

(No Model.)

3 Sheets—Sheet 1.

J. BUNN.
CIGAR MACHINE.

No. 494,548.

Patented Apr. 4, 1893.

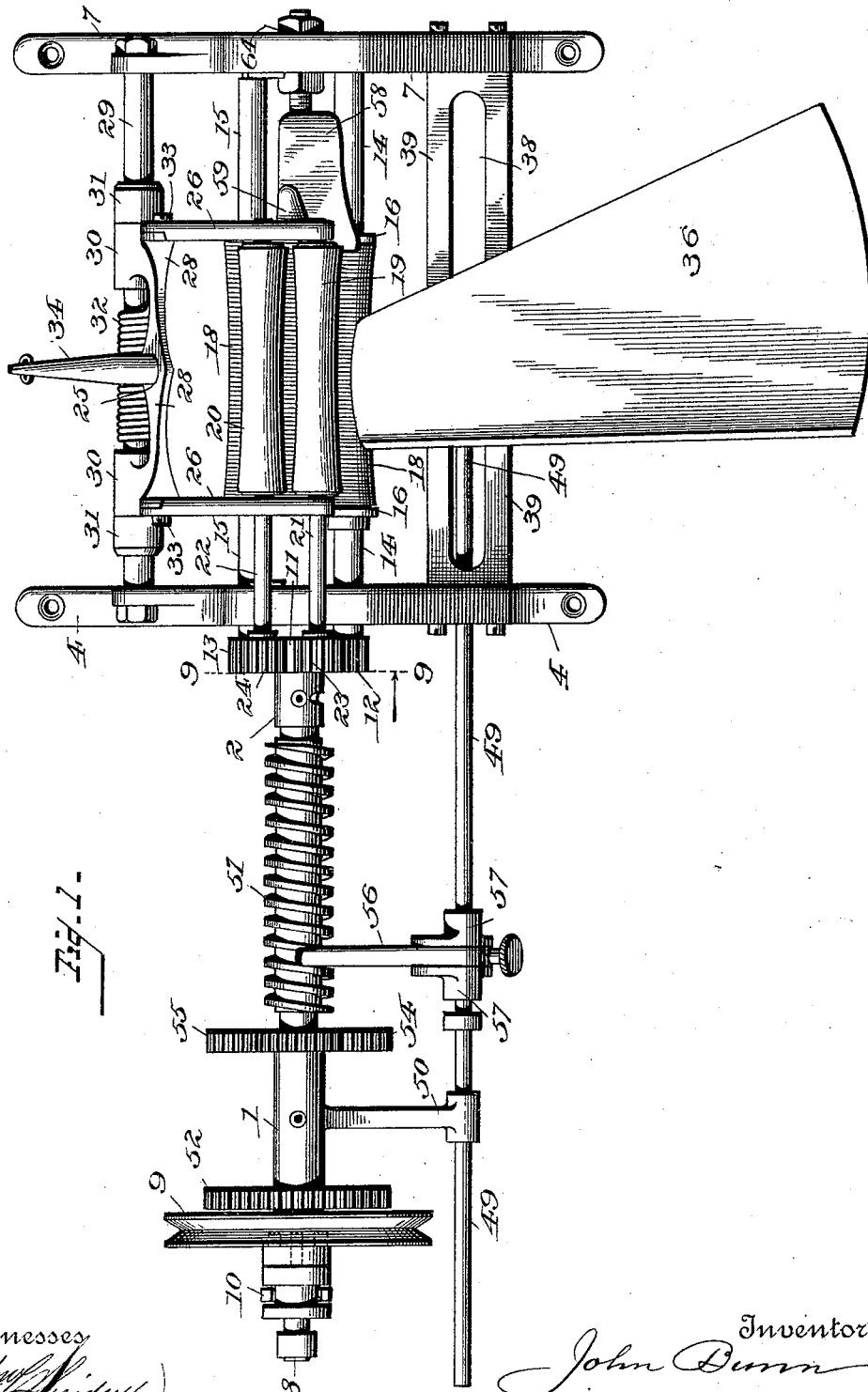


Fig. 1.

