(No Model.) 3 Sheets—Sheet 1.

W. YELLOWLEY & C. MEYER.

CIGAR BUNCHING MACHINE.

No. 563,115. Patented June 30, 1896.

FIG. 1.

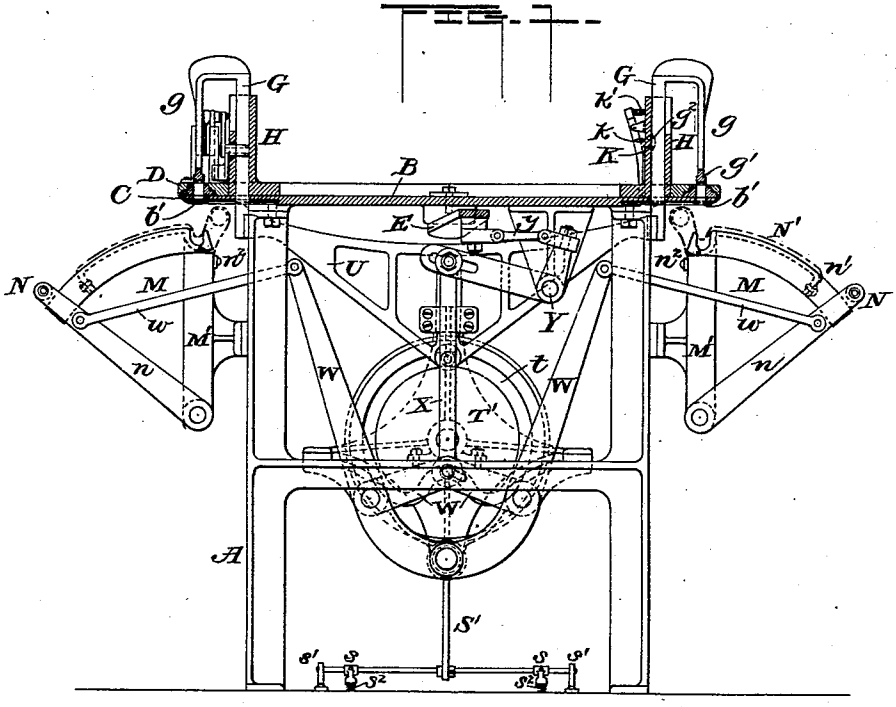

FIG. 2.

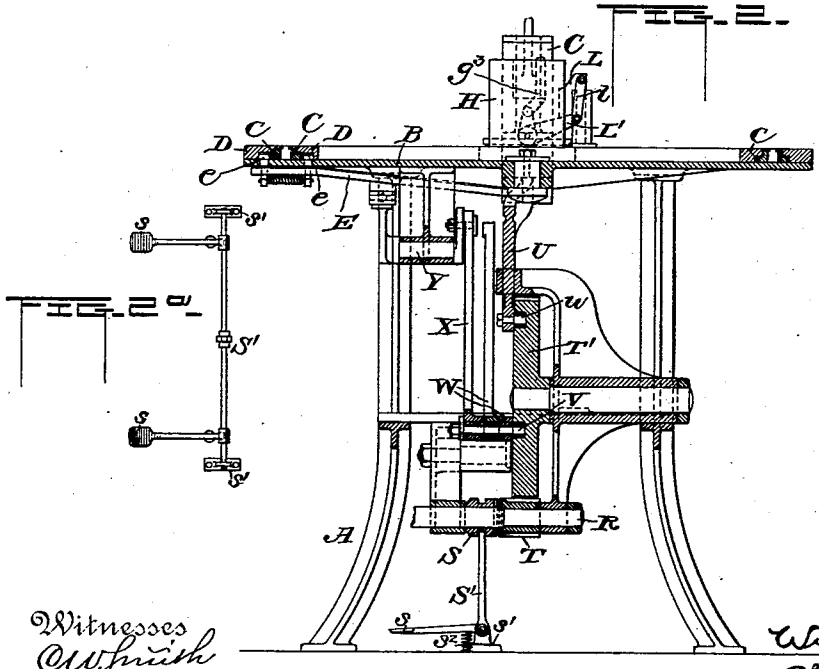

FIG. 2a.

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(No Model.) 3 Sheets—Sheet 2.

