 oder Anspruch 2, bei der die Einrichtung (39) zum Auftragen von Klebstoff eine Düse (54) zum Sprühen eines flüssigen Klebstoffs auf die Fläche des

Schneidbandes (30) besitzt, bevor das Band in die Führungsbahn (34) eintritt.

7. Vorrichtung nach Anspruch 1 oder Anspruch 2, bei der die Einrichtung (39) zum Auftragen von Klebstoff eine Walzeinrichtung (46), zum Auftragen eines flüssigen Klebstoffes auf die Fläche des Schneidbandes (30) besitzt, bevor das Band in die Führungsbahn (34) eintritt. 5
8. Vorrichtung nach einem der Ansprüche 2 bis 7, bei der die Führungsbahn (34) parallel zum Schlitz (57) eine längliche Vertiefung (56, 58) hat, wobei die Vertiefung (56) die Stützfläche (56a) bildet, um das Schneidband (30) an seinen längsverlaufenden Randteilen (61) zu tragen, wobei der mittlere Längsteil des Schneidbandes (30) im Abstand von einer tieferliegenden Wand der Vertiefung (56, 58) angeordnet ist. 10 15 20
9. Vorrichtung nach einem der vorhergehenden Ansprüche, die zusätzlich einen ferngesteuerten, mechanischen Arm (40) besitzt, der geeignet ist, das Schneidband (30) am vorderen Ende hinter der mit Klebstoff beschichteten Fläche zu erfassen, wenn das Schneidband (30) aus der Führungsbahn (34) austritt, und der das vordere Ende in Anlage an die leere Spule (27) bewegt. 25 30
10. Vorrichtung nach Anspruch 1, die weiters eine Klemmeinrichtung (40, 42; 155, 164) zum lösbaren Erfassen des Bandes in der Nähe seines vorderen Endes besitzt, um ein Bewegen des Bandes zu verhindern, nachdem das vordere Ende aus der Führungsbahn (34) herausgetreten ist, und zum selektiven Freilassen des Bandes, um das Vorwärtsbewegen des vorderen Endes in den Spalt zwischen der leeren Spule (27) und der zusammenarbeitenden Walze (23), welche die leere Spule (27) antreibt, zu erlauben. 35 40
11. Ein Verfahren zum Schneiden einer sich fortbewegenden Papierbahn (20), die auf eine Spule (24) aufgespult wird und zum Umlegen der Bahn nach dem Schneiden auf eine leere Spule (27), wobei das Verfahren das Bewegen eines Schneidbandes (30) in eine längliche Führungsbahn (34), die unterhalb und sich quer zur Papierbahn (20) erstreckend angeordnet ist, das Auftragen von Klebstoff, ohne jede Abdeckung desselben auf einen Teil des Schneidbandes (30) an seinem vorderen Ende vor dem Hineinbewegen des Schneidbandes in die Führungsbahn (34), das Herausbewegen des Bandes aus dem entfernten Ende der Füh-

rungsbahn (34) und das Einführen desselben in den Spalt (29) zwischen der leeren Spule (27) und der Walze (23), die diese Spule antreibt, wobei der klebrige Teil (38) die leere Spule berührt, um zu bewirken, daß sich das Band selbsttätig schraubenlinienförmig um die leere Spule herumwickelt, während es die Papierbahn schneidet, wobei das Verfahren dadurch gekennzeichnet ist, daß das Schneidband (30) auf einer Stützfläche (56a) durch die Führungsbahn (34) geschoben wird, wobei der klebrige Teil (38) der Stützfläche (56a) zugekehrt ist und mit dieser nicht in Berührung steht.

12. Ein Verfahren nach Anspruch 11, bei dem der Klebstoff auf das Schneidband (30) aufgetragen wird, indem das Schneidband (30) mit einem auf einem Schutzstreifen (67) aufgetragenen drucksensitiven Klebstoff (66) in Berührung gebracht und der Schutzstreifen (67) abgezogen wird.

13. Ein Verfahren nach Anspruch 11, bei dem der Klebstoff auf das Schneidband (30) aufgetragen wird, indem Klebstoff auf das Schneidband (30) gesprüht wird.

14. Ein Verfahren nach Anspruch 11, bei dem der Klebstoff auf das Schneidband (30) aufgetragen wird, indem das Schneidband (30) in Berührung mit einer Auftragewalze (46) geführt wird, die eine Beschichtung aus flüssigem Klebstoff von einem Vorrat desselben erhält.

