(No Model.) 3 Sheets—Sheet 1.

A. H. SHOCK.

CIGAR BUNCHING MACHINE.

No. 433,102. Patented July 29, 1890.

Fig. 1

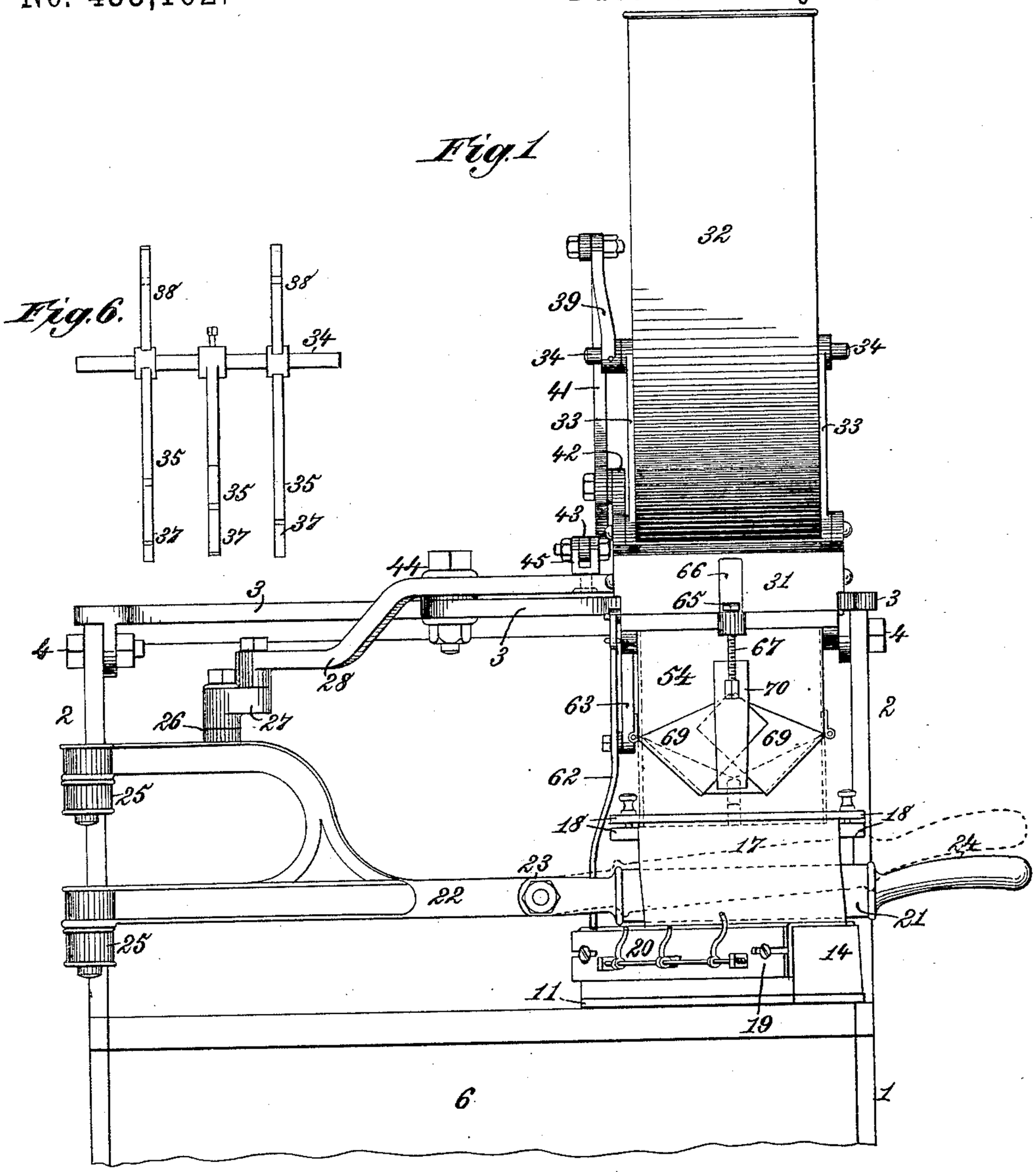
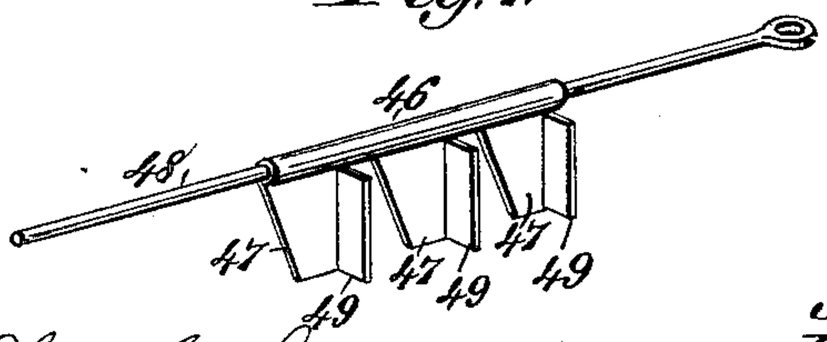


Fig. 6.

