

Jan. 23, 1945.

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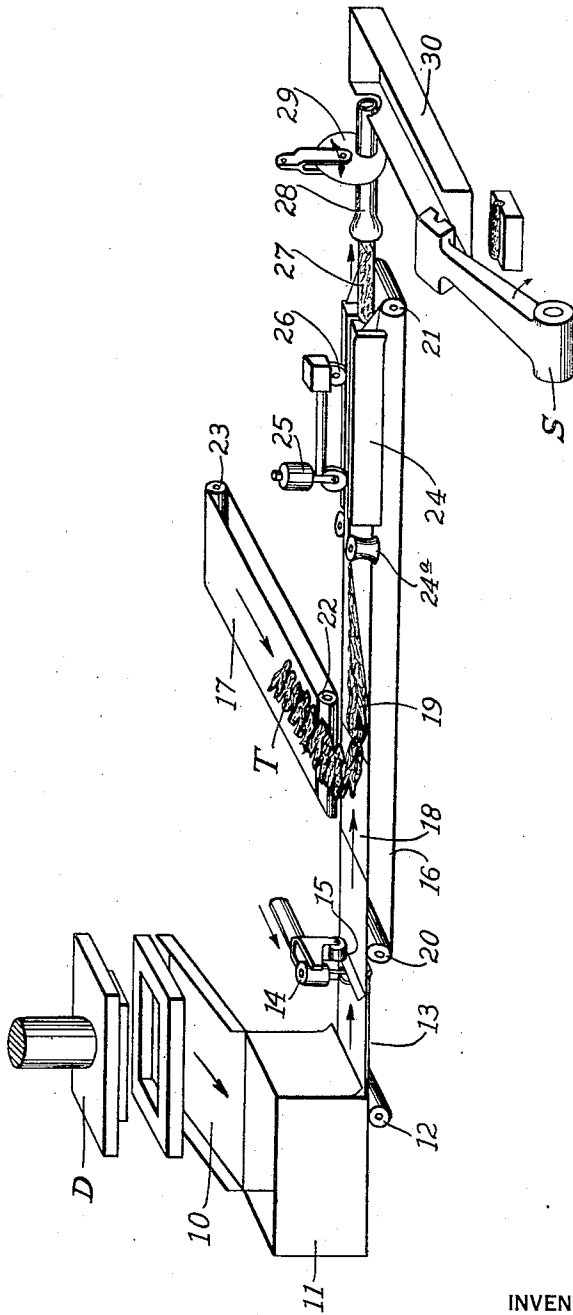
2,367,911