Revendications

1. Appareil pour la coupe par bande d'une feuille de papier mobile (20) enroulée sur une première bobine (23) et le transfert de ce rouleau en mouvement sur une bobine vide (24) par attachement de cette bande sur ladite bobine vide comprenant :
 - des moyens (31) d'alimentation en ruban coupeur (30);
 - une glissière allongée (34) pour ladite bande coupante (30) s'étendant au-dessous et au travers du parcours de déplacement du rouleau (20), ladite glissière allongée (34) ayant une rainure longitudinale ouverte (57) le long du rouleau et des extrémités opposées ouvertes (36, 36') voisines des bords de ce rouleau mobile, la glissière étant adaptée pour recevoir la bande (30) par glissement au travers de l'ouverture (36') vers l'autre ouverture (36) au delà du bord du rouleau; et

- un moyen d'application (39) d'un adhésif situé au voisinage de l'une des ouvertures (36') de cette glissière (34) pour l'application dudit adhésif sans possibilité d'enduction de la surface de la bande coupante (30) avant qu'elle n'ait pénétré dans l'ouverture (36') de la glissière (34); caractérisé en ce que le moyen d'application de l'adhésif (39) étant prévu pour enduire l'adhésif sur la surface de la bande coupante (30) éloigné de la rainure (57) de la glissière (34) et en ce que ladite glissière (34) offre une surface porteuse (56a) sur laquelle la bande coupante (30) peut glisser au travers de la glissière (34), ladite surface porteuse (56a) étant disposée de manière à ne pas entrer en contact avec la bande coupante (30) sur laquelle l'adhésif est appliqué par le moyen (39) étant donné que ladite bande coupante (30) peut coulisser au travers de la glissière sans que l'adhésif encolle celle-ci.
2. Appareil selon la revendication 1, dans lequel le moyen d'application de l'adhésif (39) est prévu pour enduire cet adhésif sur toute la longueur de la partie centrale de la bande coupante (30) laissant chaque côté de celle-ci libre d'adhésif.
3. Appareil selon la revendication 1 ou la revendication 2 dans lequel le moyen d'application de l'adhésif (39) comprend des moyens (65, 70, 71, 75, 80) pour appliquer par pression une bande adhésive double-face (66) sur la surface de la bande coupante (30) avant que celle-ci ne pénètre dans la glissière (34).
4. Appareil selon la revendication 3 dans lequel le moyen d'application de l'adhésif (39) comprend des moyens (65) pour dispenser une bande auto-adhésive double-face (66) sur un lien (67); et des moyens (70, 71; 75, 80) pour presser ensemble ladite bande adhésive (66) et la bande coupante (30) et pour séparer ce lien (67) de cette bande adhésive (66) pour laisser la bande adhésive (66) sur cette bande coupante (30).
5. Appareil selon la revendication 4 comprenant un conduit (62;43) pour guider la bande coupante (30) dans un sens parallèle au ruban adhésif (66), et dans lequel le moyen d'alimentation du ruban adhésif comprend un axe (65) sur lequel est monté un rouleau d'alimentation de la bande adhésive double-face (66), ce rouleau étant conçu pour dispenser d'une manière sélective des longueurs (68) de ruban adhésif et un moyen (70) d'introduction du ruban adhésif (66) aligné longitudinalement sous la bande coupante (30) dans le conduit (62;43).
6. Appareil selon la revendication 1 ou la revendication 2 dans lequel le moyen d'application de l'adhésif (39) comprend des buses (54) d'aspersion d'un liquide adhésif sur la surface de la bande coupante (30) avant que celle-ci pénètre dans la glissière (34).
7. Appareil selon la revendication 1 ou la revendication 2 dans lequel le moyen d'application de l'adhésif (39) comprend un rouleau (46) pour l'enduction d'un liquide adhésif sur la surface de la bande coupante (30) avant que celle-ci ne pénètre dans la glissière (34).
8. Appareil selon n'importe laquelle des revendications 2 à 7 dans lequel la glissière (34) est pourvue d'un évidement allongé (56,58) parallèle à la rainure (57), l'évidement (56) permettant à la surface portante (56a) de supporter la bande coupante (30) par ses parties latérales longitudinales (61), la partie centrale longitudinale de cette bande coupante (30) demeurant espacée de la paroi inférieure de l'évidement (56, 58).
9. Appareil selon n'importe laquelle des revendications précédentes comprenant en plus un bras mécanique (40) contrôlé à distance et adapté pour venir saisir la partie antérieure de la bande coupante (30) derrière la surface enduite d'adhésif quand cette bande sort de la glissière (34) et se met en contact par son extrémité antérieure avec la bobine vide (27).
10. Appareil selon la revendication 1, comprenant en outre des crampons (40,42; 155, 164) pour appréhender l'extrémité avant de la bande et prévenir tout mouvement de celle-ci une fois sortie de la glissière (34) et la relâcher sélectivement pour permettre l'avancée de ladite extrémité dans la pince formée par la bobine vide (27) et son rouleau pilote (23).
11. Méthode de coupe d'une bande (20) de papier enroulée sur une bobine (24) et transférée après coupe sur une bobine vide (27), cette méthode incluant l'introduction d'une bande coupante (30) dans une glissière allongée (34) placée dessous latéralement et en travers du rouleau de papier (20) et l'application d'adhésif sans enduire la partie extrême avant de la bande coupante (30) avant d'en alimenter la glissière (34), recouvrant la bande depuis l'extrémité éloignée de la glissière (34) et de l'introduire dans la pince (29) entre la bobine vide