Fig. 7.



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CIGAR BUNCHING MACHINE.

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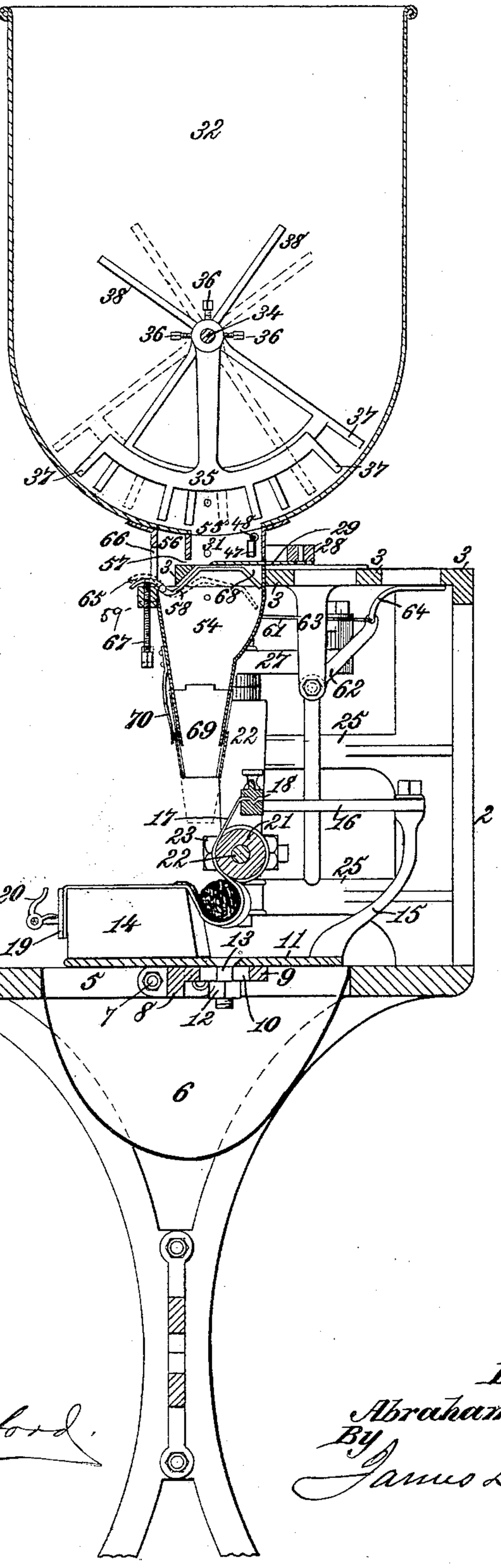
Fig. 2.



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CIGAR BUNCHING MACHINE.

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Fig. 3.