CONTINUOUS PROCESS FOR FORMING CIGAR BUNCHES

Filed Sept. 2, 1942

4 Sheets-Sheet 1

FIG. 1



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4 Sheets-Sheet 2

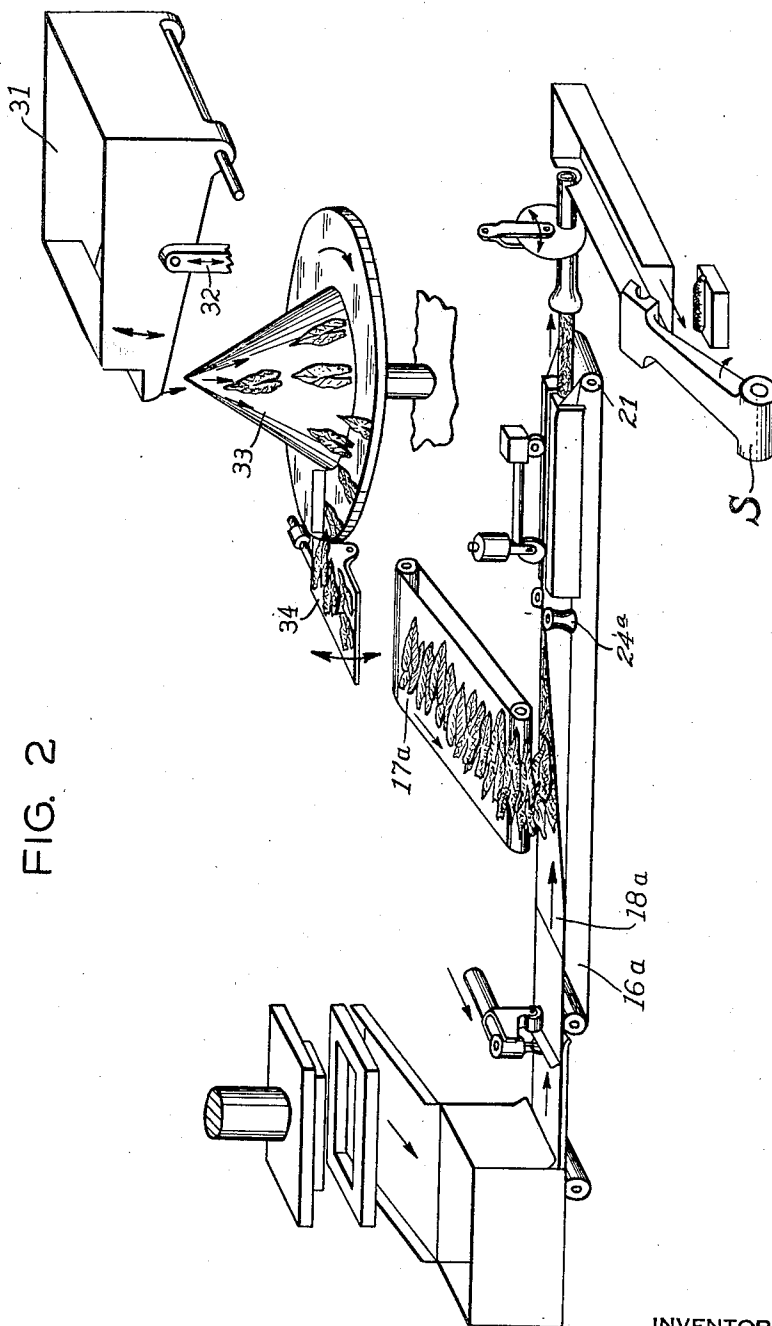


FIG. 2

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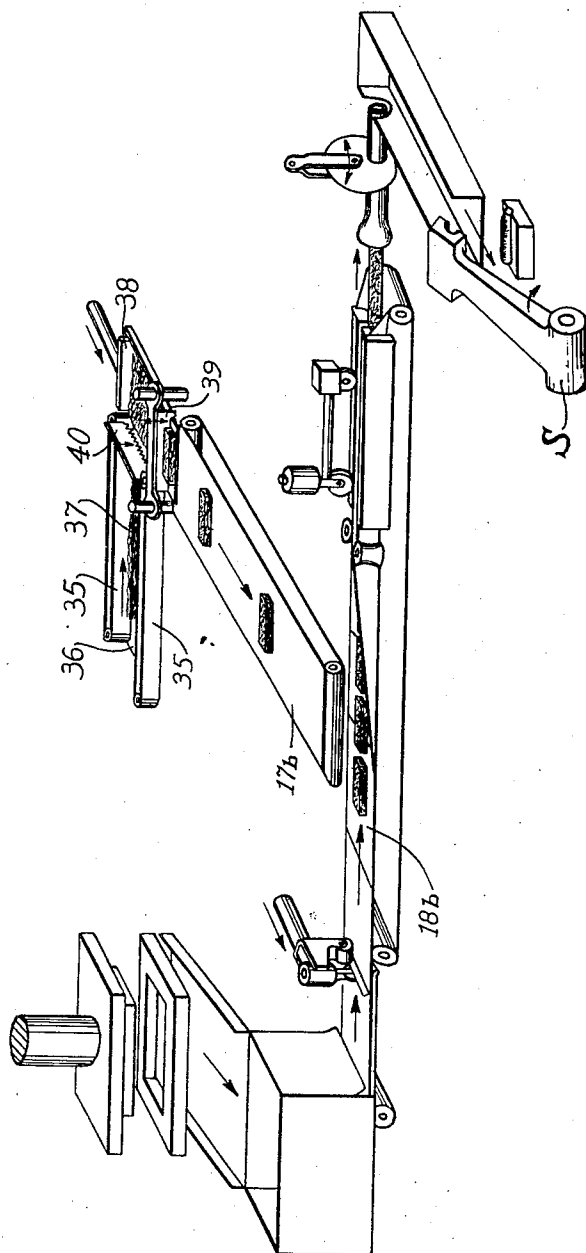
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FIG. 3