(27) et le rouleau pilote (23) pour permettre l'enroulement automatique en spirale de la bande sur la bobine vide et la section de la feuille de papier; cette méthode étant aussi caractérisée en ce que la bande coupante (30) coulisse dans la glissière (34) sur une surface porteuse (56a) dont la partie adhésive (38) fait face sans être à son contact avec ladite surface (56a).

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12. Méthode selon la revendication 11 par laquelle l'adhésif est appliqué sur la bande coupante (30) en mettant en contact celle-ci avec un adhésif sensible à la pression (66) enduit sur un lien (67) lequel est ensuite retiré.

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13. Méthode selon la revendication 11 par laquelle l'adhésif est appliqué sur la bande coupante (30) par aspersion dudit adhésif sur ladite bande (30).

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14. Méthode selon la revendication 11 par laquelle l'adhésif est appliqué sur la bande coupante (30) en mettant en contact celle-ci avec un rouleau applicateur (46) enrobé d'un liquide adhésif fourni à cette fin.

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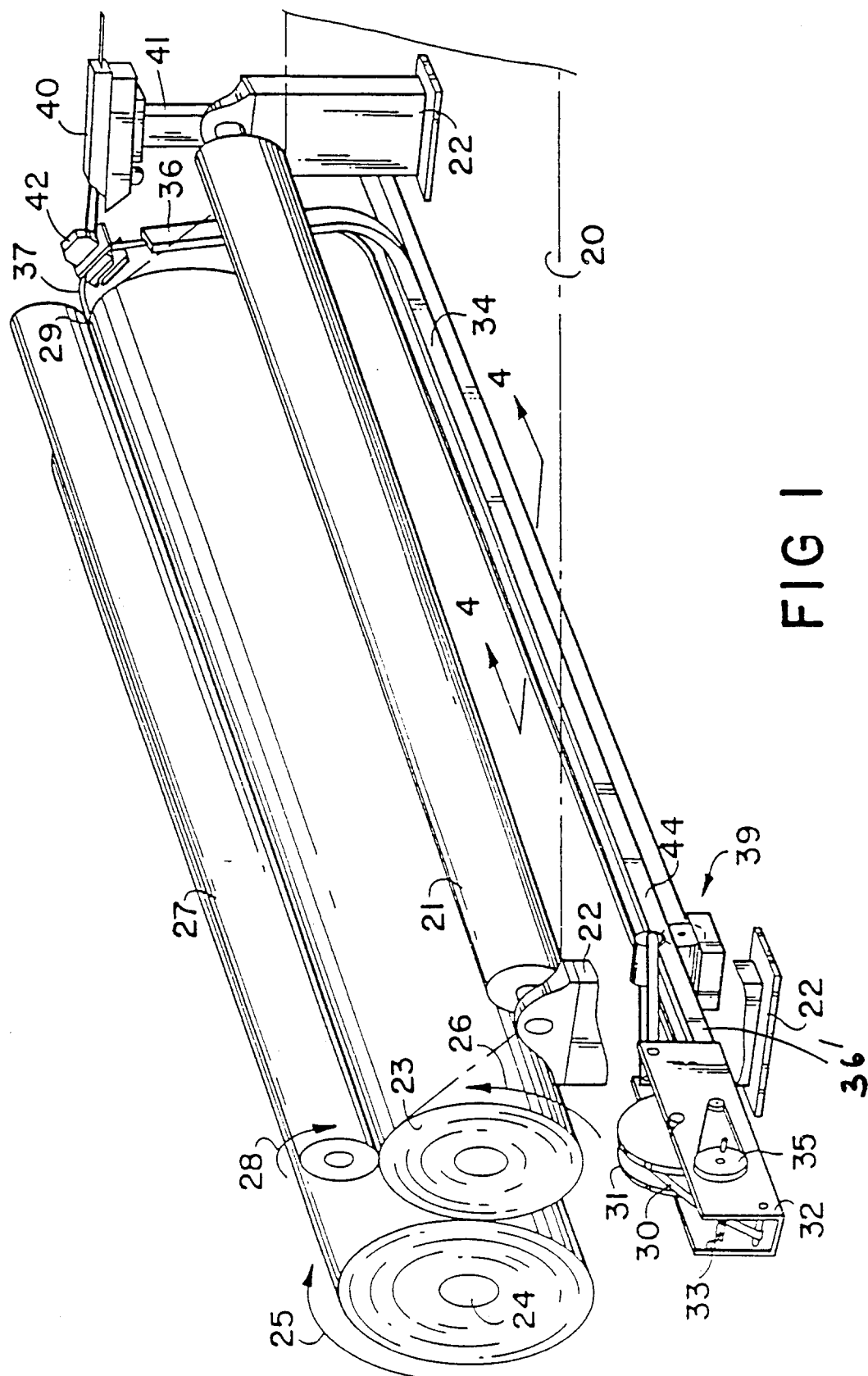