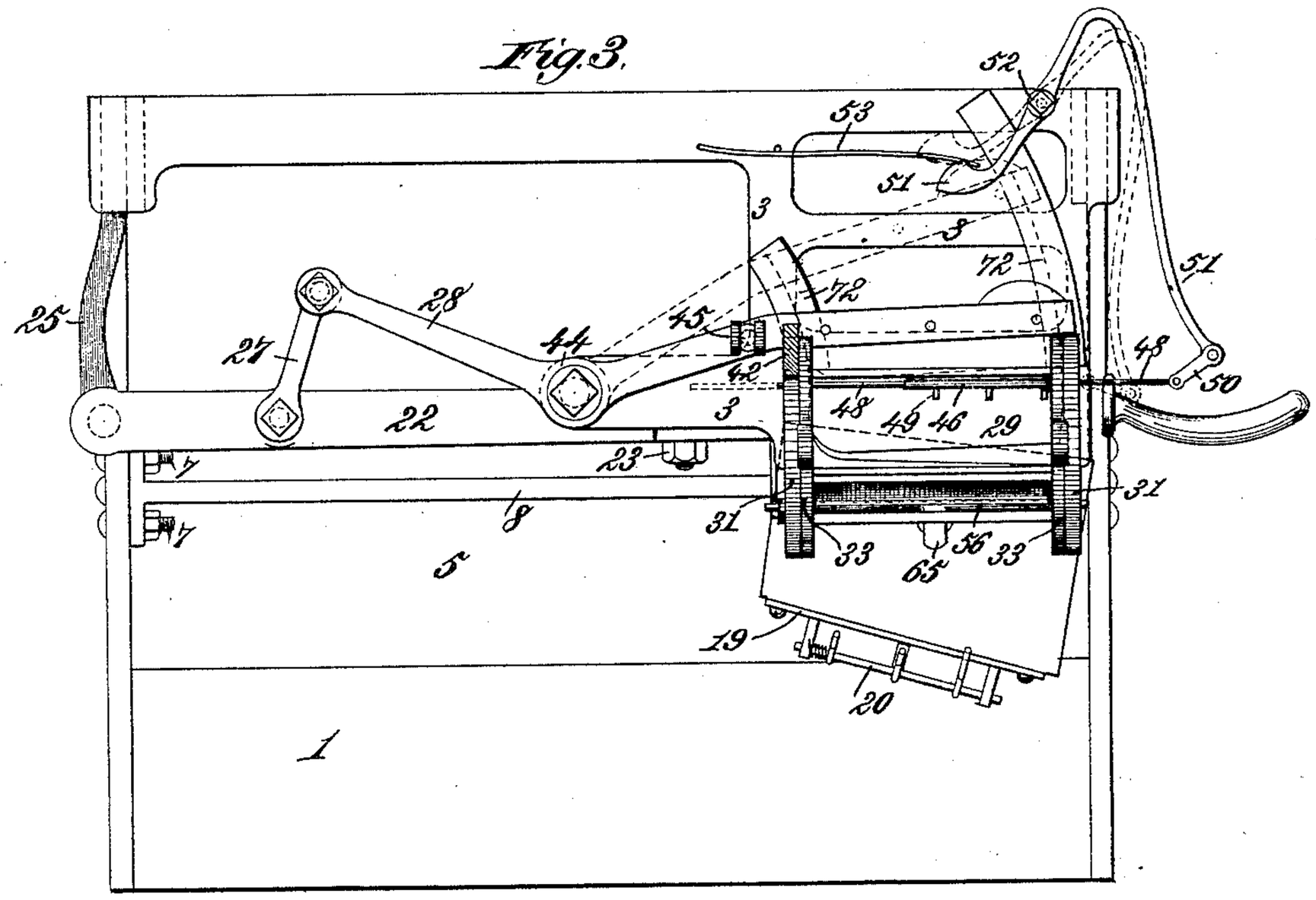


Fig. 4.

