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APPLICATION OF SECTIONS OF MATERIAL TO A RUNNING WEB

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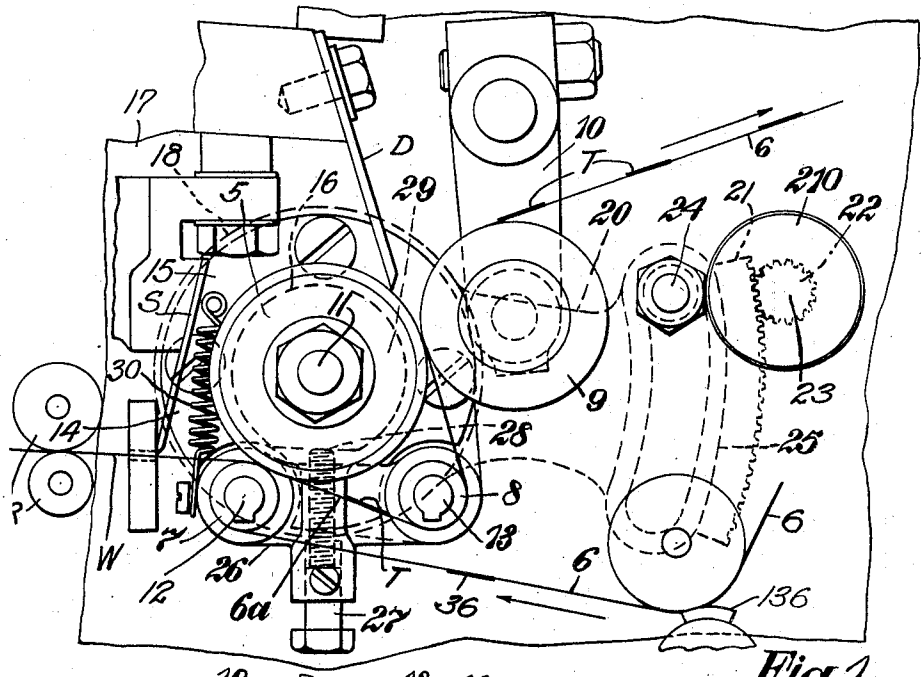


Fig. 1

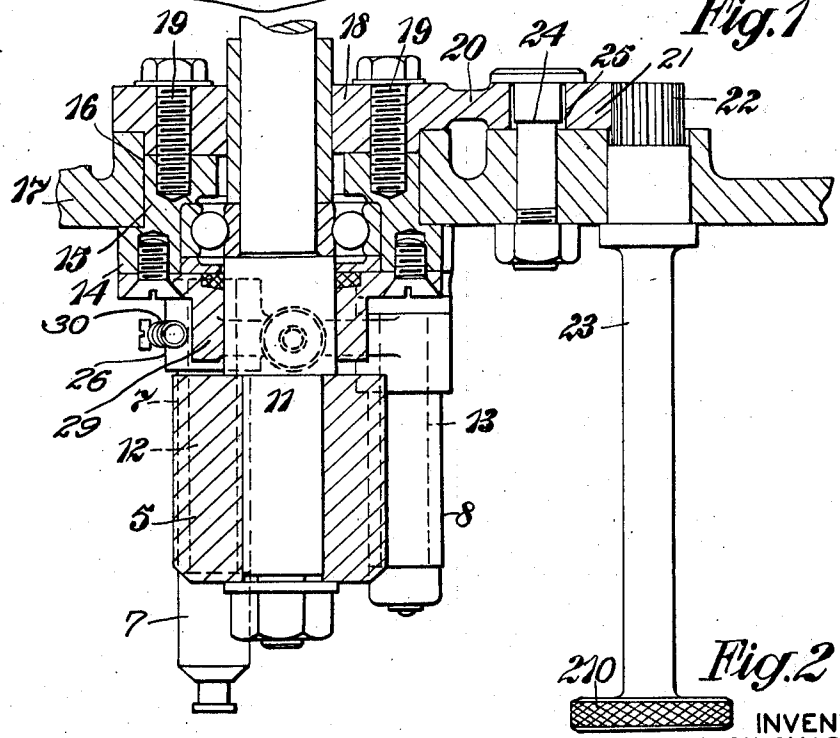


Fig. 2

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APPLICATION OF SECTIONS OF MATERIAL TO A RUNNING WEB

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11 Claims. (Cl. 131—39)

