March 1, 1960 G. E. CARLSON 2,926,671

METHOD FOR THE PRODUCTION OF CIGARS

Original Filed March 3, 1958 3 Sheets-Sheet 1

Fig. 1.

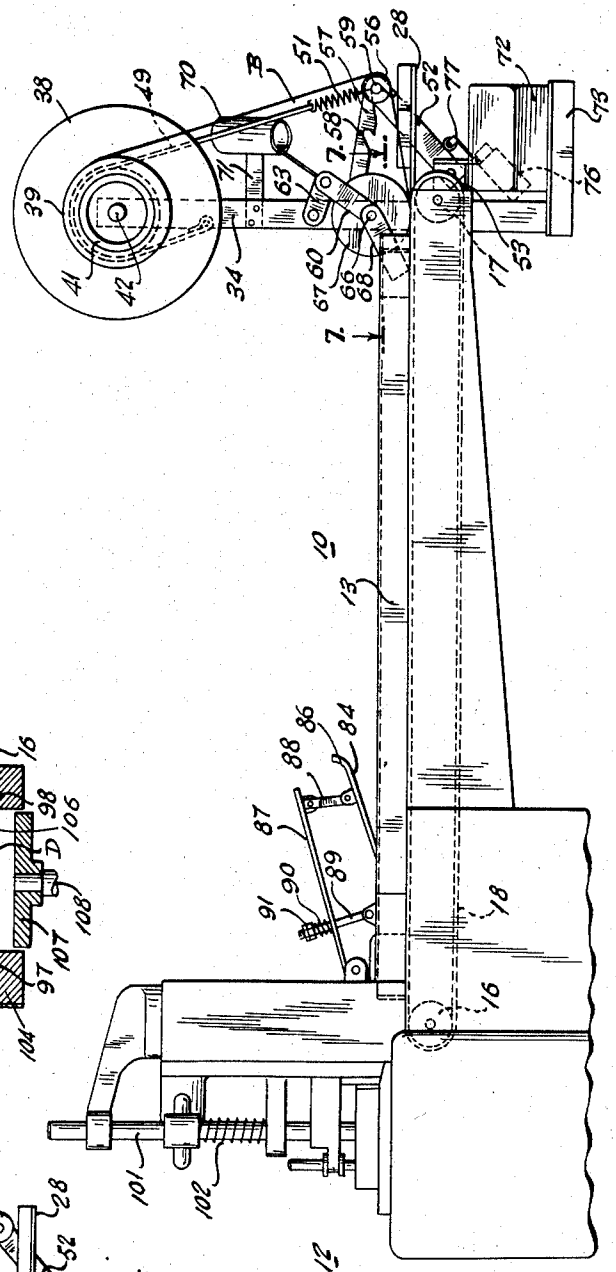


Fig. 3.

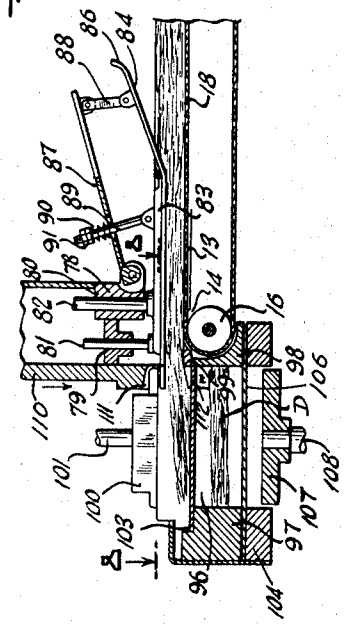
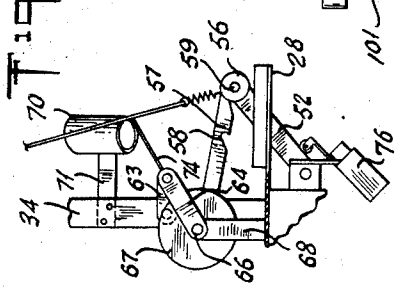


Fig. 5.