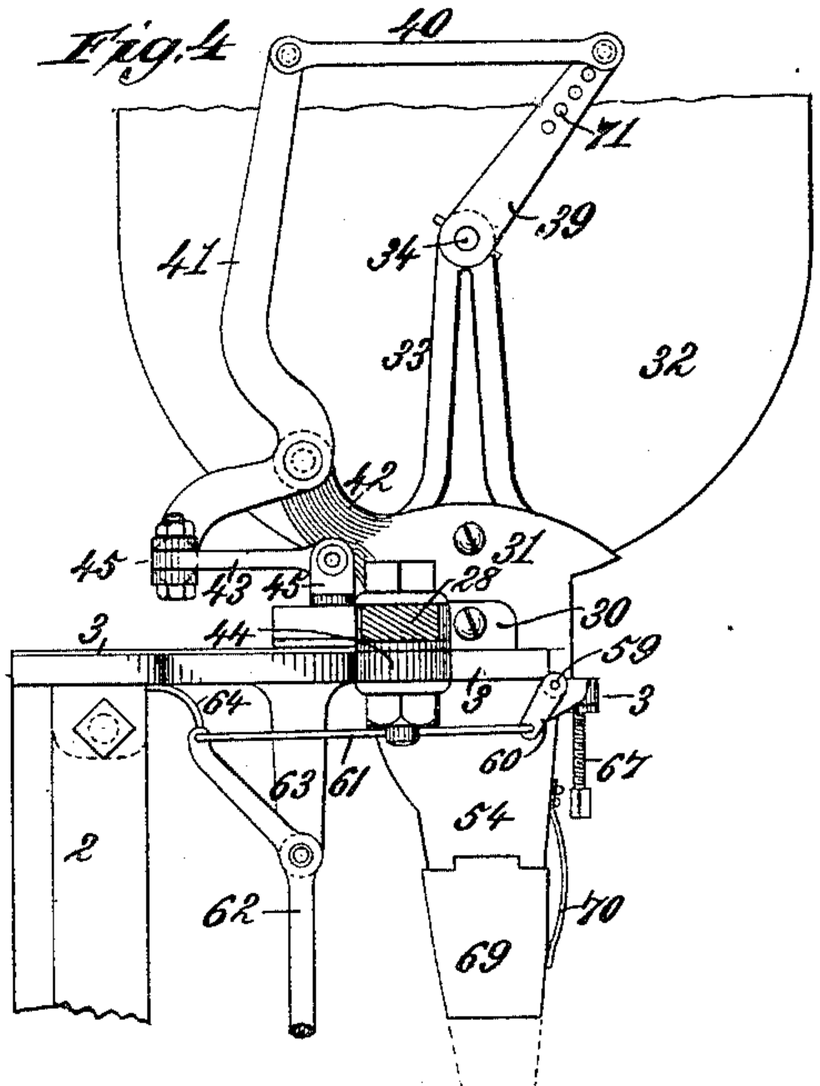
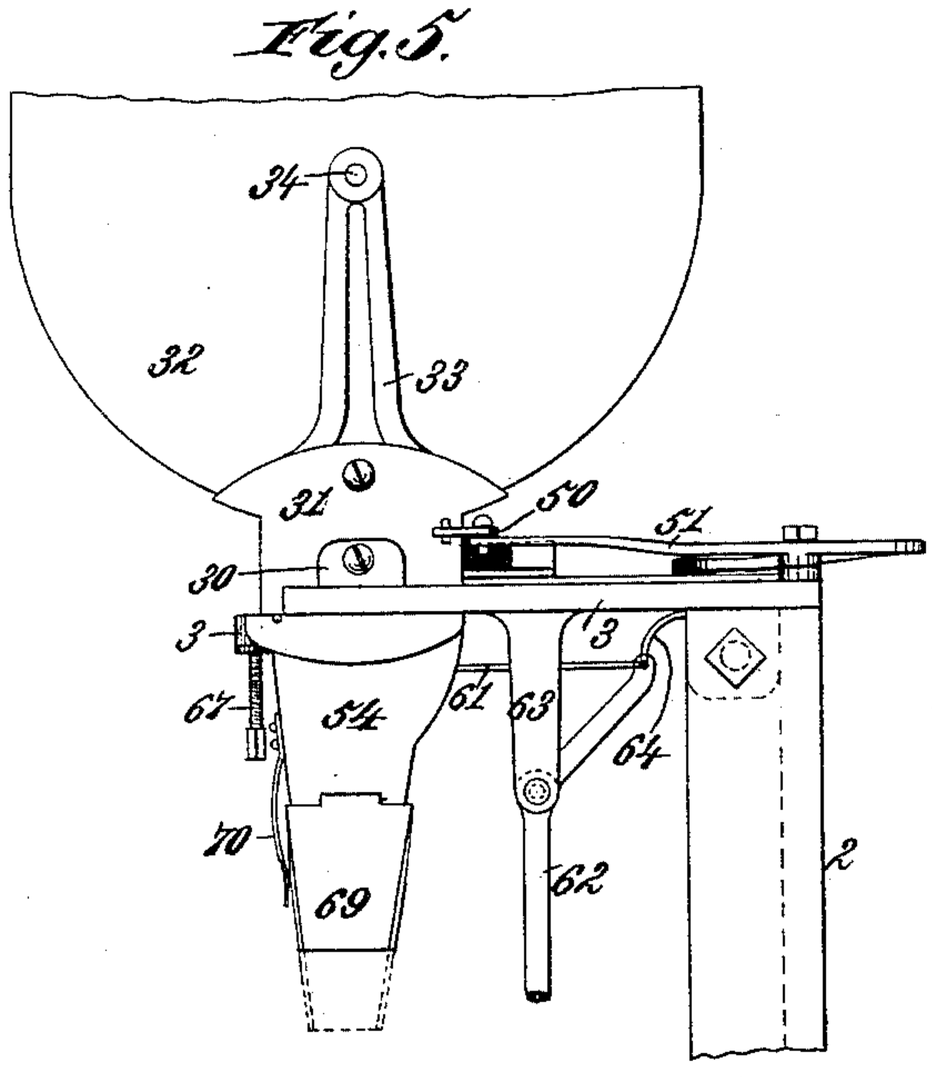


Fig. 5.



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UNITED STATES PATENT OFFICE.

ABRAHAM H. SHOCK, OF LANCASTER, PENNSYLVANIA.

CIGAR-BUNCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 433,102, dated July 29, 1890.

Application filed August 1, 1889. Serial No. 319,383. (No model.)

To all whom it may concern:

Be it known that I, ABRAHAM H. SHOCK, a citizen of the United States, residing at Lancaster, in the county of Lancaster and State of Pennsylvania, have invented new and useful Improvements in Cigar-Bunching Machines, of which the following is a specification.

