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Schmermund

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[54] **DEVICE FOR CUTTING CONTINUOUS WEBS**

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[52] **U.S. Cl.** **83/152,** 83/303, 83/354, 83/355, 83/573, 83/549

[51] **Int. Cl.** **B26d 7/06,** B26d 5/20

[58] **Field of Search** 83/303, 152, 285, 298, 83/354, 355, 549, 571, 573, 650

[56] **References Cited**

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[57] **ABSTRACT**

A device for cutting continuous webs into lengths is disclosed. The device comprises two web feed paths each having a portion common to the other and respective cutter means associated with each feed path. Each feed path is provided with respective web feeder means selectively operable to feed a web past the respective cutter means in co-ordination with the displacement of a displaceable knife element thereof. The device is provided with web change-over means selectably actuatable to render inoperative simultaneously said feeder means and the cutter means associated with one feed path and to render operative simultaneously said feeder means and the cutter means associated with the respective other feed path. The change-over means is actuatable only when the knife elements of the respective cutter means are in mutually corresponding positions, whereby the web change-over takes place when the leading edges of respective webs are each so located at corresponding positions in the respective feed paths that — on the change-over means being actuated — the first length severed from the respective other web is displaced along the common feed path portion in substantially the same time interval as a length severed from the one web would have been had the change-over means not been actuated.

16 Claims, 2 Drawing Figures

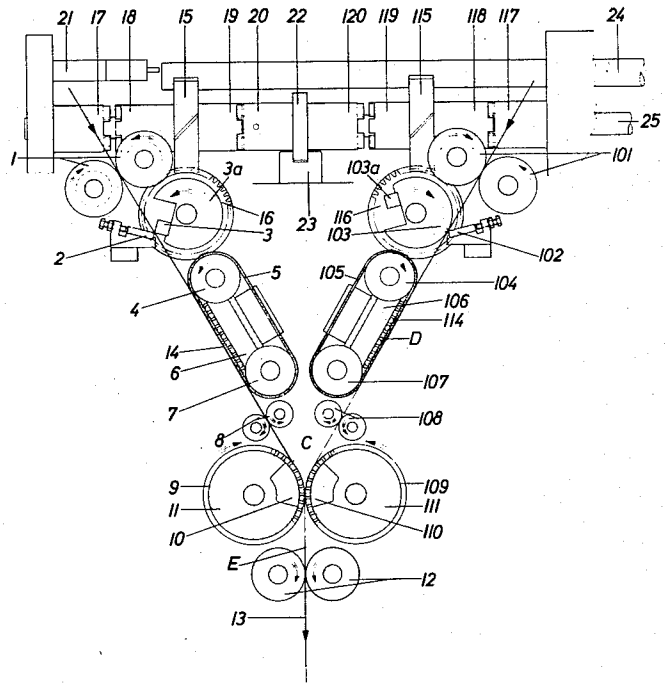
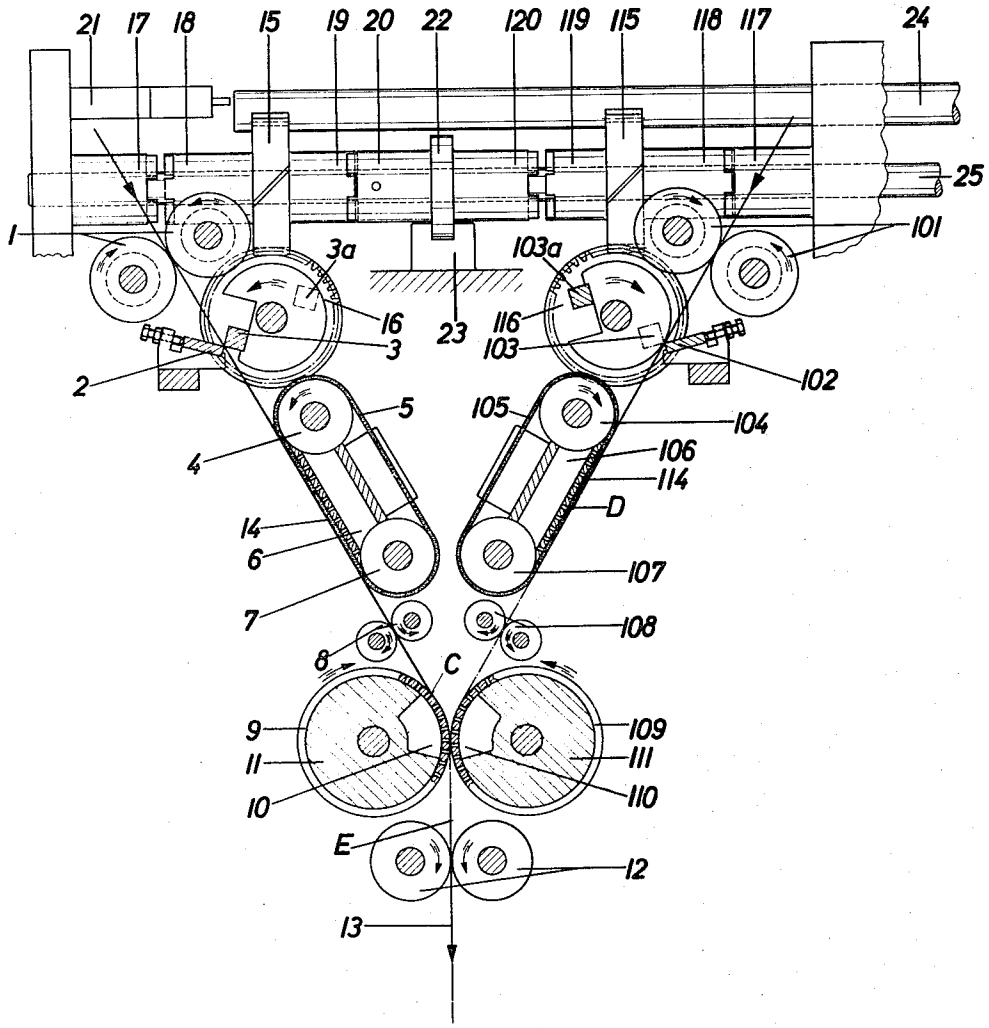