Witnesses

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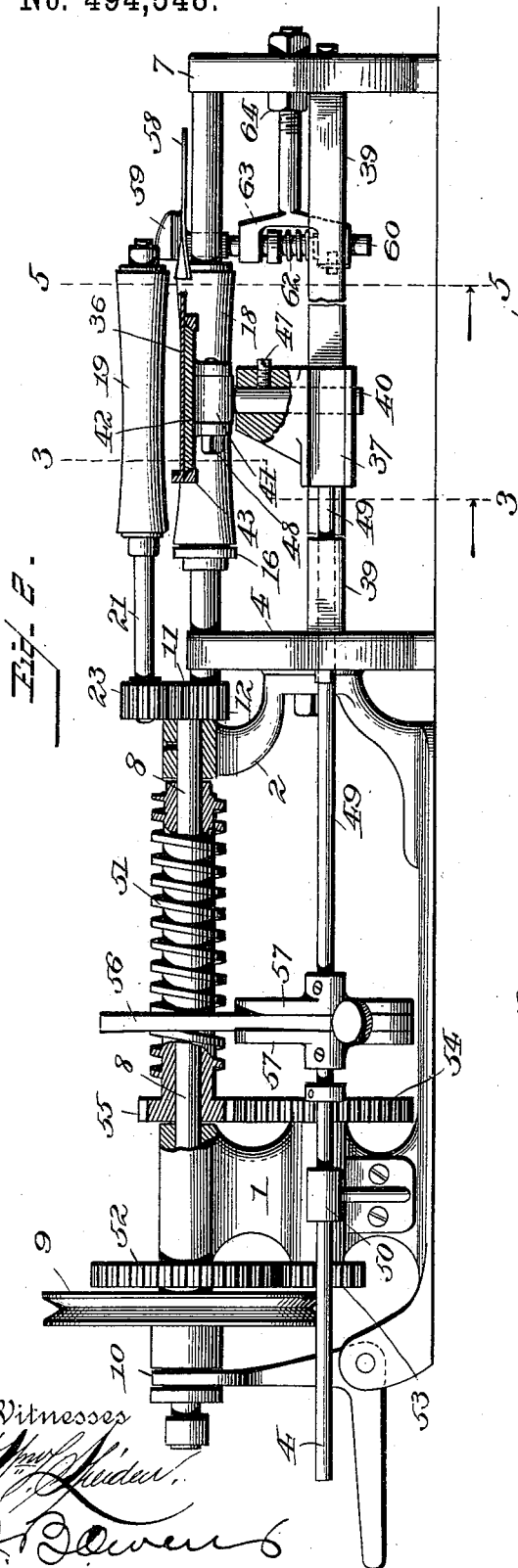
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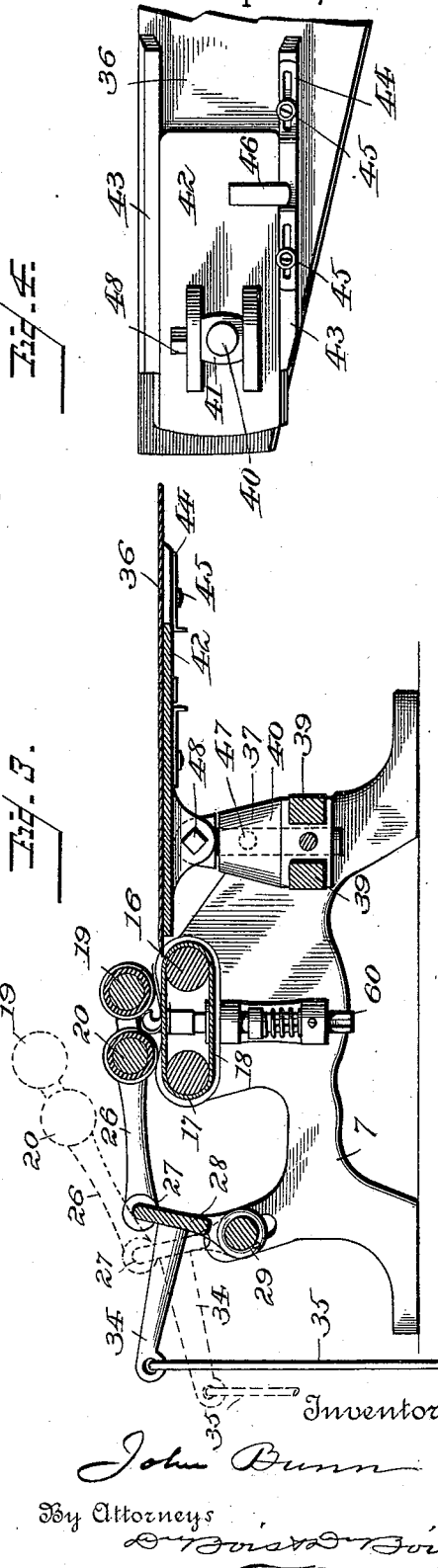