FIG 1

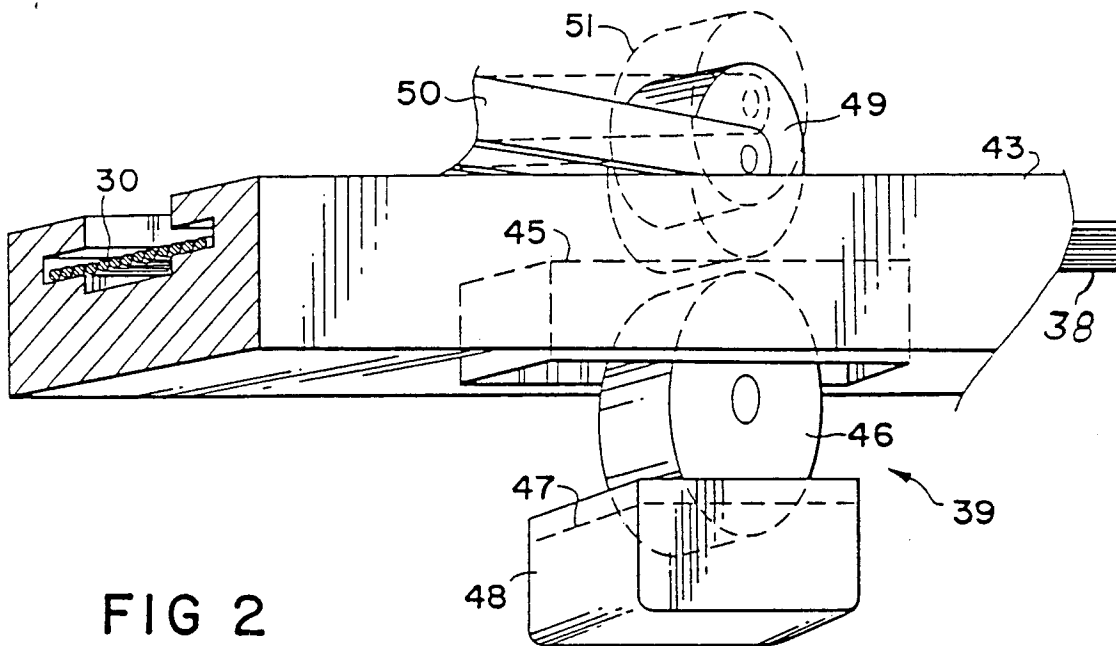


FIG 2

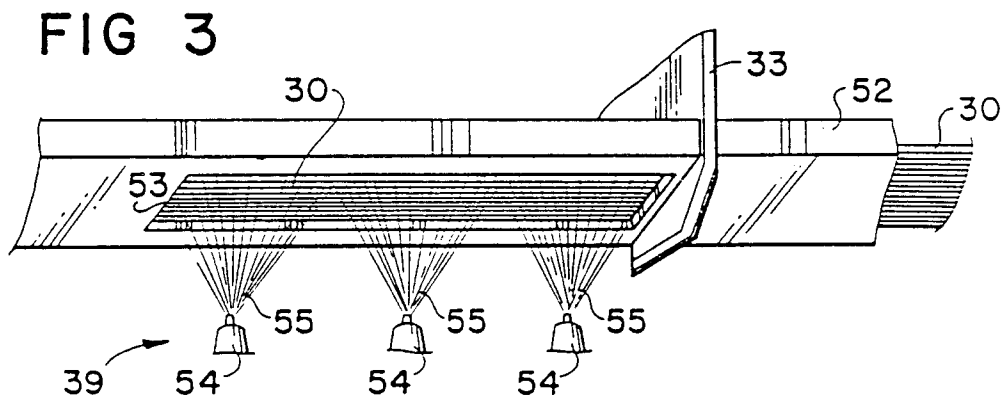


FIG 3