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CONTINUOUS PROCESS FOR FORMING CIGAR BUNCHES

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FIG. 4

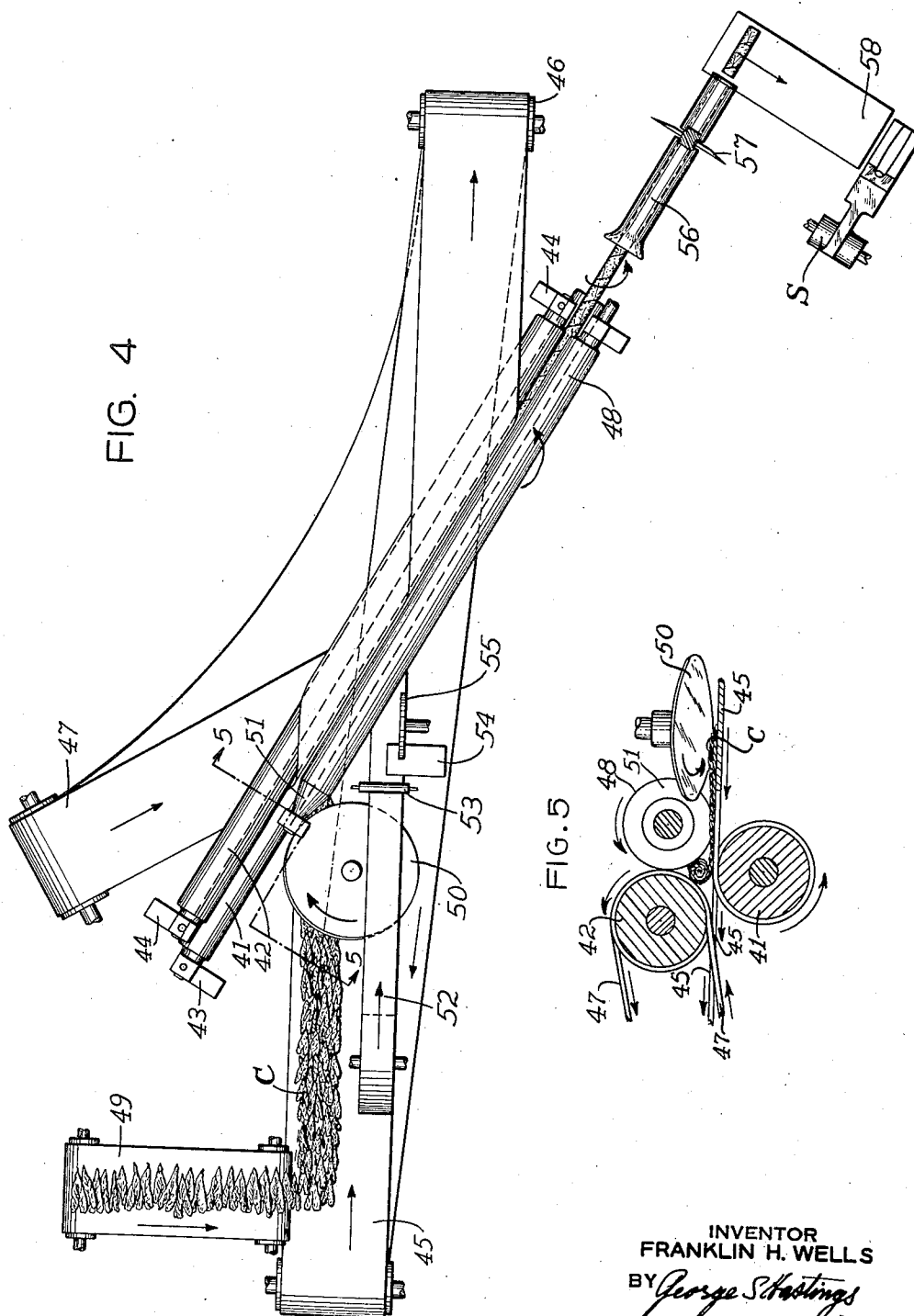
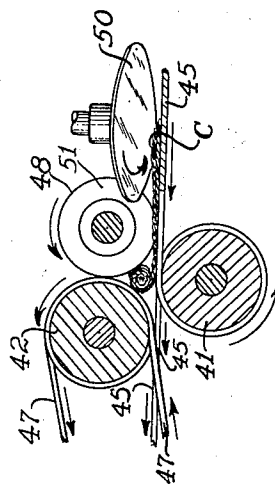


FIG. 5



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CONTINUOUS PROCESS FOR FORMING
CIGAR BUNCHES

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Application September 2, 1942, Serial No. 456,991

17 Claims. (Cl. 131—20)

This invention relates to the manufacture of cigars and more particularly to a novel method for making cigar bunches.

