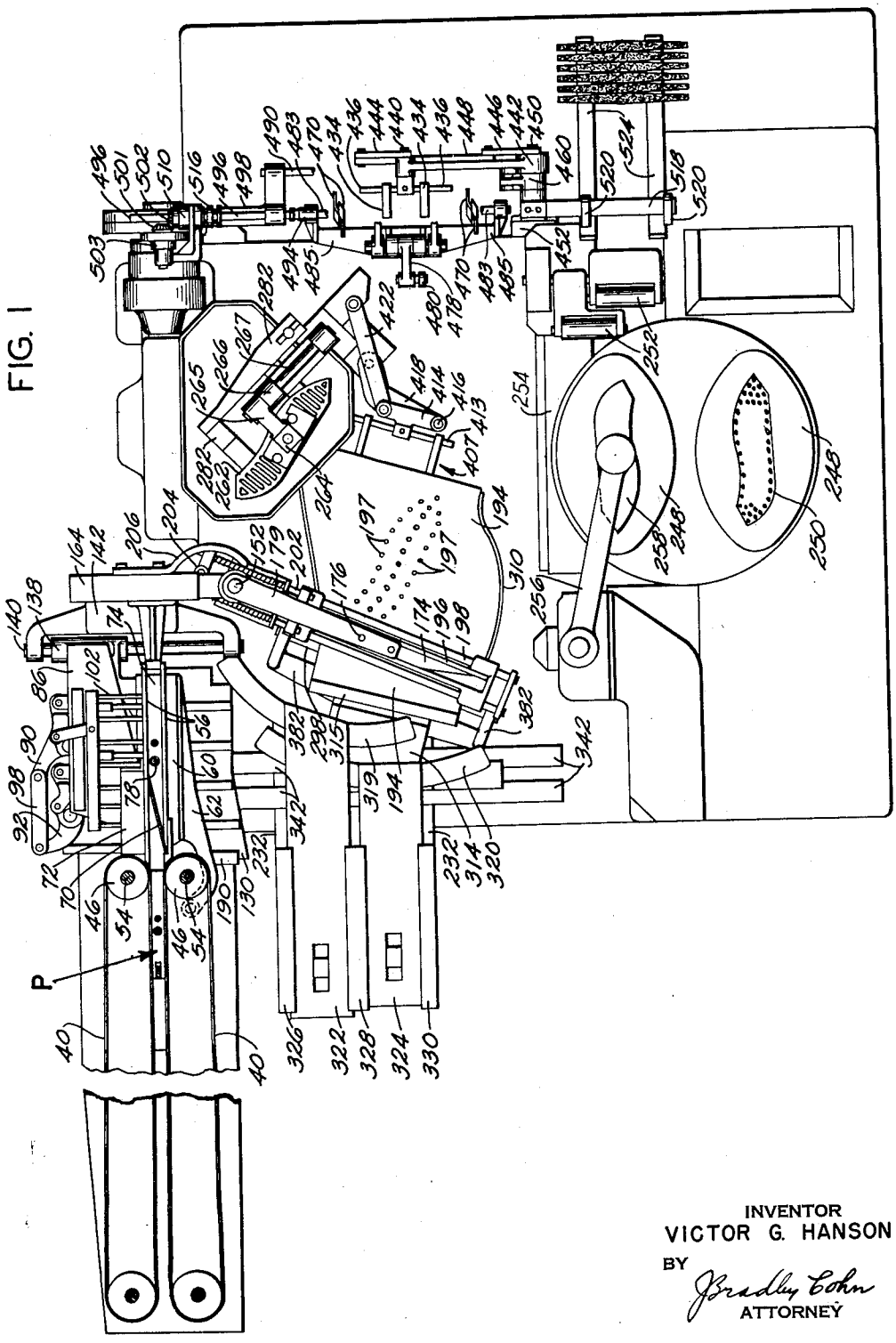
July 30, 1963 V. G. HANSON 3,099,581

CIGAR MACHINE PASTER

Original Filed May 24, 