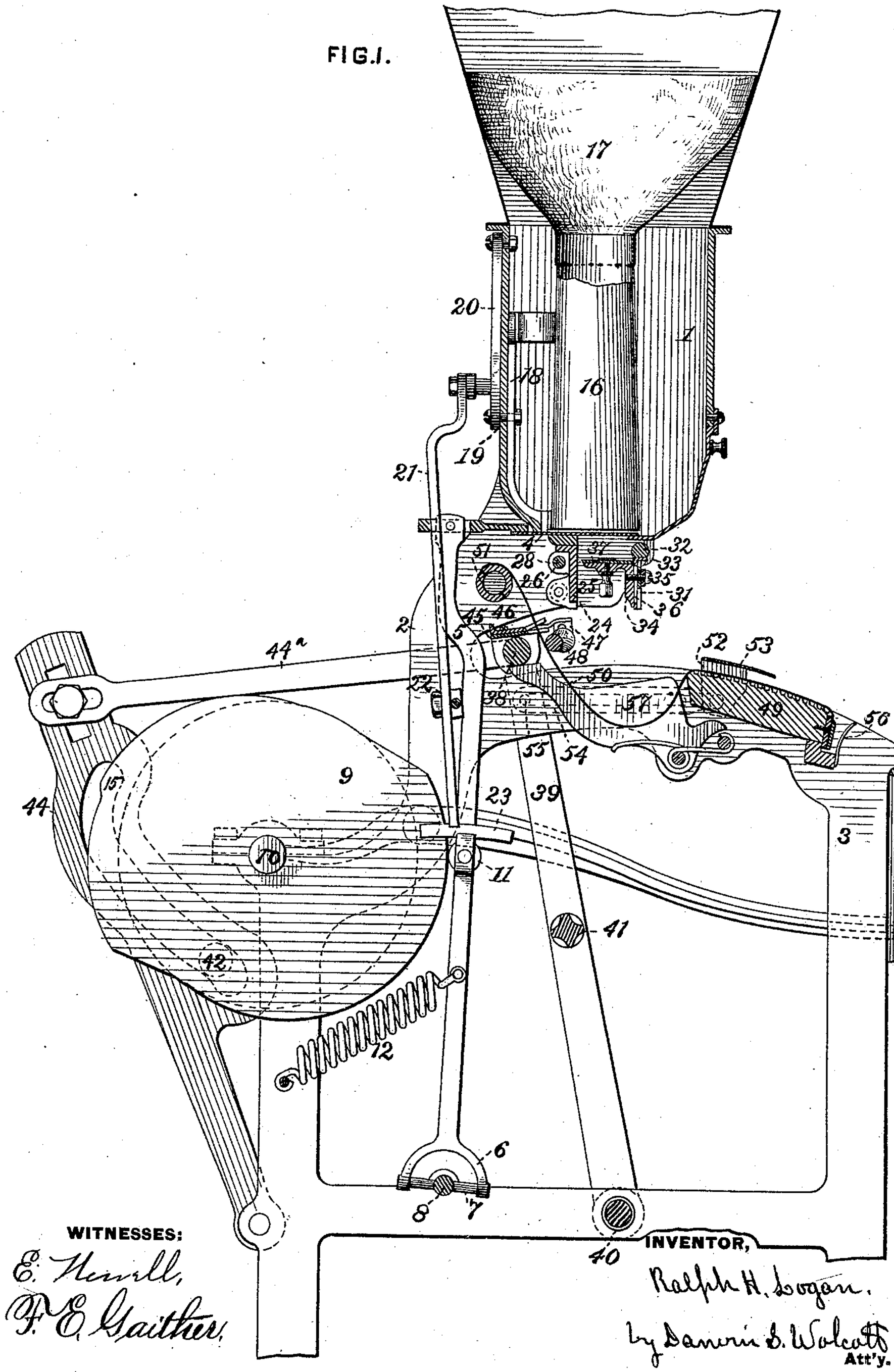
(No Model.) 3 Sheets—Sheet 1.

R. H. LOGAN.

CIGAR BUNCHING MACHINE.

No. 395,659. Patented Jan. 1, 1889.

FIG. 1.