My invention relates to that class of cigar-bunching machines in which the tobacco is caused to pass from a hopper through suitable feed devices to a bunching-apron supported above a bunch-rolling board or table, where it is rolled into a bunch by means of a bunching bar or roller carried by a horizontally-swinging lever, through which the feed devices are also actuated; and the invention consists in the construction and combination of parts hereinafter described and claimed, and illustrated in the annexed drawings, in which—

Figure 1 is a front elevation of my improved cigar-bunching machine. Fig. 2 is a vertical transverse section of the same. Fig. 3 is a plan of the same with the hopper and tobacco-agitators removed. Figs. 4 and 5 are partial views of opposite ends of the machine. Fig. 6 is a detail view of the tobacco-agitators. Fig. 7 is a view of the reciprocating tobacco-distributer.

Referring to the drawings, the numeral 1 designates a stand or table, which supports the frame 2 and the operating parts of the machine. The upper part of the frame 2 comprises a forward-projecting horizontal bracket 3, which may be detachably secured to the frame by means of bolts 4, as shown in Fig. 1, or said frame and bracket may be formed in one piece, as shown in Fig. 2.

The table 1 has about its center a rectangular opening 5, extending from end to end, as shown in Fig. 3, and in which opening, as shown in Fig. 2, is secured a receptacle 6 for catching and holding any droppings of tobacco from the feeding and bunch rolling devices.

In the table-opening 5 is secured, by means of bolts 7, a bar 8, one end of which is somewhat widened or formed with a horizontal flange 9, in which a slot 10 is formed. On this flanged portion 9 of the bar 8 is supported a horizontal bed-plate 11, that is adjustably secured to said bar by means of a nut 12 on a bolt 13, passed through the slot 10 of the flanged bar. The front portion of the bed-plate 11 carries the bunch-rolling board 14, which is secured to said plate in any suitable manner. The rear portion of the bed-plate is provided with upward-projecting arms 15, that carry at their upper ends a removable horizontal frame 16, to which the rear portion of the bunch-rolling apron 17 is secured by means of clamping-bars 18, the upper clamping-bar being detachable, as shown, to enable the bunch-rolling apron to be adjusted as may be required. The forward end of the bunch-rolling apron 17 is adjustably and detachably secured to the front edge of the bunch-rolling board 14 by means of a detachable clamping-plate 19, to the front face of which is attached a yielding bunch-receiver 20, as usual. It will be seen that by loosening the nut 12 on the bolt 13 the bed-plate 11 and attached parts can be moved forward or back, or be swung horizontally to bring the bunch-rolling board and apron into any desired position with relation to the feed mechanism and bunching-roller.

In this machine the bunching-roller or bunch-rolling bar 21, instead of being supported, as usual, in spring-bearings carried by standards or brackets projecting upward from the main operating-lever, is mounted directly on or forms a part of the horizontally-swinging main lever 22, through which the machine is operated. The main operating-lever 22 is formed in two parts, connected by means of an adjustable bolt-and-nut-hinged joint 23, by which that part of said lever on which the bunching roller or bar 21 is mounted or formed can be raised or lowered to the necessary angle to give any required inclination to the bunching roller or bar, according to the desired taper to be imparted to the cigar-bunch during the operation of rolling. One end of the main lever 22 is provided with a handle 24, and the other end is pivotally supported in bracket-arms 25, projecting forward from one end of the machine-frame.

The main lever 22 carries near its pivotal end a stud 26, which is connected by link 27 to the lever-arm 28 of a tobacco-cut-off 29, that is capable of being swung to and fro in a horizontal plane immediately above the hori-

zontal bracket 3, that supports the tobacco-feeding mechanism.

The forward portion of the horizontal bracket 3 is provided with lugs 30, to which is secured a tobacco-feeding chamber 31, on and above which a hopper 32 is detachably supported. This hopper 32 has a smooth interior, and is formed with vertical end walls and with a semi-circular bottom curving from front to rear without any shoulders, ledges, or corners, in or against which the tobacco would be liable to lodge. On its outer ends the hopper 32 is braced by standards 33, to which it is attached, and the upper ends of which serve as bearings for an agitator-shaft 34, Fig. 6, on which are secured a number of forward and backward oscillating tobacco-agitators 35, that are adjustably secured to the shaft 34 at different angles by means of set-screws 36, as shown in Fig. 2. These independently-adjustable tobacco-agitators 35 may be quadrant-shaped, as shown in Fig. 2, their lower ends having a curvature corresponding to the semicircular lower portion of the hopper. The lower part of each agitator is provided with a number of downwardly and radially projecting teeth 37, which extend nearly to the hopper-wall and keep the tobacco in a state of agitation, and that prevent sticking and packing even when the tobacco is moist. I prefer to attach three tobacco-agitators to the shaft 34, as shown, though a greater or less number may be employed, if desired. The outer ones are preferably provided with arms 38, that project above the shaft 34 and loosen the tobacco in the upper part of the hopper.