This invention relates to the application of sections of material to a running web and is particularly applicable to a tipping machine or mechanism in which sections of tipping material severed from a web are applied at spaced intervals to the previously gummed patches of a cigarette paper web.

The invention is concerned with the part of the mechanism where the severed section is applied to the gummed patch and is subjected to pressure to cause it to adhere to the cigarette web, and is particularly advantageous when using a tipping material of a frail character.

Hitherto the running cigarette web has been lapped around a pressure roll by a pair of guide rolls arranged on either side of the pressure roll, one of the guide rolls being positioned so that a bight is formed between the lap of the cigarette web and the pressure roll into which the sections of the tipping web are fed. The section of tipping web about to be severed is located in this bight and rests upon the cigarette web, the drag of the cigarette web acting to maintain the section in a flat and extended condition. With this arrangement the section is liable to become gripped between the cigarette web and the pressure roll and fed forward too early so that the section does not coincide correctly with the patch of gum on the cigarette web. Again the grip may be such that the section is torn away from the tipping web before the knife has completely severed it.

An object of the present invention is to provide an improved pressure applying means whereby the above mentioned difficulties will be overcome.

According to the invention the running web, such as a cigarette web, is provided with a lap which is adapted to be bodily adjustable relatively to the co-operating surface of the pressure roll whereby the pressure between the lap and the roll may be varied as desired.

Adjustment of the lap support may also be made to adjust the position of the point at which the pressure is applied.

The invention also comprises bodily adjusting a lap of the cigarette web radially of the pressure roll to vary the pressure therebetween.

The invention also comprises a mechanism for applying tipping sections to a running cigarette wrapper web, having a pressure roll for pressing the sections on the wrapper, and guide rolls for the wrapper web adapted to form a lap of the web engaging the pressure roll and adapted to be adjusted relatively thereto in a radial direction.

A pair of guide rolls may be provided the first of which is adjustable radially relatively to the pressure roll, while the second guide roll is spaced from the pressure roll.

The first guide roll may be mounted upon an arm pivoted about the axis of the second guide roll.

Further features of invention will be hereinafter described and defined in the claims.

In the accompanying drawings:

Figure 1 is a front elevation, while

Figure 2 is a sectional plan of a portion of a cigarette tipping mechanism according to the invention.

In carrying the invention into effect according to one convenient mode in the application, by way of example, to a tipping machine having the characteristics described in the British Patent No. 481,203, the web of tipping material W is intermittently fed through a roll-couple R, to a severing device S so that during the cutting action the web is stationary. Adjacent the severing device a pressure roll **5** is provided which may be arranged so that the lower point of the roll is substantially in horizontal alignment with the plane of the tipping web at the severing point.

The running cigarette web **6** is lapped around a pair of guide rolls so as to provide a lap **6a** located beneath the pressure roll **5** and adapted to engage such roll. The first guide roll **7** is mounted so that it can be adjusted about the axis of the second guide roll **8** and thus the pressure of the lap **6a** of the cigarette web **6** against the tipping web W may be adjusted relatively to the pressure roll **5**. By this arrangement of a pressure lap of the cigarette web which is adjustable bodily in a radial direction with respect to the pressure roll, the pressure may be varied within wide limits as may be required and thus the grip of the pressure roll **5** on the section of tipping web about to be severed may be adjusted with a great degree of accuracy.

The pressure roll **5** is keyed upon a spindle **11** which is driven by any suitable gearing at an appropriate speed. The guide roll **8** is freely mounted upon a stub shaft **13** carried by a mounting **14**. The guide roll **7** is freely mounted upon a stub shaft **12** carried by an arm **26** pivotally arranged about the stub shaft **13** of the guide roll **8**.