WITNESSES:

E. Merrill,

F. E. Gaither.

INVENTOR,

Ralph H. Logan.

by Damon S. Wolcott

Att'y.

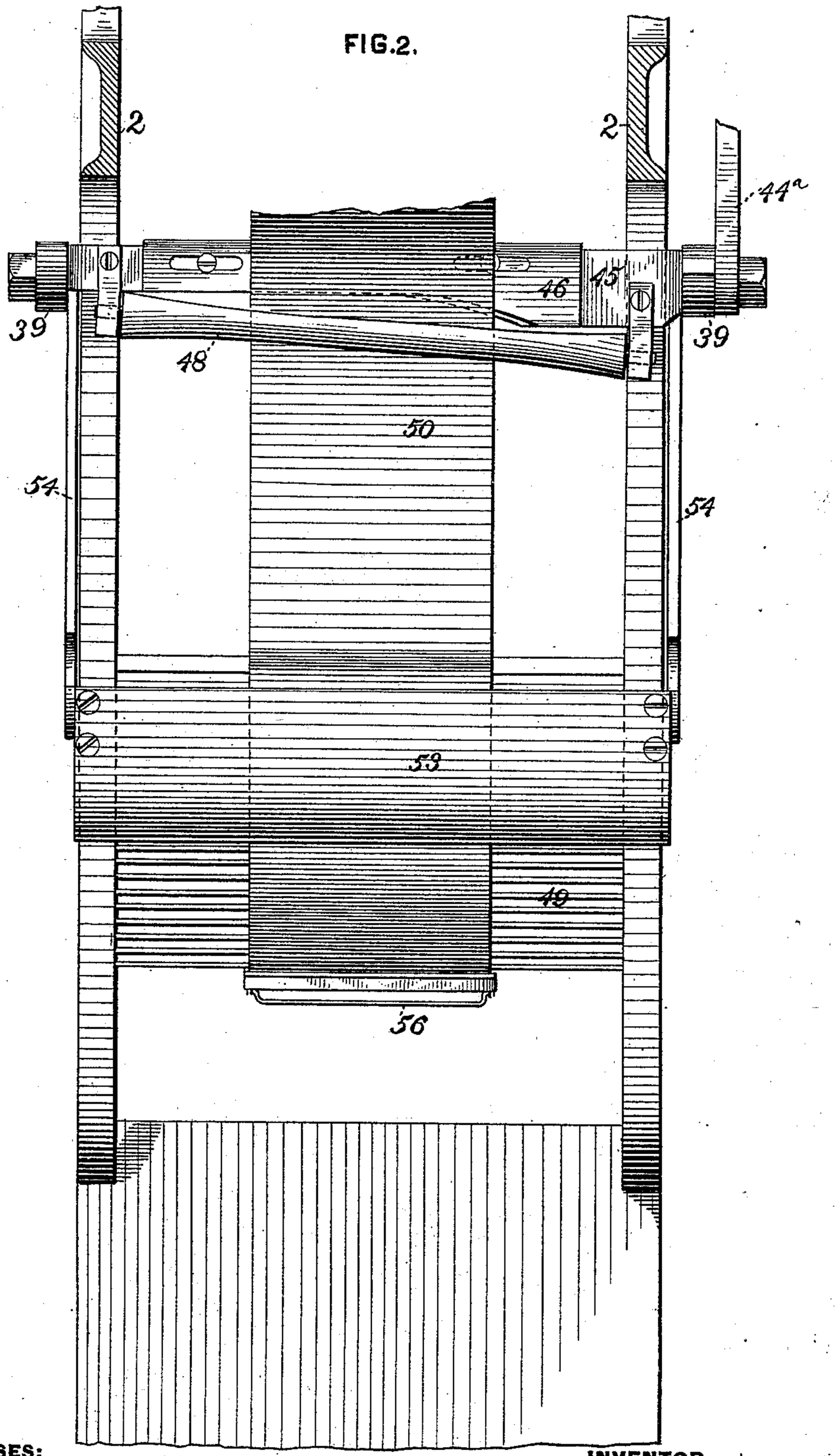
(No Model.) 3 Sheets—Sheet 2.

R. H. LOGAN.

CIGAR BUNCHING MACHINE.