1956 4 Sheets-Sheet 1

FIG. 1



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FIG. 2

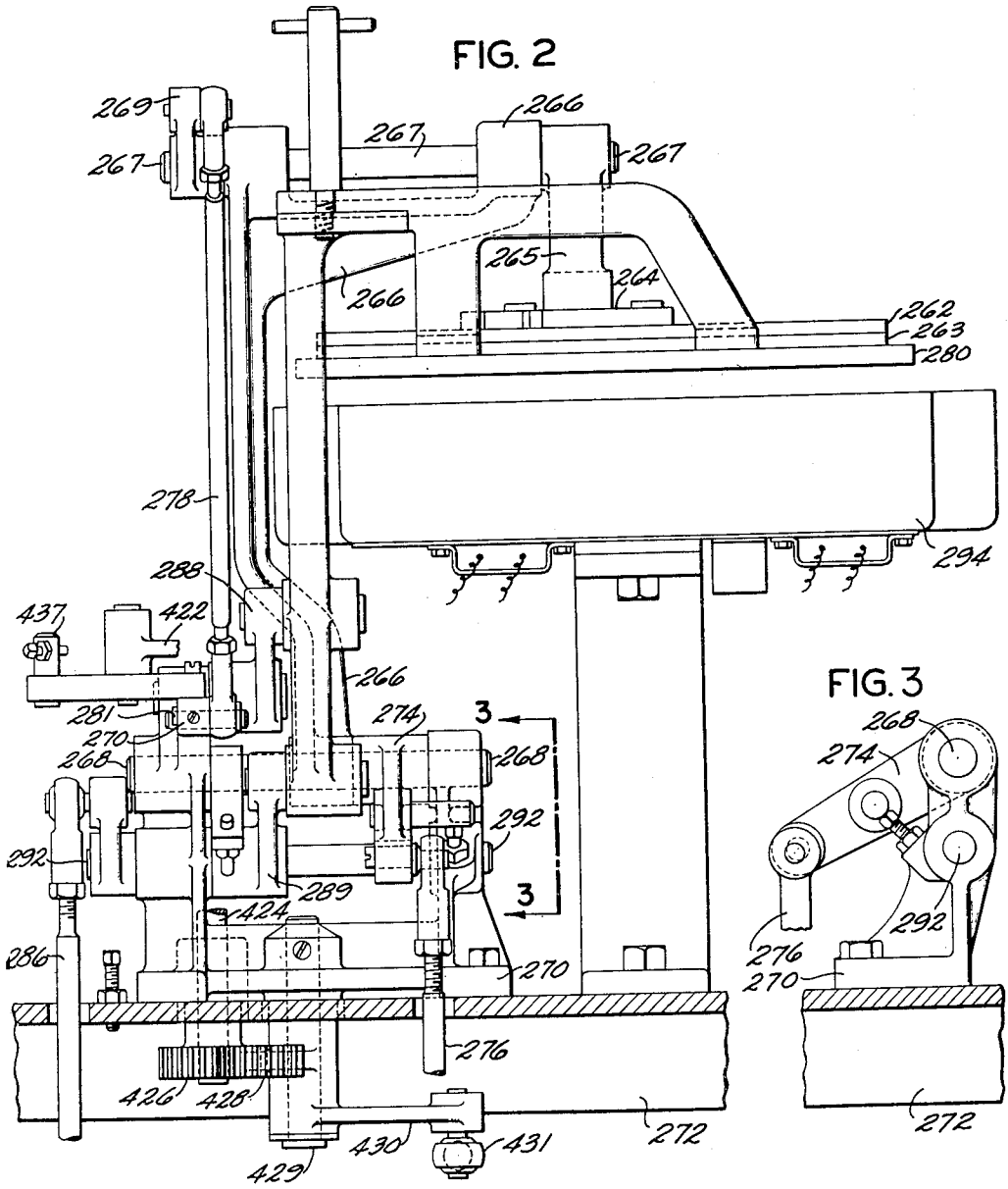


