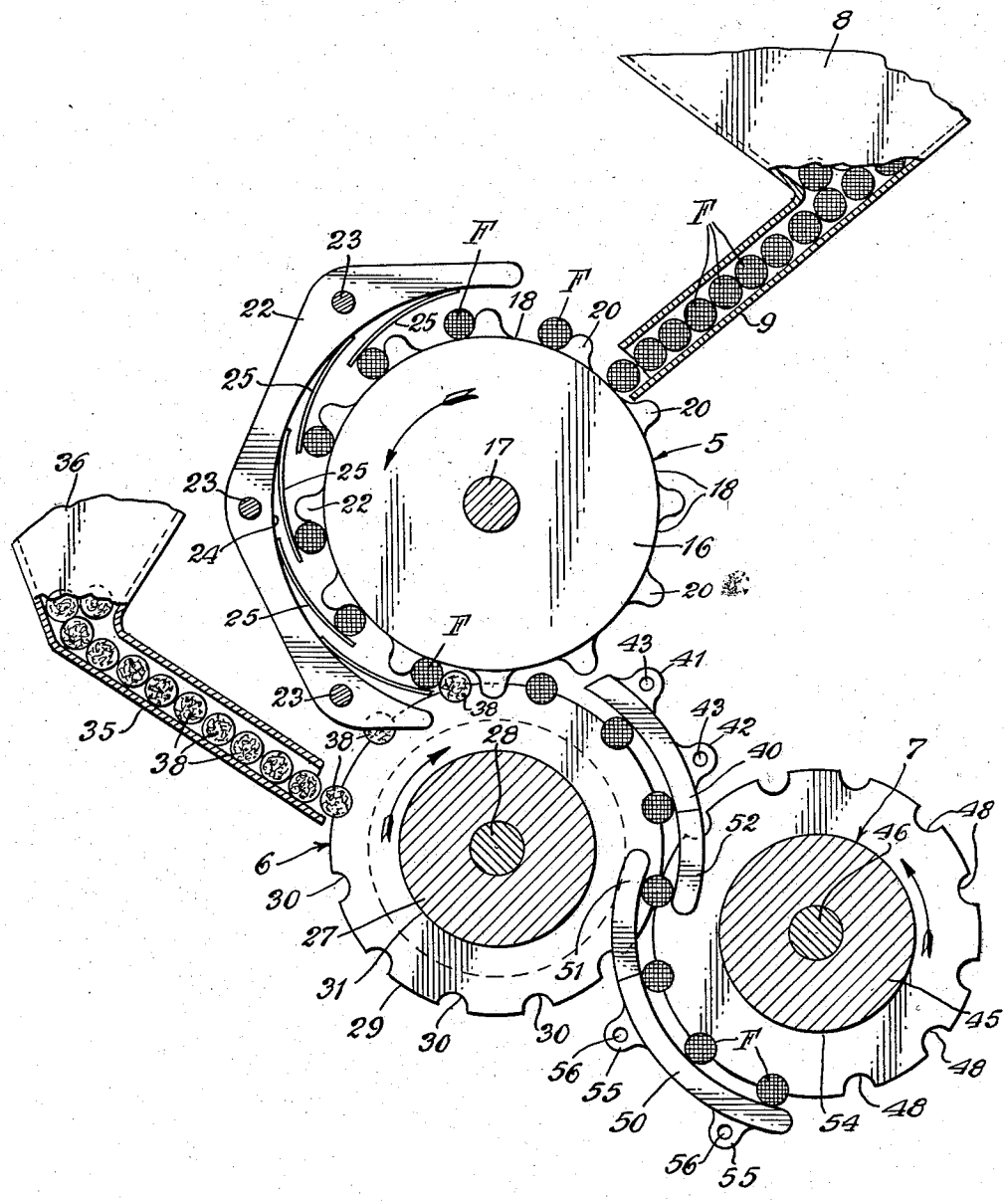
Feb. 24, 1959 C. STELZER 2,874,701

GUIDING SYSTEM ON MACHINES FOR PRODUCING FILTER TIP CIGARETTES

Filed March 23, 1955



INVENTOR.

Carl Stelzer

BY Singer, Stern & Carlberg,

Attorneys

United States Patent Office 2,874,701 Patented Feb. 24, 1959

2,874,701

GUIDING SYSTEM ON MACHINES FOR PRODUCING FILTER TIP CIGARETTES

Carl Stelzer, Hamburg-Bergedorf, Germany, assignor to Kurt Korber & Co. K.-G., Hamburg-Bergedorf, Germany

Application March 23, 1955, Serial No. 496,309

Claims priority, application Germany March 31, 1954

1 Claim. (Cl. 131—94)

The present invention relates to filter tip cigarette making machines, and more especially to filter tip cigarettes which are produced by inserting a double length filter mouthpiece between a pair of axially alined cigarettes and then wrapping the filter mouthpiece and cigarettes so that they may be severed intermediate their ends and thus form a pair of identical filter tip cigarettes of uniform length.