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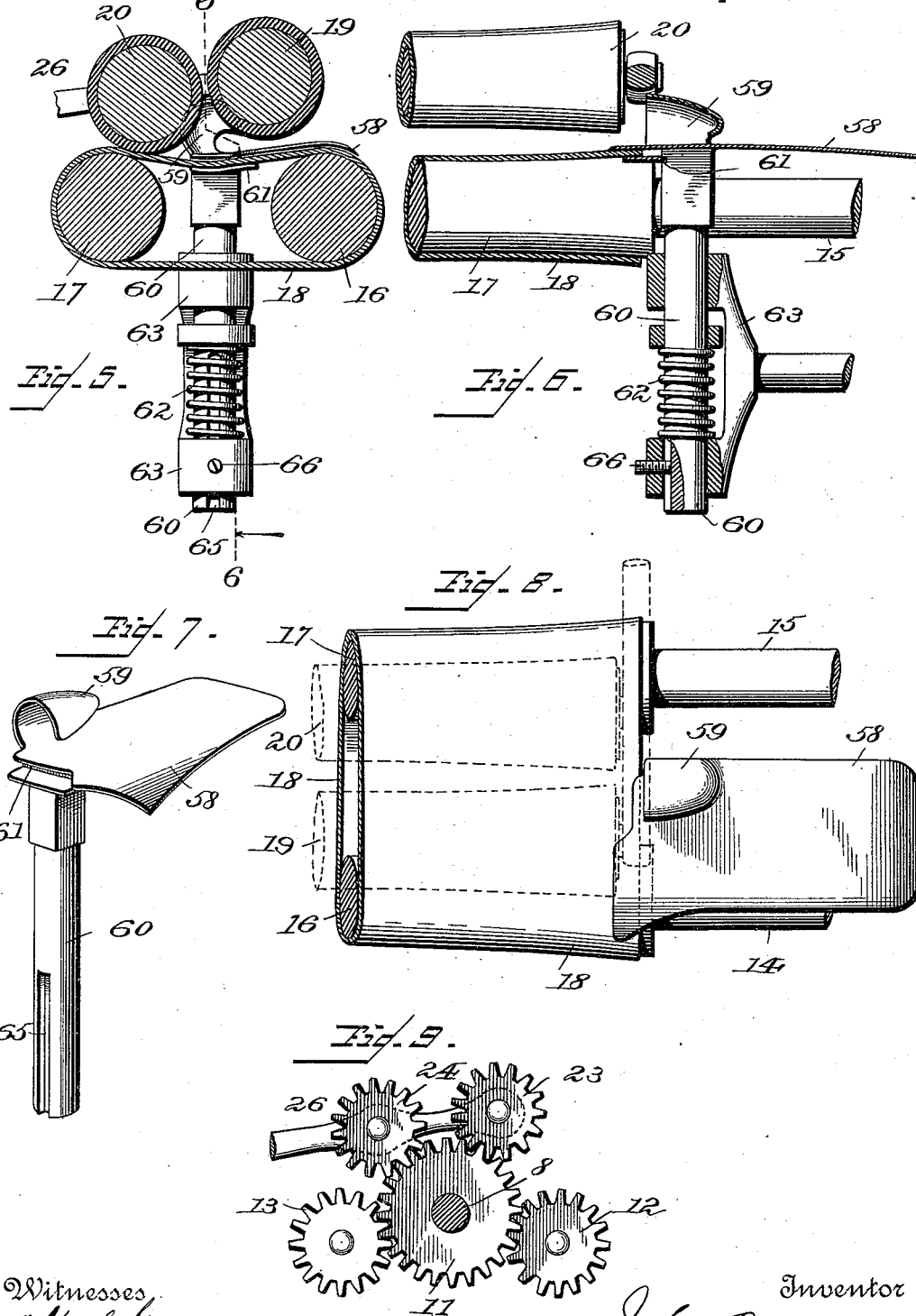
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3 Sheets—Sheet 3.