After leaving the second guide roll the cigarette web, with the tip sections T, to be described more

at length, passes around a third guide roll 9 which may be arranged in a position to engage the pressure roll 5 near the upper part thereof. The guide roll 9 is mounted in the usual manner on a pivoted spring-pressed arm 10.

In addition to the radial adjustment of the pressure lap 6a of the cigarette web a rotational adjustment with respect to the pressure roll 5 may be made. Such adjustment permits the gripping point between the pressure lap and roll 5 to be adjusted with respect to the point of severance of the tipping web and thus adjustment may be made for different lengths of tipping material.

For this purpose the mounting 14 for the rolls 7 and 8 is provided with a boss 15 which is located within an aperture 16 in the framing 17.

The boss is concentric with the shaft 11 of the pressure roll 5 and is provided with a back cap 18 secured thereto by screws 19 whereby it is held in place but capable of rotary movement.

The back cap 18 has an integral sector 20 having a curved rack 21 with which a pinion 22 meshes. The pinion 22 is mounted upon a spindle 23 extending to the front of the machine and having a knurled head 210 whereby the mounting 14 may be adjusted about the axis of the pressure roll 5. A locking bolt 24 extends through a slot 25 in the sector, whereby the parts may be locked in the adjusted position. The pressure roll 7 is radially adjustable with respect to the pressure roll 5 by the adjusting screw 27 carried by the arm 26 and adapted to abut against the surface 28 of a front cap 29. The roll 7 is held up to the pressure roll 5 by a spring 30.

At times the cigarette web is liable to break and become wrapped around the pressure roll 5. This is accommodated by the spring 30 so that in the event of breakage and consequent growth of the diameter of the pressure roll 5 by the cigarette web wrapping therearound, the roll 7 will be moved outwardly against the action of the spring. A doctor blade D may be provided to aid in preventing the leading end of a web, thus broken, from wrapping around the roll 5.

It will be noted that the pressure roll 5 imparts an initial pressing of each section T of tipping web W onto its gummed patch 36 of the cigarette web, the main pressure being applied by the second guide roll 8 while a further application of pressure may be effected between the pressure roll 5 and the third guide roll 9.

The location and diameter of the second guide roll 8 may be adjusted to suit the available space at the rear of the pressure roll 5.

It is to be understood that the cigarette web 6 is provided with suitably spaced patches of paste as indicated at 36, by known or suitable means, such as that indicated at 136, and which is described at length in the above-mentioned British Patent No. 481,203.

The tips are designated by the reference character T in Fig. 1, being disposed at the desired intervals.

I claim:

1. In mechanism for applying sections of tipping material to a running cigarette wrapper web, a pressure roll for pressing the sections upon the web, guide rolls for the web adapted to form a lap of the web held by at least one of said guide rolls in engagement with the circumference of the pressure roll and held free of said circumference by another of said guide rolls, and means for adjusting the lap relatively to the pressure roll in a radial direction.

2. Mechanism as claimed in claim 1 wherein a pair of guide rolls is provided for forming said lap, the first guide roll acting to press the lap against the pressure roll, while the second guide roll is spaced from the pressure roll, intervening between the pressure roll and said lap, and acts to press said sections into a bight of the lap subtending an arc of considerable extent around the circumference of said last-named guide roll.

3. In mechanism as claimed in claim 1 a third guide roll co-operating with the pressure roll to apply a final pressure to the applied section, said third roll defining the leading end of said lap.

4. In mechanism for applying sections of material to a running web, wherein the web with the sections of material passes between a pressure roll and a cooperating guide roll, means including said guide roll for forming a lap of the running web and means for adjusting said lap in a direction transverse to the surface of the pressure roll to adjust the pressure between the lap and pressure roll, and other guide rolls, one defining a bight in the running web, free of the pressure roll, and another adapted to press the leading end of the lap against the pressure roll at a region spaced from the first-named idler roll, said lap being tensioned to cause said sections of material to be pressed into the bight of said cigarette paper web as it runs around the guide roll defining said bight.