FIG. 3

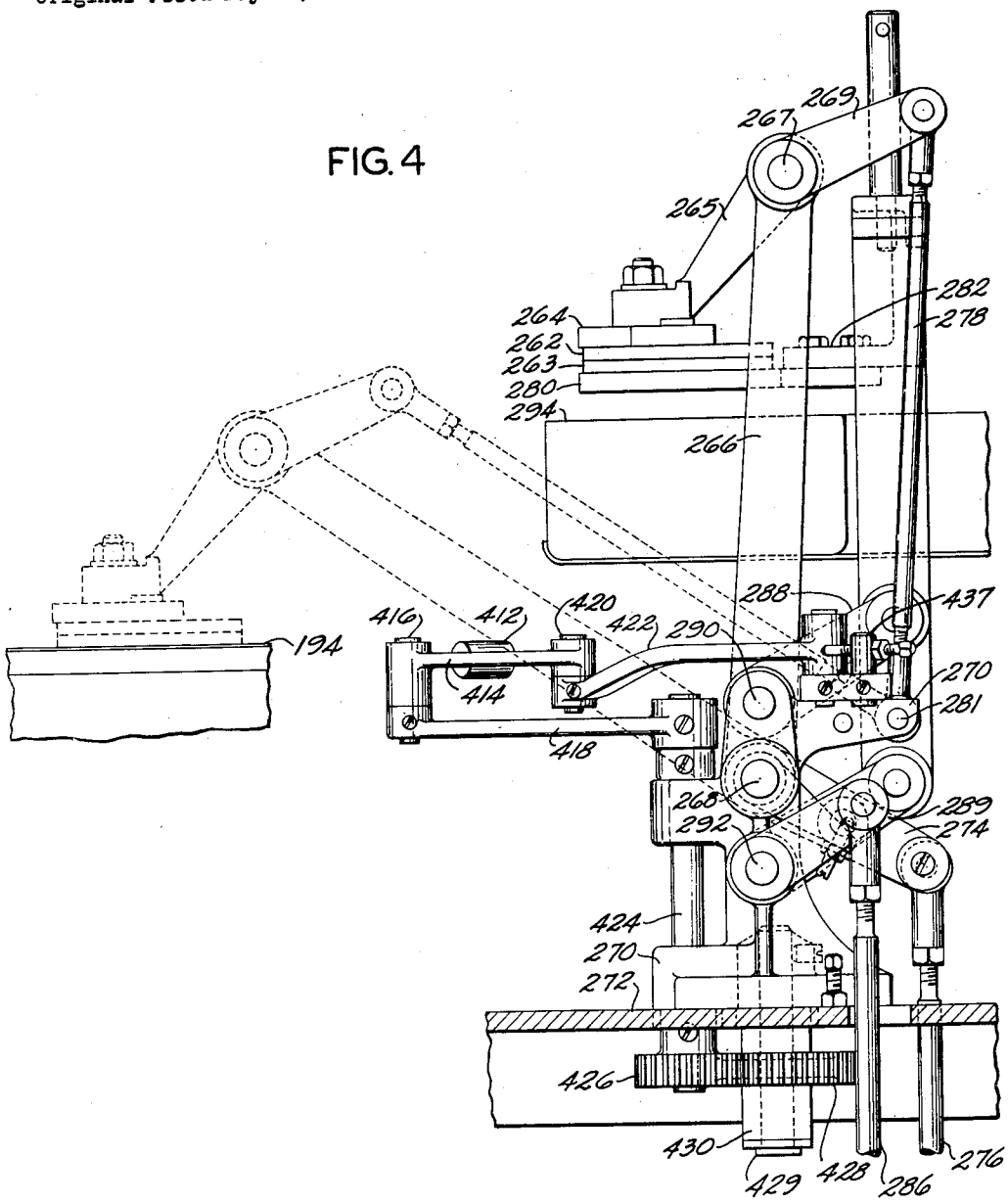
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FIG. 4