INVENTOR
GUSTAV E. CARLSON
BY
William R. Liberman
ATTORNEY

March 1, 1960 G. E. CARLSON 2,926,671

METHOD FOR THE PRODUCTION OF CIGARS

Original Filed March 3, 1958 3 Sheets-Sheet 2

Fig. 7.

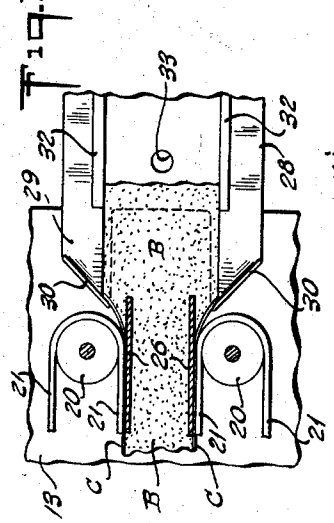


Fig. 8.

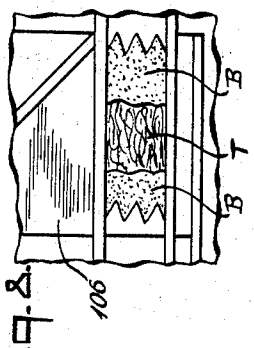


Fig. 2.

INVENTOR
GUSTAV E. CARLSON
BY
William R. Liberman
ATTORNEY

March 1, 1960 G. E. CARLSON 2,926,671

METHOD FOR THE PRODUCTION OF CIGARS

Original Filed March 3, 1958 3 Sheets-Sheet 3

Fig. 8.

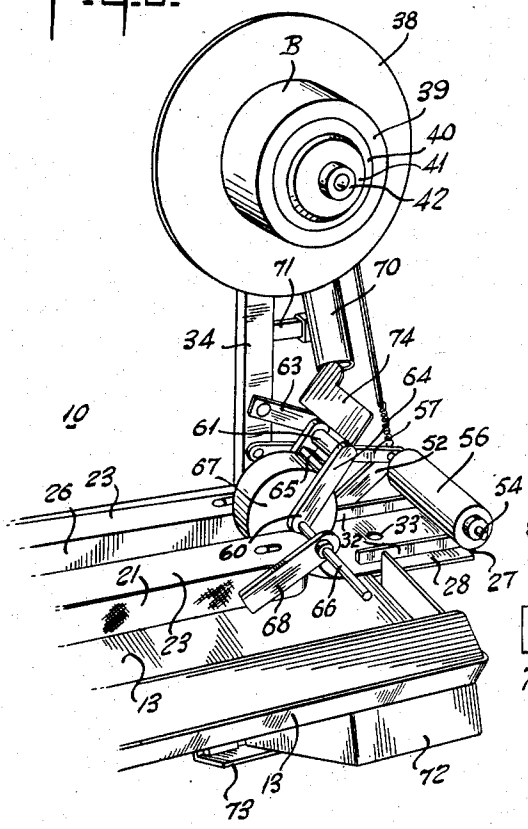


Fig. 4.

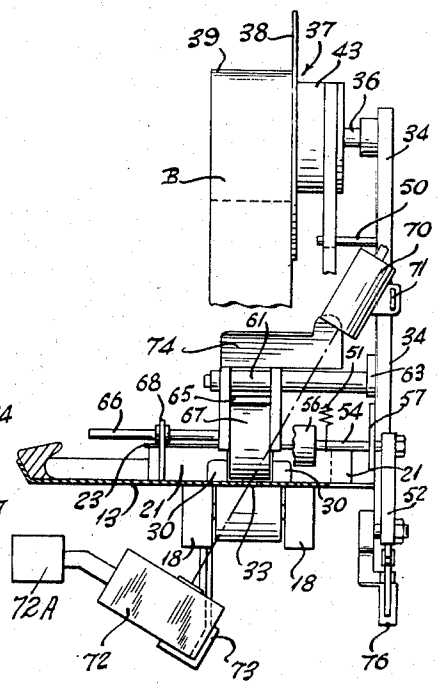


Fig. 9.



