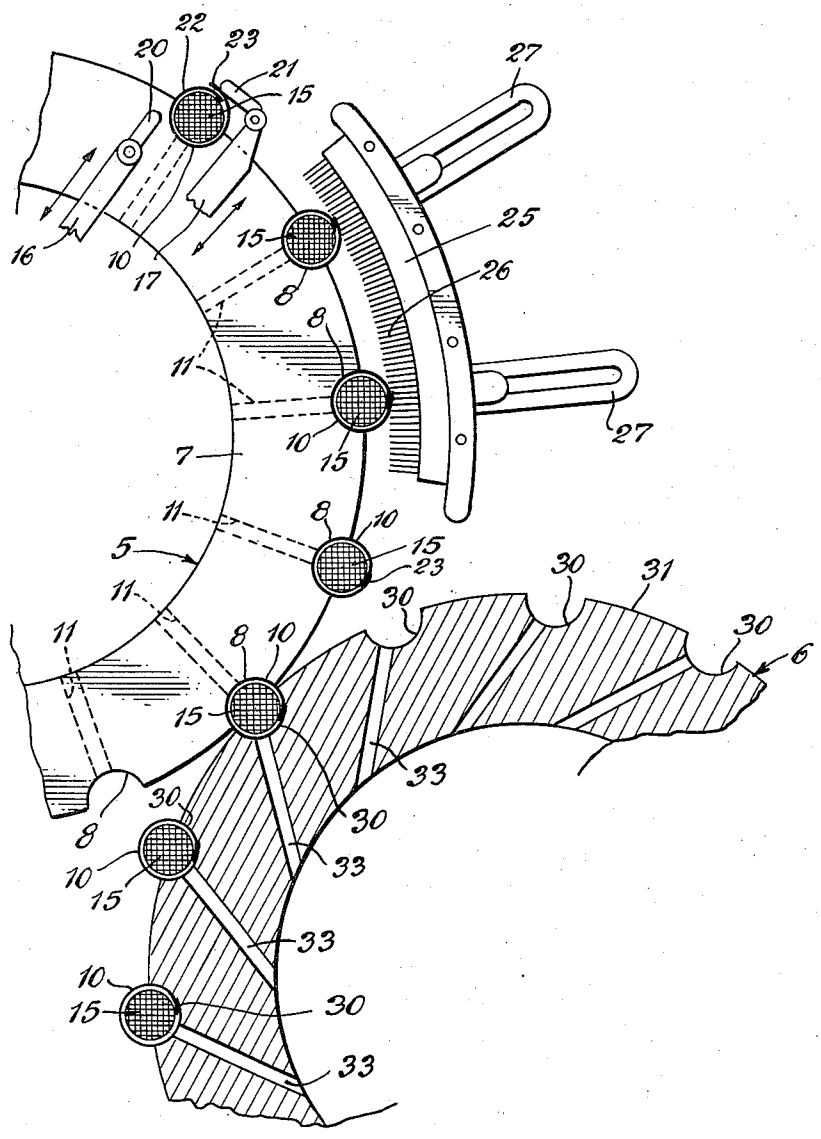
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MECHANISM FOR WRAPPING ASSEMBLED CIGARETTE CARTRIDGES OR CIGARETTES AND FILTER MOUTHPIECES

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MECHANISM FOR WRAPPING ASSEMBLED CIGARETTE CARTRIDGES OR CIGARETTES AND FILTER MOUTHPIECES

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1 Claim. (Cl. 131—94)

The present invention relates to improvements in mouthpiece cigarettes of the filter type, and more particularly to a mechanism for wrapping assembled cigarette cartridges or cigarettes and filter mouthpieces. The invention is more particularly concerned with mechanisms for forming filter mouthpiece cigarettes in which two cigarettes of substantially standard length are arranged in axial spaced alinement on a carrier so that filter mouthpiece elements may be automatically deposited therebetween, after which a connecting wrapper is affixed to the inner ends of the cigaretes and around the filter mouthpiece to form a continuous rod which when divided by cutting at an intermediate point forms complimentary filter mouthpiece cigaretes of equal length and uniform size.

Hitherto, when applying the wrapper for connecting the inner ends of the cigarette units with the filter mouthpiece, the adhesive was displaced from the joint between the overlapping ends of the connecting bands or wrappers. This caused the assembled cigarette and filter mouthpiece units to stick in the rotary carriers and in addition caused the wrappers to become displaced due to the reduced pressure or suction in the carriers for maintaining the assembled cigarettes and filters in position during their transfer from one rotary carrier to another in the various stages of manufacture.