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FIG. 5

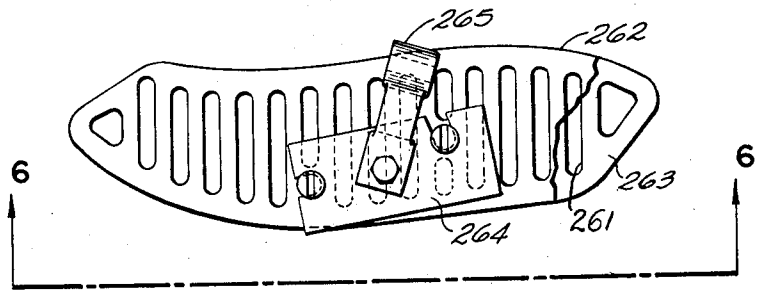


FIG. 6

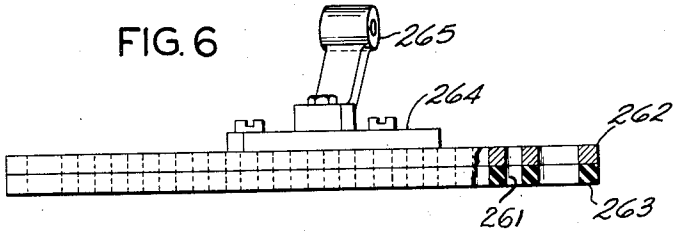
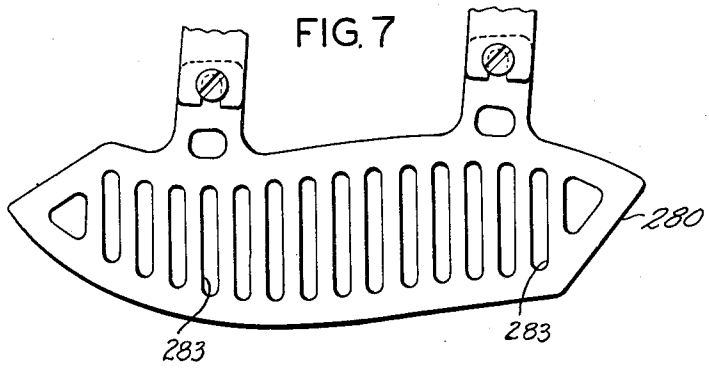


FIG. 7



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3,099,581

CIGAR MACHINE PASTER

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Original application May 24, 1956, Ser. No. 587,168, now Patent No. 3,033,210, dated May 8, 1962. Divided and this application July 6, 1961, Ser. No. 122,131

3 Claims. (Cl. 118—243)

This application is a division of my joint pending application with Sigurd Clausen and Joseph A. Neumair, Serial No. 587,168, filed May 24, 1956, now Patent No. 3,033,210 granted May 8, 1962, subject: Toscani Cigar Machine, and claim is made to all of the equitable and legal benefits derivable therefrom.

This invention relates to a machine for making Toscani cigars.

In Toscani cigar machines previously known in the art a number of defects have been present which have seriously interfered with correct forming of the product, rapidity of production and continuous operation without shutdown for cleaning and servicing. One of these defects is the fouling of the mechanism due to inexact application of paste to the wrapper and the spreading of excess paste where not needed.

One object of the present invention is to provide a machine containing novel features which substantially avoid the above-listed deficiency of previously known Toscani cigar machines and thereby to contribute to the production of a machine capable of continuous operation at a high rate with a resulting decrease in cost per piece while at the same time greatly improving the quality and uniformity of the product.

Other objects of the invention and advantages to be derived therefrom will become apparent from the detailed description and from the accompanying drawings.

In general the novel features of the present invention which contribute to the attainment of the objects described by overcoming a defect of previously known machines are as follows:

(1) Improved means of applying paste to the wrapper by the use of a paste applying pad formed to match the outline of the wrapper, spilling of excess paste on the apron being thus avoided while at the same time providing adequate paste deposition.

(2) A novel means for withdrawing the requisite amount of paste from the paste pot and applying it uniformly to the applicator which transfers it to the wrapper.

In the drawings:

FIG. 1 is a plan view of the Toscani cigar making machine illustrating the outlines of the various components and mechanisms and their relation to each other;

FIG. 2 is a side elevation of the wrapper paste applying mechanism;

FIG. 3 is a fragmentary end elevation of the same, taken on line 3—3 of FIG. 2;

FIG. 4 is an end elevation of the wrapper paste applying mechanism;

FIG. 5 is a plan view of the paste transfer and applier plate;

FIG. 6 is a front view of the same, taken on line 6—6 of FIG. 5;

FIG. 7 is a plan view of the paste lift platform.

