

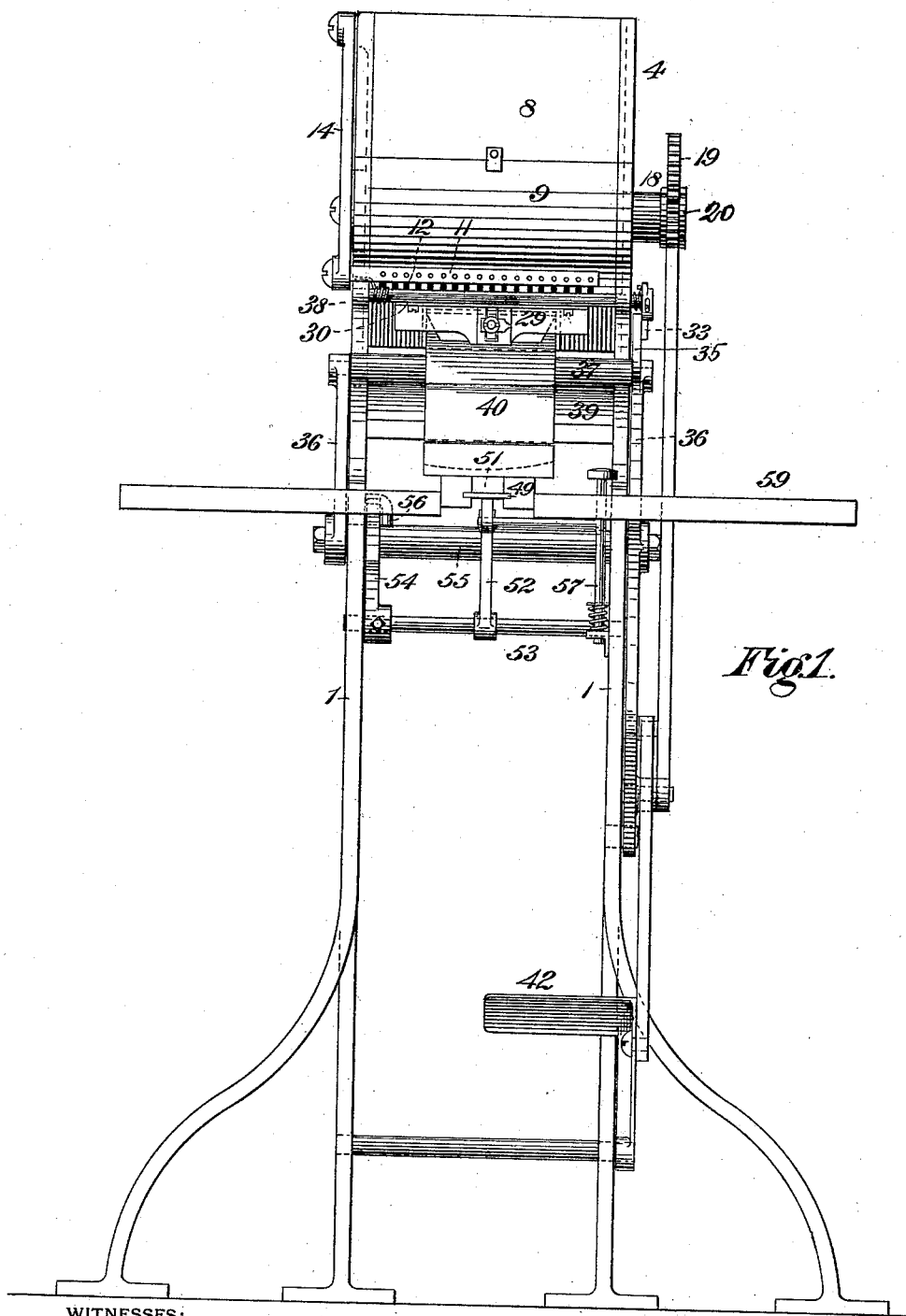
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5 Sheets—Sheet 1.

C. BROWNING.  
CIGAR BUNCHING MACHINE.

No. 383,342.

Patented May 22, 1888.