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No. 494,548.

Patented Apr. 4, 1893.



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UNITED STATES PATENT OFFICE.

JOHN BUNN, OF BINGHAMTON, NEW YORK, ASSIGNOR OF TWO-THIRDS TO
WILLIAM C. BRONSON AND DAVID B. COOKE, OF SAME PLACE.

CIGAR-MACHINE.

SPECIFICATION forming part of Letters Patent No. 494,548, dated April 4, 1893.

Application filed October 17, 1892. Serial No. 449,126 (No model.)

To all whom it may concern:

Be it known that I, JOHN BUNN, a citizen of the United States, residing at Binghamton, in the county of Broome and State of New York, have invented certain new and useful Improvements in Cigar-Machines; and I 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 and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in cigar-wrapping machines of that class in which the bunch to be wrapped is supported during the wrapping process on an endless moving belt or apron mounted upon forming-rollers beneath the bunch, said bunch being at the same time acted upon by pressure rollers impinging upon it from above, whereby the bunch is rotated and the wrapper drawn into the machine and wound about the bunch; and my said invention consists in certain new devices designed to secure greater perfection and celerity in the work, and in the novel construction and combination of parts hereinafter described and claimed.

In the drawings Figure 1 is a top view of my machine, representing parts visible from above. Fig. 2 is a lateral elevation of the same as seen from the front or feed side, some of the parts being broken away to show parts beneath. Fig. 3 is transverse view, partly in section, taken on the line 3—3 of Fig. 2, looking toward the right end of the machine. Fig. 4 is a detail view of the under side of the wrapper-feeding table. Fig. 5 is a transverse view, partly in section, taken on the line 5—5 of Fig. 2, looking toward the right, showing the rollers, endless belt and vertically-adjustable header. Fig. 6 is a longitudinal front view, partly in section, taken on the line 6—6 of Fig. 5, showing the same parts illustrated in Fig. 5, except that the front forming-roll and the front pressure-roll are omitted. Fig. 7 is a front view of the adjustable header detached, with the post upon which it is mounted. Fig. 8 is a top view of

the header and a portion of the endless belt, illustrating their relative positions, the upper or pressure-rolls being shown in dotted lines. Fig. 9 is an end view, taken on the line 9—9 of Fig. 1, looking toward the right, of the driving-gear carried by the main shaft, and the roller-pinions which it actuates.