In the past it has been the practice in making both long and short filler cigars to employ an operator to feed individual binders by hand. This results in the speed of the machine being limited by the speed at which an operator can feed binder or wrapper material. In modern machines, this is on the order of 9 to 15 cigars a minute, depending on size of wrapper, condition of tobacco leaves, and other factors. Another factor contributing to the slow speed of cigar machines today is that they are constructed for intermittent operation. Cigarette machines, on the other hand, operate continuously on the order of 1000 cigarettes a minute, and as a result the unit cost of manufacture is very low.

It is therefore an object of the present invention to provide a method for the continuous manufacture of cigar bunches which will enable the unit cost of cigar manufacture to be lowered.

Another object is to provide a new and improved method for making cigar bunches which will enable cigars to be produced at a much higher rate of speed.

A further object is to form a continuous binder and to form therewith a continuous rod of filler tobacco substantially cigar size in cross section to thereby increase the uniformity of the cigar bunches manufactured.

Another object is to simplify the procedure heretofore followed in making cigars and thereby increase the rate of speed at which cigars are manufactured.

A further object is to avoid making binders with special shapes, and instead make a binder which will have a quadrangular figure.

Another object is to make efficient use of binders which are shorter than cigar length so as to reduce the cost of cigar manufacture without reducing the quality of the cigar.

A further object is to provide an improved process which will eliminate the need for expensive and special mechanism heretofore thought necessary in the manufacture of cigar bunches.

Another object is to provide a new process for making cigars which will allow one operator ample time to attend to the filler feeding and binder operations.

Other objects and features of the invention will appear as the description of the particular physical embodiments selected to illustrate the invention progresses.

In the accompanying drawings, which form a

part of this specification, like characters of reference have been applied to corresponding parts throughout the several views which make up the drawings, in which:

Fig. 1 is a schematic perspective view of apparatus suitable for carrying out the improved cigar making process where filler material is fed by hand;

Fig. 2 is a schematic perspective view of apparatus suitable for carrying out the improved cigar making process where filler material is fed automatically.

Fig. 3 is a schematic perspective view of apparatus suitable for carrying out the improved cigar making process where individually cut cigar bunch charges are automatically fed;

Fig. 4 is a schematic top view of apparatus suitable for carrying out the improved cigar making process where the cigar binder material is applied spirally about cigar filler; and

Figure 5 is a view taken on line 5—5 of Figure 4. Any suitable apparatus may be employed to carry out the inventor's improved process for making cigars.

The inventor's process may be briefly described as follows: cigar binder material is fed in a continuous strip; this continuous binder strip may be made from any suitable type of material. British Patent No. 282,364 discloses one way of making a continuous strip of binder material from natural leaf tobacco.

This continuous strip of binder material is fed either continuously or intermittently, depending on the type of apparatus employed. A suitable filler feed may be used in conjunction with said binder feed to deposit either continuously or intermittently, depending on how the binder feed is operated, a uniform quantity of filler tobacco on the upper surface of the binder material.

The sheet material, after it has received on its upper surface its supply of filler tobacco, is advanced to a wrapping station which wraps and pastes the binder material about the filler charge. From this position it passes beneath a suitable smoothing device, to render the seam smooth, and then to a conventional cutter which severs the rod on a bias at predetermined intervals.

The severed bunches are delivered to a collecting device which may be so arranged as to deliver the cigar bunches to a conventional shaper or crimper, such as shown in the Wheeler Patent No. 2,158,315. From this stage on, the parts of a cigar machine acting on a cigar bunch after it has its binder applied can be exactly the same as those found in a conventional cigar machine.