Fig. 10.

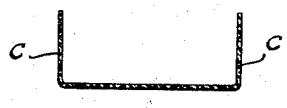


Fig. 12.

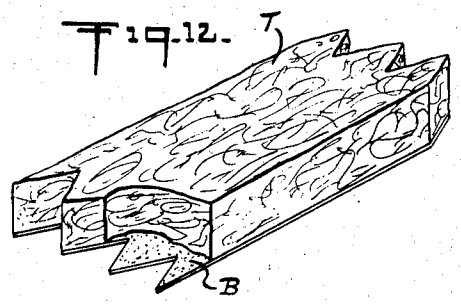
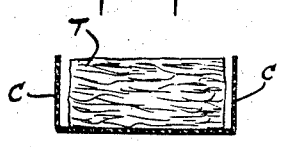


Fig. 11.



INVENTOR
GUSTAV E. CARLSON
BY
William R. Liberman
ATTORNEY

United States Patent Office 2,926,671 Patented Mar. 1, 1960

2,926,671

METHOD FOR THE PRODUCTION OF CIGARS

Gustav E. Carlson, Audubon, N.J., assignor to Consolidated Cigar Corporation, New York, N.Y., a corporation of New York

Original application March 3, 1958, Serial No. 718,867. Divided and this application October 31, 1958, Serial No. 771,110

10 Claims. (Cl. 131—42)

The present invention relates generally to the production of cigars, and it relates in particular to an improved method and apparatus for the production of cigar bunches formed of short filler tobacco and the resulting product. This application is a division of application Serial No. 718,867, filed March 3, 1958.

The conventional machine for producing cigars from long-leaf filler tobacco includes a cross-feed consisting of a bottom endless belt and laterally spaced side endless belts which define a cross-feed trough into which the long-leaf tobacco is longitudinally laid. The belts are intermittently driven to advance the tobacco as a stream to a cutting device which severs predetermined lengths of tobacco from the stream. The severed lengths of filler tobacco are delivered to stacking mechanism which deposits them into a vertical compressed column. Measured charges of tobacco are transversely separated from the bottom of the column and fed to the usual cigar binding and wrapping mechanism.

Machines of the above type and their operation are illustrated and described in U.S. Patents Nos. 2,611,372 to P. Peterson; 2,603,220 to J. P. During; 2,311,011 to H. H. Wheeler; 2,605,936 to R. E. Rundell, and others. While these machines are highly satisfactory for the production of cigars from long-leaf filler they cannot be satisfactorily employed with short-leaf filler tobacco. As a consequence, machines of an entirely different construction and operation are used in producing cigars with short-leaf filler. The necessity of employing different machines for long-leaf and short-leaf filler cigars is highly inconvenient and expensive.

It is thus a principal object of the present invention to provide an improved machine for the production of cigars.

Another object of the present invention is to provide an improved method for the production of cigars.

Still another object of the present invention is to provide an improved cigar.

A further object of the present invention is to provide an improved machine and method for the production of cigars having either long-leaf filler or short-leaf filler tobacco.

Still a further object of the present invention is to provide an improved method and apparatus for feeding a stream of tobacco filler to a cigar-making machine, characterized by the ability to satisfactorily form cigars having either short-leaf or long-leaf filler tobacco.

The above and other objects of the present invention will become apparent from a reading of the following description, taken in conjunction with accompanying drawings, wherein:

Figure 1 is a side elevational view of a cigar-making machine constructed according to and embodying the present invention, illustrated partially broken away for convenience of illustration;

Figure 2 is a top plan view thereof;

Figure 3 is a sectional view taken along line 3—3 in Figure 2;

Figure 4 is a sectional view taken along line 4—4 in Figure 2;

Figure 5 is a side elevational view of the trailing end of the cross-feed of the present machine, shown broken away for convenience of illustration, and illustrating the machine lacing up position;