*Fig. 1.*

WITNESSES:

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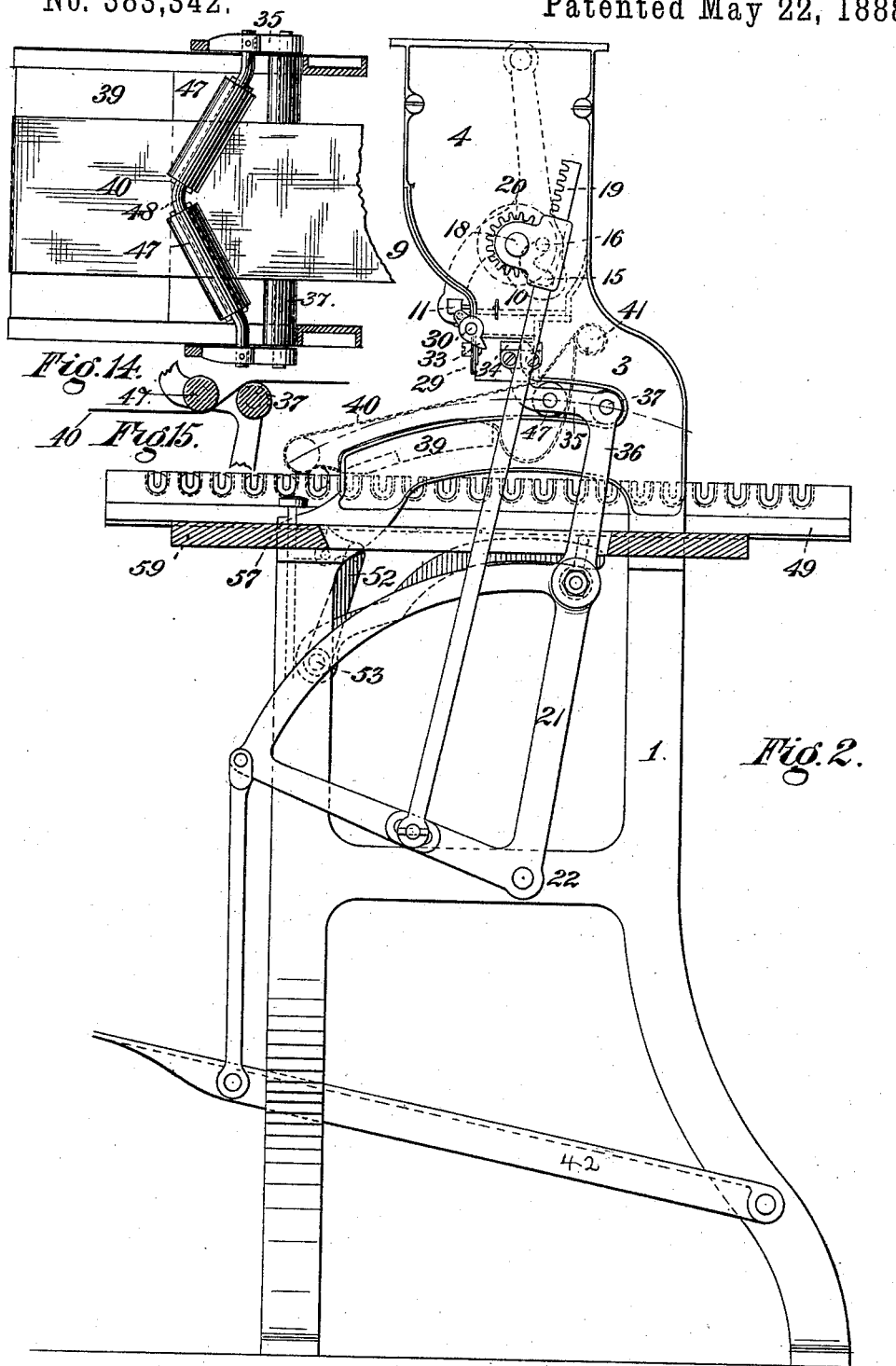