W. YELLOWLEY & C. MEYER.

CIGAR BUNCHING MACHINE.

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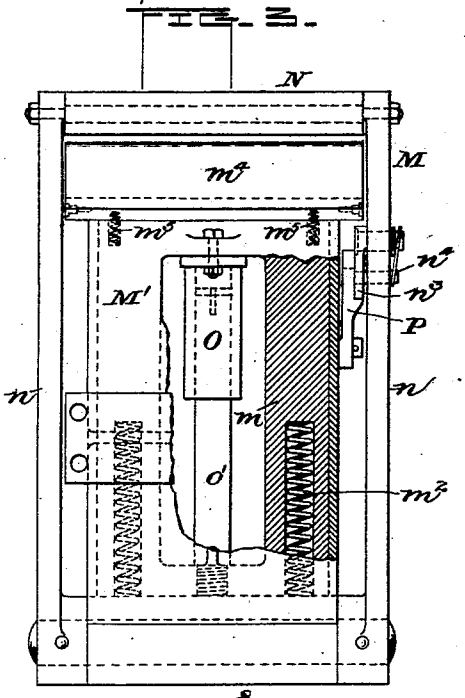

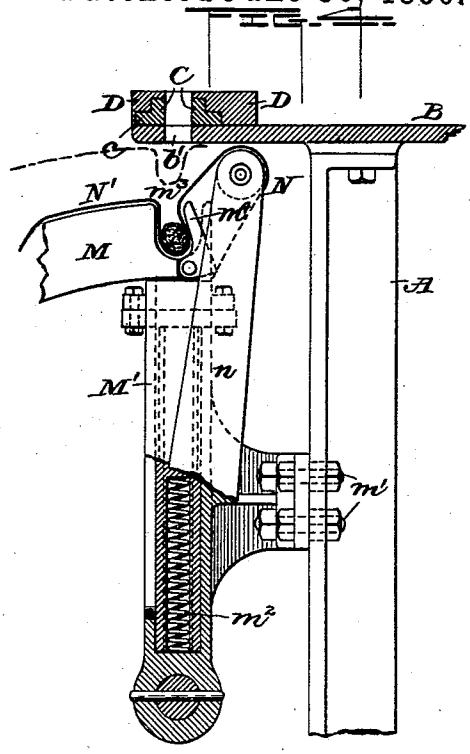

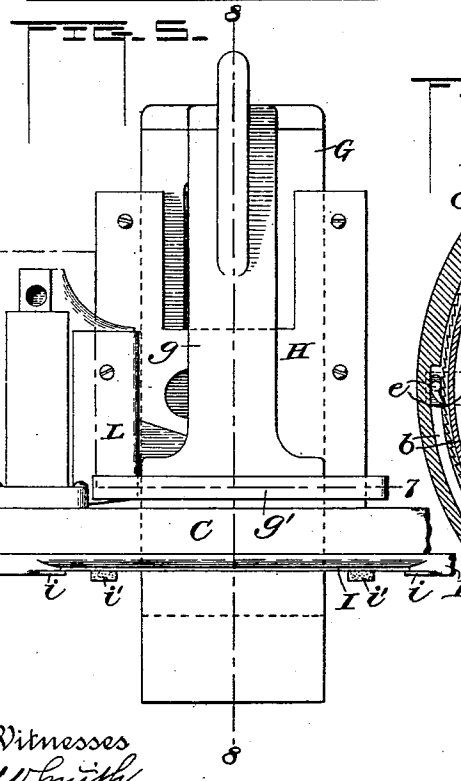

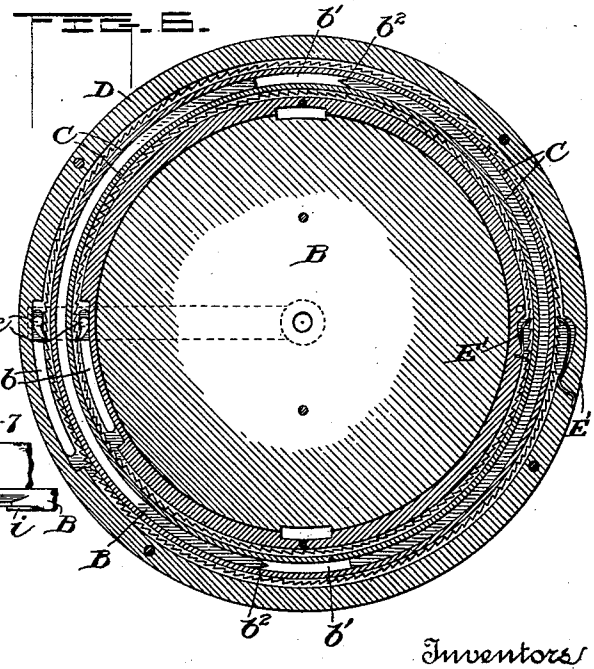

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(No Model.) 3 Sheets—Sheet 3.

W. YELLOWLEY & C. MEYER.

CIGAR BUNCHING MACHINE.

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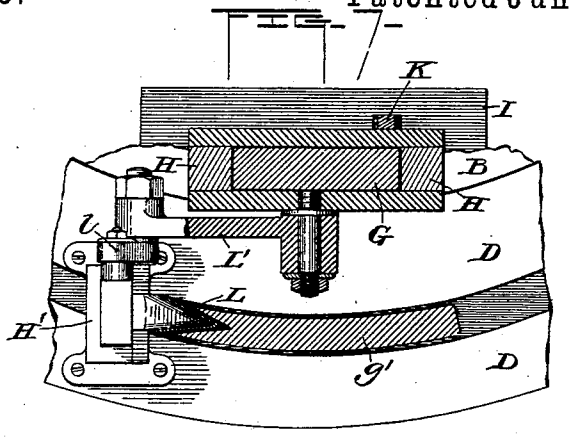