The schematic showing in Figs. 1, 2, 3 and 4 is not intended to limit the present invention to any particular type of apparatus, but is provided for the purpose of facilitating an understanding of the invention and to show one type of apparatus which can be used to carry the present invention into effect.

Referring to Fig. 1, a suitable die, designated generally by the letter D, is provided for cutting sections of binder leaf material. Binder material may be cut one sheet at a time, or a plurality of sheets at a time, by means of this die. The cut binder material is then deposited upon a suitable conveyor or chute 10 which delivers the same into a suitable hopper 11. Individual sections of this cut binder material are then fed by conventional feeding means from the bottom of the hopper by means of a feed roller 12 along a supporting platform 13 to a pasting station. A suitable paste applier 14, shown schematically, is provided for applying paste to one end of each section, and a roller 15 is provided for pressing down the overlapped end of the adjoining section to seal the adjoining sections together in order to form a continuous strip of binder material.

The binder material could be natural binder leaf tobacco, pulp tobacco, sheet tobacco, crinkled paper, or other suitable sheet material. If desired, the die mechanism D could be dispensed with and an operator could place a supply of cut binder sections into the hopper 11. A suitable roll of sheet material could also be substituted for the hopper 11 and material could be fed from this roll directly to the conveyor belt 16.

A second suitable conveyor belt 17 is provided, upon which tobacco filler material T is placed either by hand or otherwise. Conveyor belt 17 delivers tobacco leaves upon the collecting binder strip 18. Conveyor belts 16 and 17 may be made of a rubber-like material or any other type of suitable web material. Conveyor belts 16 and 17 are operated in synchronized relation to provide a uniform deposit of filler tobacco 19 on the outstretched strip of binder material 18. Conveyor belt 16 travels over pulleys 20 and 21, one of which is positively driven by suitable means. Conveyor belt 17 travels over pulleys 22 and 23, one of which is driven in timed relation with the pulley driving belt 16.

The continuous stream of filler tobacco is then forwarded to a suitable rod forming device 24 which, by means of the upper portion of belt 16, wraps the binder material about the filler stream 19. A conventional paste applier 25 applies paste to one edge of the binder material, and a suitable ironer or sealer 26 is provided for pressing down the opposite edge of the binder material upon said pasted edge to form a sealed rod of filler tobacco 27. Rod 27 is then forwarded to a ledger plate 28 having a suitable knife 29 which intermittently severs the rod on a bias into sections of predetermined length. The slanting cut later facilitates making tapered tuck and rounded head ends on the cigar bunch when it is shaped. For further illustration of suitable cutting knives, reference may be had to such a patent as Rundell No. 1,907,587.

The severed sections are then forwarded by means of the succeeding lengths of filler into a conveyor or chute 30. Chute 30 may then deliver the cut cigar bunch lengths to a suitable shaping mechanism S. For a further example of suitable shaping mechanism, reference may be had to such a patent as Rundell No. 1,944,760. As stated heretofore, from that stage on the remain-

der of the operations usually performed on a cigar may be performed by the mechanism shown in conventional cigar making machines.

Referring to Fig. 2, it will be noted that it is similar in some respects to the structure shown in Fig. 1, and in addition illustrates mechanical means for feeding filler material to the collecting conveyor. A conventional hopper 31 is provided for holding a supply of filler tobacco. This hopper may be vibrated or oscillated by means of the connecting rod 32 or by suitable vibrating mechanism, such as that shown in Broekhuysen No. 2,280,056, to feed small quantities of tobacco to a cone shaped member 33. Member 33 serves to align the tobacco leaves side by side and rotates in the direction indicated by the arrow. Any other suitable aligning mechanism could be substituted for this purpose.

The aligned tobacco is then delivered to a suitable weighing platform 34 which, through suitable electrical connections, stops the feeding operation of hopper 31 and cone shaped member 33 when it has received a predetermined quantity of tobacco. The tilting of platform 34 is controlled by and synchronized with the travel of belt 16a to cause a continuous stream of tobacco to be deposited thereon. Platform 34 when tilted will be inclined sufficiently to allow tobacco thereon to slide down under the force of gravity upon conveyor 17a. If desired, a suitable pusher may be employed for pushing the tobacco from said platform onto said conveyor 17a. The tobacco slides down platform 34 onto conveyor 17a in side by side relationship. Automatic tobacco weighing devices which may be adapted for this purpose will be found in such patents as Allen No. 1,798,775 and No. 1,798,776, and Schussler No. 1,559,009.