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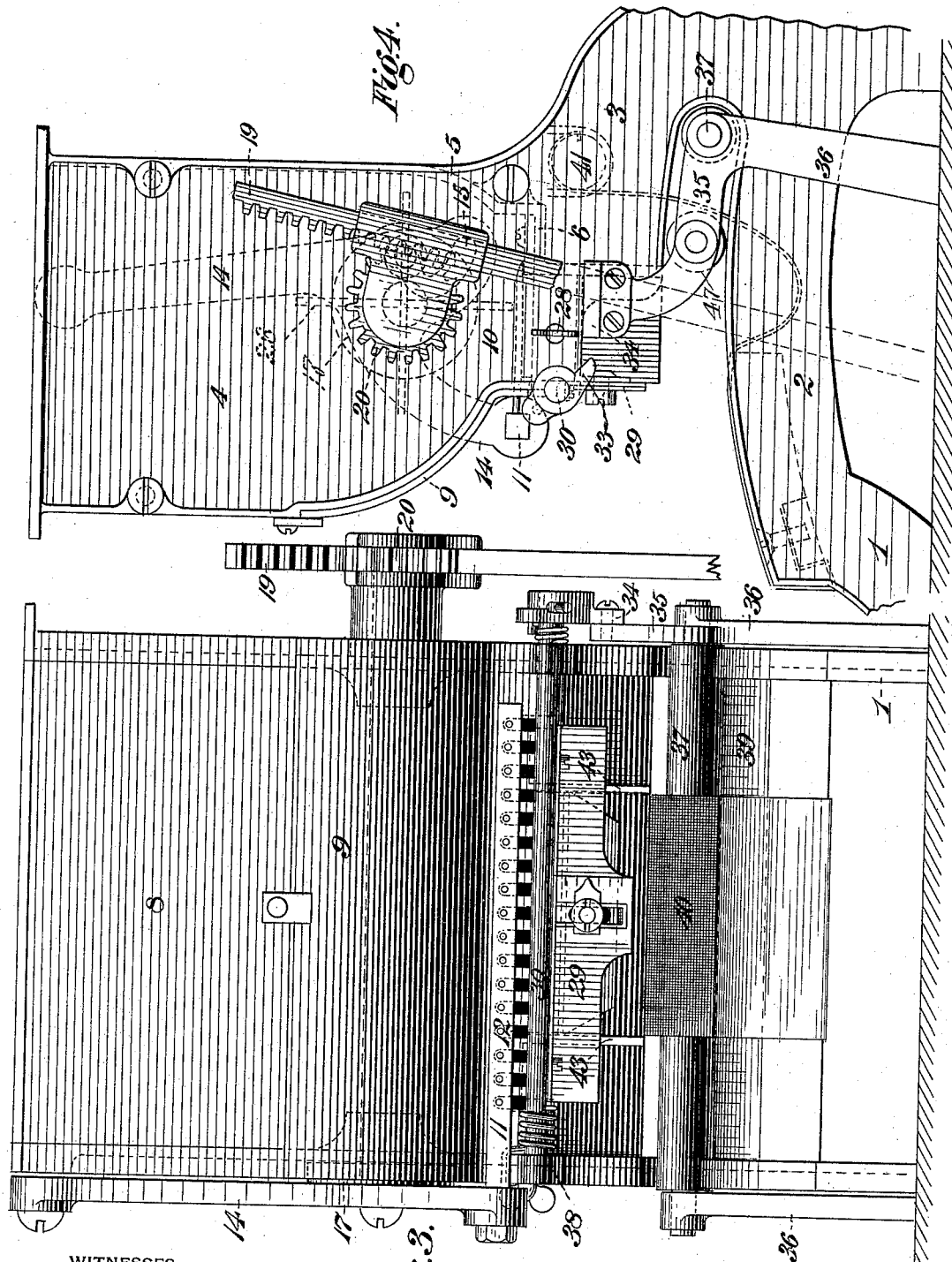
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*FIG. 3.*