The tobacco-agitators 35 are actuated with an oscillatory front and rear motion in a direction corresponding with the curvature of the hopper through an arm 39, secured to one end of the shaft 34 and adjustably connected by a link 40 to the upper end of a bell-crank lever 41, that is pivoted to an arm 42, projecting from the feed-chamber 31 or other convenient point. The lower end of the bell-crank lever 41 is connected by a link 43 with the lever 28, which is fulcrumed at 44 to the horizontal bracket 3, as shown in Figs. 1, 3, and 4. In order to obtain a vertically-swinging movement of the bell-crank 41 from the horizontal swing of the lever 28 the connecting-link 43 is provided with swivels 45 at both ends.

In the rear portion of the feed-chamber 31 above the tobacco-cut-off 29 is a longitudinally-movable tobacco-distributer 46, which consists of a number of broad teeth 47, depending from a reciprocating rod 48, that is supported in the ends of the feed-chamber. The teeth 47 are preferably formed with blunt points, as shown, and each tooth is provided with a vertical forward or laterally-projecting flange 49, that causes the tobacco to be evenly distributed and prevents it from sticking or lodging in the corners of the feed-chamber when the cut-off 29 is moved back. Both ends of the reciprocating rod 48 project beyond the feed-chamber, and one end is connected by a link 50 to one arm of a horizontally-movable bell-crank 51, that is fulcrumed at 52 on the bracket 3 or upper part of the machine-frame. The other arm of this bell-crank bears against a spring 53, secured to the bracket. When the cut-off 29 is moved back against the short arm of the bell-crank 51, as shown by dotted lines in Fig. 3, the long arm of said lever is thereby carried inward and causes the reciprocating tobacco-distributer to move lengthwise in the feed-chamber, and as soon as the pressure of the cut-off is removed from the bell-crank the spring 53 returns said bell-crank to its former position, thereby causing the distributer 46 to move in the opposite direction. The tobacco-distributer thus makes two movements in opposite directions before the cut-off 29 returns to its forward or closed position, and thus the tobacco in the feed-chamber is distributed or agitated and fed downward into a chute 54, that is attached to the bracket 3 immediately beneath the feed-chamber. The greater part of the feed-chamber 31 is open at the top to correspond or register with an oblong or rectangular opening 55 in the bottom of the hopper. The front of the feed-chamber 31 beneath the closed portion of the hopper bottom is provided with a waste pocket or pockets 56 to catch the tobacco that is forced through the slot 57 by the cut-off 29 at the end of its forward stroke.

In the upper part of the chute 54, at its front upper edge, is pivoted a rearward-projecting and downwardly-swinging valve 58, the front and rear portions of which are inclined downward and outward, as shown in Fig. 2. The rear inclined portion of this valve is located beneath the rear portion of the feed-chamber 31, and the forward inclined part of the valve is beneath the pocket 56, that communicates with the front of the feed-chamber. The valve 58 is mounted on a shaft 59, that is provided at one end with an arm 60, which is connected by a rod 61 to the upper arm of a bell-crank lever 62, fulcrumed on a hanger 63 or other suitable support. The lower arm of the bell-crank 62 is suspended in the path of the main lever 22, which on its rearward stroke comes in contact with said lever-arm, thereby forcing it backward and throwing the valve 58 down, so that the tobacco resting thereon will be discharged into and through the chute. When the main lever 22 is moved forward, a spring 64, bearing on the upper arm of the bell-crank 62, causes it to resume its former position, thereby raising the valve 58 and holding it normally closed. On the forward or hinged edge of the valve 58 is a lug 65, which projects through a slot 66 in the front of the feed-chamber 31, as shown in Figs. 1, 2, and 3.

Beneath the projecting front end of the lug 65 and bearing thereon is a vertical adjusting-screw 67, supported in the bracket 3 in such

a manner that by turning the screw to the right or left, as required, the valve 58 can be adjusted to remain at any desired inclination when closed or nearly closed, and so vary the capacity of the upper part of the chute 54 above said valve. By this construction the upper part of the chute 54 constitutes a measuring-chamber 68 to regulate the quantity of tobacco delivered to the bunch-rolling devices according to the size of the cigar-bunch to be made, and as the tobacco remains in the measuring-chamber but a short time during the continuous operation of the machine the small quantity that might escape prematurely into the chute when the valve 58 is adjusted to enlarge the measuring-chamber 68 would not materially increase the bulk of the bunch and can easily be allowed for in adjusting the valve.