Conveyor belt 16a may be operated continuously or intermittently, and conveyor belt 17a operates in synchronization with said belt 16a to provide a stream of filler tobacco upon the continuous binder strip 18a conveyed by belt 16a. A suitable shaping mechanism similar to that indicated by the letter S in Fig. 1 may be used with the structure shown in Fig. 2 as well as the structure shown in Figs. 3 and 4 hereinafter described. The remainder of the structure shown in Fig. 2 operates in a manner similar to that already described in connection with Fig. 1.

In Fig. 3 there is provided a schematic showing of a conventional cross feed. While any suitable cross feed may be used, particular reference may be had to Bronander No. 1,740,571 and Lindblad No. 1,977,994 for a more detailed illustration of a suitable cross feed. In the schematic showing, Fig. 3, a pair of side belts 35 and a horizontal belt 36 are provided for forming a feeding channel to which tobacco leaves are delivered. The tobacco leaves are forwarded in a stream to a suitable corrugated cutter 40, which severs cigar length sections from the tobacco stream 37. A suitable pusher 38 is provided for pushing the cut section (or sections, depending on how the apparatus is arranged) sideways into a suitable measuring chamber which has been omitted from the present illustration for the sake of simplification. For a detailed showing of a measuring chamber, reference may be had to the aforementioned patent issued to Lindblad No. 1,977,994. A suitable cutter 39 is provided for severing cigar bunch charges of uniform size

and density from the section pushed sidewise into the measuring chamber.

The cut cigar bunch charges are forwarded either continuously or intermittently upon conveyor 17b to collector conveyor 18b, which may also be operated either continuously or intermittently in timed relation with said conveyor 17b. The remainder of the mechanism shown in Fig. 3 operates in a manner similar to that shown and described in Fig. 1.

The individual cigar bunches are forwarded to the cutting knife by means of the binder material which interconnects the separated cigar bunch filler charges. It will be noted that the overhanging ends provide cigar bunch charges which in general are similar to those formed when a conventional binder applying apron applies a binder to a charge of filler tobacco in present day cigar machines. The overhanging binder serves to hold the filler in the ends of the bunch intact, and it also acts to form a layer of binder material over the end of the cigar when it undergoes crimping.

Suitable means are provided in Fig. 4 for applying a spiral wrap about a continuous stream of cigar filler tobacco. Two stationary rolls or rods 41 and 42 are held in fixed position by suitable means, such as brackets 43 and 44. A web or belt 45, traveling in the direction indicated by the arrow, is wound around stationary roll 41 and passes over driven pulley 46. A second belt 47 is wound around roller 42 and passes over belt 45 on pulley 46. The roller 48 is positively driven, in the direction indicated by the arrow, by suitable means in synchronized relation with the rate of movement of belts 45 and 47. Roller 48 is adjustably mounted so that the size and degree of compaction of the filler rod may be regulated thereby.

A conveyor belt 49, traveling in the direction indicated by the arrow, deposits a stream of cigar filler leaves upon belt 45 so that the longitudinal axes of said leaves are all aligned. The disk 50, rotating in the direction indicated by the arrow, forces the cigar filler in between roller 48 and loops of belts 45 and 47. In this connection, one end of roller 48 has a conical form 51 coating with disk 50 to compact the cigar filler on belt 45 in between roller 48 and the loops of belts 45 and 47. The operation of belts 45, 47 and roller 48 in conjunction with disk 50 effects a substantially spiral rolling of the aligned leaves C advanced by belt 45 (see Figures 4 and 5). A continuous strip of artificial sheet tobacco 52 is fed on one side of belt 45 and passes under the presser foot 53 which holds strip 52 in contact with belt 45. A suitable paste box 54 and paste applying wheel 55 are provided for applying a strip of paste to one side of the continuous strip of binder material 52.