Fig. 1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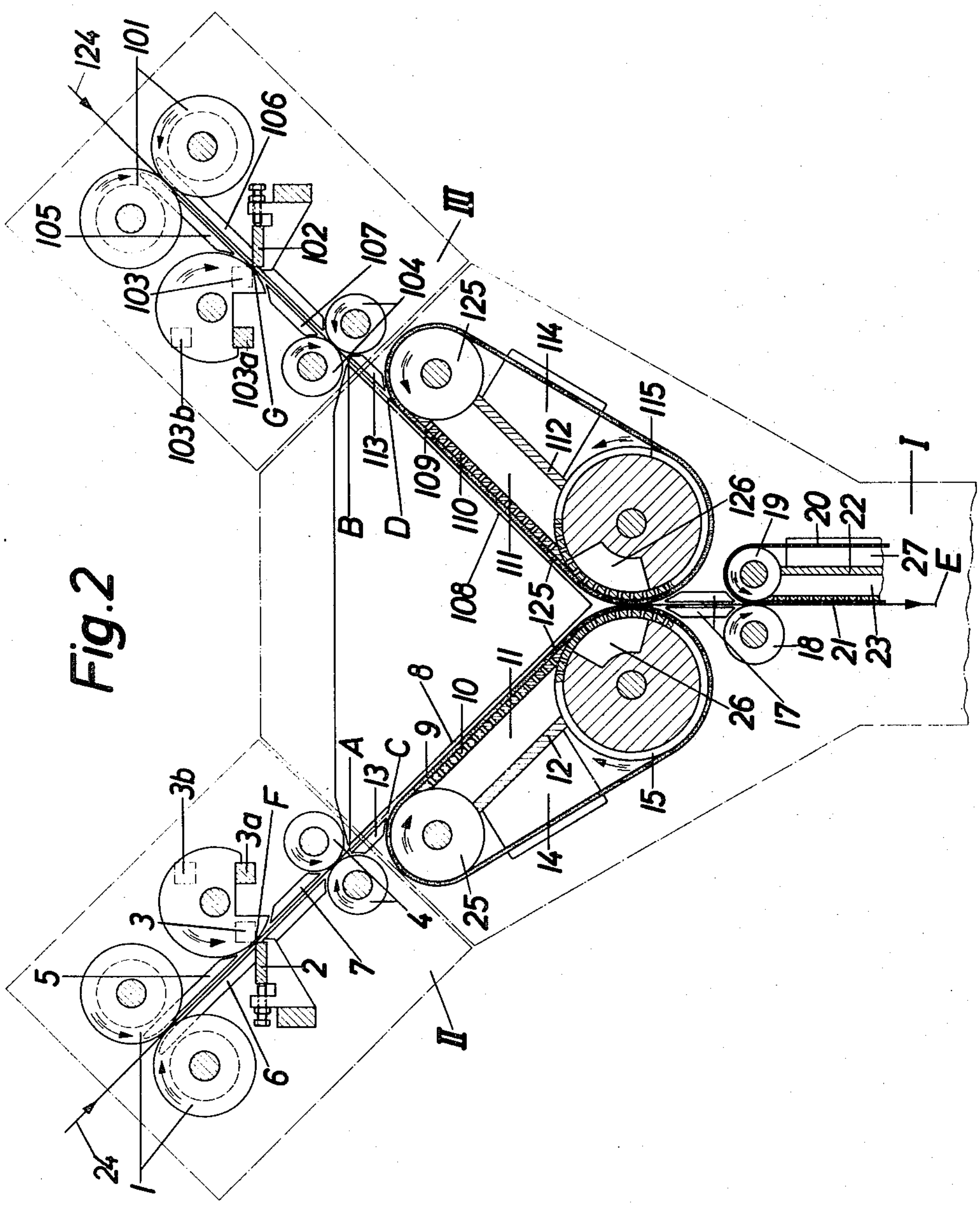
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Fig.2