The machine is firmly supported on suitable standards 1, 2, 4, 7, the said standards being arranged to brace the machine against longitudinal as well as lateral strain. The main shaft 8 is journaled in suitable bearings in the standards 1 and 2, and is provided with the usual pulley 9 and clutch-mechanism 10. The opposite end of the shaft carries the driving-pinion 11, Fig. 9, which meshes with the gears 12, 13, actuating respectively the shafts 14, 15, journaled in bearings in the standards 4, 7. Said shafts, 14, 15, rotate in the same direction and carry the forming-rolls 16, 17, fixed thereon. Said rolls have their surfaces concaved in the usual manner, conforming to the shape of the cigar to be wrapped, and carry the endless belt 18, of suitable material, which supports the bunch during the wrapping process.

The pressure rolls 19, 20, are carried respectively on shafts 21, 22, actuated by gears 23, 24, meshing with the driving gear 11. Said shafts are journaled in bearings in the rocking-frame 25. Said rocking-frame consists of two members 26, 26, Fig. 1, disposed nearly horizontally, which carry the pressure-rolls between them, and which are hinged at the angle 27, to a radial member 28, extending across the frame, which is rotatably mounted on the fixed cross-rod 29, by means of the sleeves 30 through which said rod passes. The collars 31, fixed on the cross-rod 29, hold the rocking frame in position on the rod. A coil spring 32, has one end bearing against the fixed rod 29, and the other against the radial part 28, of the rocking-frame, and the action of said spring is to force the pressure-rolls 19, 20, downward toward the forming-rolls 16, 17, and to keep the gears 23, 24, of the pressure-rolls in mesh with the driving-gear 11. The hinges in the angles 27 of the rocking-frame are made adjustable by means of set-screws 33, so that the degree of said an-

gles and the space between the pressure-rolls and the belt may be varied according to the size of the bunch to be wrapped.

By means of a lever 34, attached to the 5 rocking-frame and operated by a pitman 35, leading to a treadle beneath the machine, the rocking-frame may be rotated and the pressure rolls raised when necessary, as shown in dotted lines in Fig. 3.

10 The wrapper-feeding table 36, for supporting the wrappers while being fed to the rolls, is mounted in front of the rolls upon a sliding block or carriage 37, Figs. 3, 2, 4, which reciprocates in a slot 38, formed in a cross-bar 15 or plate 39, Figs. 1 and 2, connecting the standards 4, 7. The block 37, contains a vertical, cylindrical socket adapted to receive a pin 40, Figs. 2, 3, having a head 41, upon which is pivotally mounted a rectangular 20 plate 42, Figs. 2, 3, 4. Said plate has its side edges beveled, adapting it to fit into reversely beveled guide-bars 43, secured to the under surface of the table, whereby the table is made capable of a sliding movement upon 25 the plate 42; or, in other words, is made capable, when in working position, of an adjustment toward or from the rolls. The extent of this backward and forward movement of the table may be regulated by means of the 30 slotted stops 44, 44, secured by screws 45 to one of the guide-bars 43; said stops being adjusted so as to impinge at the proper point upon a lug 46, secured on the plate 42, thus limiting the movement of the table in either 35 direction as desired. It will be observed that five distinct adjustments or movements of the wrapper-table 36 are thus provided for; viz. first, a rotary movement upon the pin 40, to give it the desired horizontal angle with reference to the rolls; second, a vertical adjust- 40 ment by raising or lowering said pin 40 in its socket, the set-screw 47 serving to secure the pin at any desired elevation; third, a rocking or tilting movement upon the pivot 48, whereby the table may be given such vertical 45 inclination toward the rolls as may be desired; fourth, a movement upon the plate 42 to and from the rolls; and, fifth, a reciprocating, lateral movement along and parallel with the 50 wrapper by means of the sliding block 37, on which the table is mounted, moving in the slot 38. The wrapper reciprocating movement of said table-supporting block 37 in slot 38 is effected in the following manner. A sliding 55 rod 49 is mounted horizontally at the side of the machine, below and parallel with the main shaft 8, and in longitudinal alignment with the slot 38. It is supported at one end in a bearing in the hanger 50, secured on the 60 standard 1, and after passing through a bearing in the standard 4 is secured, at the other end, to the block 37. Upon the main shaft 8, between the standards 1 and 2 is loosely mounted a worm-gear 51, rotating upon and 65 in the same direction as the main shaft, but independently of it; said gear being actuated