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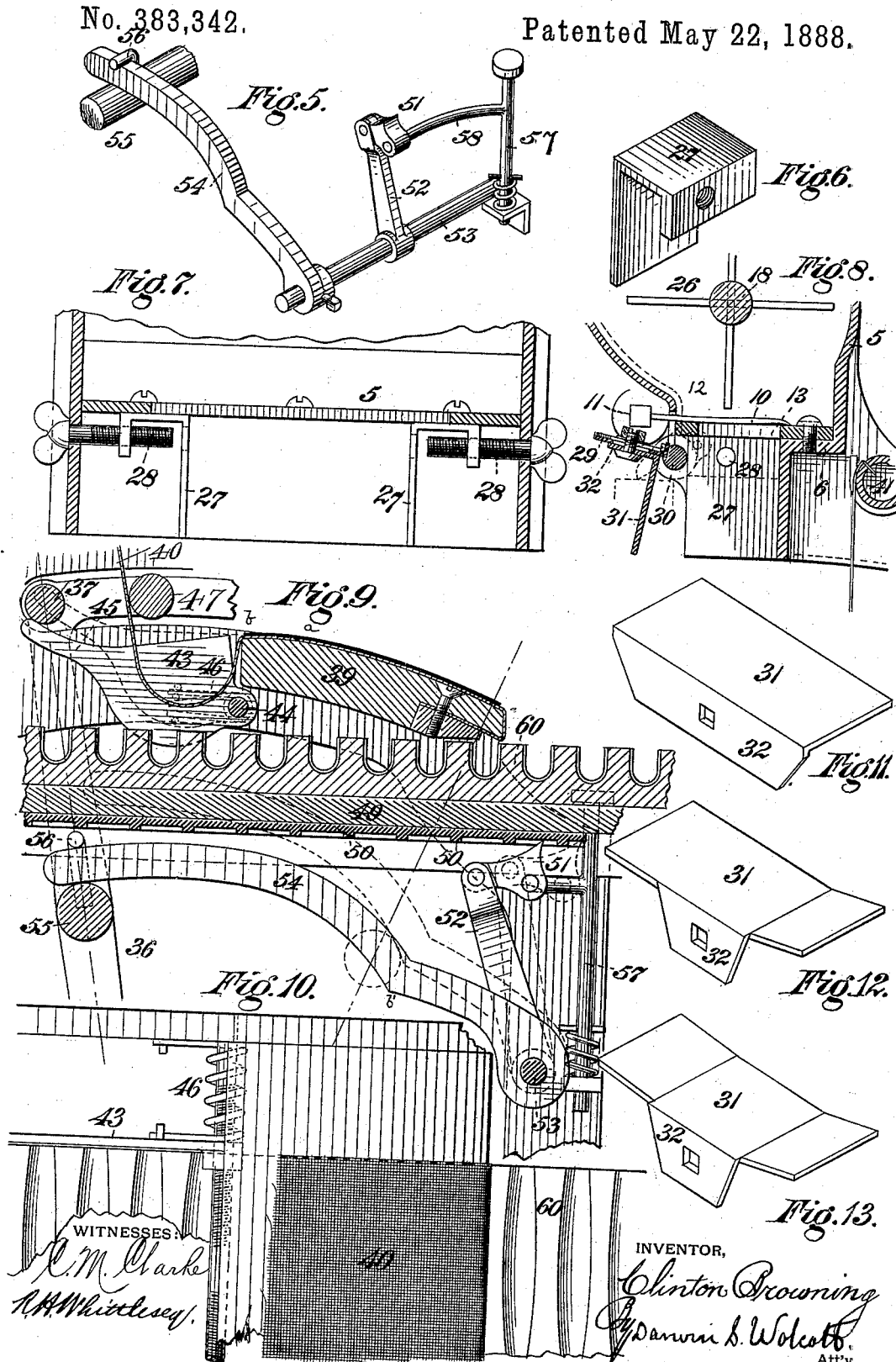
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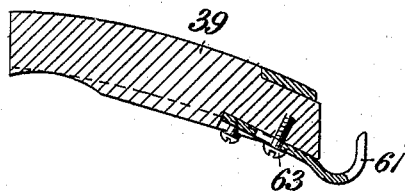
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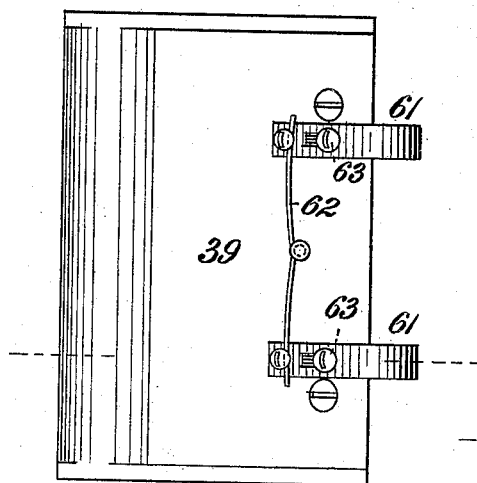
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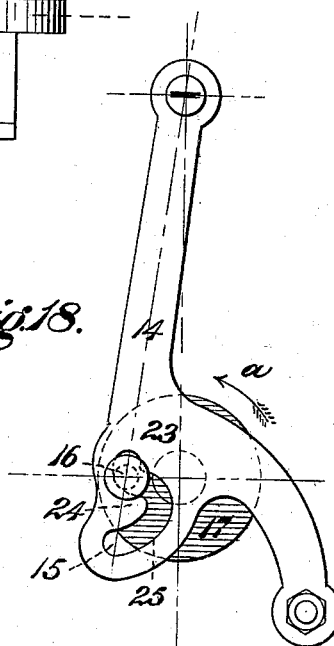