FIG. 8.

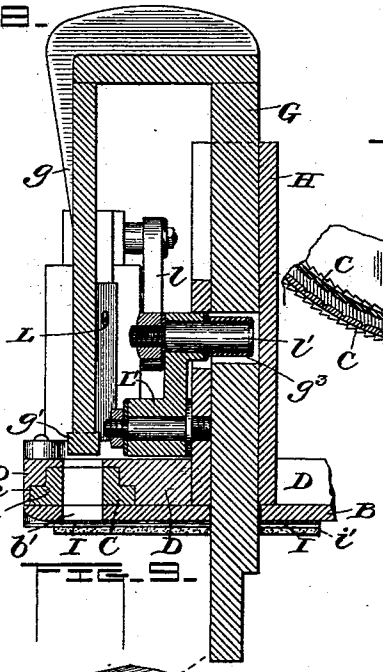

FIG. 10.

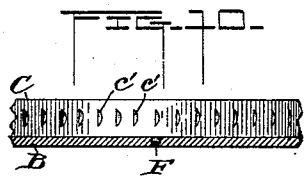

FIG. 11.

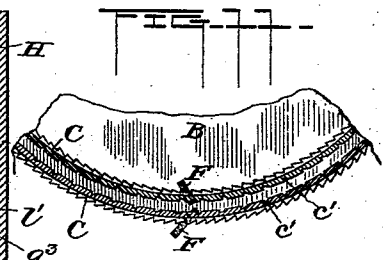

FIG. 9.

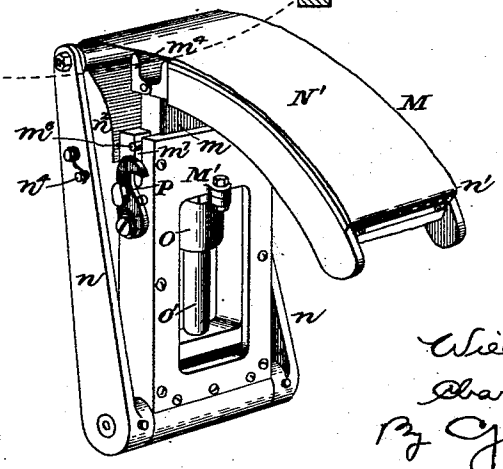

FIG. 12.

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WILLIAM YELLOWLEY AND CHARLES MEYER, OF ALLEGHENY, PENNSYLVANIA.

CIGAR-BUNCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 563,115, dated June 30, 1896.