DEVICE FOR CUTTING CONTINUOUS WEBS

BACKGROUND OF THE INVENTION

This invention relates to a device for cutting continuous webs.

In cigarette packaging machines a continuous web of wrapping material intended to form for example the inner or outer one of two wrappers applied successively to a cigarette block is withdrawn from a supply reel or bobbin, cut into appropriate lengths, and then fed to the part of the packaging machine which folds the cut lengths around the cigarette blocks.

A packaging machine in which such an arrangement may be used as an alternative to a magazine of individual sheets is disclosed in my copending U.K. patent application No. 48186/72.

In a long production run, it is necessary to switch over from one supply reel to another, when the one supply reel is about to become empty. In the absence of a special device enabling the switching-over to another supply reel to take place quickly and in synchronism with the other parts of the packaging machine, it might well be necessary to shut down the entire machine in order to fit a new reel of continuous web material. It may thus be desirable to ensure mutual correlation between the webs from the respective supply reels. The web material in question may, for example, comprise paper or viscose or cellulose film.

One form of cutting device which enables such a synchronised switch to take place from one supply reel to another is disclosed in my co-pending United Kingdom patent application no. 50094/72. The present invention provides an alternative device to that disclosed in that patent application.

SUMMARY OF THE INVENTION

According to the present invention, there is provided a device for cutting continuous webs into lengths, comprising two web feed paths each having a portion common to the other, respective cutter means associated with each feed path, respective web feeder means selectively operable to feed a web past the respective cutter means in co-ordination with the displacement of a displaceable knife element thereof, and web change-over means selectably actuatable to render inoperative substantially simultaneously said feeder means and said cutter means associated with one feed path and to render operative substantially simultaneously said feeder means and said cutter means associated with the respective other feed path, said feeder means and said cutter means associated with the one path being rendered inoperative only on the displaceable knife element of the respective cutter means being in a predetermined position, the arrangement being such that, in use, the web change-over takes place when the leading edges of respective webs are each so located at corresponding leading edge registration positions in the respective feed paths, that, on the change-over means being actuated, the first length severed from the respective other web is displaced along the common feed path portion in substantially the same time interval as a length severed from the one web would have been had the change-over means not been actuated.

The web feeder means may comprise one or more pairs of drive rollers in the respective feed paths, through the nip of which the respective web passes to the respective cutter.

As the severed lengths pass along the common portion of the feed paths, they may travel for example in a vertically downward direction.

Each cutter preferably comprises a rotary cutter having one stationary knife element and a further knife element rotatable relatively to the stationary knife element to bring cutting means of the two knife elements into mutually co-operative action. The rotatable knife elements may be so mounted and driven, only one of them being driven at any given time, that they rotate continuously, for example at uniform speed, or so that they execute individual single rotations spaced by periods of rest. Appropriate drive means for the rotatable knife elements are, of course, provided in either case.

The cutting device may be so arranged that the cut lengths of web produced by the operating cutter are fed from the cutter following closely, i.e. substantially in contact, on one another, or if desired, a gap may be introduced between the trailing edge of any one of the cut lengths and the leading edge of the next following length. The latter result may be achieved by introducing suitable differences of linear speed along the feed path, between different parts of the drive means provided to feed the web along the respective feed paths. For example, a conveyor belt arrangement, such as an arrangement incorporating a permeable conveyor belt operating by suction may be situated downstream of the cutter in each of the feed paths, and this arrangement may be operated at a higher speed than that of a pair of rollers provided to draw the continuous web of material from the supply reel. If desired, a pair of auxiliary feed rollers may be provided upstream of the conveyor belt arrangement and downstream of the cutter.

If desired, a clutching arrangement may be provided, to transfer drive from a drive shaft selectably to either one of the two rotatable members of the cutters, each of the rotatable members being coupled to a respective helical gear wheel, bevel gear or other suitable gearing arrangement which is in turn connected to a respective co-operable gear mounted about the drive shaft.