Figure 6 is a perspective detail view of the trailing end of the improved filler cross-feed mechanism in accordance with the present invention;

Figure 7 is a top plan view of the trailing end of the cross-feed, illustrating the band former;

Figure 8 is a sectional view taken along line 8—8 in Figure 3;

Figure 9 is a perspective view of the filler transport band;

Figure 10 is a sectional view taken along line 10—10 in Figure 2, illustrating the transport band in shaped condition;

Figure 11 is a sectional view taken along line 11—11 in Figure 2, illustrating the transport band carrying a stream of filler tobacco; and

Figure 12 is a perspective view of a severed length of filler tobacco and band as deposited in the filler storage column.

In a sense, the present invention contemplates the provision of an improved method for producing cigars comprising forming a stream of filler tobacco carried on an advancing longitudinally extending band, successively severing predetermined lengths of said band and tobacco stream from the leading end thereof, combining said cut lengths of said band and said tobacco filler to form a column thereof, and separating measured charges from said column.

The improved cigar machine for practicing the above method includes a conveyor, means for feeding a band to said conveyor to be advanced therewith, said band being adapted to carry and advance a stream of filler tobacco therewith, means for severing predetermined lengths of said band and said filler stream from the leading end thereof, means for assembling said severed lengths to form a column, and means for separating measured charges from said column.

Referring now to the drawings which illustrate a preferred embodiment of the present invention which may be employed in practicing the improved method, numeral **10** generally designates the cross-feed section of the cigar-making machine, and numeral **12** the stream severing charge measuring and cigar bunching section of the machine. It should be noted that section **12** of the machine is conventional and of the type described in detail in the above identified Peterson patent as well as in other of the patents referred to above. The cross-feed section **10** includes a horizontal support plate **13** extending longitudinally from the feed end of the machine to the section **12**. Adjacent the opposite ends of support plate **13** are a pair of openings **14** with which register a pair of longitudinally spaced drums **16** and **17** respectively, suitably supported for rotation about transverse axes, drum **16** being intermittently driven and drum **17** being an idler drum. An endless belt **18** engages drums **16** and **17** and has an upper advancing run along the top face of support plate **13** and a return run below support plate **13**.

Disposed above support plate **13** are two laterally separated pairs of longitudinally spaced, forward and rear drums **19** and **20** respectively, drums **19** and **20** being mounted for rotation about vertical axes, the forward drums being intermittently driven in synchronism with drum **16**, the trailing drums **20** being idler drums. Side endless belts **21** engage each pair of drums **19** and **20**, the confronting runs of the belts **21** being the advancing runs, parallel to each other. Extending along

the confronting faces of the advancing runs of belts **21**, and for substantially the full length of said runs and the full height of the belts **21**, are guide plates **22** which have their inner faces closely spaced from the confronting faces of the respective belts **21** and their lower edge slightly above the top run of the belt **18**. A longitudinal guard plate **23** covers the tops of each of belts **21** and of associated pulleys **19** and **20**.

Mounted on the trailing end of support plate **13** in alignment with the feed channel or trough **26**, which is defined by the plates **22** and the upper run of the belt **18**, is a rearwardly extending guide and forming member **27**. Said forming member **27** includes a base plate **28** secured to the top face of support plate **13**, and provided with a pair of forwardly projecting horizontal arms **29** which terminate in upright inwardly forwardly extending lips **30**. Lips **30** are directed to the bight between the belts **21** and the guide plates **22**. A pair of laterally spaced longitudinally extending guide bars **32** are disposed on the top face of base plate **28** and terminate at a point rearwardly of lips **30**, and disposed laterally outwardly of the leading ends of lips **30**. A circular opening **33** is formed in base plate **28** rearwardly of the trailing edge of support plate **13**, the function of which will be hereinafter set forth.