In the parent application identified in the foregoing, the operation of the present machine is described in detail. Reference may be had to the parent application for the reference numerals shown in FIG. 1 and not referred to hereinafter and for a complete understanding of the detailed operation of the machine and the manner

in which the present invention is incorporated therein. However, before proceeding with the detailed description of the present invention, a broad general description of the operation of the machine will now be given as an aid in understanding the detailed description of the pasting apparatus of the present invention.

In the Toscani machine of the parent application, of which the present pasting mechanism forms a part, there is provided a wrapper die turret with two positions on one of which the wrapper leaf is placed manually and held by suction in the usual manner. The second turret position serves for cutting to shape by means of rollers traversing the wrapper die in the customary manner and from which it is picked up by the wrapper carrier. The transfer to the carrier and release from the cutting die is effected by suction with suitably timed valves, in the well known manner.

The wrapper carrier transfers the wrapper to a forming apron on the forming table, suction and suitable valving being provided to free the wrapper from the carrier and adhere it to the apron where it is suitably located to receive and to be rolled around the filler charge. While the wrapper is held in its ready position on the apron an even layer of paste is applied over its entire surface by a pasting pad of the same outline shape as the wrapper and so oriented as to fit directly over it. The pasting pad is mounted on an arm to which suitably timed vertical and horizontal motions are imparted by suitable cam and linkage means. At the retracted end of its motion the pasting pad registers with and is pressed against a paste dipper plate mounted on a slide so as to reciprocate vertically in and out of a suitable paste container, a coating of paste being transferred from the container to the dipper plate, from the dipper plate to the wrapper pasting pad and from the wrapper pasting pad to the wrapper, an even coating over the entire surface without excess being thus assured.

The tobacco filler is fed by hand into a crossfeed trough bounded by three coordinated endless belts into which the filler is placed by hand. The belts are driven in intermittent strokes from a suitable ratchet mechanism or the like so as to advance the correct length at each stroke into a receiving chamber.

A holding foot, suitably timed, descends to hold the feed down in the trough as a sharply angled guillotine knife is driven down through the filler and past a fixed ledged plate at the bottom of the feed trough. Thus a charge of the correct length, with both ends suitably tapered, is cut off from the feed column. The angulation of the guillotine knife being approximately equal to the angle of taper desired.

The base of the receiving chamber is formed by a plate arranged to swing out of the way at the correctly timed interval to permit a spring loaded pusher to descend on the charge and force it downwards into the measuring chamber, the height of the column in the measuring chamber being determined by the rates of supply and removal. When the pusher, being prevented from descending by an excess of material in the measuring chamber, fails to descend below a predetermined position the feed stroke of the crossfeed is withheld from actuation, in a manner well known in the art, withdrawal being thus allowed to overtake supply. Thus, so long as filler is placed in the crossfeeder to a greater depth than necessary for a bunch thickness in the measuring chamber, the measuring chamber is assured of being filled at each stroke with sufficient material for a charge uniformly compacted.

Metering is accomplished by a horizontal knife in combination with the measuring plunger which is caused by suitable timed linkage and cam means to cut across the stack of material at precisely the correct height to isolate

