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MEANS AND APPARATUS FOR CONTROLLING A TRAVELING WEB OF PAPER

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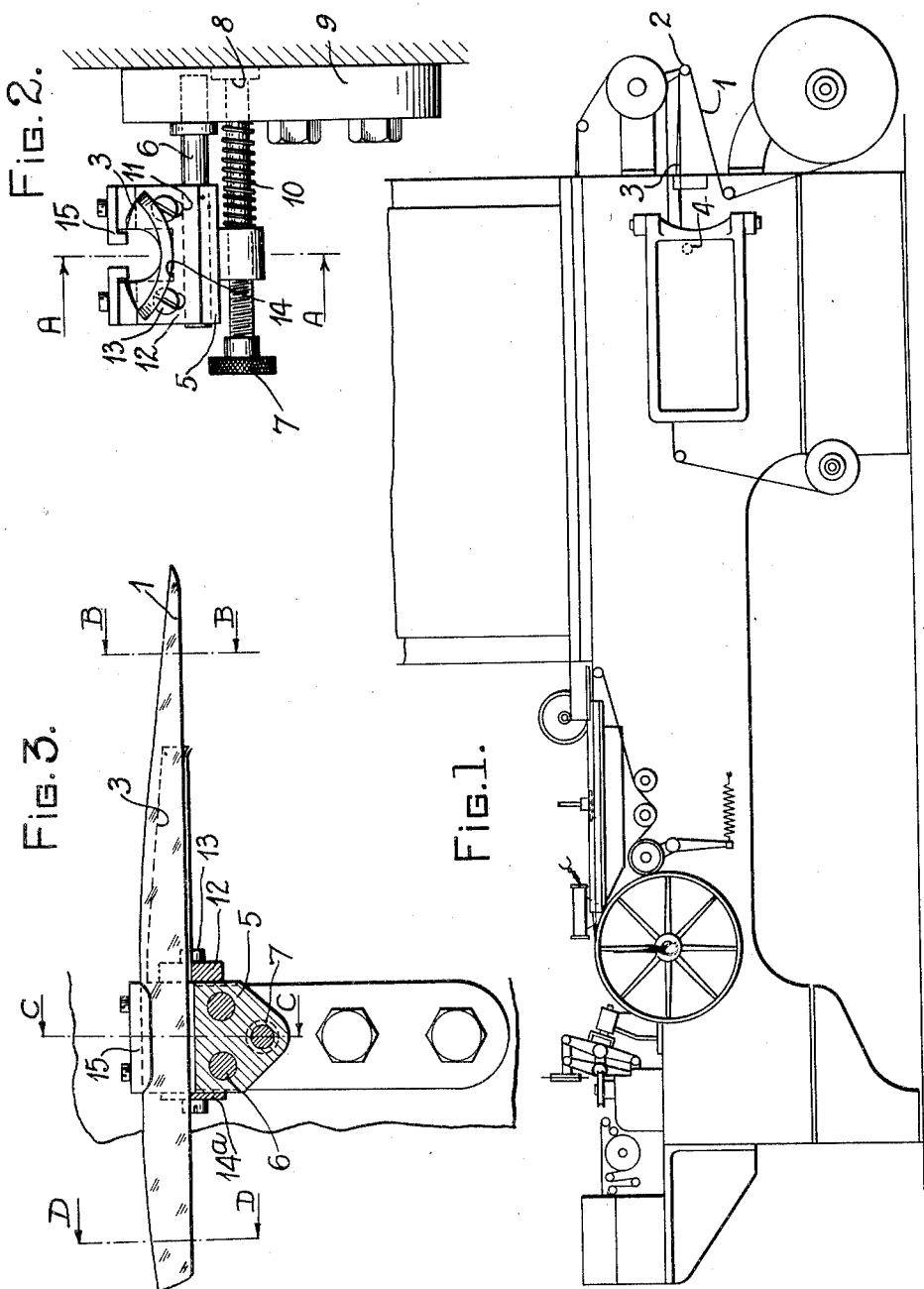


FIG. 4.

FIG. 5.

FIG. 6.

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MEANS AND APPARATUS FOR CONTROLLING A TRAVELING WEB OF PAPER

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This invention is for an improved means and apparatus for controlling a traveling web of paper, and has for its object the provision of means whereby a web of paper may be led from a buckled reel through a guide which is operable to arrest any transverse movement and present the web in a flat condition to an apparatus adapted to print upon the same and/or apply material, for example, cork to the surface of the web.

The present invention consists of a device for controlling a traveling web of paper which comprises means, disposed between two flat guide surfaces, arranged to receive the web and cause the same to assume a substantially U shaped transverse configuration.

The invention will be more particularly described with reference to the accompanying drawings, in which:—

Fig. 1 is a side elevation of a cigarette making machine with a device constructed according to the present invention applied thereto.

Fig. 2 is an end elevation of a device constructed according to the present invention.