No. 395,659. Patented Jan. 1, 1889.

FIG. 2.



WITNESSES:

E. Merrill.

F. E. Gaither.

INVENTOR,

Ralph H. Logan

by Dawson & Wolcott

Att'y.

(No Model.) 3 Sheets—Sheet 3.

R. H. LOGAN.

CIGAR BUNCHING MACHINE.

No. 395,659. Patented Jan. 1, 1889.

FIG. 3.

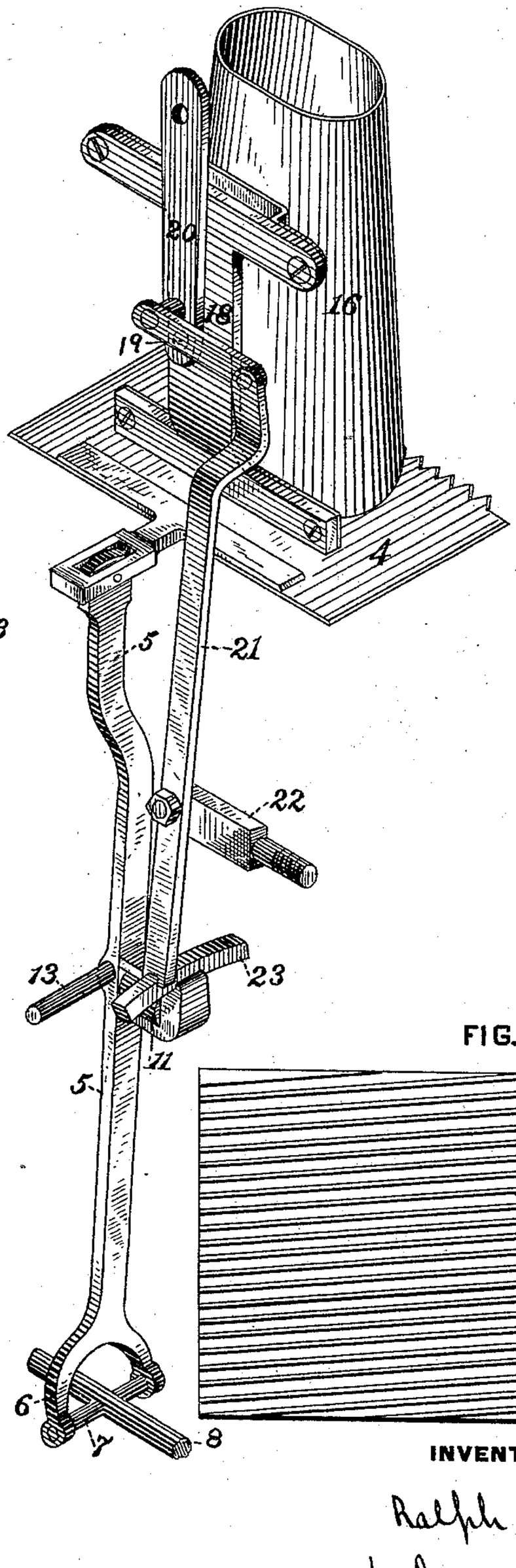


FIG. 4

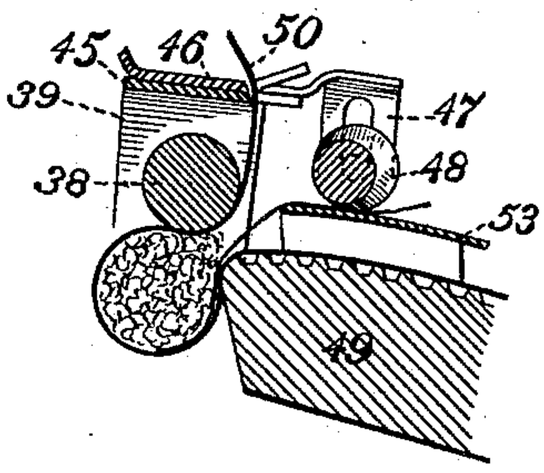


FIG. 5.

WITNESSES:

E. Howell,

F. E. Gaither.

INVENTOR,

Ralph H. Logan

by Dennis & Wolcott

Att'y.

