May 12, 1959 K. KÖRBER 2,886,043

MACHINE FOR MANUFACTURING FILTER MOUTHPIECE CIGARETTES

Original Filed June 22, 1954

Fig. 1

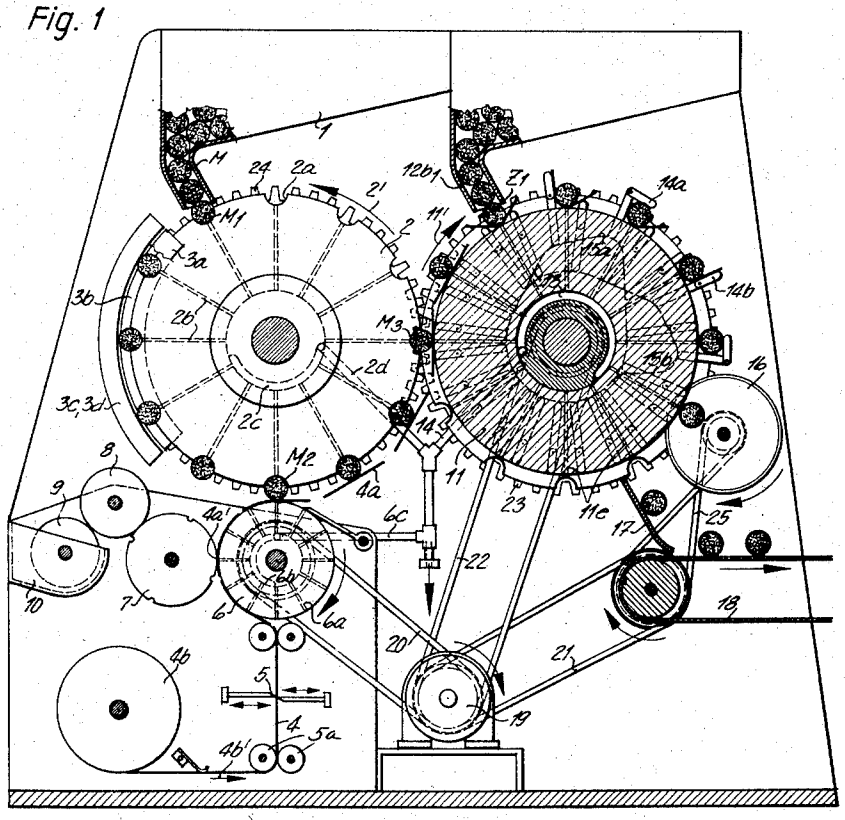
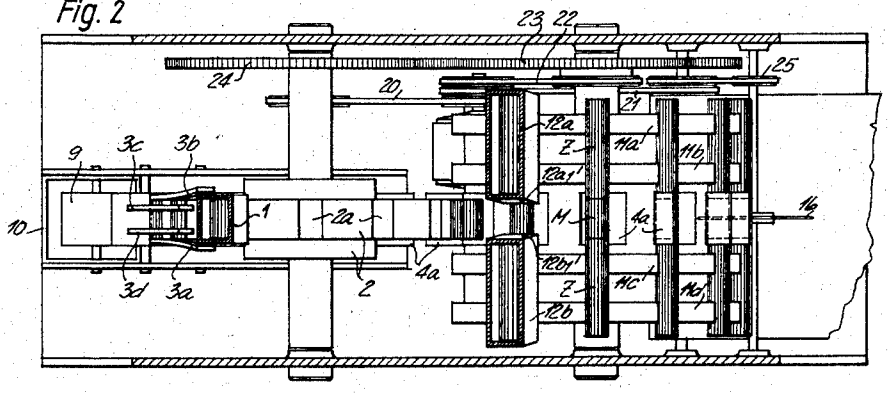


Fig. 2



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United States Patent Office 2,886,043 Patented May 12, 1959

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MACHINE FOR MANUFACTURING FILTER MOUTHPIECE CIGARETTES

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Original application June 22, 1954, Serial No. 438,532, now Patent No. 2,830,595, dated April 15, 1958. Divided and this application August 15, 1956, Serial No. 604,230

Claims priority, application Germany September 22, 1953

3 Claims. (Cl. 131—94)

The invention relates to improvements in the manufacture of filter mouthpiece cigarettes or the like, and has particular reference to a machine by which an assemblage consisting of two cigarettes arranged in spaced axial alinement with a mouthpiece of double length therebetween is formed on rotary members and the mentioned cigarette parts are joined together by a glued connecting band and thereafter the assembly is divided in the center of the mouthpiece so that two cigarettes each having a mouthpiece are produced. This invention is a division of applicant's copending patent application Serial No. 438,532 filed on the 22nd day of June 1954 and now Patent No. 2,830,595 granted April 15, 1958.