The mechanism for supplying a continuous transport band B to the cross-feed includes an upright **34** which is located adjacent the rear corner of the feed assembly **10**. Mounted adjacent the upper end of upright **34** is a horizontal transverse axle **36** which rotatably carries a spindle **37**. Spindle **37** includes a hub portion which is provided with a peripheral flange **38** located between the ends of axle **36** and which carries a roll **39** of the band B wound upon any suitable spool, as **40**. An end plate **41** retains spool or bobbin **40** and roll **39** in position on the hub, and is releasably locked by means of a separable nut **42**. A brake drum **43** is affixed to the hub and is disposed on the opposite side of flange **38**. A flexible brake band **49** passes about the upper periphery of brake drum **43**, and has one end thereof secured to a rod **50** projecting laterally from upright **34** below axle **36**. The other end of brake band **49** is secured by way of a helical tension spring **51** to the free end of a rearwardly upwardly inclined bracket arm **52**, the inner end of which is pivoted to a shaft bracket **53**. The brake band **49** and brake drum **43** function to impart a retarding torque to the roll-supporting hub rod in order to prevent backlash.

Projecting laterally from the upper end of bracket arm **52** is an axle **54** which supports a freely rotatable guide roller **56**. Guide roller **56** is movable with the bracket arm **52** between a lower guide position, as illustrated in Figures 1 and 6 of the drawing, and an upper position. A latching arm **57** has its inner end pivotally connected to upright **34**, and has formed therein a pair of forwardly and downwardly directed recesses **58** and **59** respectively. Bracket arm **52** may be locked in its rear depressed operable position by bringing the inner end of axle **54** into registry with recess **59**, or in its forward upper inoperative position by bringing axle **54** into registry with recess **58**.

A pressure roller supporting yoke **60** includes an upper cross pin **61** projecting laterally from the free end of a swingable arm **63** pin-connected to upright **34**. Depending from cross pin **61** are a pair of laterally spaced legs **64** which are separated by a cross bar **65** disposed below pin **61** and secured to legs **64**. A shaft **66** is carried by and between the lower ends of yoke legs **64**, one end projecting laterally beyond leg **64** away from upright **34**. Supported by shaft **66** between yoke arms **64** is a freely rotatable pressure roller **67** which registers with the trough **26** and is gravity-urged towards the upper run of endless belt **18**. A radially extending arm **68** is secured to the laterally projecting portion of shaft **66**, and is normally downwardly and forwardly inclined when the pressure roller **67** rests substantially on the upper run of belt **18**. Pressure roller **67** may be raised to an elevated position by swinging yoke **60** clockwise, as seen in Figures 1, 5 and 6 of the drawings, and by swinging arm **63** counterclockwise. It may be supported in a raised position by swinging arm **68** counterclockwise and permitting it to come to rest in a vertical position upon support plate **13**, as seen in Figure 5 of the drawing.

A light beam projector **70** is carried on a rearwardly projecting support arm **71** mounted on upright **34** between the upper and lower ends thereof. Projector **70** includes an electric lamp and a lens system to direct a beam of light through opening **33** in the base plate of former **28** toward the aperture of photoelectric relay **72**. Photoelectric relay **72** is of conventional construction, and is enclosed in a suitable housing, mounted below support plate **13** by means of a bracket **73** depending from plate **13**. Photoelectric relay **72** is coupled in a conventional manner, to the main drive motor **72***a* of the machine so as to disconnect the motor and inactivate the machine upon a beam of light passing through the aperture in the photoelectric relay.

A shield or mask **74** is mounted on bracket **60** and extends upwardly and rearwardly thereof in alignment with legs **64**. When pressure roller **67** is in operative position, urged towards the upper run of belt **18**, as best seen in Figures 1 and 6 of the drawing, shield **74** is out of the path of the light beam extending from projector **70**. However, as seen in Figure 5 of the drawing, when pressure roller **67** is raised to inactive position, shield **74** is swung into a position intercepting the light beam from projector **70** thereby to trigger photoelectric relay **72** to engage the drive motor and activate the machine.