*Fig. 16.*



*Fig. 17.*

*Fig. 18.*



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# UNITED STATES PATENT OFFICE.

CLINTON BROWNING, OF SHOUESTOWN, PENNSYLVANIA.

## CIGAR-BUNCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 383,342, dated May 22, 1888.

Application filed February 1, 1887. Serial No. 226,157. (No model.)

### *To all whom it may concern:*

Be it known that I, CLINTON BROWNING, residing at Shousetown, in the county of Allegheny and State of Pennsylvania, a citizen of the United States, have invented or discovered a certain new and useful Improvement in Cigar-Bunching Machines, of which improvement the following is a specification.

In the accompanying drawings, which make part of this specification, Figure 1 is a view in front elevation of a cigar-bunching machine embodying my invention. Fig. 2 is a view of the machine in side elevation. Figs. 3 and 4 are views similar to Figs. 1 and 2, on an enlarged scale, of the upper portion of the machine. Fig. 5 is a perspective view of the mechanism for moving the molds. Fig. 6 is a similar view of one of the adjustable side plates of the measuring-chamber. Figs. 7 and 8 are horizontal and vertical sections of the feed-chamber at the lower end of the hopper. Figs. 9 and 10 are sectional elevations and top plan views of the bunching and binding table and the parts operating in connection therewith. Figs. 11, 12, and 13 are perspective views of different forms of the door or plate of the measuring-chamber. Figs. 14 and 15 are top plan and sectional views showing the construction and arrangement of two forms of the binder, spreader, and smoother. Figs. 16 and 17 are sectional and under side views of the bunching-table having a bunch-holder attached thereto. Fig. 18 is a detail of the comb-operating mechanism.

The invention herein relates to certain improvements in machines for forming cigar-bunches having approximately the shape or contour desired in the finished cigar, the object of such construction being to obviate excessive compression, now necessary to shape the usual cylindrical form of bunch.

Generally stated, the invention herein consists in a construction and arrangement of parts, first, for the accurate measurement and proportionate distribution of the filler; second, for the retention and spreading out of the binder in proper position for its subsequent application to the filler; and, third, for the automatic discharge of the bunch into a mold or other receptacle, all as more fully hereinafter described and claimed.

The frame of the machine consists of the two cast-iron side pieces, 1, each having a curved upper portion, 2, and an upward extension, 3, from the rear side of the curved portion, said upward extension being suitably shaped to form the ends of the hopper 4. The back of the hopper is formed by plate 5. (See Figs. 4 and 8.) Near the lower end this plate 5 projects forwardly in a horizontal direction, forming a shelf, 6, and extends down vertically into close proximity to the bunching-table, and forms the rear wall of the discharge-nozzle of the hopper. The front wall of the hopper is formed by the stationary plate 8 and the inwardly-curved and removable plate 9, said plate being removable for the purpose of permitting access to the interior of the hopper.