Application filed September 17, 1895. Serial No. 562,802. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM YELLOWLEY and CHARLES MEYER, citizens of the United States, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Cigar-Bunching Machines; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Our invention relates to cigar-bunching machines, and its object is to enable long filler tobacco to be bunched by machinery.

The invention consists in certain constructions and arrangements of parts for accomplishing this result, as hereinafter set forth, and particularly pointed out in the claims.

In the drawings, Figure 1 is an elevation of a machine embodying our improvements, certain parts being shown in section. Fig. 2 is a similar view taken a tright angles to Fig. 1. Fig. 2^a is a plan of the treadle. Fig. 3 is a rear elevation of one of the rolling-tables, partly broken away. Fig. 4 is a side elevation thereof, also partly broken away. Fig. 5 is a front elevation of one of the rams and cutters. Fig. 6 is a top plan sectional view showing the feeding-rings. Fig. 7 is a horizontal section on line 7 7, Fig. 5. Fig. 8 is a vertical section on line 8 8, Fig. 5. Fig. 9 is a perspective view of one of the rolling-tables in its raised position. Figs. 10 and 11 are details of the feeding-rings. Fig. 12 is a detail of the tappet on the radius-arm.

The machine shown is a double one, that is, it has two rams, cutters, and rolling-tables, so that two operatives can work at it. The filler is fed into an annular groove between two concentric feeding-rings, by means of which it is carried under a ram and cutter, which separate from the mass a quantity sufficient to make a bunch and force it down into the pocket of the apron of the rolling-table. The table is vertically movable and is held up by springs in a position immediately below the ram, so that no tobacco may be lost when the ram descends. When pressed down by the ram, the table is automatically locked until the bunching-roller on its return from rolling the bunch unlocks it and allows it to be raised again by springs.

On a suitable frame A is mounted a flat table B, on which are placed two concentric feeding-rings C, having vertical walls facing each other with an annular space between them. The rings have flanges *c*, over which fit the annular guides D, which also overlap the tops of the rings. The outer edge of the outer ring and the inner edge of the inner ring are provided with ratchet-teeth, with which engage spring-pawls *e*, mounted on a lever E, which is fulcrumed at the center common to the rings C. The lever lies just under the table B, and the pawls project up through slots *b* in said top. The vibratory movement of the lever causes an intermittent simultaneous movement of the rings to effect a similar feeding of the tobacco placed between them. Detent-pawls E′ prevent any backward movement of the rings. The opposing faces of the rings are preferably provided with means for engaging with the tobacco, such as vertical notches *c′*, which are deepest in the middle and have one radial side and an inclined side running forward, as shown in Figs. 10 and 11. These notches act like pawls to carry the tobacco forward, but not backward.

In the table B may be set wipers F, consisting of pieces of felt or the like, abutting against the bottoms of the rings C to keep them clean and prevent the lubricating-oil from working into the space in which the tobacco lies.

At two diametrically opposite points in the table B and coinciding with the space between the rings C are cut two curved slots *b′*, equal in length to the bunch to be formed and bifurcated at one end by reason of a V-shaped tongue b^2 projecting into the slot. Adjacent to each slot *b′* is a ram, consisting, preferably, of a plunger G, movable vertically in or on a fixed guide H and having a downwardly-bent arm *g*, carrying at its lower extremity a die or ram *g′*, of the same shape in horizontal cross-section as the slot *b′*, and arranged to descend through said slot when the plunger is depressed. A safety-plate I, sliding in guides *i* on the under side of the table B,

closes the slot b' when the ram is in its raised position. This plate is arranged to be withdrawn when the ram descends, preferably by means of a lever K engaging therewith and fulcrumed on the guide H. A roller k on the lever engages with a cam-groove g^2 in the back of the plunger G, so that upon the descent of the plunger the lever will be swung back against the tension of its spring k' and will slide back the plate I. When the ram rises again, the spring k' restores the plate to its normal position. On the under side of the plate are the strips of rubber i' for a purpose hereinafter set forth. Entering the notched end of the ram is a V-shaped cutter L, movable vertically in a fixed guide H' and having its edges in line with the edges of the V-shaped tongue b^2. A link l connects the cutter with the long arm of an elbow-lever L', fulcrumed on the guide H and having a wrist-pin l' on its short arm engaging with a cam-slot g^3 in the plunger G. The shape of this slot g^3 is such that the first part of the downward movement of the ram causes the cutter L to descend and cut off a given quantity of the filler, the cut portion having one end forked and the other end pointed by reason of the V shape of the cutter. During the remainder of the descent of the ram the cutter is at rest in its depressed position, rising again when the ram nears the upper end of its stroke.