UNITED STATES PATENT OFFICE.

RALPH H. LOGAN, OF ALLEGHENY, ASSIGNOR TO THE ECLIPSE CIGAR MACHINE COMPANY, (LIMITED,) OF PITTSBURG, PENNSYLVANIA.

CIGAR-BUNCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 395,659, dated January 1, 1889.

Application filed June 1, 1888. Serial No. 275,766. (No model.)

To all whom it may concern:

Be it known that I, RALPH H. LOGAN, a citizen of the United States, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Cigar-Bunching Machines, of which improvements the following is a specification.

The invention described herein relates to certain improvements in cigar-bunching machines; and the invention has for its object a construction of feed-hopper whereby a continuous and uniform feed of the filler to the bunching mechanism may be effected; and it is a further object of said invention to provide for a uniform tension on the apron, transversely thereof, and also for a smooth and regular application of the binder to the bunch.

In general terms, the invention consists in the construction and combination of mechanical devices or elements, all as more fully hereinafter described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a sectional elevation of a cigar-bunching machine embodying my invention. Fig. 2 is a top plan view of the table and bunching mechanism, the hopper being removed. Fig. 3 is a detail view of the filler-agitator and cut-off and their operating mechanism. Fig. 4 is a sectional detail view, on an enlarged scale, of the bunching mechanism; and Fig. 5 is a plan view of a modified construction of the bunching-table.

In the practice of my invention the power or driving mechanism is constructed similar to that fully described and shown in Letters Patent No. 392,100, granted October 30, 1888, to Clinton Browning and Ralph H. Logan, and hence I do not consider it necessary to set forth such subject-matter herein.

The hopper 1 is supported by suitable side brackets, 2, formed on the side frames, 3, and is provided with an opening at its lower end for the admission of the filler into the measuring-box. A blade, 4, is arranged above the opening into the measuring-box, said blade being adapted to control the passage of the filler into the measuring-box by its movements across the opening into said box, and to support the filler while the contents of the measuring-box are being discharged, as hereinafter described. The blade 4 enters the hopper through a narrow slit in the rear wall of the hopper, and is connected to the upper end of a lever, 5, which is provided at its lower end with arms 6, pivotally mounted on pins 7, projecting from the rock-shaft 8, mounted in suitable bearings in the side frames, 3. This manner of mounting the lever 5 permits of its being moved back and forth and sidewise by the cam 9, secured to the power-shaft 10, similar movements being imparted to the blade 4. The lever, or a friction-roller, 11, attached thereto, is held by the spring 12 against the periphery of the cam, thereby causing it to move back and forth during the rotation of the cam, and a pin, 13, attached to the lever, enters a groove in the cam, said groove being provided with serpentine or waved walls, which cause the lever while the cam is in motion to vibrate rapidly sidewise. It will be noticed that the cam 9 is constructed to impart two full movements of the lever and the blade 4, and that during one of the inward movements a jar or jerk is imparted to the blade by the projection or offset 15 on the cam. The purpose of these movements of the blade is to insure a more perfect filling of the measuring-box, which is also facilitated by the continuous lateral vibrations of the blade. These lateral vibrations of the blade not only agitate the filler for the purpose above stated, but insure a freer passage of the blade through the filler and avoid any cutting or compressing of the filler, which is displaced or moved aside by the teeth or serrations on the front edge of the vibrating blade, rather than cut through or be compressed against the front wall of the opening into the measuring-box, as is the case where a direct-moving blade is employed.

Within the hopper 1 I arrange an agitating-tube, 16, provided at its upper end with a flexible mouth-piece, 17, having its edges secured to the sides of the hopper, thereby suspending the tube in such manner as to permit of its being shaken, as hereinafter described. This tube, whose walls are made slightly flaring from its upper to its lower end,

so as to prevent any clogging of the filler therein, is so supported that its lower end is just above the blade 4 and is attached to a movable frame, 18, located within the hopper 1. The frame 18 is connected by a pin, 19, to the lower end of a swinging arm, 20, pivotally connected at its upper end to the rear wall of the hopper, the connecting-pin 19 passing through a slot in the rear wall. To this swinging arm 20 is connected one end of the lever 21, pivoted to a block or stud, 22, attached to one of the side frames of the machine. The lower end of the lever 21 is provided with a notch which engages with a curved bar, 23, secured to the lever 5, parallel with the line of back and forth movements of said lever 5. This construction and arrangement permits of the back and forth movements of the lever 5 without shifting the lever 21, which, however, is vibrated by the lateral movements of the lever 5, imparted by the waved or serpentine walls of the groove in the cam 9.