a charge of the requisite amount in the bottom of the measuring chamber. In order to slice cleanly through the sticky and humid tobacco customarily used in Toscani cigars the metering knife is actuated in a swinging slicing motion rather than with a direct linear traverse. A vertically movable ledger plate forms one side of the measuring chamber, a slot wide enough to accommodate the metering knife being provided between the edge of the ledger plate and the fixed chamber wall. Generally in time with the traverse component of the metering knife motion a plurality of rods are advanced across the top of the measuring chamber, registering with slots in the bottom face of the pusher foot to prevent material in the measuring chamber from rising through adhesion to the pusher when it is withdrawn preparatory to the next stroke. The bottom of the measuring chamber is formed by the rectangular face of a plunger having a short stroke so that it may be lowered through enough distance to free the charge for later sliding. This upward motion of this plunger is adjustable to define the metered thickness of the bunch measured between the plunger and the horizontal knife. The metering knife traverse is followed up by the motion of a transverse pusher which forms the side of the measuring chamber opposite the ledger plate. The transverse pusher is suitably timed to start across just after the ledger plate has been withdrawn downward and the metering plunger is also lowered to its bottom position in the chamber just below the lower edge of the pusher. As the transverse pusher moves across it pushes the metered charge ahead of it through a space confined on the top by the metering knife and on the bottom by a composite floor made up of the measuring chamber metering plunger, the top edge of the withdrawn ledger plate and a horizontal guide plate fixed with relation to the structural frame of the machine. During the latter position of the lateral charge transfer the horizontal knife is withdrawn, a series of fixed guide bars just above it serving to keep the charge confined vertically. The face of the transverse plunger contacting the charge is shaped to conform thereto.

At the end of its transverse motion the charge is forced into a chamber in the transfer mechanism mounted on a swinging arm which, through suitable cam and linkage actuation, is moved into position to receive the charge at the required time. As the charge enters the transfer chamber a sliding pusher mounted on the transfer descends to push the charge downward into a space where it is confined on all four sides, on the top by the pusher, on both sides by the walls of the chamber and on the bottom by a swinging trap door held shut by a spring and by positive, cam actuated linkage as well. After transfer of the charge, the transverse pusher foot, the metering knife and the hold-down rods retract to their initial positions, the measuring plunger rises clear and the receiving chamber floor plate slides back into place as also do the measuring chamber floor plunger, the movable ledger plate and the angled charge cutting off knife to repeat the cycle.

As soon as the charge is contained in the transfer chamber the transfer arm swings to bring the charge directly over and in line with a receiving pocket formed in the forming apron. During the swinging motion of the arm a spring and cam mechanism serves to retract the transfer chamber containing the charge radially until it strikes an adjustable stop which is set to bring the center of the charge over the center of the receiving pocket, that is, the center between the two cones made in the rolling apron on the table as hereinafter described, the correct forming of cigars of different lengths being thus provided for since the same center is used for a longer or shorter cigar. When the charge has been brought into alignment with the apron pocket the transfer chamber is lowered and the pusher is again actuated, a cam surface on the pusher slide simultaneously operating through suitable linkage to release the trap door which is thereupon

forced open by a second cam surface and by the charge and the pusher. The pusher continues downward until it has compressed the charge into the apron pocket whereupon it is withdrawn through the continuing motion of its actuating cam, the slide cams acting to close the trap door, which is thus not dependent for correct closing on the relatively weak spring. Withdrawal of the transfer pusher and closing of the trap door restores the transfer mechanism parts for swinging back to receive another charge from the measuring chamber.

The rolling of the cigar is effected by means of the combination of forming table, flexible doubly curved apron and forming roller, the apron being held on the table and the wrapper on the apron by suction applied through holes in the table top and in the apron, the holes in the apron being smaller than the contacting ends of the registering holes in the table top, the differential areas thus assuring correct distribution of holding pressure on both the apron and wrapper. The suction chamber under the table top, connected to a suction pump by suitable manifolding and ducting, is divided into three chambers, the central one generally under the wrapper being arranged for on and off valving in suitable timing and the two outer ones retaining suction at all times during the operation of the machine to prevent sliding of the apron during its various motions.

The cigar is formed by advancing the roller and the apron across the table, the filler charge being thus drawn in the apron pocket and rolled up as it proceeds across the wrapper and the apron, the required double taper of the Toscani cigar being obtained by advancing first one end of the roller and then the other, apron tension being continually adjusted to provide correct compacting along the entire length of the cigar. For this purpose cams and rollers under the table top guide the roller in its traverse under the actuation of suitable cams, levers and linkage. Correct apron tension is maintained collectively and differentially between its edges by a transverse rack and pinion actuated arcuate cam system, and two independently acting and independently adjustable cam and linkage systems providing motion longitudinal of the apron edges. The roller is formed in a plurality of sections on a central pin to accommodate the different rotational speeds required of various portions of the pin due to the changing motion of its ends.