The primary object is to provide a cigarette making machine carrier for transferring the mouthpieces to a position between a pair of axially spaced cigarettes so that they may be conveyed to a wrapping roller and cutting assembly. One object is to provide a cigarette machine having a drum for feeding a plurality of mouthpieces in timed relation so that they will be deposited between axially spaced cigarettes on another drum with yielding means for engaging the mouthpieces and holding the same in place during their travel about the circuitous pathway in the feeding step.

Another object is to provide a mechanism for producing cigarettes of the filter mouthpiece type in which the double length mouthpieces are fed to the periphery of a drum having a series of circumferentially spaced mouthpiece receiving recesses therein and then transferred from said drum to notches in the periphery of a cooperating drum carrying cigarette bodies in said notches to be assembled with said mouthpieces.

Another object is to provide a cigarette making machine feed mechanism in which the assembled cigarettes and mouthpieces are transferred from an assembly roller to another drum having wrapping means associated therewith through the medium of a switch guide arrangement including inter-related guide plates disposed about the periphery of the assembly drum and wrapping drum with their ends disposed in overlapping relation and spaced a distance to permit the passage of an assembled set of cigarettes with a mouthpiece disposed therebetween.

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 diagrammatic view partly in section showing the manner in which the cigarette mouthpieces are fed to a handling drum for conveying the same to an assembly drum where they are deposited between longitudinally spaced axially alined cigarettes in timed relation.

In the drawing, wherein for the purpose of illustrating the invention, there is shown a preferred embodiment, and more in detail, the reference character **5** will generally be employed to designate a rotary drum upon which double length mouthpieces are deposited for being conveyed to a rotary drum **6** to which is fed axially alined spaced cigarette bodies so that the filters will be deposited between the spaced ends of the alined cigarette bodies and together therewith transferred to a roller, generally designated **7** associated with suitable wrapper supplying and feeding mechanisms (not shown). After the cigarette bodies are joined with the mouthpieces the assembly is severed intermediate its ends to form two cigarettes each having a mouthpiece at one end.

The drum **5** comprises a roller **16** mounted on a shaft **17** which may be driven from a suitable power source (not shown) such as an electric motor or the like. Formed in the periphery of the drum **16** is a series of circumferentially spaced recesses **18** which extend parallel with the axis or shaft **17**. The recesses or notches **18** are separated by ribs **20** and are of a depth substantially equal to the diameter of the mouthpiece filters F and of such a width as to permit the insertion of a double length filter tip in each of said recesses from a source of supply while the drum is rotating.

In order to maintain the filter mouthpieces F in contact with the periphery of the drum **5** during their circuitous travel through approximately 180° travel, a crescent-shaped plate **22** is affixed to the machine frame by being bolted thereto as indicated at **23**. If desired, rods of suitable length may be provided to support the plate **22**. Affixed to the inner peripheral surface **24** of the crescent plate **22** is a series of flat leaf springs **25** which are arranged in spaced apart relation and have their free ends extending tangentially to and in the direction of rotation of the drum **5**. Thus, the flat leaf springs **25** hold the filter tips against the rear wall of the recesses **18** during the rotation of the drum **5** so that they will be fed in succession continuously to the assembly drum **6**.

The assembly drum **6** includes a roller **27** mounted on a shaft **28** which may be connected to the shaft **17** by suitable gearing (not shown) such that the drum **27** will rotate in timed relation with the drum **5** for properly feeding cigarette bodies for assembly. The cigarette bodies are fed in spaced apart relation to the peripheral surface **29** of the drum **27** where they are received in grooves or notches **30** which extend longitudinally with and parallel to the axis of the shaft **28**. The grooves **30** are circumferentially and equidistantly spaced a distance corresponding to the angular distance between the ribs **20** on the roller **5** and the intermediate portion of the drum **6** is provided with an annular groove **31** to permit the projections **20** to be received therein. The grooves **30** are of a length adapted to receive a pair of cigarette bodies each of which is of substantially uniform conventional length, and the cigarette bodies are fed by means of a double hopper feed arrangement including a pair of spaced chutes **35** arranged side by side in spaced relation only one of said chutes being visible in the drawing. A hopper **36** is adapted to supply both chutes **35** for feeding a plurality of said cigarette bodies **38** to the grooves **30**. The lower wall of each of the chutes **35** terminates a slight distance from the periphery of the drum **6** while the upper wall terminates a greater distance from the periphery of the drum to permit the cigarette bodies **38** to be fed to the grooves **30** and moved past the edge of said upper wall.

As the cigarette bodies **38** are fed to a point near the bite of the rollers **16** and **27**, they become positioned such as to receive therebetween a mouthpiece filter F of double length and of the correct dimensions such that the assembled mouthpiece and cigarette bodies may be connected by a wrapper to form a unit comprising two joined filter tip cigarettes which can be severed by cutting the double length filter tip in two at the middle thereof.