The back wall plate, 24, of the measuring-box is secured to the brackets 2, just below and in line with the rear side of the opening in the hopper, and the ends of the box are formed by adjustable pieces 25, provided with lugs 26, constructed to project through horizontal slots in the plate 24, said lugs having threaded openings, through which passes the threaded rod 28, mounted in lugs 29 on the rear side of the plate 24, and held from longitudinal movement by pins passing through the rod on opposite sides of the lugs. This rod 28 serves not only to hold the end pieces in place, but also to adjust them toward or away from each other, in accordance with the length of bunch to be formed. The front of the box is formed by the swinging plate 31, attached to a shaft, 32, mounted in suitable bearings formed in lugs depending from the sides of the hopper. An angle-piece, 34, is attached to the inner side of the swinging plate 31 by a screw, 35, passing through a slot, 36, in the plate 31, said slot permitting of the adjustment of the angle-piece, to which are connected the plates forming the bottom of the box. These plates are so connected to the angle-piece as to be capable of adjustment over each other in accordance with the adjustment of the end pieces. It will be observed that as above constructed the ends and bottom of the box can be adjusted for the purpose of increasing or diminishing the capacity of said box in accordance with the size of the bunch to be formed.

For a full and clear description and illustration of the measuring-box above mentioned reference should be had to the Letters Patent of Clinton Browning and Ralph H. Logan, hereinbefore referred to, such measuring-box forming no part of the invention claimed herein.

The swinging plate 31 and the plates forming the bottom of the box connected therewith are operated to discharge the filler by a projection on a moving part of the machine, said projection operating through the medium of an arm and push-rod, as fully described and claimed in the patent to Browning and Logan, hereinbefore referred to.

The bunching-roller 38 is mounted in suitable bearings formed in the upper ends of the arms 39, said arms being secured at their lower ends to a rock-shaft, 40, mounted in the frames, and firmly connected together at an intermediate point by a rod, 41. The arms 39, carrying the bunching-roller, are reciprocated by the main driving-shaft through the medium of a crank-pin, 42, secured to a disk on said main shaft, said pin operating in a curved slot in the lever 44, which is connected to one of the arms 39 by a connecting-rod, 44ª.

On the ends of the arms 39, above the bunching-roller, is secured a plate, 45, to which the take-up plate 46 is adjustably fastened. The operative edge of the take-up is shaped to correspond with the shape of the bunch to be formed, and said take-up is designed to take up the slack along that edge of the apron operative on the small end of the bunches for irregularly-shaped cigars.

To the plate 45, or the ends of the arms 39, are fastened lugs or ears 47, in which are mounted the ends of the tension-roll 48, said roll being arranged in front of the bunching-roller, as shown. The slots or openings in the ears 47 for the reception of the ends or journals of the roll 48 are elongated vertically, to permit of the vertical movement of said roll, as hereinafter described.

The rolling or bunching table 49, having its upper surface curved to correspond to the arc of the circle described by the bunching-roller in its movements, is secured between the side frames, with its rear end a little forward of the line of feed of the filler as it is discharged from the measuring-box. An apron, 50, having one end attached to the front end of the table, passes back over the table, up between the bunching-roller and tension-roll, and over the take-up plate, as shown in Figs. 1 and 4, to the tension-roller 51.

The tension-roll 48 operates in connection with a dam arranged to move over the bunching-table 49, in front of the bunching-roll and operated thereby. This movable dam is formed by blocks 52, provided with grooves fitting over ledges projecting outwardly from the frames 3, and a plate, 53, connecting said blocks, as fully described in the patent hereinbefore referred to. This dam is operated by the arms 39, through the medium of the bars 54, connected to the blocks 52, and provided with slots, which engage pins 55 on the arms 39, said slots being made of such a length that when the tension and bunching rollers are in the position shown in Fig. 4—*i. e.*, at the beginning of the bunching operation, the tension-roll resting upon the plate 53—the pins 55 will engage the forward ends of the slots in the bars 54 and push the dam along with the bunching-roller, and during the return or rearward movement of the bunching-roller

the pins 55 will engage the opposite ends of the slots and draw the dam back, leaving the same at a point just above the rear end of the table.