Upon completion of the rolling the cigar is placed by the apron in spring loaded fingers on a transfer arm which removes it to a cutting station where trimmer knives cut the ends to the correct length. On account of the sticky nature of the cuttings a cleaning finger is provided to assure proper displacement of the cut head end before a knurler contacts the head end of the cigar. Knurling is necessary following the trimming of the head end. The completed cigar may then be removed by a suitable transfer.

All of the above mentioned parts and means may be varied widely in construction within the scope of the claims, since the particular structure selected to illustrate the invention is but one of many possible concrete embodiments of the same. The invention, therefore, is not to be restricted to the precise details of the structure shown and described.

After the wrapper is placed on the rolling apron the upper surface of the wrapper is coated with a uniform layer of paste which is applied by a sponge rubber pad **263** mounted on a plate **262** detachably held by a block **264** secured to arm **265** mounted on a shaft **267** carried at the free end of a transfer arm **266**. Arm **266** is pivotally supported by a stud **268** held by bracket **270** fixed on the bed plate **272** of the main frame of the machine. Arm **266** is arranged to be rotated about stud **268** by a lever **274** also mounted on said stud. Lever **274** through an adjustable rod **276** is oscillated by and connected to a suitable cam arrangement (not shown). An adjustable rod **278** is pivotally connected at its lower end to a stud **281** on bracket **270** and at its upper end is connected to the free end of an

arm **269** mounted to the stud shaft **267**. A paste dipper plate **280** secured to a support **282** is raised and lowered by cam actuated rod **286**, acting through swinging arms **288** and **289** which are pivoted on bracket **270** at **290** and **292**, respectively. The sequence of operation is as follows: Rod **286** is actuated to lower plate **280** into, and then to raise it above, a stationary paste pot **294**, transferring the paste carried on its top surface to the lower surface of the rubber pad **263** on plate **262** of the waiting paste transfer arm **266**. The dipper plate **280** then descends again and the transfer arm **266** swings the paste carrying rubber pad **263** on to the top surface of the wrapper W previously deposited on the rolling apron **194**. The applicator **263** being of the same shape as the cut wrapper W and being of a resilient material such as rubber permits paste to be transferred on to the entire surface of the wrapper regardless of heavy veins or irregularities of the surface of the wrapper W. The dipper plate **280** is perforated at **283** for drainage to assure correct supply of paste whenever excess is delivered to pad **263**, which also has corresponding openings **261** or perforations.

What is claimed is:

1. A paster for a cigar machine comprising a paste receptacle, a substantially horizontal paste conveyor plate arranged to move substantially vertically and into and out of said receptacle, said plate having perforations to permit excess paste to drain out when said plate is raised out of said receptacle, a paste applier movable from a position to contact said plate to a paste applying position for the wrapper of a cigar, said paste applier being formed of soft resilient material, said paste applier being formed to engage said plate and having coinciding perforations so that a controlled amount of paste may be applied uniformly to said paste applier and then to said wrapper.

2. A pasting mechanism for applying paste to a cigar wrapper or binder, said mechanism having a first station and a second station, said mechanism comprising also a paste container, a soft resilient multiply perforated paste applicator having a contour conforming substantially to the contour of said binder or wrapper, an applicator carrier and a paste dipper plate, said carrier and said plate each having a contour and perforations coinciding substantially with the contour and perforations of said applicator, means at said first station for reciprocating said plate vertically out of said container to contact said applicator and return into said container, and means for thereafter actuating said carrier and said applicator to said second station to apply paste to said wrapper or binder.

3. A pasting mechanism in accordance with claim 2 in which said actuating means comprises a first arm and a second arm, a first and a second pivot for said first and said second arm, respectively, a cam controlled lever, said first arm limitedly rotatable about said first pivot by said lever, a bell crank having a hub and a first and a second crank arm, said hub mounted to the free end of said first arm, said first crank arm connected to the free end of said second arm, and said carrier mounted to said second crank arm.

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