The discharge of the filler from the hopper is regulated by a comb, 10, arranged to reciprocate across the lower end of the hopper in a plane just above a slotted plate, 13, secured on the shelf 6, and forming the outlet from the hopper into the nozzle thereof, and on which the inner or free ends of the teeth of the comb rest when the latter is at the inner limit of its stroke. (See Figs. 4 and 8.) The back of the comb is arranged outside of the hopper along the front thereof, and the teeth project into the hopper through notches 12, formed in the lower edge of the removable plate 9 of the hopper. The teeth between the notches 12 serve to clear the teeth of the comb of any particles of filler during the outward movement of the comb.

The back 11 of the comb is secured to the lower end of the angular arm 14, the upper end of said arm being pivoted to one end of the hopper. (See Figs. 1, 2, and 3.) The arm 14 is enlarged at its angle, and in said enlargement 23 (see Fig. 18) is formed a curved slot, 15, (see Figs. 4 and 18,) and through the slot is passed a pin, 16, secured to a disk, 17, on the end of the shaft 18, said disk being arranged in a recess in the end wall of the hopper. (See Fig. 3.) This shaft 18 is rotated back and forth by the rack 19 engaging the pinion 20 on the end of said shaft, the lower end of the rack being attached to the triangular frame 21, pivoted to the pin 22, mounted in one of the side frames of the machine.

In operating the machine the pin 16 is rotated in the direction of the arrow *a*, Fig. 18, and bears first upon the upper side of the part 24 of the enlargement 23, thereby forcing the 5 comb slightly inward, and then bears upon the part 25 of said enlargement, forcing the comb outward and permitting the filler to enter the discharge-nozzle. The return movement of the pin 16 reverses the above operations, as will 10 be clearly understood. The entire opening and closing movements of the comb are effected by the operation of the pin 16 on the part 25 of the enlargement, the slight jerk of the comb being effected by the pin operating on the part 15 24 of the enlargement.

In order to keep the filler loose for the purpose of facilitating the feed thereof, arms 26 are secured to the shaft 18 within the hopper.

Within the discharge-nozzle are arranged 20 the side plates, 27, (see Figs. 6, 7, and 8.) mounted on the screws 28, passing through the ends of the nozzle. These plates can be adjusted toward and from each other by the rotation of the screws for the purpose of regu- 25 lating the capacity of the nozzle. The front of the nozzle is formed by a plate, 29, secured at one edge to the shaft 30, mounted in suitable bearings along the front of the hopper, (see Figs. 3 and 8,) and to this front plate, 29, 30 is secured a plate, 31, by means of a screw passing through a slot in the front plate and engaging a flange, 32, on the plate 31. This plate 31, which forms the movable bottom of 35 the nozzle, and is adjustable, as above described, for the purpose of regulating the amount of filler to be fed thereto, can be made either straight, as shown in Fig. 11, upwardly bent at one end, as in Fig. 12, or upwardly bent at both ends, as in Fig. 13. The up- 40 wardly-bent ends serve to diminish the capacity of the measuring-receptacle within the nozzle at one or both ends, and thereby proportion the filler at such parts to the shape of the bunch to be formed.

45 A finger, 33, is attached to one end of the shaft 30, for engagement with a projection, 34, on one of the horizontal extensions 35 of the arms 36, carrying the bunching-roller 37. (See Fig. 4.) As the arm 36 moves forward in forming a bunch, the projection 34 engages the finger 33 and rotates the shaft 30 and the parts 50 connected thereto against the tension of a spring, 38, surrounding the shaft and normally holding the bottom plate in a closed position.

55 The curved bunching-table 39 is secured in any suitable manner between the side frames or pieces, 1, the curvature of said table corresponding to the line of movement of the oscillating bunching-roller 37. The wrapping- 60 apron 40 is attached at one end to the front end of the table, and, passing back over the table and in front of the bunching-roller, is secured to a tension-adjusting roll, 41. (Shown in dotted lines in Figs. 2 and 4.)