The table is provided at its front end with a spring-plate, 56, between which and the end of the table the bunch is forced by the apron at the end of the bunching operation.

In operating the machine herein described the binder is spread over the plate 53, one end of the binder extending down into the loop of the apron, and is retained in position by the clamping-plates 57, whose construction and operation are fully set forth in the patent hereinbefore referred to. The bunching-roll is then moved forward, the filler having been previously deposited in the loop of the apron, and closes said loop, the tension-roller moving up onto the binder resting upon the plate 53. As the bunching-roll moves forward, the binder is drawn from between the table and tension-roller, said roller bearing sufficiently hard upon the binder to smooth the same and to cause it to wrap comparatively tight around the bunch.

As shown in Fig. 2, the table 49 is grooved transversely, so as to prevent the apron from being slipped forward along the table during the bunching operation, as frequently occurs when smooth tables are employed. When using conical or irregularly-shaped bunching-rollers, the grooves are formed diagonally, as shown in Fig. 5.

It is not essential that the lower portion of the feed-tube should be inclosed, as shown, the sole purpose of so inclosing the lower end of the tube being to prevent particles of the filler which may escape between the end of the tube and the vibrating blade from being scattered around. It is only essential to provide a suitable support for the vibrating tube, and I prefer to provide such support in the manner shown and described—*i. e.*, by the use of a "stationary hopper," as I have termed it, which shall inclose the tube entirely.

It will be readily understood that my improved filler-feeding mechanism may be employed in connection with other forms of bunching mechanism than that shown and described, and that any suitable cut-off and measuring-receptacle may be employed in connection with the vibrating tube.

I claim herein as my invention—

1. In a cigar-bunching machine, the combination of a filler-feeding tube having a flexible support, mechanism for vibrating said tube, and a cut-off for regulating the escape of the filler from the tube, substantially as set forth.

2. In a cigar-bunching machine, the combination of a filler-feeding tube having its sides inwardly inclined from its lower to its upper end and having a flexible support, mechanism for vibrating said tube, and a cut-off for regulating the escape of the filler from the tube, substantially as set forth.

3. In a cigar-bunching machine, the combination of a hopper, a filler-feeding tube having a flexible mouth-piece connecting the hopper and tube, mechanism for vibrating the tube, and a cut-off for regulating the escape of the filler from the tube, substantially as set forth.

4. In a cigar-bunching machine, the combination of a filler-feeding tube having a flexible support, mechanism for vibrating said tube, a filler-measuring receptacle located below the tube, and a cut-off operating between the tube and measuring-box, substantially as set forth.

5. In a cigar-bunching machine, the combination of a filler-feeding tube having a flexible support, a blade for regulating the discharge from the tube, a cam provided with a groove having waved or serpentine walls, and connecting devices for operating the tube and blade, substantially as set forth.

6. In a cigar-bunching machine, the combination of a table, a bunching-roller, a smoothing and tension roll movable with the bunching-roll, an apron passing over the table and between the bunching and tension rolls, and a movable plate arranged transversely of the table and above the apron for supporting the binder after bunching operation, substantially as set forth.

7. In a cigar-bunching machine, the combination of a table, a bunching-roll, a tension-plate having its operative edge shaped to correspond to the contour of the bunch to be formed and located above the bunching-roll and movable therewith, and an apron passing over the table and tension-plate and in front of the bunching-roll and movable therewith, substantially as set forth.

8. In a cigar-bunching machine, the combination of a table, a bunching-roll, an adjustable tension-plate located above the bunching-roll and having its operative edge shaped to correspond to the bunch to be formed, and an apron passing over the table and tension-plate and in front of the bunching-roll, substantially as set forth.

In testimony whereof I have hereunto set my hand.

RALPH H. LOGAN.

Witnesses:
SAMUEL ALEXANDER,
G. F. WINFIELD.