A switch **76** is provided with a roller-carrying actuating arm **77** which is movable by support arm **52** between a raised position and a depressed position. When roller **56** is in normal operating position, in registry with latch arm recess **59**, switch arm **77** is depressed. When roller **56** and the arm **52** are elevated, switch arm **77** moves to a raised position thereby to actuate switch **76**. Arm **52** may be latched in raised position by bringing axle **54** into engagement with recess **58**. Switch **76** is so connected that the machine drive motor is disengaged upon elevation of switch arm **77** consequent to the raising of roller **56** and arm **52**.

Disposed above the discharge end of feed trough **26** is a support bracket **78** provided with longitudinally spaced vertical bores **79** and **80**, which respectively slidably engage a guide rod **81** and a reciprocating actuation shaft **82**. A horizontal presser foot **83** is supported at the lower ends of the guide rod and shaft **81** and **82**, and registers with the feed channel **26**. Hinged to the trailing end of presser foot **83** is an upwardly and rearwardly directed plate **84** terminating in a trailing upwardly curved portion **86**. A rearwardly directed arm **87** is pivoted to bracket **78** and carries at its trailing end a depending link **88**, the lower end of which is pivoted to extension arm of plate **84**. Hinged adjacent the trailing end of presser foot **83** is an upwardly directed rod **89** which passes through an open formed in arm **87** and carries helical compression spring **90**. Helical spring **90** is adjustably entrapped between the upper face of arm **87** and a nut **91** engaging the upper threaded end of rod **89**.

A vertical magazine **96** is provided in which is loaded a stack or column of filler tobacco and band delivered by conveyor **18** and from which measured charges of tobacco are periodically removed, said magazine being located directly forward of the discharge end of conveyor **18**. Magazine **96** is surrounded by side walls and front and rear walls **97** and **98** respectively, the discharge end of belt **18** communicating with the magazine **96** by way of a bridge member **99**.

A tamper foot **100** is in vertical alignment with magazine **96** and is carried at the lower end of a rod **101** which

is intermittently reciprocated, by way of a compression spring 102, into registry with magazine 96 adjustably to compress tobacco in magazine 96 with a predetermined pressure. A support plate 103 is disposed adjacent the upper mouth of magazine 96 just below the top face of bridge member 99, and is transversely movable into and out of registry with the mouth of magazine 96.

Disposed directly below magazine 96 is a transversely movable measuring chamber or metering frame 104, normally in vertical alignment with magazine 96. The confronting end faces of magazine 96 and metering frame 104 are vertically spaced to accommodate a transversely movable severing blade 106. A pressure head 107 is carried on a vertically reciprocating rod 108, and is periodically brought into registry with metering frame 104 when the latter is in vertical alignment with magazine 96.

A vertically reciprocating cutter 110 is disposed above the trailing end of magazine 96 and includes a corrugated blade 111. Disposed below and in vertical alignment with blade 111 is a ledger plate 112 which projects forwardly from the bridge 99 immediately above the level of support plate 103. It should be noted that the rear wall of magazine 96 has its inner face corrugated substantially in vertical alignment with ledger plate 112. Metering frame 104 is laterally movable from magazine 96 to a bunch-rolling mechanism of any well known construction. A detailed description of the cigar-making machine of the nature above described is set forth in the above identified Peterson patent as well as in the various patents referred to therein.

Considering now the operation of the improved machine, band B as taken from supply roll 39 is initially inserted in the machine by raising pressure roller 67 and withdrawing the band B from roll 39, passing it under roll 56 along former plate 27, the sides of the band being bent upwardly as at C and directed into the bight between conveyor belts 21 and guide plates 22. The roller 67 is then permitted to bear upon the upper surface of band B, urging it into frictional engagement with the upper run of conveyor belt 18. The machine motor is then activated and short-leafed tobacco T deposited in the trough 26 upon the advancing band B. As the stream of tobacco carried by band B approaches the discharge end of trough 26, it is compressed by pressure plate 83 and extension 84. The tobacco stream is then advanced beyond the discharge end of conveyor 18 by channel-shaped band B which possesses longitudinal rigidity by reason of the upright side walls C. Conveyor 18 then stops and presser foot 100 and cutter 110 are depressed, the presser foot firmly holding the leading end of the tobacco stream and band against the reciprocable support plate 103 while blade 111 effects the cutting from said tobacco stream, said leading end of the tobacco stream and band which defines a predetermined length thereof in accordance with the increment of the advance of the stream as aforesaid which, as illustrated, is equal to the length of the magazine.