BRIEF DESCRIPTION OF THE DRAWINGS

Two embodiments of this invention will now be more particularly described with reference to the accompanying drawings, in which:

FIG. **1** shows a sectional view, in a vertical plane, through one embodiment of the device of the invention; and

FIG. **2** shows a similar sectional view of a second embodiment.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

In FIG. **1**, two continuous webs **14** and **114** of film material are shown in heavy lines, the first travelling in a rightward and downward direction from the top left-hand part of the Figure, and the second travelling downwardly and to the left from the top right-hand part of the Figure. The two webs **14** and **114** are drawn by drive means in the form of pairs **1** and **101** respectively of drive rollers from respective supply reels (not shown). At any given time, only one of the two webs is fed through the device, which is so designed that the feed may be switched over from one web to the other, provided that the second web is threaded into the de-

vice and located at the appropriate position, for example in synchronism with the speed of operation of any other device to which the webs are fed after cutting.

As far as the components of the device below the drive rollers **1** and **101** are concerned, the device is fully symmetrical about a central vertical axis which forms an upward continuation of a line **13** which denotes a cut length of web being drawn out of the cutting device by driven rollers **12.** For this reason, only the components on the left-hand side of the axis will be described in detail, similar reference numerals to those of these components being employed to indicate the corresponding components on the right-hand side of the axis, but with **100** added.

Downstream of the pair of drive rollers **1** is a rotary cutter which has a stationary knife element **2** and a rotatable knife element **3.** FIG. **1** shows these knife elements in their position of co-operating action to cut the continuous web **14.** The direction of rotation of the rotatable knife element is shown by an arrow (this is anticlockwise in FIG. **1**). At *3a* there is shown another position of the rotatable knife element **3,** i.e., the position diametrically opposed to that shown in solid lines in FIG. **1,** the position *3a* being indicated in chain-dotted lines. The importance of the position *3a* will be explained later. Downstream of the rotary cutter is a suction conveyor belt arrangement, which has a conveyor belt **5** permeable to air, circulating around a pair of rollers **4** and **7.** Inside the loop formed by the conveyor belt **5,** a suction chamber **6** is situated, which has a wall in contact with the belt, the wall being perforated as shown. As a result of suction applied to the chamber **6,** the web **14** is held firmly against the outer surface of the conveyor belt **5,** to prevent the web from flapping or falling away. From the conveyor belt **5,** the web **14** passes through the nip between a further pair of rollers **8,** and thence through the nip between a pair of rotatable annular portions **9** and **109** of a suction roller arrangement. The annular portions **9** and **109** are each rotatable respectively relatively to stationary portions **11** and **111,** in which there is defined a suction chamber, **10** and **110** respectively. Each of the annular portions **9** and **109** is perforated by bores extending in a direction radial of the axis of rotation of the respective annular portion, so that while a web is in the vicinity of the nip between the two annular portions the web is held firmly by suction against the radially outer surface of one or both, as the case may be, of the two annular portions. From the suction roller arrangement, the web passes vertically downwardly through the nip between two further drive rollers **12.**

The mechanism for transferring drive output from the rotatable knife element **3** to the rotatable knife element **103** will now be described. This is shown at the top of FIG. **1,** and includes a drive shaft **25.** Rigidly connected with the drive shaft is a portion of enlarged diameter shown at **20, 120,** which is provided with a guide projection **22** secured against lateral movement in a guide member **23** which is stationary, i.e. which does not rotate with the shaft **25.** The rotatable knife element **3** is connected with a helical gear **16,** which can mesh with a co-operable gear **15** mounted on an elongate member **18** about the drive shaft **25.** The elongate member **18** is provided at each opposite axial end with engagement jaws and is rotatably mounted on the drive shaft **25.** The left-hand engagement jaws are shown in FIG. **1** as being spaced from co-operable engagement jaws of a stationary part **17** of a support in which the drive shaft **25** is rotatably mounted. The right-hand engagement jaws of the elongate member **18** are shown in a position in which they are engaged with co-operable left-hand engagement jaws of the portion **20, 120** rigidly connected to the drive shaft **25.** Similar jaws at the right-hand axial end of the portion **20, 120** are spaced from co-operable jaws at the left-hand axial end of a further elongate member **119,** which is similar to the elongate member **18.** The member **119** is likewise mounted about the drive shaft **25** and is free to rotate relatively thereto. A gear **115,** similar to the gear **115,** is carried by the member **119** rigidly. The right-hand end of the member **119** is designated by **118.** Engagement jaws at the right-hand axial end of the member **118** engage complementary jaws at the left-hand end of a stationary part **117** of the support in which the drive shaft **25** is rotatably mounted.

In the condition of the device shown in FIG. **1,** when the drive shaft **25** rotates no drive is transmitted to the gear **115,** and thus the rotatable knife element **103** is not driven. The reason for this is that there is no drive connection between the part **20, 120** and the elongate member **119.** Furthermore, the right-hand axial end jaws of the member **119** are in firm engagement with the part **117,** which is stationary at all times.