65 The bunching-roller 37 is loosely mounted in arms 36, formed on or connected to the vibrating frame 21, (see Fig. 2,) and is carried

forward over the table by the frame when operated by the treadle 42, connected thereto.

In bunching-machines as heretofore con- 70 structed it has been necessary for the operator to hold one end of the binder against the apron hanging over the rear end of the table until the bunching-roller is nearly at said end, and to smooth out the portion of the binder 75 lying on the table with the other hand. In order to avoid these manual operations, which consume the greater part of time lost in forming bunches, two side plates, 43, are mounted on a rod, 44, on each side of the loop in the 80 apron at the rear end of the bunching-table. These plates are provided with rearwardly-extended and upwardly-curved arms 45, which are held against the bunching-roller 37 by 85 springs 46. (See Figs. 9 and 10.) The curvature of the arms 45 permits of an upward and forward movement of the side plates, induced by the springs 46, when the roller 37 is moved forward. The plates 43 are so constructed and arranged as to bear at their front edges 90 against the rear end of the table when released from the depressing action of the roller 37, and will therefore serve to retain one end of the binder until the loop is closed, the plates being held away from the table to permit of the 95 insertion of the binder by the roller 37 when at the rearward limit of its movement. These plates 43 not only serve to retain the binder as above stated, but also act as lateral retainers to prevent the filler from dropping out of 100 the loop in the apron when discharged thereon, and as various widths of apron are employed, a right and left hand thread is cut on the rod 44 for the adjustment of the side plates in accordance with the width of apron em- 105 ployed.

In order to smooth out the binder in front of the bunching-roller, a roller, 47, of rubber or other suitable material, is mounted in the extensions 35 of the arms 36 a short distance 110 in front of the bunching-roller, as shown in Figs. 14 and 15, the apron 40 passing between said rollers. In order to spread the binder laterally, as well as to smooth it out, a V-shaped rod, 48, is secured to the extensions 35, the 115 apex of said rod being toward the front of the table, and on the legs of the rod are mounted two rollers, 47, whose action will effect a lateral spreading out as well as a smoothing of the binder. 120

In suitable ways beneath the bunching-table is arranged a slide or carrier, 49, (see Fig. 9,) provided on its under side with a series of teeth or projections, 50, with which a pawl, 51, pivotally mounted on the end of an arm, 52, en- 125 gages, said arm being secured to a rock-shaft, 53, mounted in the side pieces, 1, said shaft being operated by the curved arm 54, attached thereto and resting upon a rod or bar, 55, connecting the arms 36, said arms being provided 130 with shoulders *b'*, and the curvature of their under side corresponds to the line of movement of the bar 55. The curved arm 54 is held in contact with the bar 55 by a loop, 56,

passing over said arm and connected to the bar or rod. As the bar or rod 55 is moved forward during the bunching operation, it strikes the shoulder *b'* of the arm 54, thereby slightly raising said arm, and imparting, through the medium of the shaft 53, a forward movement to the arm 52, and through the medium of the pawl 51 to the carrier. The pawl is held in engagement with the teeth of the carrier by the spring-rod 57, connected to the pawl by bar 58. (See Fig. 5.) By depressing the rod 57, which passes up through the top or table 59 of the machine, the pawl can be held away from the carrier and the latter withdrawn entirely from the machine. During the operation of the machine a half-mold, 60, is attached to the carrier and moved along therewith a distance equal to the distance between two mold-cavities at each bunching operation.

The bunching-roller 37 is given such an amount of movement beyond the front end of the bunching-table as to tighten the wrapping-apron, and thereby causing the part of the apron between the front end of the bunching-table and the bunching-roller to press the bunch just formed into one of the mold-matrices, as clearly shown in Fig. 2. As the apron is slightly yielding or elastic, the pressure thereof will not injure or break the bunch.

The comb used in regulating the feed of tobacco to the discharge-nozzle does not break or injure the tobacco and can be easily forced through the filler in a direct line, as will be clearly understood.