The cigar filler tobacco C as shown in Figures 4 and 5, is first compacted and rolled spirally, as described hereinabove, so as to form a spirally rolled rod of aligned cigar filler tobacco leaves between driven pulley 48 and loops of belts 45 and 47, and then the continuous strip of binder material is applied about the compacted continuous rod of cigar filler. The continuous rod of cigar filler travels out from between rods 41 and 42, and roller 48, into a suitable ledger guide plate 56 which has a conventional cutter 57 intermittently severing said rod into cigar bunch lengths. The cigar bunches may be severed on a bias or with a straight cut, depending on what shape

the ends of the finished cigars are ultimately to have. These lengths are deposited upon a suitable belt or platform 58 which may deliver them, into a suitable shaping device, such as that shown at S.

It is understood that the showing in Fig. 4 is only intended to disclose how it is possible to apply a spiral wrap about a continuous rod of filler tobacco, as opposed to a wrapper with a straight fold such as that shown in Figs. 1 to 3. The structure shown for applying the spiral wrap is generally similar to that in the patent to Maxfield No. 545,805. Any other suitable mechanism could of course be employed for this purpose.

In connection with the species shown in Figs. 1 to 4, the longitudinal axes of the individual particles making up the cigar filler are all first aligned with one another, and then undergo a suitable preliminary compaction before the continuous strip of binder material is wrapped about the compacted charge of filler tobacco. In the modifications shown in Figures 1 and 2, preliminary compaction of tobacco is effected as the stream passes between rollers 24a. In doing this, it is desirable to cause the filler leaves to be more or less curved or rolled about their longitudinal axes to form a roll of cigar filler, thereby to increase the "draw" of the cigar ultimately formed.

The invention above described may be varied in construction within the scope of the claims, for the particular device selected to illustrate the invention is but one of many concrete embodiments of the same. The invention therefore is not to be restricted to the precise details of the structure shown and described.

What is claimed is:

1. A method for manufacturing cigar bunches consisting in intermittently feeding a continuous strip of natural tobacco binder material, depositing on said continuous binder a predetermined quantity of long filler cigar tobacco, wrapping and securing said binder about said filler to form a continuous cigar bunch rod of approximately cigar size in cross section, and then severing cigar bunches from the end of said rod.

2. A method for making cigar bunches which consists in feeding a continuous strip of binder material, depositing on said strip at spaced intervals predetermined quantities of cigar filler tobacco, wrapping and securing said binder material about said spaced quantities of cigar filler tobacco to form a rod of substantially cigar size in cross section, and then severing said rod at the portions between said quantities of cigar filler tobacco to form cigar bunches.

3. A method for making cigar bunches which consists in intermittently feeding a continuous strip of binder material, depositing on said strip during each intermission a charge of cigar filler tobacco sufficient to form the filler for an individual cigar bunch, then wrapping said binder about said filler as said binder is intermittently forwarded in substantially rod form, and then cutting off each enwrapped filler charge to form a cigar bunch.

4. A method for making cigar bunches which consists in feeding a continuous strip of binder material, feeding cigar filler tobacco leaves, aligning said leaves side by side, depositing said aligned filler leaves longitudinally on said binder material, enfolding said binder about the filler leaves so deposited as the binder material con-

tinues traveling forward, applying adhesive along the overlapped portions of said binder to hold the same together, and then severing said enfolded filler into cigar bunch lengths.

5. A method for making cigar bunches which consists in feeding a continuous strip of binder material, feeding scrap tobacco, aligning the longitudinal axis of said scrap side by side, depositing said aligned scrap on said binder material, wrapping said binder material about said filler, applying an adhesive to the overlapped portions of said binder to hold the same in place to form a cigar bunch filler rod, and then severing said rod at predetermined intervals to form cigar bunches.

6. The process of making cigar bunches which consists in feeding a continuous strip of binder material along a predetermined path, feeding filler tobacco in a stream along another remote path of travel, severing cigar length sections from said stream, accumulating said cigar length sections side by side, severing from said accumulation individual charges of filler tobacco having a cross-sectional area approximating that of a cigar, forwarding to and depositing said individual filler charges on said continuous strip of binder material, folding said continuous strip of binder material about said filler as said filler and strip of binder material are forwarded along the predetermined path of the binder material, and then severing said filler and binder into cigar bunch length sections.

7. A method for making cigar bunches which consists in feeding a continuous strip of binder material, aligning cigar filler leaves side by side, feeding said aligned filler leaves in synchronization with the feeding of said continuous strip of binder material, wrapping and securing said binder material about said cigar filler leaves to form a rod of approximate cigar size in cross section, severing said rod into sections of predetermined length, and then shaping each of said sections to impart thereto the form of a cigar.