The present invention differs basically from known machines of this kind in that first the mouthpieces of double length are deposited on a rotary member and are brought into contact with the glued connecting bands, whereupon the latter are deposited upon a second rotary member on which the cigarettes supplied from two sides are laid down on the end portions of the connecting bands projecting beyond the mouthpieces. The end portions of the connecting bands extending laterally beyond the ends of the cigarettes-mouthpiece-groups are then wrapped around the abutting joints between the mouthpieces and the two adjacent cigarettes on the same rotating member, thereafter the assemblages thus formed are servered in the center of the mouthpiece and the mouthpiece cigarettes formed in this manner are conveyed to a place of deposit.

This and other objects of the invention are described in the following specification and illustrated in the accompanying drawings showing a preferred embodiment of a machine of the invention:

In the drawings:

Fig. 1 illustrates diagrammatically a side view of a machine, partly shown in sectional view; and,

Fig. 2 represents a top view, with the magazines for mouthpieces and cigarettes cut away for sake of clarity.

Referring first to Fig. 1, the magazine **1** contains the mouthpieces M of double-length which pieces are deposited at M1 into trough-like grooves **2***a* on the circumference of a rotary drum **2** rotating in the direction of the arrow **2'** (counterclockwise).

In order to obtain an accurate placement of the mouthpieces into the grooves **2***a*, there are provided lateral guide plates **3***a* and **3***b* (Figs. 1, 2) between which said mouthpieces M are passed through when the drum **2** revolves, permitting the mouthpieces to accurately adjust themselves in the grooves **2***a* of the drum **2**. There are also provided two arcuate strips **3***c* and **3***d* which prevent the mouthpieces from dropping out of the grooves when the drum is rotated.

Suction ducts **2***b* communicate with the bottoms of the grooves **2***a* in a manner known per se, which ducts before the grooves **2***a* have been rotated beyond the guide strips **3***c*, **3***d* are brought into communication with a connecting passage **2***c* which communicates with a source of suction through a duct **2***d*. The mouthpieces are thus retained in the grooves **2***a* by means of the applied suction force, after they have passed the guide strips **3***c*, **3***d*.

At the point M2 glued connecting bands **4***a* are affixed to the mouthpieces, which bands, are cut-off at **5** from a paper tape **4** unwinding between rollers **5***a* from a supply spool **4***b* in the direction of the arrow **4***b'*. The individual bands **4***a* are deposited on a rotary suction drum **6**.

The suction drum **6** also is provided with suction ducts **6***a* which communicate through a connecting duct **6***b* with a suction pipe **6***c* and thus retain the severed connecting bands **4***a* on the drum **6**. These connecting bands are at **4***a'* coated by a drum **7** with an adhesive which by the intermediary of a drum **8** is supplied by a drum **9** with adhesive contained in the receptacle **10**.

After the mouthpieces M together with the connecting bands **4***a* adhering thereto have been moved by the rotary drum **2** from the place M2 to the place M3, the connecting bands together with the mouthpieces adhering thereto are deposited on a rotary drum **11** which rotates clockwise in the direction of the arrow **11'**.

The rotary drum **11** is so wide that it is possible to place groups of two axially spaced and axially alined cigarettes Z thereon, with the mouthpiece M therebetween. For this purpose there are provided at each of the two ends of the mouthpieces M around the periphery of the drum **11** two rings **11***a*, **11***b* and **11***c*, **11***d*, respectively, which are provided with axially extending grooves. At the point Z' the cigarettes Z are deposited in pairs into the grooves in these rings **11***a*, **11***b* and **11***c*, **11***d*, respectively, from two magazines **12***a* and **12***b* (see also Fig. 2) so that they come to rest with one of their ends, which face the mouthpieces M upon the projecting end portions of the connecting bands **4***a* to the center portions of which the mouthpieces are adhering.

Furthermore the provision is made that the discharge supports $12a_1$ and $12b_1$ of the magazines **12***a* and **12***b* are inclined as shown at $12a_1'$ and $12b_1'$ (see Fig. 2), towards the mouthpiece M, in order to assure that the cigarettes Z are moved into abutting engagement with the ends of the mouthpiece. The cigarettes leaving the discharge branch of the magazine thus hit against the respective end portion of the mouthpiece and later come to rest upon the connecting band.

The connecting band deposited on the periphery of the drum **11** together with the mouthpiece M adhering thereto, and as well the cigarettes Z deposited in the grooves of the drum rings **11***a*, **11***b*, **11***c* and **11***d* are retained thereon by means of air suction, which in a well known manner is provided through suction ducts **11***e* which are in communication with suction pipe **14** by a connecting channel **13**.

After the cigarettes Z abutting in lengthwise direction against the end faces of the mouthpieces M have been deposited at Z1 on the connecting band, the latter is wrapped around the mouthpiece and around the end portions of the cigarettes contacting said pieces by means of folding elements. This is accomplished by the folding elements **14***a* and **14***b* (shown in Fig. 1 in dotted lines), each of which elements is controlled by a stationary cam means **15***a* and **15***b*, respectively. This method of folding the connecting band does not form part of the invention and therefore is not described and shown in detail, but is the subject matter of an earlier application Serial No. 338,360 to Schubert now United States Patent No. 2,714,384, issued August 2, 1955, and assigned to the present assignee inventor company.