On the other hand, upon rotation of the drive shaft **25,** drive is transmitted to the elongate member **18,** as a result of the engagement between the jaws of the member **18** and the portion **20, 120.** As a result, the gear **15** and thus the gear **16** and the rotatable member **3** are driven. An elongate displacement member **24** is mounted in the support, and is provided with two recesses each to receive a portion of a respective one of the two gears **15** and **115,** as shown.

When it is desired to transfer the drive output of the drive shaft **25** from the rotatable member **3** to the rotatable member **103,** i.e. to disconnect the left-hand cutter and to connect the right-hand cutter, a leftward displacement is imparted to the displacement member **24.** This moves both of the gears **15** and **115** to the left, thereby disengaging the member **18** from the rotating portion **20, 120** and connecting it to the stationary member **17.** At the same time, the member **119** is disconnected from the stationary member **117** and connected to the rotating member **20, 120,** at the opposite axial end thereof from that at which the member **18** was previously connected. In the embodiment illustrated in FIG. **1,** the ratio of the gearing provided by the gear **15, 16** and **115, 116** is 1:1. Thus, the rotatable knife elements of the cutters are rotated in synchronism with the rotation of the drive shaft **25.** Constraining means in the form of the mutually co-operating dog clutch means or jaws on the axial ends of the members **17, 18** and **117, 118** are so arranged that they are only coupled together at the instant when the knife element is in the positions *3a, 103a.* Thus, when the pushable displacement member **24** is urged to the left in FIG. **1,** the change-over of the application of drive to the rotatable knife elements **103** only takes place when the latter is in the position *103a.* At this instant, the co-operable jaws on the elements **17, 18** mutually interengage and cause the rotatable knife element **3** to be brought to a standstill at the position *3a.* At the same time as this interengagement takes place, the switch **21** is actuated to cause the rollers **1** to stop rotating and

the rollers **101** to start rotating in synchronism with the rotation of the rotatable cutter member **103.**

A switch contact **21** is provided to the left of the displacement member **24.** Upon a leftward displacement of the member **24** from the position shown in FIG. **1,** the plunger of a two-way switch **21** becomes depressed, to cause the contacts of the switch **21** to disconnect the drive to the rollers **1,** and to cause the switch contacts to establish the drive to the rollers **101.** Conversely, when the actuator plunger of the switch **21** is not depressed (that is when the switch **21** is in the condition illustrated in FIG. **1**) the rollers **1** are driven and the rollers **101** are stationary. Any suitable form of transmission devices such as electro-magnetic clutches may be employed to be operated by the switch contact **21.** However, if desired, the rollers **1** and **101** may be independently driven. In these circumstances, each of the independent drive means is controlled via a control circuit including the switch **21.**

The operation of the embodiment shown in FIG. **1** will now be described. In the condition of the device shown in FIG. **1,** it is the web **14** which is being fed through the device. When the leading edge of the web reaches the point C', the rotatable knife member **3** cooperates with the stationary knife member **2** to make a cut through the web. If it is now described to switch over to the web **114** on the right-hand side of the device, the displacement member **24** is actuated by pushing it to the left to disconnect the drive to the rotatable member **3,** so that the latter comes to a standstill at the position **3***a*. At the same time, the drive rollers **1** are disconnected. The actuation of the displacement member **24** also causes drive to the rotatable member **103** (which at the relevant moment is stationary in position **103***a*), to be established, and this starts now to rotate in the clockwise sense in FIG. **1.** At the same time, as a result of the depression of the switch contact **21,** the drive rollers **101** are switched on. When the left-hand rotatable member **3** has come to rest, the leading edge of the web **14** has reached the position shown at D, this position being a leading edge registration position. The accurate positioning of the leading edge of the left-hand web results from the rotatable cutter **3** being rotated in co-operation with the web drive rollers **1.** Thus, since the rotatable knife element **3** is brought to rest at **3***a* and the drive rollers **1** are arrested at the same moment by the actuation of the switch **21,** the leading edge of the left-hand web is arrested when it reaches the corresponding leading edge registration position D. It is important to ensure that when the drive to the rollers **101** is established the leading edge of the stationary web **114** is at the corresponding leading edge registration position (also shown by letter D in FIG. **1**), so that after the change from one supply reel to the other has been completed the first length cut from the second web passes out of the device in the same time sequence after the last length cut from the first web as if the first length cut from the second web had in fact been cut from the first web.

The above sequence of operations takes place on the assumption that linear speed of all the various driving and conveying elements, measured along the appropriate feed path, is the same. With such an arrangement, it is clearly possible, if desired, to drive all the components from a common drive source. However, this arrangement results in cut lengths of web being discharged from the cutting device with no gap in between, i.e. the leading edge of any given cut length of web follows closely, or substantially in contact, on the trailing edge of the next preceding cut length.