Upon descent of cutter 110, support plate 103 is rapidly withdrawn so that the severed length of tobacco and the supporting band falls into the stack or column D of tobacco and band in the magazine 96, the descending presser foot 100 compressing the assembled stack of tobacco and severed bands. During the descent of presser foot 100, head 107 moves slightly upwardly in metering frame 104 so that the compressed stack of tobacco and band is supported between the confronting faces of foot 100 and head 107, the height of head 107 and the metering frame 104 determining the amount of the tobacco charge. Thereafter, cutting blade 106 slides between the magazine 96 and the metering frame 104 to sever a charge of tobacco from stack D. Head 107 is then depressed to the lower level of frame 104, which is transversely moved to deliver the charge of tobacco to the bunching mechanism. It should be noted that the band B is formed of reconstituted tobacco which is somewhat friable and that band B, while it may be crushed to some extent in the stack or in the metered charge, substantially maintains its integrity. Examples of a material which may be employed as the band are set forth in U.S. Patents Nos. 2,592,553 and 2,706,695. Other types of reconstituted tobacco may, of course, be used including those employing a water-insoluble binder.

When roll 39 of band B is exhausted, opening 33 in the former plate base 28 is uncovered thereby permitting a beam of light from the projector 70 to enter the aperture of the photoelectric relay 72 to deactivate the machine. A new roll may then be placed in the machine and the material relaced in the machine in the manner above set forth. In the event that, for some reason, it is desired to stop the machine, this may be accomplished simply by raising the roller 56 and the arm 52 to deactivate switch 76.

While there have been described and illustrated preferred embodiments of the present invention, it is apparent that numerous alterations and omissions may be made without departing from the spirit thereof. For example, while the present invention has been illustrated as applied to a cigar machine in which the severed lengths of tobacco filler and band are stored as a vertical column it may be applied to other types of cigar-making machinery in which the severed lengths may be otherwise stored, such as in a horizontal storage or stock.

I claim:

1. The improved method of producing cigars comprising disposing a stream of filler tobacco on an advancing longitudinally extending supporting band, successively severing predetermined lengths of said band and tobacco stream from the leading end thereof, combining said cut lengths of band and tobacco filler to form a transversely extending stack thereof, separating a measured charge from said stack, and thereafter shaping and wrapping said charge in a binder sheet to form a cigar.

2. The improved method in accordance with claim 1, wherein said band is provided with longitudinally extending deformations to impart longitudinal rigidity thereto.

3. The improved method in accordance with claim 1, wherein said band is of a combustible material.

4. The improved method in accordance with claim 1, wherein said band is formed of reconstituted tobacco.

5. The improved method in accordance with claim 1, wherein said filler tobacco is short-leafed.

6. The improved method in accordance with claim 1, wherein said band is substantially U-shaped in transverse section.

7. The improved method in accordance with claim 1, wherein said stack is in the form of a vertical column.

8. The improved method in accordance with claim 7, wherein said cut lengths are superimposed on the top of said column and the measured charges are separated from the bottom thereof.

9. The improved method in accordance with claim 1, including the step of serrating the trailing and leading end of said severed predetermined length of said band and tobacco.

10. The improved method in accordance with claim 1, wherein said cut lengths are delivered to one end of said stack and said measured charges separated from the other end thereof.

References Cited in the file of this patent

UNITED STATES PATENTS

86,369	Consuegra et al.	Feb. 2, 1869
2,737,186	Molins et al.	Mar. 6, 1956
2,769,734	Bandel	Nov. 6, 1956