by the gears 52, 53, 54, 55, arranged to give it the proper degree of speed, which is ordinarily faster than that of the main shaft 8. The rod 49 carries a finger-bar 56, adjustably se- 70 cured thereon between fixed collars 57, 57. Said finger-bar 56, extends upwardly and engages with the threads of the gear 51, so that when said gear is rotated in the proper direction longitudinal motion is imparted to the 75 rod, causing the block 37 to move in the slot 38, carrying with it the feed table 36. The finger bar 56, is provided with a pressure-spring, not shown in the drawings, which keeps it normally in engagement with the 80 worm 51; but said spring may be retracted and the finger-bar released from engagement with the worm when desired.

In operation the wrapper-feeding table 36, occupies at first the position shown in Fig. 1, 85 but with the flange or bead on the left hand edge of the table in front of the corresponding ends of the upper or pressure rolls. The bunch to be wrapped having been placed in position upon the apron and between the 90 pressure-rolls, the wrapper, properly trimmed, is laid smoothly upon the table, with its tuck end slightly projecting beyond the front edge of the table. The power being applied, the bunch begins to rotate. The table, carrying 95 the wrapper held firmly thereon by the operator, is pushed forward to the limit of its movement on the plate 42, bringing the end of the wrapper in contact with the apron and between it and the tuck end of the bunch. 100 The wrapper-end is at once taken up, drawn in under the bunch and wound around it. Meanwhile the table, being actuated in the manner above described, moves rapidly to the right, carrying the unwound portion of 105 the leaf along with it, the effect of which is that the wrapper is wound spirally about the bunch. The operator allows the leaf to yield to the tension which draws it forward toward the rolls, but allows it to have no sidewise 110 motion on the table, so that the spiral twist of the wrapper on the bunch is mainly due to the mechanical, lateral movement of the table, rather than to any manipulation of the operator. When the wrapping process described 115 has reached the tip end of the bunch the tip end of the wrapper passes off the feed-table on to the header-table 58, Figs. 1, 7, 8, which acts as a continuation of the feed-table 36, and enters the slotted header or thimble 59, of the 120 usual form, in which the tip is finished and the wrapping process completed. I have devised certain novel adjustments of the header, one of which consists in mounting it upon a vertically adjustable post 60, Figs. 5, 6, 7, to 125 which it is secured in any suitable manner. Also upon said post 60, beneath the thimble, I place a lug or guide-plate 61, to sustain the edge of the endless belt, thus providing a firm support, of the proper form, for the tip end of 130 the bunch while being wrapped. Said post 60, is supported on a light spring 62, in vertical

sockets formed in an arm or bracket 63, extending from the standard 7. Said spring 62 is so adjusted as to support the post 60 and thimble 59 at the proper normal level relatively to the apron, but allows them to yield to any vertical strain which may be brought upon the tip during the wrapping process, thus preventing any fracture or mutilation of the tip. The bracket 63 has a threaded connection at 64 with the standard 7, thus providing for lateral adjustment of the header toward or from the edge of the apron. A vertical slot 65, in the post 60, engages a screw 66 to prevent the post 60 from rotating. After the wrapping is completed, the finger-bar 56 is released from engagement with the gear 51, and the rod 49 and the feed-table may be returned to their original positions by suitable mechanism underneath the table, not shown in the drawings.

My aim in devising and constructing my machine has been to accomplish the wrapping operation, so far as possible, by means purely mechanical and not as largely dependent on the manipulation and skill of the operator as has heretofore been the case in machines of this class. To properly feed a material so delicate as the tobacco-leaf into the ordinary machines, in which the operator must attend not only to the forward feed but also govern the lateral movement or twist of the wrapper, has been found to call for a degree of skill not always possessed by ordinary workmen, especially when rapid work is required, and also to involve an amount of nervous strain very wearing upon the operator when maintained for many hours.