In order to transfer the assembled cigarettes and mouthpieces to the wrapping roller **7** where they are supplied with a wrapper, the cigarettes and mouthpieces in their assembled relation travel through an angular distance of approximately 90° on the periphery of the drum 6 and are held in place against displacement by means of an arcuate plate **40** which engages the assembled cigarettes and mouthpieces during their 90° angular travel. The

arcuate plate 40 is provided with two or more sets of spaced lugs 41 and 42 having openings 43 for receiving fastening elements (not shown) which are adapted to anchor the plate 40 to a part of the machine frame.

The combined cigarettes and mouthpieces are then transferred to a roller 7 associated with suitable wrapper supplying and affixing mechanism as is well known in the art. The drum 7 includes a roller 45 mounted on a shaft 46 adapted to be connected in driven relationship with the roller 27 to rotate in unison therewith. Formed on the peripheral surface of the drum 7 is a series of circumferentially spaced grooves 48 which are adapted to receive the assembled double mouthpieces and cigarettes so that they may be wrapped and finally severed. The grooves 48 are thus disposed in opposed relation to the grooves 30 at the bite between the rollers 27 and 45.

In order to maintain the assembled cigarettes and mouthpieces in engagement with the roller 7 and in the grooves 48, an arcuate plate 50 is presented to the peripheral surface of the drum 7 and has a portion 51 of reduced width adapted to project into the annular groove 31 of the roller 27 and be disposed in overlapping relation with a similar projecting end 52 of the arcuate plate 40 which extends into an annular groove 54 in the roller 7.

The arcuate plate 50 is provided with one or more pairs of ears 55 having openings 56 for receiving fastening elements or supporting rods on the machine frame (not shown).

In operation, it will thus be seen that the double length mouthpieces formed of filter material are fed to the troughs 18 in the drum 16 which are transferred in timed relation to the drum 27 so that they will be deposited between the spaced ends of a pair of axially alined cigarette cartridges. As the mouthpieces and cigarettes travel through a portion of the roller circumference 27 they are held in place by the arcuate plate 40 and transferred to the drum 7 by the arcuate plate 50 which is arranged so that its reduced end 51 is in overlapping relation and spaced from the reduced end 52 of the arcuate plate 40. The assembled mouthpieces and cigarettes are transferred to the drum 7 where they travel through an angular distance of approximately 90° and have affixed thereto a wrapper coated with adhesive so that it will unite the double length mouthpiece to a pair of cigarettes in their assembled relation.

Finally the double filter mouthpiece is severed intermediate the ends so as to form a pair of cigarettes of uniform dimensions with a filter mouthpiece on one end thereof.

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 machine for manufacturing filter tip cigarettes, a mechanism for continuously assembling and arranging cigarette bodies and double length filter tips in units each comprising a pair of aligned cigarette bodies with a double length filter tip disposed therebetween, comprising a first rotary drum having on the peripheral surface thereof a series of equally spaced circumferentially arranged recesses defining forward and rear wall portions for receiving therebetween a double length filter tip in each of said recesses, said recesses being of a size greater than the diameter of a filter tip to permit rolling movement of said filter tips in said recesses, a stationary arcuate plate supported adjacent said drum and extending therearound through an arc equal to approximately 180° and spaced from the periphery of said drum a distance slightly greater than the diameter of said filter tip, said arcuate plate being supported on the side of said drum, a plurality of arcuately curved yielding spring arms having one of their ends secured to said arcuate plate each having an opposite free end extending between said arcuate plate and said drum in overlapping relation with an adjacent spring arm, said spring arms having free end portions directed toward the drum in the direction of rotation thereof to slidably and frictionally engage filter tips and retain the same in engagement with the rear wall portions of said recesses during rotation of the drum, and a second drum mounted beneath said first drum in closely spaced relation for rotation in a direction opposite to the direction of rotation of said first drum and about an axis parallel therewith, said second drum being provided with a series of equally spaced circumferentially arranged notches adapted to receive pairs of cigarette bodies arranged in axially spaced relation, said first and second drum being relatively positioned to successively transfer filter tips from the recesses of said first drum between the axially spaced cigarettes carried by the second drum.

References Cited in the file of this patent

UNITED STATES PATENTS

1,046,715	Arnold	Dec. 10, 1912
1,406,631	Fleischer	Feb. 14, 1922
1,475,469	Bach	Nov. 27, 1923
2,150,596	Bingham	Mar. 14, 1939
2,166,486	Edwards	July 18, 1939
2,188,998	Edwards	Feb. 6, 1940
2,649,761	Edwards	Aug. 25, 1953

FOREIGN PATENTS

404,354	Great Britain	Jan. 15, 1938
487,069	Great Britain	June 15, 1938
687,878	Great Britain	Feb. 25, 1953