

March 26, 1957

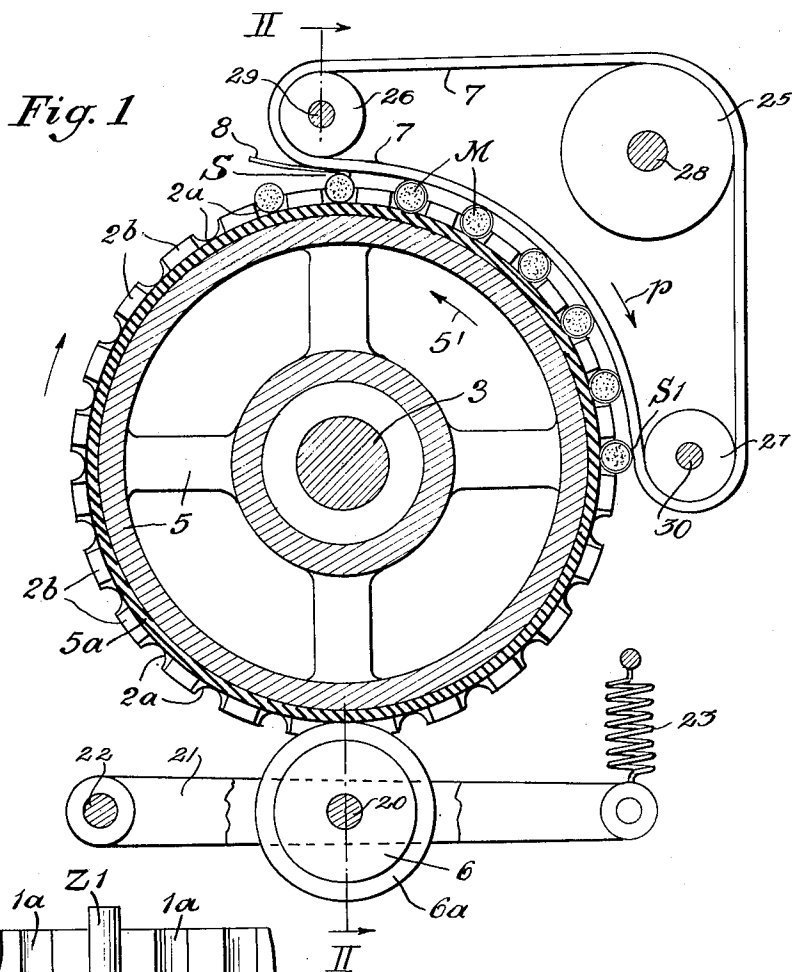
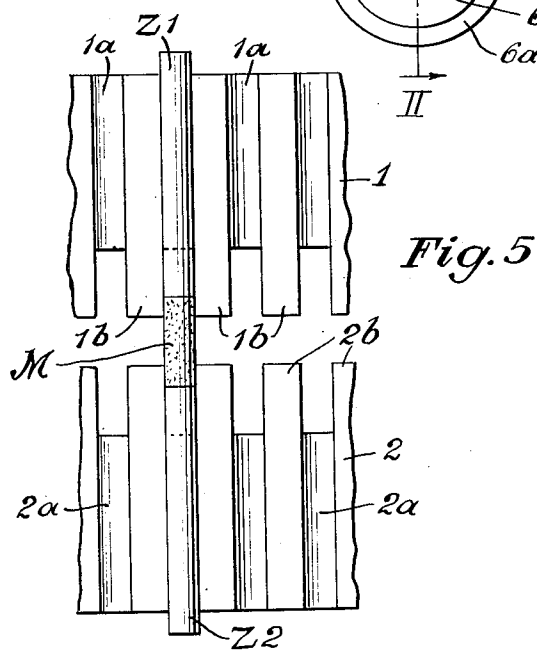
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PRODUCING FILTER MOUTHPIECE CIGARETTES, CIGARILLOS AND THE LIKE