After the connecting band has been completely wrapped around the cigarettes and the mouthpiece, the latter is cut through at its center by means of a rotary cutting knife

16. Thereafter the suction ducts move out of communication with the connecting duct 13, so that the now completed mouthpiece cigarettes can be deposited onto a chute 17 which directs the cigarettes onto a conveyor belt 18 which carries the cigarettes to a collecting magazine not shown.

The described machine is driven by a motor 19 which drives the suction drum 6 through an endless belt or chain drive 20, and the conveyor belt 18 through another endless belt 21, while the drum 11 is driven by an endless belt 22 or the like. Mounted on the shaft of the rotary drum 11 is mounted a gear 23 (also see Fig. 2) which is in engagement with a gear 24 on the shaft of the rotary drum 2. The rotary cutter 16 is driven by means of the chain or belt drive 25 or by means of a separate motor.

In the described example of the embodiment of the invention the depositing of the mouthpiece M onto the drum 2 and the depositing of the cigarettes Z onto the drum 11 is brought about by a direct feed from the magazines.

Furthermore, in the shown and described example of embodiment of the invention the connecting band 4*a* together with the double length filter mouthpiece adhering thereto is delivered at the point M3 to the drum 11 in such a manner that it comes to lie against the drum circumference in plane and flat condition.

The invention is not restricted to the details of the foregoing example. It will be apparent to those skilled in the art that variations and modifications may be made to the specific construction described in that example, without departing from the invention or the scope of the appended claims.

What I claim is:

1. In a machine for manufacturing filter mouthpiece cigarettes, a rotary drum with axially extending grooves on its circumference for receiving filter mouthpieces, a magazine for containing filter mouthpieces and provided with means for depositing a filter mouthpiece in each groove of said rotary drum when the latter rotates, means for creating a suction in said grooves, means for causing a flat connecting band to be supplied and to adhere to each filter mouthpiece deposited in the grooves of said rotary drum, a second and separate rotary drum provided with grooves for receiving two axially spaced and axially alined cigarettes and arranged with its circumference adjacent the circumference of said first drum to receive therefrom the filter mouthpiece with the connecting band adhering thereto, two additional magazines, each for containing cigarettes and provided with means for depositing two axially spaced and axially alined cigarettes simultaneously onto the grooves of said second drum and into engagement with the connecting band on the filter mouthpiece which has been received by said second drum from said first mentioned rotary drum, means for causing said two drums to rotate, and means adjacent said grooves carried by and rotatable with said second drum for wrapping said connecting band around said axially alined cigarettes and mouthpiece during the rotation of said second drum.

2. In a machine for manufacturing filter mouthpiece cigarettes, a rotary drum with axially extending grooves on its circumference for receiving filter mouthpieces, a magazine for containing filter mouthpieces and provided with means for depositing a filter mouthpiece in each groove of said rotary drum when the latter rotates, means for creating a suction in said grooves, means for causing a flat connecting band to be supplied and to adhere to each filter mouthpiece deposited into a groove in said rotary drum, a second and separate rotary drum provided with grooves for receiving two axially spaced and axially alined cigarettes and arranged with its circumference adjacent the circumference of said first drum to receive therefrom the filter mouthpiece with the connecting band adhering thereto, two additional magazines, each for containing cigarettes and provided with means for depositing two axially spaced and axially alined cigarettes simultaneously into the grooves in said second drum and into engagement with the connecting band on the filter mouthpiece which has been received by said second drum from said first mentioned rotary drum, means effective during the depositing of said two cigarettes for moving said two cigarettes lengthwise in abutting engagement with the adjacent ends of said filter mouthpiece, means for causing said two drums to rotate, and means carried by said second drum and rotatable therewith and arranged adjacent to each groove in said second drum for wrapping said connecting band around said axially alined cigarettes and mouthpiece during the rotation of said second drum.

3. In a machine for manufacturing filter mouthpiece cigarettes, a rotary drum with axially extending grooves on its circumference for receiving filter mouthpieces, a magazine for containing filter mouthpieces and provided with means for depositing a filter mouthpiece in each groove of said rotary drum when the latter rotates, means for creating a suction in said grooves, means for causing a flat connecting band to be supplied and to adhere to the filter mouthpiece deposited in the grooves in said rotary drum, a second and separate rotary drum provided with grooves for receiving two axially spaced and axially alined cigarettes and arranged with its circumference adjacent the circumference of said first drum to receive therefrom the filter mouthpiece with the connecting band adhering thereto, two additional magazines, each for containing cigarettes and provided with means for depositing two axially spaced and axially alined cigarettes simultaneously onto said second drum and into engagement with the ends of the connecting band on the filter mouthpiece which has been received by said second drum, from said first mentioned rotary drum, means for causing said two drums to rotate, means carried by and rotatable with said second drum adjacent each groove for wrapping said connecting band around said axially alined cigarettes and mouthpiece during the rotation of said second drum, and means for cutting the assembly of two axially alined cigarettes and filter mouthpiece into two separate parts by cutting through said mouthpiece between its ends while said assembly is deposited in the groove of said second rotary drum, thereby forming two complete filter mouthpiece cigarettes.

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