In some cases, it may be desired that a gap should be provided between the trailing edge of any given cut length and the leading edge of the next following cut length. This may be achieved with the embodiment of FIG. **1** by applying the principle of the embodiment of FIG. **2** to be described below.

When the rotatable member **3** is at rest in position **3***a*, a half length of web material extends between position A and position D. As mentioned above, this is supported by the suction effect provided by the permeable conveyor belt **5** and the associated equipment. However, additional means may be provided, if desired, for supporting this length of material, for example a magnetically operated holder, in which case the suction applied to the suction chamber **6** may be switched off.

Of course, between the various components of the cutting device shown in FIG. **1,** the requisite guides, for example in the form of rails, transfer bridge members or additional belts etc. are provided as desired. These are not shown in the drawing, for the sake of clarity.

It is clear from the above description of the drive shaft **25** and the associated equipment that at all times one of the gears **15** and **115** is maintained stationary by its connection to a stationary part of the support, and the other is connected rigidly with the drive shaft **25** for rotation therewith. A single stroke of the displacement member **24** for example produces a permanent change-over from one supply reel to the other. The member **24** may be manually displaced by an operator if, for any reason, it is desired to change the web supply at any time. Alternatively or additionally, the member **24** may be coupled to means for sensing when one of the supply reels is approaching its emptied state. In these circumstances, the web change-over may take place automatically. Preferably, the mechanism for displacing the member **24** is arranged to resiliently urge the menber **24** towards the right or the left, as the case may be, in order to enable the coupling between the co-operating dog clutch jaws to take place smoothly at the appropriate moment. Because the characteristics of this coupling such as that between the members **17, 18** for example, the rotatable cutter is always arrested at the position **3***a* or **103** *a*. However, if a new web is to be introduced, it will either be necessary to splice the new web to the trailing end of the old exhausted web, or to manually feed the new web to the position in which it is in registration with the corresponding leading edge registration position.

The rotational position at which the jaws of the member **18** engage with the co-operating jaws on the member **17** is determined by the positioning of the stationary jaws on the latter member. Thus, provided that the web is driven by the roller pairs **1, 101** in co-ordination with the rotation of the respective rotatable member bearing the knife elements **3, 103,** the position at which the knife element is brought to rest may be preset to any convenient position. Thus, the knife element **3** may be arrested in a position other than **3***a*, and thus will result in the location of the leading edge registration position being shifted correspondingly. Of course, the arrested positions of the knife elements **3** and **103** must correspond with one another, if the first web piece cut from the second web — after a web change-over has been initiated — is to be fed from the machine in sub-

stantially the same time interval as the corresponding web piece cut from the first web would have been if the change-over had not been initiated.

Advantageously, the co-operating jaws on the members **17, 18, 19, 20, 120, 119, 118** and **117** are in the form of dog-clutches. The dog clutch components are so arranged that they may be coupled together only when the shaft **25** is in a uniquely identified angular position in each revolution.

Although, in the preferred embodiment the slidable sleeves are coupled to the respective cutter means by co-operating gears **15, 16** and **115, 116,** other means for coupling the drive shaft **25** to the mobilized cutter may be employed for this purpose. However, it is necessary for the displaceable knife elements of the respective cutter means — which may be reciprocatable knife elements — to be displaced in co-ordination with the drive shaft and the respective web feeder means such as the nip roller pairs **1, 101.**

With the above described arrangement mistakes in cutting and the spoiling of clean cut edges by snipping by the cutters are for practical purposes avoided.

The embodiment shown in FIG. **2** discharges cut lengths of web material which, instead of following very closely one on the other, follow with a gap in between. As mentioned above, this may be advantageous in the supply of lengths of wrapper to cigarette block packaging machines.

The embodiment shown in FIG. **2** will now be described. However, the basic arrangement is very similar to that shown in FIG. **1.**

The parts of the device enclosed in chain-dotted lines and labelled I, II and III respectively may conveniently be considered separately. The moving parts shown in part I of the device operate at all times when the cutting device is in operation, while the moving parts of part II of the device are driven only when a web **24** is being supplied from a left-hand supply reel (not shown), and the moving parts of part III of the device are driven only when a web **1234** is being fed from a right-hand supply reel (not shown). In part II of the device, a pair of drive rollers **1** draw the web **24** from the left-hand supply reel, and the web **24** passes through the nip between the two rollers **1,** and then between two transfer bridge members **5** and **6.** A rotary cutter is provided downstream of the rollers **1,** and has a stationary knife element **2** and a co-operating rotary knife element **3.** In chain-dotted lines there is shown the position of the knife element **3** in which a cut is taking place. A further position for the knife element **3** is shown at *3a*, in which the knife element **3** has executed a 90° rotation from the position shown in chain-dotted lines. After passing through the cutter, the cut lengths of web material pass between a tail section of the bridge member **6** and a further bridge member **7,** to teach the nip between two auxiliary drive rollers **4,** whence the cut length of web pass between a still further bridge member **13** and a guide plate of generally triangular configuration with its apex downwards.