8. A process of making cigars which consists in feeding a continuous strip of pulp tobacco or crepe paper along a predetermined path of travel, depositing on said strip at predetermined intervals individual charges of cigar filler tobacco, wrapping and securing said strip about said charges as they are forwarded along a predetermined path of travel to form a series of wrapped interconnected individual cigar bunches, severing said individual bunches from one another, and then shaping each bunch so severed to impart thereto the shape of a cigar.

9. The process of making cigar bunches which consists in feeding a predetermined quantity of cigar filler material along a predetermined path of travel, aligning the longitudinal axes of the individual portions of tobacco making up said cigar filler, wrapping a continuous strip of sheet material about said cigar filler, and then severing said unwrapped filler obliquely at predetermined intervals into cigar bunches.

10. The method of manufacturing cigars which consists in the steps of feeding a continuous strip of binder material, weighing predetermined quantities of cigar filler, delivering said weighed cigar filler to said binder material, folding and securing said binder material about said filler to form an elongated cigar bunch rod, then severing said rod, compressing said filler unwrapped in said binder into cigar

bunch length sections, and then shaping the ends of said sections to resemble a cigar.

11. The method of manufacturing cigars which consists in the steps of feeding a continuous strip of binder material, depositing on said binder material at spaced intervals individual charges of cigar filler, folding said continuous strip of binder material about said charges to form a connected chain of wrapped cigar filler charges, severing said chain at the portions between said wrapped filler charges, and then shaping said wrapped filler charges so as to impress said wrapped charges with the shape they are to have when formed into cigars.

12. The method of manufacturing cigars which consists in the steps of feeding a continuous strip of binder material, depositing on said binder material at spaced intervals individual charges of cigar filler tobacco, folding said continuous strip of binder material about said charges to form a connected chain of wrapped cigar filler charges, severing said chain at the portions between said wrapped filler charges so as to form cigar bunches with projecting tubular binder ends.

13. The method of manufacturing cigars which consists in the steps of continuously feeding binder material, aligning the longitudinal axes of cigar tobacco filler leaves side by side, continuously advancing said cigar filler into association with said binder material, wrapping said binder material spirally about said filler, severing said filler and binder into sections of predetermined length, and then shaping each section to resemble a cigar bunch.

14. The process of manufacturing cigar bunches which consists in feeding a continuous strip of binder material, feeding a stream of filler tobacco, severing from said stream sections of filler tobacco of cigar bunch length, compacting said severed sections sidewise, severing from said compacted sections individual charges of filler tobacco sufficient to form the filler of one cigar bunch, said sections having been sufficiently compacted that the charges so severed will retain their shape, depositing said charges upon said strip of binder material, wrapping said binder material about said charges to form a continuous rod of cigar bunch material, and then severing said rod at the portions between said filler charges to form cigar bunches.

15. The method of making cigar bunches which consists in aligning the longitudinal axes of cigar filler leaves with one another, feeding said aligned cigar filler leaves in a continuous stream, continuously curling said aligned leaves upon themselves, compacting said curled leaves, then applying a continuous strip of binder material spirally about said compacted and curled cigar filler leaves to form a continuous rod of cigar bunch material, and then severing said rod on a bias at spaced intervals to form cigar bunches.

16. The method of making cigar bunches which consists in arranging long filler leaves in parallelism, intermittently feeding said leaves along a predetermined path, shaping said leaves into a rod of cigar size in cross section as said leaves are intermittently fed along said predetermined path, applying a continuous strip of binder material about said cigar filler to form a rod of substantially cigar size in cross section, and intermittently severing said rod on a bias to form cigar bunches.

17. The process of making cigar bunches which consists in feeding a continuous strip of sheet material suitable for use as a binder in cigar manufacture, feeding cigar filler tobacco, arranging said filler tobacco longitudinally relative to said sheet material for enwrapping therein, wrapping said binder about said cigar filler which so positioned relative to said binder,

applying adhesive along said binder to hold overlapped portions thereof together and thereby form a composite cigar bunch rod, severing sections of predetermined length from said wrapped cigar filler bunch rod, and then shaping said sections to impart to each the shape of a cigar.

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