The rolling-table M is located below the ram, in position to receive the charge of tobacco forced down by the ram. The table is curved, as usual, to correspond with the travel of the bunching-roller N, journaled in the radius-arms n. An apron N' of flexible material is attached to the forward end of the table at n' and to the rear of the table at n^2, passing over the bunching-roller N and having sufficient slack to receive and encircle the charge. The table is vertically movable, preferably by being attached to a slide m, fitting into an upright socket-piece M', which is attached to the frame A, as by bolts m'. The radius-arms n are fulcrumed at the lower end of this socket-piece, which is preferably rectangular in cross-section, being rather wide to give a good bearing-surface to the slide and hold the table firmly. Springs m^2 are placed in the socket abutting against the lower end of the slide m and acting to lift it up against the under side of the top B. To prevent too violent a movement, a cushioning device is provided, preferably a cylinder O, attached to the socket-piece and receiving a piston-rod O', attached to the slide m, which is cut out centrally to give room for the cylinder. Suitable air-vents or a loose fit to the piston permit a gradual escape of the confined air.

In the upper end of the table M is a transverse groove m^3, directly under the slot b' in the table B. That portion of the table which forms the rear wall of this groove is a leaf m^4, hinged to the upper end of the slide m. Springs m^5 are seated in recesses in the upper edge of the socket-piece M', and operate to tilt the leaf m^4 forward with a yielding pressure when the table is depressed, and the under side of said leaf is forced down upon said springs.

A suitable device is provided to lock the table M in its depressed position, so as to permit the bunching-roller N to traverse it.

In the drawings we have shown the slide m, carrying a pin m^6, projecting through a vertical slot m^7 in the side of the socket-piece M'. Adjacent to the slot is pivoted on the socket-piece a hooked spring-catch P, which automatically engages with said pin m^6 when the table M is forced down by the ram. The adjoining radius-arm n carries a pivoted spring-tappet n^3, arranged to strike the catch P when the radius-arm moves past it. The tappet is free to yield and slide over the catch when the arm moves forward to roll the bunch, but on its return the tappet is held rigid by a stop n^4 and forces the catch P backward off the pin m^6, allowing the springs m^2 to throw up the table.

The movements of the feed-pawls, the rams, and the bunching-rollers are effected in any desired manner. We prefer to derive them from a main shaft R, journaled in bearings on the frame A, and carrying a clutch S to engage with a loose pinion T. A treadle S', having a foot-piece s at each side of the machine, is fulcrumed at s' and has an upright arm provided with a fork engaging with the clutch S. A spring s^2 keeps the clutch in mesh with the pinion T, except when one or both of the workmen has his foot on the treadle. The machine can thus be stopped by either of the attendants and will not start unless both release the treadle. The pinion T meshes with a toothed disk T', in the face of which is cut a cam-groove t. A vertically-movable cross-head U, to which the two rams are attached, is provided with a wrist-pin u, carrying an antifriction-roller which engages with the groove t near the top of the disk T'. Near the bottom of the disk another wrist-pin V engages with the groove t and serves a double purpose. It passes through the ends of the overlapping short arms of two elbow-levers W, the upper ends of which are connected by links w with the two sets of radius-arms n. It also passes through the lower end of a pitman X, whose upper end is adjustably connected with one rock-arm of a rock-shaft Y, the other arm of which is connected by a link y with the lever E, on which the feed-pawls are mounted.

The operation of the machine has been more or less described in the preceding explanation of the construction.