Fig. 3 is a section on the line "A—A" of Fig. 2.

Fig. 4 is a section of the paper web on the line "B—B" of Fig. 3.

Fig. 5 is a section of the paper web on the line "C—C" of Fig. 3, and

Fig. 6 is a section of the paper web on the line "D—D" of Fig. 3.

The device shown in the drawings is intended to be used on a cigarette making machine of the continuous rod type, an example of which is described in specification No. 258,637, wherein a web of the cigarette paper is fed from a reel through a printing and cork tipping unit, whereafter the web of cigarette paper is passed through a U shaped channel disposed beneath the tobacco feeding apparatus to receive a shower of tobacco therefrom. The tobacco and cigarette paper is thereafter passed through folding mechanism which converts the same into a continuous rod which is automatically severed into cigarettes.

With a cigarette making machine of the character referred to, if the reel of cigarette paper is buckled, the web, as it passes through

the printing unit, is continuously affected by the transverse buckle of the reel, and it is found impossible to obtain continuous register of the cigarette paper with the tipping material.

Referring to the drawings, a web of cigarette paper 1 is drawn over a guide roller 2, through a U shaped guide 3 which causes the paper to be gradually formed transversely into a U configuration from which it is gradually brought into a flat condition and passed over a guide roller 4 and thereafter to the printing and tipping units.

Figs. 4, 5 and 6 indicate three stages of the paper web as the same moves through the device.

The guide 3 is carried on an adjustable block 5 which is mounted on a pair of guide pins 6 fixed to the main frame of the machine.

A nut is formed in the lower portion of the block 5 and a knurled screw 7 extends through the nut and is prevented from moving axially by a collar 8 which rotates in a recess in the plate 9 which is screwed to the frame of the machine.

A spring 10 is mounted on the screw 7 in order to account for any play between the threads of the screw and nut.

The U shaped guide 3 may be adjusted in a vertical direction by slots 11 formed in the end plate 12 of the guide 3 engaging with adjustable screws 13.

The block 5 is provided with a rectangular groove 14 which forms a clearance for the side edges of the paper. A plate 14^a with a U shaped groove in the upper surface thereof is adjustably mounted on the opposite side of the block 5 and forms in effect a continuation of the surface of the guide 3.

Adjustable top guides 15 provided with downwardly extending lips, as shown in Fig. 2 are provided which form a location for the edges of the paper when it is bent up into the U shape. The paper then leaves the guide and opens gradually until it becomes flat again, before it passes into the printing mechanism.

It is found that by causing the paper to assume the U shape referred to, the lateral movement of the cigarette paper is arrested

and the paper is delivered to the printing and tipping units without any sideways movement whatsoever.

With an arrangement of the above character it is possible to move the reel continuously from side to side as the paper is being drawn therefrom, and yet ensure that the paper has no transverse movement when passing through the tipping and printing units.

It will be understood that the web of cigarette paper may be given any suitable transverse configuration which would give it a corresponding transverse rigidity, for example, the same may be formed with corrugations, and it is to be understood that a mechanism of such a character is intended to be covered by the expression "causing the web to assume a substantially U shaped transverse configuration".

What I claim as my invention and desire to secure by Letters Patent is:—

1. In apparatus for guiding paper webs to arrest transverse movement thereof, the combination with a guide member having a curved surface for engagement with said web, the degree of curvature of said surface increasing in the direction of movement of the web to cause the web to assume a curved configuration resistant to lateral bending, of guide means for thereafter engaging the web to flatten the same.

2. In apparatus for guiding paper webs to arrest transverse movement thereof, the combination with a guide member having a curved surface for engagement with said web, the degree of curvature of said surface increasing in the direction of movement of the web to cause the web to assume a curved configuration resistant to lateral bending, of means associated with said guide member and adjustable transversely thereof for engaging the edges of the curved web to properly position the web within the guide member.

3. In apparatus for guiding paper webs to arrest transverse movement thereof, the combination with a guide member having a concave surface substantially U-shaped in cross-section for engagement with said web, the degree of concavity of said surface increasing from the entry to the discharge end of said member, of means associated with said guide member for engaging the edges of the curved web to properly position the web, and means for supporting said guide member and said first named means for separate adjustment transversely of the direction of movement of the web.

4. In a cigarette making machine of the continuous rod type having mechanism for performing an operation upon the web of cigarette paper through which the web is drawn, the combination with means for guiding the web in flat condition into said mechanism, of a guide disposed in advance of said means for arresting transverse movement of the web

while passing over said means and through said mechanism, said guide having a substantially U-shaped surface disposed in advance of said first named means, said surface increasing in concavity in the direction of movement of the web to cause the web to assume a curved configuration resistant to lateral movement.

In testimony whereof, I have signed my name to this specification at London, England, this 18th day of June, 1929.

FELIX FREDERIC RUAU.

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