To the lower edge of the chute 54, on opposite ends or sides, are hinged adjustable overlapping extensions 69, either or both of which can be swung inward or outward, as may be required, in order to vary the length of the bunch or its bulk at either end. By adjusting either of the extensions 69 inward the tobacco will be discharged at that end of the chute in such a manner as to shorten and thicken the corresponding end of the cigar-bunch. The adjustable chute-extensions 69 are held securely in any position to which they may be adjusted by means of a spring 70 on the front of the chute.

This machine is especially designed for the making of cigar-bunches from coarse-scrap tobacco, and the several parts above described are so constructed and arranged that such tobacco can be readily and uniformly fed to the bunch-rolling mechanism without the usual liability of packing or being retarded in its progress through the feed-passages. The cigar-bunches thus produced are very nearly equal to long-filler bunches, while less expensive.

The operation of the various devices will be readily understood by those who are familiar with this class of machines. In setting the machine in readiness for work the adjusting-screw 67 should be moved up or down, as may be required, to adjust the valve 58, so as to regulate the capacity of the measuring-chamber 68 to receive the necessary quantity of tobacco for a cigar of the desired bulk. By means of a series of holes 71, Fig. 4, in the arm 39 its connection with the link 40 can be adjusted to vary the throw of the agitators 35 in feeding tobacco from the hopper 32 into the feed-chamber 31, and by means of the set-screws 36 the agitators can be adjusted to any desired position on the shaft 34, through which they are actuated. The chute-extensions 69, held by the spring 70, will be pressed toward each other or drawn outward, according to the length of bunch to be made. As shown by dotted lines in Figs. 1, 2, 4, and 5, these chute-extensions may be made of a length sufficient to extend nearly to the bunch-rolling mechanism. By means of the slotted bar 8, nut 12, and bolt 13, the bed-plate 11, bunch-rolling board 14, and apron 17 will be adjusted with proper relation to the feeding mechanism, and by properly setting the bolt-and-nut joint 23 the necessary inclination will be given to the bunching-roller 21 to produce a bunch of the desired taper. During the forward stroke of the main lever the cut-off 29 is gradually carried backward along the curved ways 72, Fig. 3, and uncovers the measuring-chamber 68, the agitators 35 are swung backward in the hopper 32, and when the cut-off 29 comes in contact with the lever 51 it causes the reciprocating distributer 46 to move lengthwise in the feed-chamber 31 and feed the tobacco therefrom into the measuring-chamber 68 without sticking or packing. On the backward stroke of the main lever 22 the forward movement of the cut-off 29 releases the lever 51, and the spring 53 returns said lever and the connected distributer 46 to their former positions, the said distributer thus making two movements in the feed-chamber—one to the right and one to the left—before the cut-off 29 completes its forward stroke and covers the measuring-chamber 68. In this forward movement of the cut-off 29 the slight surplus of tobacco in front of the cut-off is forced through the slot 57 into the waste-chamber 56 and falls onto the forward inclined portion of the valve 58, that forms the bottom of the measuring-chamber. During the forward movement of the cut-off 29 the agitators 35 are rocked forward in the hopper 32 and feed more tobacco into the chamber 31 above the cut-off. When the main lever 22 has been thrown back to the rear of the bunch-rolling board 14 and before it comes in contact with the depending arm of the lever 62, the operator should press the slack of the apron 17 downward behind the bunch-rolling board, and thus form a pocket for receiving the tobacco to be bunched. The continued rearward movement of the main lever 22 forces back the lower end of the lever 62, and through the rod 61, arm 60, and shaft 59 tilts the valve 58 downward and causes the tobacco in the measuring-chamber 68 and adjoining waste-chamber 56 to be discharged through the chute 54 and adjustable chute-extensions 69 into the pocket that has been previously formed in the apron 17 in front of the bunching-roller. On the next forward stroke of the main lever 22 the valve 58 is raised to its normally-closed position by the action of the spring 64 on the lever 62, the movements of the cut-off 29, the tobacco-agitators 35, and the reciprocating distributer 46 are repeated, thereby conveying a fresh supply of tobacco into the measuring-chamber 68, and the tobacco contained in the pocket of the apron 17 is compactly and evenly rolled into a bunch of the desired shape by the action of the bunching-roller 21, as it passes forward over the bunch-rolling board and behind the apron in the usual manner.

It will be seen that the devices for feeding and measuring or gaging the tobacco and for discharging it onto the bunching-apron and the devices for rolling it into bunches of the desired size and style are so constructed and arranged in their several parts that they are not liable to get out of order, as is common in some machines of this class.

What I claim as my invention is—

1. In a cigar-bunching machine, the combination, with a tobacco-hopper having a semicircular curved bottom provided with an outlet, of a number of independently-adjustable tobacco-agitators suspended in said hopper, and means, substantially as shown, for oscillating said agitators in a direction corresponding with the curvature of the hopper, substantially as described.