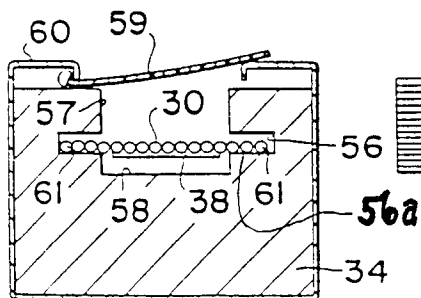


FIG 4

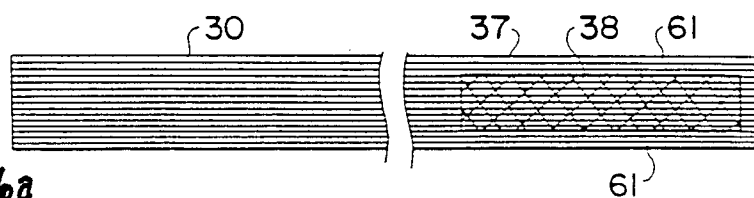


FIG 5

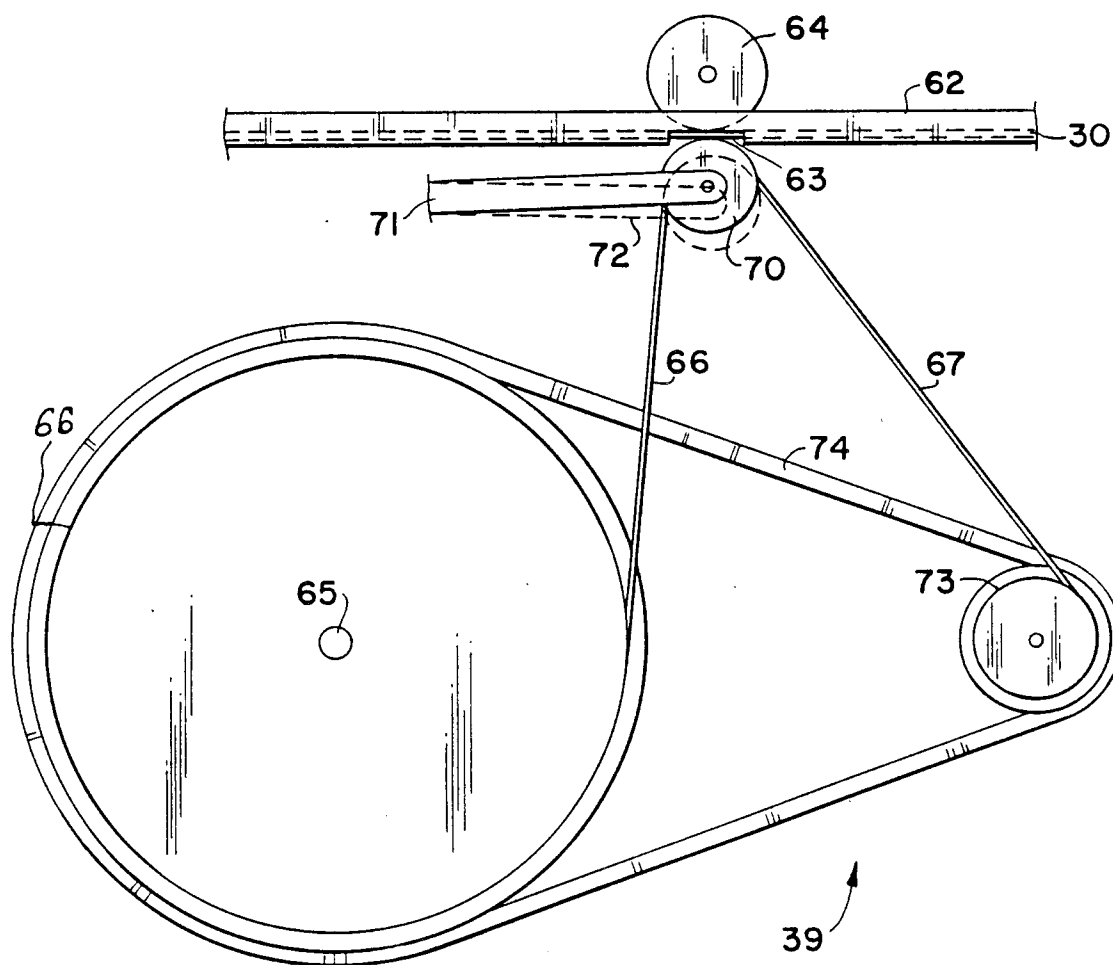