With my machine the workman has ordinarily only to attend to the forward feed, the mechanically-effected movement of the feed-table regulating with precision the sidewise feed. The result is a product greater in quantity, better in quality, and less dependent upon highly skilled labor than that of the old machines.

It is obvious that my improved feed-table and the devices for operating and actuating it, may be used in connection with almost any cigar machine employing bunch-rotating rollers into which the wrapper is fed to be wound about the bunch, whether said rollers are supplied with an endless belt or a stationary belt, so called, or are constructed to operate without any belt. I do not therefore limit my claims to a machine having the exact form or arrangement of rollers or belt described.

I claim as my invention—

1. In a cigar machine, the combination, with the forming-rolls, bunch-supporting belt and pressure rolls all adapted to rotate the bunch and wind the wrapper about the same, of a slotted heading-thimble mounted at the side of the belt, and a vertically yielding post supported by a laterally adjustable bracket and provided with a spring, substantially as set forth.

2. In a cigar-machine, the combination with the bunch-rotating and wrapper-winding rollers, of a wrapper-supporting and feeding-table disposed in front of the rolls and provided on its under surface with parallel guide bars between which is movably fitted a plate having parallel sides and mounted on a suitable base of support, adapting said table to be adjusted toward or from said rollers, substantially as set forth.

3. In a cigar-machine, the combination with the bunch-rotating and wrapper-winding rollers, of a wrapper-feeding table disposed in front of said rollers and mounted on a cylindrical post to the top of which said table is hinged, said post fitting a socket in the base of support in which it is rotatable and vertically adjustable, substantially as set forth.

4. In a cigar-machine the combination with the bunch-rotating and wrapper-winding rollers, of a wrapper-feeding table disposed in front of the rollers, parallel guide-bars on the under surface of said table, a table-supporting plate fitted between said guide-bars, on which they slide when the table is operated, a cylindrical post to the top of which said table is hinged, and a vertical socket in the base of support in which said post is rotatable and vertically adjustable, substantially as set forth.

5. In a cigar-machine, the combination with the bunch-rotating and wrapper-winding rollers, of a wrapper-feeding table located in front of said rollers and provided with suitable mechanism for imparting to it longitudinal motion along said rollers and parallel thereto, substantially as set forth.

6. In a cigar-machine, the combination with the bunch-rotating and wrapper-winding rollers, of a wrapper-feeding table disposed in front of said rollers and mounted on a longitudinally reciprocating carriage moving in a slot parallel with said rollers, substantially as set forth.

7. In a cigar-machine, the combination with the bunch-rotating and wrapper-winding rollers and wrapper-feeding table adapted to reciprocate in front of and parallel with said rollers, of a worm-gear, finger-bar and slide-rod actuated by the main shaft and adapted to impart to said table longitudinal motion parallel with said rollers, substantially as set forth.

8. In a cigar-machine, the combination with the bunch-rotating and wrapper-winding rollers and wrapper-feeding table adapted to reciprocate longitudinally in front of and parallel with said rollers, of a cylindrically formed worm-gear loosely mounted on and inclosing the main shaft and geared to rotate at a rate of speed different from that of said shaft, and a finger-bar engaging said worm-gear and secured to and actuating a slide-rod parallel with said shaft and connected with said table, substantially as set forth.

9. In a cigar-machine, the combination with

the bunch-rotating and wrapper-winding rollers and wrapper-feeding table adapted to reciprocate longitudinally parallel with said rollers, of a cylindrically formed worm-gear
5 loosely mounted on and inclosing the main shaft and geared to rotate faster than said shaft, and a finger-bar engaging the threads of said worm-gear and actuating a slide-rod

connected with said reciprocating table, substantially as set forth. 10

In testimony whereof I affix my signature in presence of two witnesses.

JOHN BUNN.

Witnesses:

B. H. NELSON,
W. C. BRONSON.