One object of the invention is to apply adhesive to one edge of the wrapper spaced inwardly a slight distance from the end thereof so that as the end flap is pressed in place, the adhesive will be displaced toward the end of the wrapper and will not be displaced beyond the outer edge. An adjustable brush is arranged to engage the outer flap of the wrapper such as to impart a brushing motion thereto during the travel of the assembled cigarettes and mouthpiece through a portion of their circular travel.

Another object is to provide a mechanism for transferring the assembled cigarette units with the filter mouthpieces therebetween connected by the wrapper to another rotary carrier with the air ducts therein arranged tangentially and extending outwardly in the direction of rotation. This construction prevents the reduced pressure area from being imposed upon the adhesively secured flap portion of the wrapper and thus prevents the wrapper from becoming disconnected. The rotary carrier during its circular travel conveys the assembled cigarette units with the filter mouthpieces therebetween to a cutting element which cuts the assembled cigarette units and filter mouthpieces at a point intermediate the ends of the mouthpiece filter to form complimentary filter mouthpiece cigarettes of standard and uniform length.

Another object is to provide a mechanism for forming dual cigarettes from a pair of cigarette units with a filter mouthpiece connecting the ends of the units by means of a wrapper which is folded about the assembled cigarettes and filter units by oscillating folding flaps, one of which moves to a position a slight distance from the outer overlapping edge of the wrapper a distance sufficient to cause the overlapping ends to be adhesively tacked. Upon

continued circular movement of the cigarettes and filter mouthpieces on the carrier, the wrapper is completely united by a brush which is disposed adjacent the peripheral edge of the rotary carrier such as to lightly brush the outer wrapper flap and maintain the same in position for a small interval of time sufficient to secure a firm bond between the overlapping ends of the wrapper.

In the drawing there is shown a diagrammatic arrangement for accomplishing the invention, and while the drawing shows a preferred embodiment described in the following specification, it will be understood that the same is exemplary. Also, it is to be understood that other objects and advantages of the invention will become apparent during the course of the following description of the accompanying drawing, wherein:

Figure 1 is a fragmentary vertical sectional view through segmental portions of a pair of rotary carriers, one of which is provided with wrapper folding mechanism shown and described in the B. Schubert Patent Number 2,714,384, Serial No. 338,360, filed February 24, 1953, and issued August 2, 1955. There is shown a brush to assist in adhesively securing the overlapping ends of the connecting wrapper together during a portion of the circular travel of the cigarette units and intermediate mouthpiece element.

In the drawing, and more in detail, there is shown a rotary carrier **5** generally designated and also a carrier generally designated **6**. The rotary carrier **5** includes a cylinder **7** having a plurality of circumferentially spaced grooves **8** in its peripheral surface for receiving preassembled cigarettes and filter mouthpieces. In the present invention a pair of cigarettes of substantially conventional length are deposited in the grooves **8** in spaced relation a distance to permit a mouth piece filter to be deposited therebetween. The pre-assembled units are then deposited onto the drum **5** where a wrapper **10** of paper having an adhesive applied thereto along one end spaced inwardly from one edge thereof so that the adhesive will not spread beyond the overlapping edge and ooze from therebetween.

The assembled units are held in place within the grooves **8** by reduced pressure and ducts **11** extend radially through the drum **7** and communicate with the grooves **8**. The inner ends of the ducts **11** may be connected to a reduced pressure source (not shown).

During the travel of the assembled cigarettes and intermediate mouthpieces designated **15**, the wrapper **10** is folded about the cigarette mouthpiece assembly. The wrappers **10** may be successively deposited in the notches **8** as described in the Schubert application and reciprocating rods **16** and **17** arranged in pairs with one on each side of the grooves **8**. Suitable mechanism is provided for reciprocating the rods **16** and **17** and the ends of the rods are provided with folding flaps **20** and **21**. The wrappers **10** are of a length sufficient to cover the filter mouthpiece and a small portion of each cigarette cartridge at the inner ends thereof. The adhesive is supplied to one end of the wrapper a short distance from the free edge to prevent the adhesive from being displaced beyond the edge of the wrapper. The folding flap **20** first engages the edge **22** of the wrapper **10** and folds it about the cigarette filter assembly **15**. The other folding flap **21** is operated when the folding flap **20** is retracted, and said folding flap **21** is arrested when in the position shown in Figure 1 with the end thereof spaced a distance from the outer overlapping edge of the wrapper. This provides pressure to adhesively secure the overlapping ends of the wrapper lightly, and as the connected cigarette filter elements continue through the remaining portion of their circular travel on the drum **5**, the overlapping outer flap **23** of the wrapper **10** is brushed and held in frictional contact with the underedge of the wrapper by means of a brush **25** having bristles **26** extending about an

arcuate pathway. The brush **25** is adjustably supported on a pair of radially disposed brackets **27** connected to the machine frame in any suitable manner. Thus, the brush **25** can be adjusted to increase or decrease the bristle tension on the flap **23** of the cigarette filter mouthpiece assembly **15**.