In brief, it may be said that the long filler-tobacco is placed on the table B and is then picked out as desired and pressed into the groove between the rings C, and by them is carried forward under the rams and cutters, which descend at regular intervals, and severing enough filler for a bunch force it through the slot b' in the table B, the safety-

plate being temporarily withdrawn. As it recedes the rubber strips on its under side rub against the apron and drag it back to its proper position, that is, drawn taut over the rolling-table and the groove therein. The rolling-table is at this time in its raised position, immediately below the rings, as shown in Fig. 9 and in dotted lines in Fig. 4. The charge of tobacco is rammed into the pocket in the apron resting in the groove in the rolling-table, the table being at the same time pressed down by the ram and locked by the hooked catch, as shown in Fig. 4. The hinged leaf n^4 is tilted forward and holds the bunch. The attendant meanwhile has laid a piece of leaf tobacco or binder on the apron, so that when the bunching-roller sweeps over the table it operates to shape the bunch and complete it.

Having thus described our invention, what we claim is—

1. In a cigar-bunching machine, a filler-feeding mechanism comprising two concentric rings having an annular space between them, a support for said rings means for rotating them simultaneously and means for forcing the tobacco from between the rings transversely to the line of feed, substantially as described.

2. In a cigar-bunching machine, a filler-feeding mechanism comprising two concentric rings having an annular space between them, a support for said rings, means for rotating them intermittingly and simultaneously and means for forcing the tobacco from between the rings transversely to the line of feed, substantially as described.

3. In a cigar-bunching machine, a filler-feeding mechanism comprising two concentric rings spaced apart and having their opposing faces roughened a table supporting said rings, means for rotating said rings simultaneously and means for forcing the tobacco from between the rings transversely to the line of feed, substantially as described.

4. In a cigar-bunching machine, a filler-feeding mechanism, comprising two concentric rings spaced apart and having their opposing faces provided with vertical grooves, a table supporting said rings, means for rotating said rings simultaneously and means for forcing the tobacco from between the rings transversely to the line of feed, substantially as described.

5. In a cigar-bunching machine, a filler-feeding mechanism comprising two concentric rings spaced apart and having their opposing faces provided with vertical grooves, one wall of which is radial, a table supporting said rings, means for rotating the rings simultaneously and means for forcing the tobacco from between the rings transversely to the line of feed, substantially as described.

6. In a cigar-bunching machine, a filler-feeding mechanism comprising two concentric rings spaced apart, ratchet-teeth on each ring a table supporting said rings, operating-pawls engaging with said ratchets and means for forcing the tobacco from between the rings transversely to the line of feed, substantially as described.

7. In a cigar-bunching machine, a filler-feeding mechanism comprising a supporting-table two concentric rings spaced apart, ratchet-teeth on each ring, pawls engaging with said ratchets, a lever carrying said pawls and means for forcing the tobacco from between the rings transversely to the line of feed, substantially as described.

8. In a cigar-bunching machine, a filler-feeding mechanism comprising two concentric rings spaced apart, the inner one having an inner toothed flange, and the outer one an outer toothed flange, operating-pawls engaging with said toothed flanges, a table supporting said rings stationary guides under which the rings move and means for forcing the tobacco from between the rings transversely to the line of feed, substantially as described.

9. In a cigar-bunching machine, the combination with a table, of two parallel movable feeding-strips supported upon said table, with a space between them, means for moving said strips simultaneously and means for forcing the tobacco from between the rings transversely to the line of feed, substantially as described.

10. In a cigar-bunching machine, the combination with a table, of two concentric feeding-rings laid upon said table with a space between them, means for moving said rings simultaneously and means for forcing the tobacco from between the rings transversely to the line of feed, substantially as described.

11. In a cigar-bunching machine, the combination with a table, of two concentric feeding-rings laid upon said table and provided with ratchet-teeth, a lever under said table, and pawls carried by said lever and projecting up through slots in said table to engage with said ratchet-teeth, substantially as described.

12. In a cigar-bunching machine, the combination with a table B, of two feeding-rings C supported thereon, stationary guides D overlapping said rings, means for rotating the rings simultaneously and means for forcing the tobacco from between the rings transversely to the line of feed, substantially as described.

13. In a cigar-bunching machine, the combination with a table having one or more slots for a bunch to pass through, of two parallel feeding-strips lying one on each side of said slot, and means for moving said strips simultaneously, substantially as described.

14. In a cigar-bunching machine, the combination with two concentric feeding-rings, of a table supporting said rings and having one or more slots coinciding with the space between said rings, and means for rotating said rings, substantially as described.