2. In a cigar-bunching machine, the combination, with a feed-chamber, of a reciprocating tobacco-distributer located in said feed-chamber and having a number of depending teeth, each of which is provided with a vertical laterally-projecting flange, substantially as described.

3. In a cigar-bunching machine, the combination of a feed-chamber, a measuring-chamber located beneath the feed-chamber, a horizontally-oscillatory cut-off movable between said chambers, and the reciprocating tobacco-distributer located in the rear portion of the feed-chamber above said cut-off and provided with a number of depending teeth having lateral flanges, substantially as described.

4. In a cigar-bunching machine, the combination, with a measuring-chamber, of a feed-chamber located above the measuring-chamber and provided with a waste-pocket, and a horizontally-oscillatory cut-off movable between said chambers, substantially as described.

5. In a cigar-bunching machine, the combination of the feed-chamber, the reciprocating tobacco-distributer located in the rear portion of said feed-chamber and provided with depending teeth having lateral flanges, the measuring-chamber located beneath the feed-chamber, the horizontally-oscillatory cut-off movable between the feed-chamber and measuring-chamber, the discharge-chute leading from the measuring-chamber, and the adjustable hinged valve located in the upper part of said chute and forming the bottom of the measuring-chamber, substantially as described.

6. In a cigar-bunching machine, the combination, with the feed-chamber, the measuring-chamber, and the intermediate horizontally-oscillatory cut-off, of a chute having in its upper part an adjustable hinged valve and provided at its lower end with adjustable extensions, substantially as described.

7. In a cigar-bunching machine, the combination, with the main operating-lever and a chute having an adjustable hinged valve, of a lever depending in the path of the main lever and connected with the valve, and a spring for normally closing said valve, substantially as described.

8. In a cigar-bunching machine, the combination, with the main lever, a feed-chamber, and a horizontally-oscillating cut-off connected with and actuated by the main lever, of a reciprocating tobacco-distributer located in the feed-chamber, a bell-crank lever connected with said distributer and located in the path of the cut-off to be actuated thereby at the end of its rearward stroke, and a spring for returning said bell-crank lever to its normal position, substantially as described.

9. In a cigar-bunching machine, the combination, with the hopper, the feed-chamber, and the horizontally-swinging cut-off, of the oscillatory tobacco-agitators located in the hopper, a vertically-swinging lever connected with the agitator-shaft, and a link having a swiveled connection with said lever and with the cut-off, substantially as described.

10. In a cigar-bunching machine, a main operating-lever formed in two parts, hinged together by means of an adjustable bolt-and-nut joint, and having a bunching bar or roller on its adjustable portion, substantially as described.

11. In a cigar-bunching machine, the combination, with a bunch-rolling board, a bunching-apron, and the main operating-lever, of the bunching bar or roller connected with the outer end of said lever by means of a hinged joint comprising a bolt and nut, whereby the bunching bar or roller can be adjusted to any required inclination, substantially as described.

12. In a cigar-bunching machine, the combination of a table having an opening in its top, a slotted bar supported horizontally in said opening, an adjustable bed-plate supported on said bar and carrying a bunch-rolling board and apron, and the bunching roller or bar, substantially as described.

13. In a cigar-bunching machine, the combination, with a table having an opening in its top and a slotted bar supported horizontally in said opening, of an adjustable bed-plate supported on said bar, a bolt and nut for adjustably connecting said plate and bar, a bunch-rolling board carried on the front portion of said bed-plate, a horizontal frame supported by the rear portion of the bed-plate and provided with clamping-bars, a bunching-apron having its rear portion secured between said bars and its front portion secured to the front of the bunch-rolling board, a bunching bar or roller, and tobacco-feeding mechanism, substantially as described.

14. In a cigar-bunching machine, the combination, with a hopper, a feed-chamber below the hopper, a measuring-chamber below said feed-chamber, and a chute through which the contents of the measuring-chamber are discharged, of an adjustable valve that forms the bottom of said measuring-chamber, a horizontally-swinging cut-off movable between the measuring-chamber and feed-chamber, a

reciprocating tobacco-distributer located in the feed-chamber, an oscillatory tobacco-agitator in the hopper, and a main lever through which said valve, cut-off, distributer, and agitator are actuated, substantially as described.

15. In a cigar-bunching machine, the combination, with a bunch-rolling board, a bunching-apron, the tobacco-feeding mechanism, and a main lever through which said mechanism is actuated, of an adjustable bunching roller or bar having a hinged connection with said main lever, substantially as described.

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

ABRAHAM H. SHOCK.

Witnesses:

PERCY B. HILLS,

JAMES A. RUTHERFORD.