As the assembled cigarettes and filter elements **15** move about an arc on the drum **7** the brush bristles **26** apply a pressure brushing action to the overlapping flap **23** and by the time the cigarettes and intermediate filter elements connected by the wrapper **10** travel the distance of the brush **25** the flap **23** will have been nicely secured in place without displacing adhesive.

Upon continued movement about a circular pathway the cigarettes and connected filter **15** are transferred to the drum **6** and are deposited in circumferentially spaced peripheral grooves **30** in the drum periphery **31**. The drums **5** and **6** are arranged so that their bite or concontactual engagement point is below the brush **25**, and the peripheral grooves **30** are spaced a distance corresponding to the distance between the grooves **8** so that the grooves **8** and **30** will mate at the point of contact. In this manner, the cigarette filter units **15** are transferred to the drum **6** and they are released from the drum **7** by cutting off the reduced pressure supply at this point through the ducts **11**. Suitable mechanism such as a valve plate or the like operated by the drum **7** can be devised for accomplishing this purpose. The cigarette mouthpiece connected units are thus transferred to the drum **6** where they are held in place by reduced pressure connecting the grooves **30** with a suitable reduced pressure source connected to the inner ends of the ducts **33**. The ducts **33** are tangentially disposed and extend outwardly in the direction of drum rotation. This arrangement eliminates the outer end portion of the ducts **33** from imposing reduced pressure on the flap **23** at the point where the ends of the wrapper overlap. Suitable connections (not shown) may be provided between the source of reduced pressure and the inner ends of the ducts **33**, and valve means may be provided for interrupting the reduced pressure after the cigarettes connected by the filter and wrapper have been cut intermediate their ends to form pairs of mutually shaped cigarettes of conventional length with a filter mouthpiece on one end of each cigarette. By interrupting the reduced pressure supply through the ducts **33** the complementary cigarette may be discharged into a container for packaging.

It is to be understood that the form of the invention herewith shown and described is to be taken as a preferred embodiment and that various changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claim.

I claim:

In a mechanism for adhesively connecting ends of a wrapper having an adhesive spaced from one end edge thereof around a pair of spaced axially aligned cigarettes with a mouthpiece filter arranged therebetween in forming complimentary cigarettes when the mouthpiece and wrapper are severed intermediate their ends, a rotary drum having a series of spaced grooves on its peripheral surface adapted to receive a wrapper and spaced cigarettes with filter elements therebetween with the wrapper extending the length of the filter and inner ends of the cigarettes a slight distance therealong, folding flaps associated with said drum adapted to be alternately operated to engage the ends of the wrapper and press the same into overlapping contactual engagement with one of the folding flaps contactually engaging an overlapping end portion of said wrapper in the area of said adhesive portion, reduced pressure ducts in said drum communicating with said grooves at one end and with a reduced pressure source at the opposite end to hold said cigarette mouthpiece and wrapper assemblies against rotation in said groove, an arcuate brush presented to the periphery of said drum and conforming in contour to the outer periphery of said drum and adapted to engage the outer overlapping end portion of said wrapper and press the same into firm contact with an end of the wrapper therebeneath during continued movement of the drum about a circular path, a second transfer drum rotatable in a predetermined direction about a center axis and having spaced grooves in its peripheral surface adapted to receive the wrapped cigarette and mouthpiece element after the assembly has passed said arcuate brush, each of said spaced grooves having a lowermost portion in radial alignment with the center axis of said second transfer drum, non-radial reduced pressure ducts in the drum communicating with the spaced grooves in the periphery thereof and with a reduced pressure source, and said non-radial ducts being arranged to communicate with said spaced grooves at a point above the lowermost portion of the grooves in the direction of rotation of said second transfer drum to prevent reduced pressure in said ducts from exerting a pulling force on the outer overlapping end portion of said wrapper when the connected cigarette and mouthpiece assemblies are transferred from said first mentioned drum to the spaced grooves in said second transfer drum.

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