15. In a cigar-bunching machine, the combination with a table B, of two concentric feeding-rings supported thereon, wipers inserted

in said table and bearing against the lower edges of said rings and means for forcing the tobacco from between the rings transversely to the line of feed, substantially as described.

16. In a cigar-bunching machine, the combination with a table containing a slot, of a vertically-operating ram adapted to pass down through said slot, a movable safety-plate under said slot, and mechanism connecting said plate with the ram for withdrawing said plate when the ram descends, substantially as described.

17. In a cigar-bunching machine, the combination with a table containing a slot, of a safety-plate sliding in guides under said slot, a ram adapted to descend through said slot, a lever engaging with said plate, and a cam on said ram to actuate the lever, substantially as described.

18. In a cigar-bunching machine, the combination with a table containing a slot, a safety-plate sliding under said slot, a rolling-table provided with an apron located below said plate, and rubber strips on said safety-plate to engage with said apron when slack and draw it back into proper position to receive a bunch forced down through said slot, substantially as described.

19. In a cigar-bunching machine, the combination with a vertically-movable plunger carrying a ram, of a cutter, and an elbow-lever having one arm engaging with a cam-groove in the plunger and the other arm connected with said cutter, substantially as described.

20. In a cigar-bunching machine, the combination with a table containing a slot having a V-shaped tongue at one end, of a ram having a V-shaped notch to pass down over the tongue, and a V-shaped cutter located above and in line with the tongue and within the V-shaped notch in the ram, substantially as described.

21. In a cigar-bunching machine, the combination with a table containing a slot having a V-shaped tongue at one end, of a cutter located above and in line with the tongue, a plunger containing a cam-groove, an elbow-lever engaging with said groove and connected with the cutter, and a ram attached to said plunger and having a V-shaped notch in one end to pass down over the cutter and the tongue, substantially as described.

22. In a cigar-bunching machine, the combination with the feeding and charge-forcing devices, of a rolling-table, a vertical slide attached to said table, a stationary socket-piece receiving said slide, springs in said socket-piece for lifting the slide, and a locking device for holding the table down, substantially as described.

23. In a cigar-bunching machine, the combination with the rolling-table, of a vertical slide attached thereto, a socket-piece in which said slide is received, and a cushioning device for checking the movements of said slide, substantially as described.

24. In a cigar-bunching machine, the combination with the rolling-table, of a vertical slide attached thereto, a stationary socket-piece receiving said slide, springs for lifting the slide, and an air cylinder and piston attached to the slide and socket-piece for checking the movements of the slide, substantially as described.

25. In a cigar-bunching machine, a rolling-table having a transverse groove to receive the charge of tobacco, the rear wall of said groove being a leaf hinged along its lower edge, means for raising and lowering the table and a stationary part against which the leaf abuts when the table is depressed, substantially as described.

26. In a cigar-bunching machine, the combination with a rolling-table having a leaf hinged to its rear edge, of a vertical slide attached to said table, a stationary socket-piece receiving said slide, and one or more springs at the upper end of said socket-piece with which said leaf comes in contact when the slide moves downward, substantially as described.

27. In a cigar-bunching machine, the combination with a vertically-movable rolling-table, radius-arms carrying the bunching-roller, a lock for holding the table down, and a tappet on one of said arms for releasing the lock, substantially as described.

28. In a cigar-bunching machine, the combination with a stationary socket-piece, of a rolling-table having a vertical slide received in said socket-piece, a spring-catch on the socket-piece to lock the table when down, a radius-arm swinging near the catch, and a tappet on the arm to trip the catch, substantially as described.

29. In a cigar-bunching machine, the combination with a stationary socket-piece, of a rolling-table having a vertical slide received in said socket-piece, springs to lift the slide and table, and a spring-catch on the socket-piece to hold the table down, a radius-arm swinging near the catch, and a pivoted tappet on the radius-arm adapted to pass over the catch in one direction but to engage with and trip it on its return movement, substantially as described.

30. In a cigar-bunching machine, the combination with a vertically-movable ram, of a vertically-movable rolling-table adapted to be forced downward by the descending ram, a lock for holding the table down, means for raising the table when released and a bunching-roller-carrying radius-arm adapted to release the lock, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM YELLOWLEY.
CHARLES MEYER.

Witnesses:
JOSEPH CHOFFAT,
RALPH BAILEY.