The part III of the device contains similar components to those of the part II, and these are represented by similar reference numerals, but with **100** added. In addition, there is shown in part III of the device a further position **103***b* of the rotatable knife element **103** of the rotary cutter in part III, the position **103***b* being the diametrically opposite position to that in wich the rotatable knife element co-operates with the stationary knife element **102** to make a cut. As shown by the arrow in part III, in operation the rotatable knife element **103** rotates in the clockwise sense in FIG. **2.**

Against the lower surface of the web **24** after reaching part I of the device, there acts a permeable conveyor belt **9,** generally similar to the belt **5** described in connection with FIG. **1,** and the belt **9** passes around the left-hand roller of a suction roller arrangement similar to the arrangement **11, 111** of FIG. **1** and also around a further roller **25.** A suction chamber **11** is provided inside the loop formed by the belt **9,** and a housing wall **10** of the chamber is perforated with apertures extending towards the belt **9** as shown in FIG. **2.** The suction effect applied by the suction chamber **11** through the belt **9** holds the web **24,** after cutting, securely against the belt **9** as the web is conveyed to the nip between the two annular rollers of the suction roller arrangement. Numeral **12** denotes the opposite wall of the suction chamber. Lateral guides **14** are provided to maintain the conveyor belt **9** on its intended course as it executes its return run. The suction chambers of the suction roller arrangement are shown at **26** and **126.**

Additional transfer bridge members **17** are provided downstream of the suction roller arrangement, and a further pair of drive rollers **18, 19** are provided to draw cut lengths of web material out of the cutting device. Around the roller **19** there passes a further, similar permeable conveyor belt **20,** a suction chamber **23** being provided to act on this belt. The rear wall of the suction chamber is shown at **22,** and the front, perforated wall at **21.** The lateral guides for the belt **20** are shown at **27.**

Not every component of part I of the device has been described in detail, since the components of this part of the device on the right-hand side along the path of the conveyor belt **109** are similar to those on the left-hand side along the path of the conveyor belt **9. 100** has, however, been added to the corresponding reference numerals.

The operation of the embodiment shown in FIG. **2** will now be described.

A and B denote corresponding points along the paths of the webs **24** and **124** respectively. At the moment when part III of the device, after operation for a period of time, is brought to a standstill and part I is set into motion because it is desired to switch over from the web **124** to the web **24,** it is arranged that the leading edge of the web **124** stops at the position B, which is a leading edge registration position. In these circumstances, the rotatable knife element **103** stops in position **103***a*. The trailing edge of the last length cut by the cutter **102, 103** from the web **124** is at position D, since this length is drawn through part I of the device at a speed exceeding that at which it is drawn through part III. To achieve this, the conveyor belt **109** is driven at a higher linear speed, measured along the feed path, than the rollers **101** and **104.** Thus a gap is formed between the trailing edge D and the leading edge B. The device can be so operated that such a gap is formed not only at the time of changing over from one supply reel to another, but all the time, so that each of the cut lengths of web is fed with a spacing from the preceding length and the following length. The provision of such a gap is certainly not necessary, but in some circumstances is advantageous. However, if desired, the conveyor belt **109** may be caused to increase in speed in relation to the components of part III of the device only

at the time of changing over from one supply reel to another.

From E, the cut length is discharged from the cutting device, to be utilised for packaging purposes, for example to be wrapped around a cigarette block.

The arrangement of the drive shaft (denoted by the reference **25** in FIG. 1), the displacement member (denoted by the reference **24** in FIG. 1), and the associated clutching members and gears is the same in the embodiment of FIG. 2 as in that of FIG. 1. For this reason, these components are not shown in FIG. 2, for the sake of clarity.

Althought the embodiment shown in FIG. 2 has the advantage of introducing gaps between the successively discharged cut lengths of web material, nevertheless the device may be produced economically and the construction is not particularly complicated. However, this embodiment may be operated in a particularly effective manner.

I claim:

1. A device for cutting continuous webs into lengths comprising, in combination:

guide means defining two web feed paths each having a portion common to the other;

respective cutter means associated with each said feed path and each having a displaceable knife element;

respective web feeder means each selectively operable to feed a web past the respective one of said cutter means in co-ordination with the displacement of said knife element thereof;

web change-over means selectably actuatable to render inoperative substantially simultaneously said feeder means and said cutter means associated with one said feed path and to render operative substantially simultaneously said feeder means and said cutter means associated with the respective other said feed path; and

constraining means co-operating with said change-over means and with said knife elements to render said change-over means actuatable when and only when said displaceable knife elements of said respective cutter means are in predetermined and mutually corresponding positions; whereby the web change-over takes place when the leading edges of said respective webs are each located at corresponding positions in the respective ones of said feed paths.