Filed Sept. 8, 1955

2 Sheets-Sheet 1



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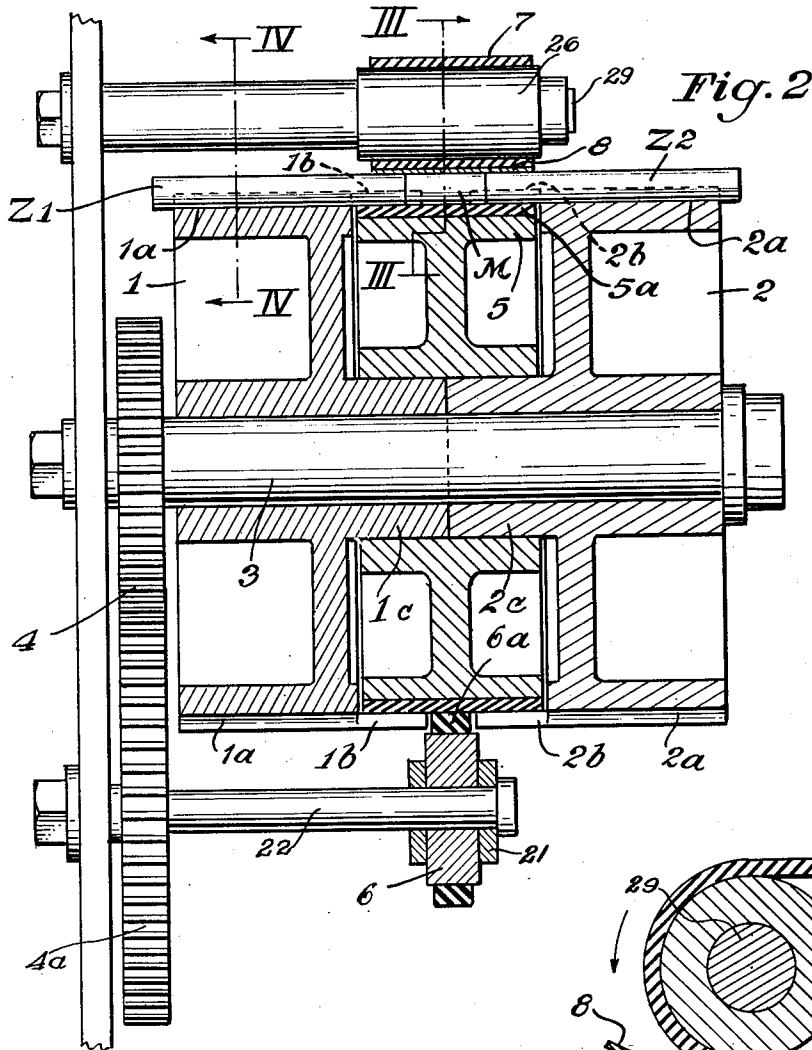


Fig. 2

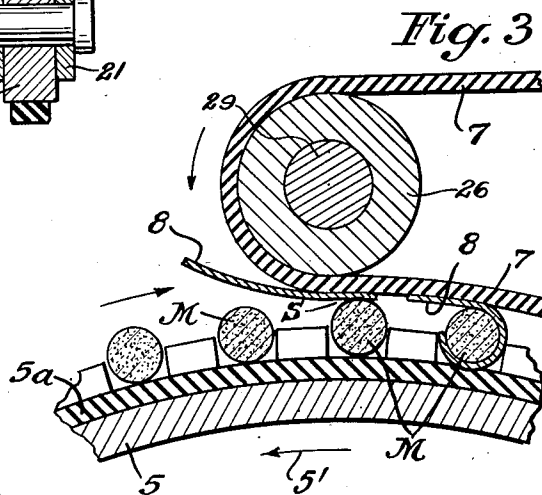


Fig. 3

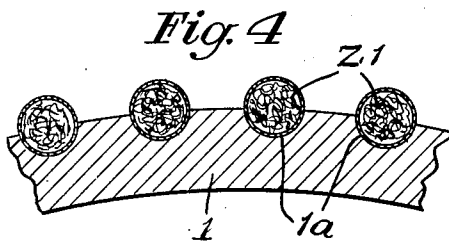


Fig. 4

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1

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## PRODUCING FILTER MOUTHPIECE CIGARETTES, CIGARILLOS AND THE LIKE

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Claims priority, application Germany September 18, 1954

5 Claims. (Cl. 131—94)

The invention relates to a method and device for attaching filter mouthpieces to cigarettes, cigarillos or the like by means of connecting bands which are wrapped around their ends.

In the manufacture of mouthpiece cigarettes (filter tip cigarettes) it is known to deposit two axially aligned cigarettes with a filter mouthpiece of double length between them into an axial groove on the circumference of a drum. On this drum the abutting ends of the cigarettes and the respective filter mouthpieces are provided with an adhesive coated connecting band which is wrapped around the cigarettes and the filter.

The feeding of the connecting bands and wrapping the same around the filter tips at the adjacent ends of the cigarettes is rather difficult. In the known methods, it is usually necessary to provide special means for prebending the thin connecting bands to start the wrapping method. Because the thin bands are gummed, it is rather difficult to provide said means, because the thin bands usually become smeared, and the control of the device is very complicated. Furthermore, the additional intermediate means prolong the transportation path of the cigarette mouthpiece groups with the connecting band adhering thereto, the guiding of which is uncontrolled, which was undesirable, since the connecting bands are easily displaced, so that they cannot be wrapped around the filter tips in proper manner.

It is an object of the present invention to eliminate the above mentioned difficulties in that the connecting bands are wrapped around the cigarettes and filters while the cigarette filter mouthpiece groups are disposed on a rotatable conveying means, for instance, by two rotary drums, the wrapping being assisted by a special rotary rim positioned between said two adjacently arranged drums.

The preferred embodiment of the present invention employs two axially aligned grooved drums used as a conveying means, whereby for the wrapping of the cigarette mouthpiece groups a rotary rim is provided which is disposed between the two drum grooves. Said rim may be motionless or is rotary, in which latter case it is driven in a direction opposite to the rotation of the drums. The rotary movement of the cigarette mouthpiece groups is assisted by an endless belt which surrounds a part of the circumference of the surface of the drums and rotates in the same direction as the drums. The wrapping of the connecting band is performed in this case between two moving surfaces, which engage the cigarette mouthpiece groups tangentially on opposite sides and move in opposite direction.