FIG 6

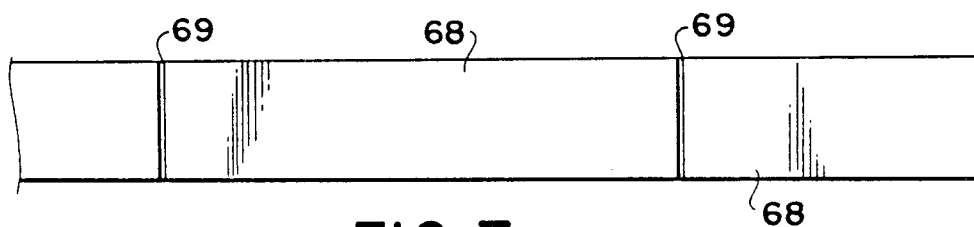


FIG 7

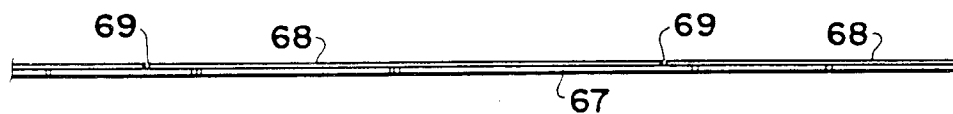
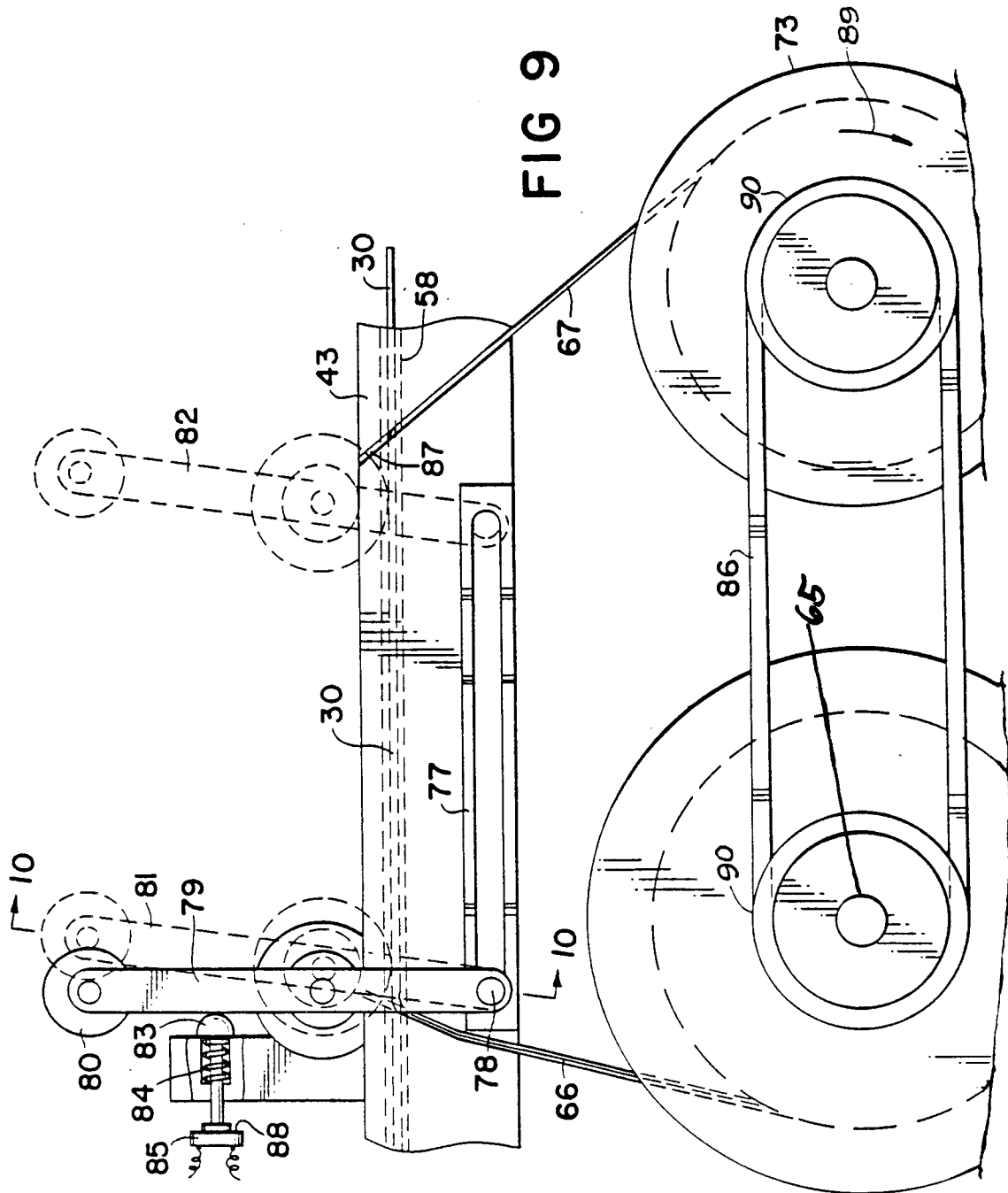


FIG 8



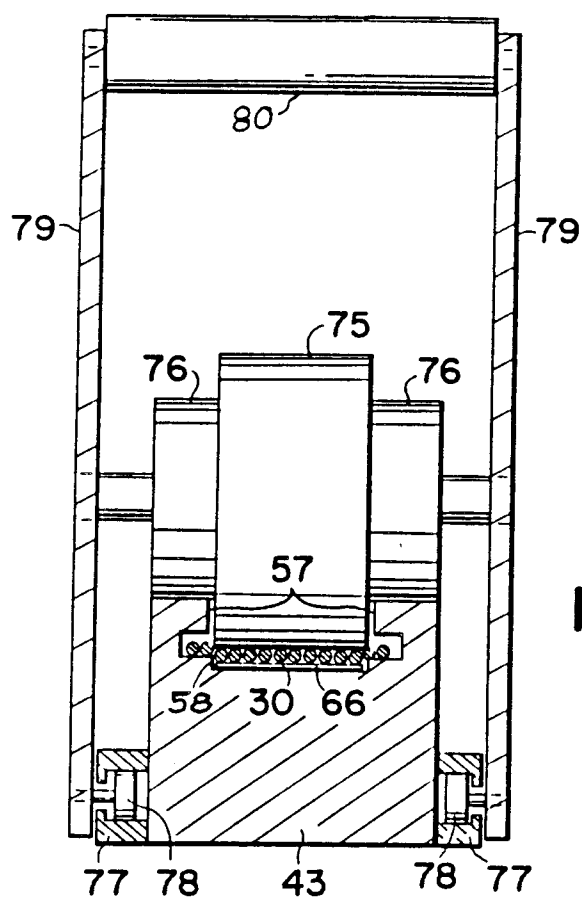


FIG 10

Fig. 11