2. A device as defined in claim **1,** comprising respective further feeder means associated with each said feed path to feed lengths of said web severed by said cutter means along a feed path portion extending downstream of said cutter means.

3. A device as defined in claim **2,** wherein each said further feeder means feeds said severed lengths along the respective said feed path at substantially the same speed as that at which said selectively operable feeder means feeds a web past said cutter means, whereby successive said severed lengths are fed from the respective said cutter means with substantially no gap therebetween.

4. A device as defined in claim **2,** wherein each said further feeder means feeds said severed lengths along the respective said feed path at a substantially higher speed than that at which said selectively operable feeder means feeds said web past the respective said cutter means, whereby successive said severed lengths are fed from the respective said cutter means with a substantial gap therebetween.

5. A device as defined in claim **2,** wherein each said further feeder means comprises a drivable endless belt downstream of the respective said cutter means to facilitate the transfer of said severed lengths of web along the respective one of said feed paths.

6. A device as defined in claim **5,** wherein each said endless belt is permeable to air, and each passes around respective suction chambers provided with a plurality of apertures through which suction is applied to one surface of the respective said belt to cause said severed lengths of web to adhere to the respective other surface of said belt.

7. A device as defined in claim **1,** comprising a pair of suction roller devices disposed at a junction between said two feed paths, each said roller device comprising a stationary inner portion and an annular outer portion rotatable about said inner portion, said outer portion having radially extending passages therethrough and said inner portion defining a suction chamber of limited peripheral extent, by means of which suction is applied to the radially inner ends of said passages in said outer portion as such passages pass said suction chamber, to cause said severed lengths of web to adhere to said outer portion.

8. A device as defined in claim **7,** wherein said two outer portions define a nip between which said severed lengths of web pass to said common feed path portion.

9. A device as defined in claim **1,** wherein each said cutter means comprises a rotary cutter, said displaceable knife element thereof being rotatable relatively to a stationary knife element to bring said displaceable and stationary knife elements into mutually co-operative action.

10. A device as defined in claim **9,** wherein said displaceable knife elements are so mounted and driven, only a selected one of said elements being driven at any given time, that said selected knife element rotates continuously at uniform speed.

11. A device as defined in claim **9,** wherein said displaceable knife elements are so mounted and driven, only a selected one of said elements being driven at any given time, that said selected knife element executes individual single rotations spaced by periods of rest.

12. A device as defined in claim **1,** wherein said web change-over means comprises a drive shaft rotatable mounted in a support, an elongate central sleeve member mounted on said shaft to rotate therewith and restrained from axial displacement there along, a first sleeve member rotatably mounted on said shaft, disposed on a shaft portion projecting from one end of said central sleeve and axially slidable along said shaft to be selectably coupled to one of said central sleeve and said support, a second sleeve member rotatably mounted on said shaft, disposed on a shaft portion projecting from the respective opposite end of said central sleeve and axially slidable along said shaft to be selectably coupled to one of said support and said central sleeve, first gear means coupling said first sleeve member to said displaceable knife element of said one cutter means, second gear means coupling said second sleeve member to said displaceable knife element of the respective other said cutter means, and displacement means to simultaneously axially displace said first and second sleeves to render inoperative one of said cutter

means and to render operative the respective other said cutter means, and vice-versa.

13. A device as defined in claim **12,** wherein said support comprises a first fixed sleeve member mounted on said shaft next adjacent said first slidable sleeve member, and a second fixed sleeve member mounted on said shaft next adjacent said second slidable sleeve member, and wherein mutually co-operable dog clutch means are provided on next adjacent end portions of said first fixed support sleeve and said first slidable sleeve, on next adjacent end portions of said first slidable sleeve and said elongate central sleeve, on next adjacent end portions of said elongate central sleeve and said second slidable sleeve, and on next adjacent end portions of said second slidable sleeve and said second fixed support sleeve.

14. A device as defined in claim **13,** wherein each of said mutually co-operable dog clutch means are mutually engageable only on the respective one of said slidable sleeve members being located in a predetermined angular position on said drive shaft.

15. A device as defined in claim **12,** wherein the web change-over means comprises electrical switch means selectably operable to render inoperative said web feeder means co-ordinated with said cutter means of said one feed path and substantially simultaneously to render operative said feeder means co-ordinated with said cutter means of said respective other web feed path, and vice-versa.

16. A device as defined in claim **15,** wherein actuator means of said electrical switch means is mechanically coupled to said displacement means.

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