5. In mechanism for applying sections of material to a running web, comprising a pressure roll and a cooperating guide roll between which the web with the sections passes, means including said guide roll for forming a lap of the running web, means for adjusting the guide roll radially of the pressure roll, a device intervening between the pressure roll and web to divert the lap from the pressure roll, resilient means pressing the leading end of the lap yieldingly against the pressure roll, means to draw said web through said mechanism, and a tensioning device associated with said mechanism and adapted to maintain said lap against said intervening device to cause pressure therebetween of an order adequate to complete the attachment of said tipping section to the web evenly throughout their mutually contiguous area.

6. In mechanism for applying sections of material to a running web, comprising a pressure roll and a cooperating guide roll between which the web with the sections passes, means comprising another guide co-acting with said first named guide roll for forming a lap of the running web, said other guide roll being spaced radially from the pressure roll to form a bight in said lap, means for adjusting said lap transversely to the pressure roll, and means for adjusting said lap circumferentially of the pressure roll to adjust the point of contact of the web with the pressure roll, said last-mentioned adjusting means acting respectively to move both of said guide rolls bodily and simultaneously relatively to the pressure roll.

7. Mechanism for applying sections of tipping material to a running cigarette wrapper web, comprising a pressure roll for pressing the sections upon the web, a pair of guide rolls adapted to form a lap of the web, the first guide roll of said pair acting to press the lap against the pressure roll, while the second guide roll of said pair is spaced from the pressure roll, said mechanism comprising also an arm pivoted about the

axis of the second guide roll, and upon which arm the first guide roll is mounted.

8. Mechanism for applying sections of tipping material to a running cigarette wrapper web, comprising a pressure roll for pressing the sections upon the web, a pair of guide rolls for the web adapted to form a lap of said web engaging the pressure roll, an arm pivoted about the axis of the second guide roll of said pair, the first guide roll of said pair being mounted on said arm and acting to press said lap against the pressure roll, the second guide roll being spaced from the pressure roll, and a mounting adjustable rotatively about the axis of the pressure roll and upon which said guide rolls are carried.

9. Mechanism for applying sections of tipping material to a running cigarette wrapper web, comprising a pressure roll for pressing the sections upon the web, a pair of guide rolls for the web adapted to form a lap of said web engaging said pressure roll, a relatively fixed supporting part provided with an axis for said pressure roll and with a mounting having spaced axes, one for each of said guide rolls of said pair, an arm pivoted upon one of said last-named axes and having a free end upon which the first guide roll of said pair is mounted rotatively, an adjusting screw carried by said arm and co-operating with said relatively fixed part for adjusting said first guide roll radially of the pressure roll, and spring means for holding said screw against the fixed part.

10. Mechanism for applying sections of tipping material to a running cigarette wrapper web, said mechanism comprising a pressure roll for pressing the sections upon the web, a pair of guide rolls for forming a lap of said web engaging said pressure roll, a fixed support, an adjustable mounting having means by which it may be secured in adjusted rotative position upon said support, said guide rolls being both carried by axes fitted to said mounting, an arm pivoted upon the axis of the second of said pair of guide rolls in order of travel of the web, and the first of said guide rolls being mounted upon the free end of said arm, an adjusting screw carried by said arm and abutting against said mounting for adjusting the first guide roll radially of the pressure roll, and adjusting means for said mounting comprising a toothed sector and an adjusting pinion intermeshing therewith.

11. Mechanism as claimed in claim 1, wherein a set of three guide rolls is provided, the first guide roll and last guide roll of the set being each adapted to press an end of said lap against said pressure roll, thereby defining the linear extent of the lap, and the intermediate guide roll of the set being disposed freely in the space intervening between said pressure roll and the web lap, tending to press the tip sections firmly within a bight of the cigarette wrapper web formed by said intermediate roll in the running cigarette wrapper web.

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