An embodiment of the present invention, comprising the above described means is shown schematically in the accompanying drawings.

Fig. 1 is a cross sectional view of a rotary drum in the axial grooves of which cigarette mouthpiece groups are deposited.

Fig. 2 is an axial sectional view along the line II—II of Fig. 1.

2

Figs. 3 and 4 are partial sectional views along the lines III—III and IV—IV of Fig. 2 in an enlarged scale, and

Fig. 5 is a view of partial development of the circumference of the drum.

Referring to the drawings, axially aligned rotary drums 1 and 2 (Fig. 2) are mounted on a common driving shaft 3. These drums are provided with grooves 1a and 2a on their circumference in customary manner for transportation of cigarette mouthpiece groups. The shaft 3 is driven by gear wheels 4 and 4a. The axial grooves are separated from each other by fillets 1b and 2b, respectively, as illustrated in Figs. 2 and 5.

According to Figs. 2 and 5, the axial grooves are of the same length as the width of the drum. These grooves are used for receiving cigarettes Z1 and Z2. But the fillets 1b and 2b are longer than the axial width of the drums for guiding the mouthpieces to be attached to the cigarettes.

A rotary intermediate drum 5 is disposed in the center of the two drums and is positioned below the cigarette ends projecting over the adjacent ends of drums. The intermediate drum 5 is disposed centrally below the mouthpieces between the cigarettes and is provided with an elastic layer 5a and is rotatably supported by the adjacent hub portions 1c and 2c of the drums 1 and 2. The outer diameter of the rim 5a is equal to the root or minor diameter of the axially aligned drums. The intermediate drum 5 is driven in this embodiment of the invention from the outside, for instance, by means of a friction wheel 6 which is driven in any suitable manner. For this purpose, the shaft 20 is provided with a gear wheel 4a which is slightly larger in diameter than the gear wheel 4. The wheel 6 has a friction layer 6a which contacts the layer 5a of the intermediate drum 5 between the ends of the drum fillets 1b and 2b. The friction wheel 6 is supported on a shaft 20 which extends through bearing openings in a lever 21 having one end pivoted as at 22 to a part of the machine frame and the other end yieldingly urged upwardly by a coil spring 23 likewise connected to the machine frame.

A continuously moving endless belt 7 is placed with a portion thereof from the outside against a portion of the circumference of the drums 1 and 2 and against the intermediate drum 5. The belt 7 is trained over pulleys 25, 26 and 27 supported on suitable shafts 28, 29 and 30 (Fig. 1) and embraces the above mentioned surfaces in a substantial angle and is driven to rotate in the same direction as the drums 1 and 2, but moves at a greater speed than the drums in the direction p. The rotation of the rolling intermediate drum 5 and rim 5a, however, is in opposite direction and is much slower than that of the drums. The intermediate drum 5 could even be stationary if desired.

The connecting bands 8 are supplied to the cigarette mouthpiece groups at the position S (Figs. 1 and 3) and during their travel from position S to S1, they are wrapped around over the mouthpiece M and the adjoining cigarette ends in a simple but most effective manner. The rim 5, 5a rotates very slowly in the direction 5', or is stationary.

What I claim is:

1. Apparatus for applying mouthpieces to cigarettes and the like, comprising a drive shaft, a pair of axially aligned drums mounted on said drive shaft, each of said drums being provided with grooves on their circumference, the grooves of one drum being adapted to be axially aligned with respect to the grooves of the other drum, said axially aligned grooves being adapted to receive two axially aligned cigarettes having a common mouthpiece section connecting said cigarettes, an intermediate drum having a rim with an outside diameter corresponding to the root diameter of said grooved axially

3

aligned drums rotatably mounted between said drums, means for providing relative rotation between said grooved drums and said rim, an endless belt assembly surrounding a part of the circumference of said drums adapted to be driven at a linear speed in excess of the peripheral speed of said grooved drums, said endless belt engaging the cigarette and mouthpiece groups in said axial grooves from the point at which an adhesive coated connecting band is applied to each group so that the relative movement between said intermediate drum and said first named drums will cause said bands to be wrapped around said cigarette mouthpiece groups.

2. Apparatus according to claim 1, including means for driving said intermediate drum at a peripheral speed differing from the linear speed of said endless belt.

3. Apparatus according to claim 1, including fillets between the axial grooves in said drums, said fillets extending beyond the spaced confronting end walls of said drums and over the circumferential surface of said rim and into spaced confronting relation, and driving means

4

for said intermediate drum comprising a rotary friction wheel disposed between the confronting ends of said fillets and in friction engagement with said rim.

4. Apparatus according to claim 1, wherein the circumferential surface of said intermediate drum comprises a rim of elastic material.

5. Apparatus according to claim 1, including means for driving said intermediate drum at a peripheral speed greater than the speed of said first named drums.

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