In lieu of the half-mold 60, hooks 61 may be secured to the front end of the bunching-table, (see Figs. 16 and 17,) into which the bunches can be dropped, to be subsequently removed by the operator. The stems of these hooks are slotted, as shown, to permit of their adjustment in and out, they being normally held in by the spring 62, but may be clamped in any position by the screws 63.

In order to prevent the formation of wrinkles in the part of the apron lying on the table, I render said portion comparatively stiff or rigid, as indicated by a heavy black line in Fig. 9, by painting or other suitable treatment, the remaining portion of the apron being made as flexible as possible, in order that such flexible portion will automatically loop down, thereby forming the pocket for the reception of the filler.

In order to prevent the shock incident to the bunching-roller striking against the rear end of the table, and also to prevent the forward spreading of the filler along the table in front of the roller, the upper surface of the table adjacent to its rear end is inclined slightly downward, or formed on an arc of a circle of shorter radius, as shown at *a* to *b'*, than the radius of the main portion of the table, Fig. 9.

I am aware that forks or combs having a diagonally upward and inward movement, a downward movement, and then a horizontal outward movement, have been employed in connection with a rotating drum having a feed-

pocket, for the purpose of compressing the filler into said pocket, but not for the purpose of cutting off certain predetermined quantities of filler and supporting the remainder of the filler within the hopper, such function being effected by the rotating drum or cylinder; but I am not aware that a horizontally-reciprocating fork or comb has ever been used in connection with a hopper having a nozzle constructed to permit of the vertical discharge of the filler cut off by the operation of the fork, which serves not only to "cut off" a certain amount of the filler without appreciably compressing or crushing the same, but also as a support for the remainder of the filler within the hopper.

I claim herein as my invention--

1. In a cigar-bunching machine, the combination of a hopper, a nozzle at the discharge end of the hopper constructed to permit of the passage of the filler therethrough, and a reciprocating non-compressing comb arranged between the hopper and nozzle, substantially as set forth.

2. In a cigar-bunching machine, the combination of a hopper, a nozzle at the discharge end of the hopper constructed to permit of the passage of the filler therethrough, and provided with a swinging door, and a reciprocating non-compressing comb arranged between the hopper and nozzle, substantially as set forth.

3. In a cigar-bunching machine, the combination of a hopper, a nozzle at the discharge end of the hopper, a comb arranged between the hopper and nozzle, and mechanism for imparting a reciprocating and a jerking motion to the comb, whereby the filler cut off by the comb is disengaged from the comb and the body of filler in the hopper, substantially as set forth.

4. In a cigar-bunching machine, the combination of a bunching-table, a movable bunching-roller, and an apron passing over the table and roller, said apron being comparatively stiff or rigid as regards the entire portion resting upon the table and flexible as regards the portion designed to form the pocket, whereby the apron is caused to lie smoothly upon the table and the flexible portion to loop down in front of the roller when in its rearmost position, substantially as set forth.

5. In a cigar-bunching machine, the combination of a hopper, a nozzle at the discharge end of the hopper provided with an adjustable swinging door, and a comb arranged to reciprocate between the hopper and nozzle, substantially as set forth.

6. In a cigar-bunching machine, the combination of filler-feeding mechanism, a bunching-table, a movable bunching-roller, an apron passing over the table and roller, and pivoted side plates arranged at the rear end of the table and movable to and from the end of the table by the bunching-roller, substantially as set forth.

7. In a cigar-bunching machine, the combi-



nation of filler-feeding mechanism, a bunch-  
ing-table, a movable bunching-roller, an apron  
passing over the table and roller, and clamps  
at the rear end of the table for holding one  
5 end of the binder against the rear end of the  
table, substantially as set forth.

8. In a cigar-bunching machine, the combi-  
nation of filler-feeding mechanism, a bunch-  
ing-table provided at its rear end with a binder-  
10 clamp, a movable bunching-roller, a binder-

smoothing roller, and an apron passing over  
the table and between the bunching and  
smoothing rollers, substantially as set forth.

In testimony whereof I have hereunto set  
my hand.

CLINTON BROWNING.

Witnesses:

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R. H. WHITTLESEY.