

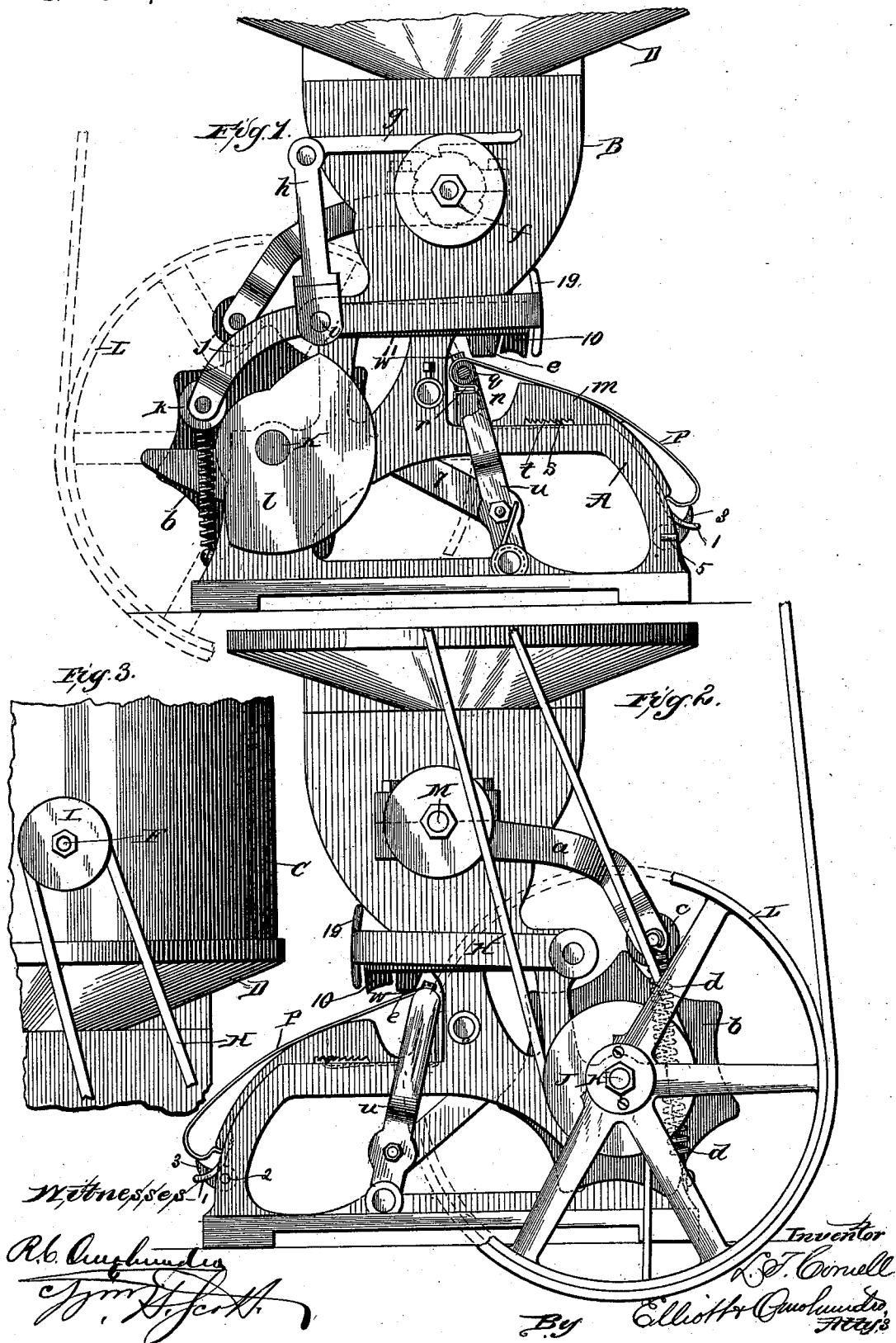
(No Model.)

5 Sheets—Sheet 1.

L. T. CORNELL.
CIGAR BUNCHING MACHINE.

No. 507,487.

Patented Oct. 24, 1893.



(No Model.)

5 Sheets—Sheet 2.

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CIGAR BUNCHING MACHINE.

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Fig. 4.

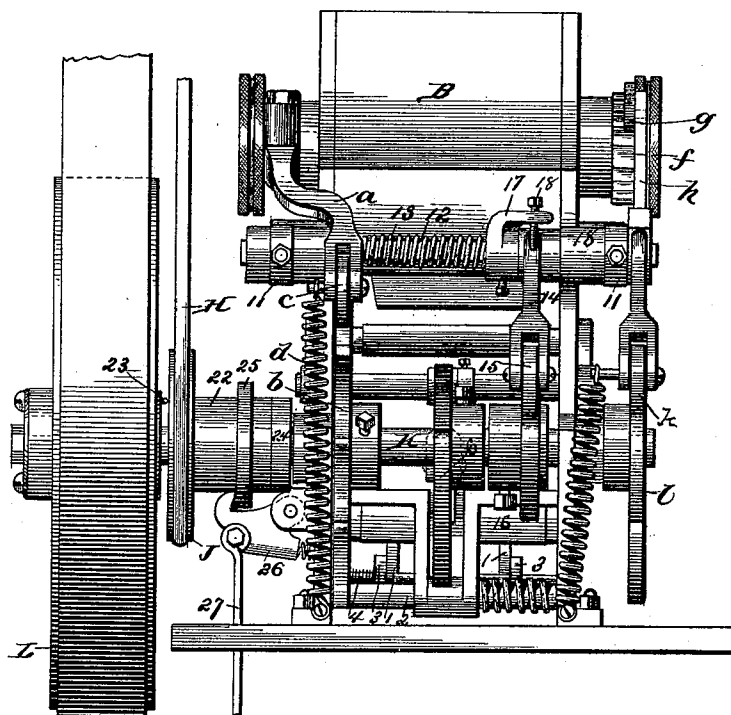
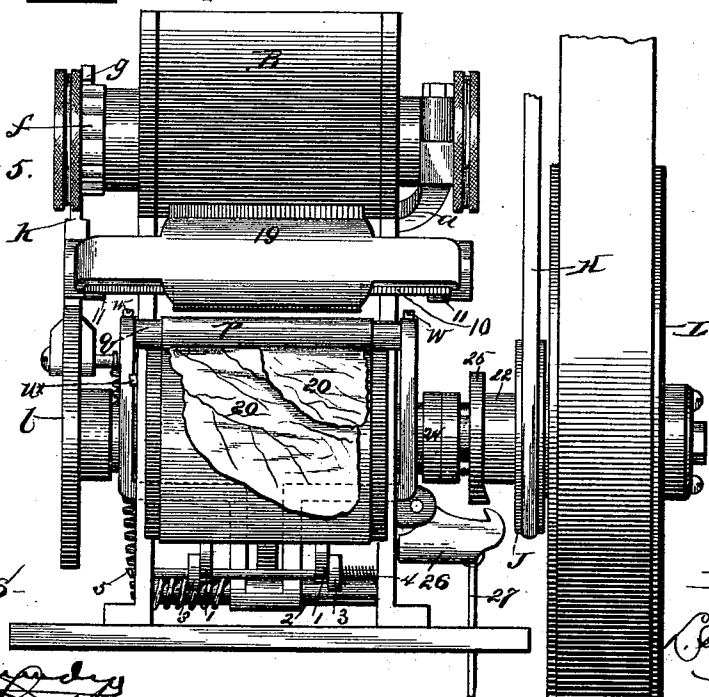


Fig. 5.



Witnesses

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(No Model.)

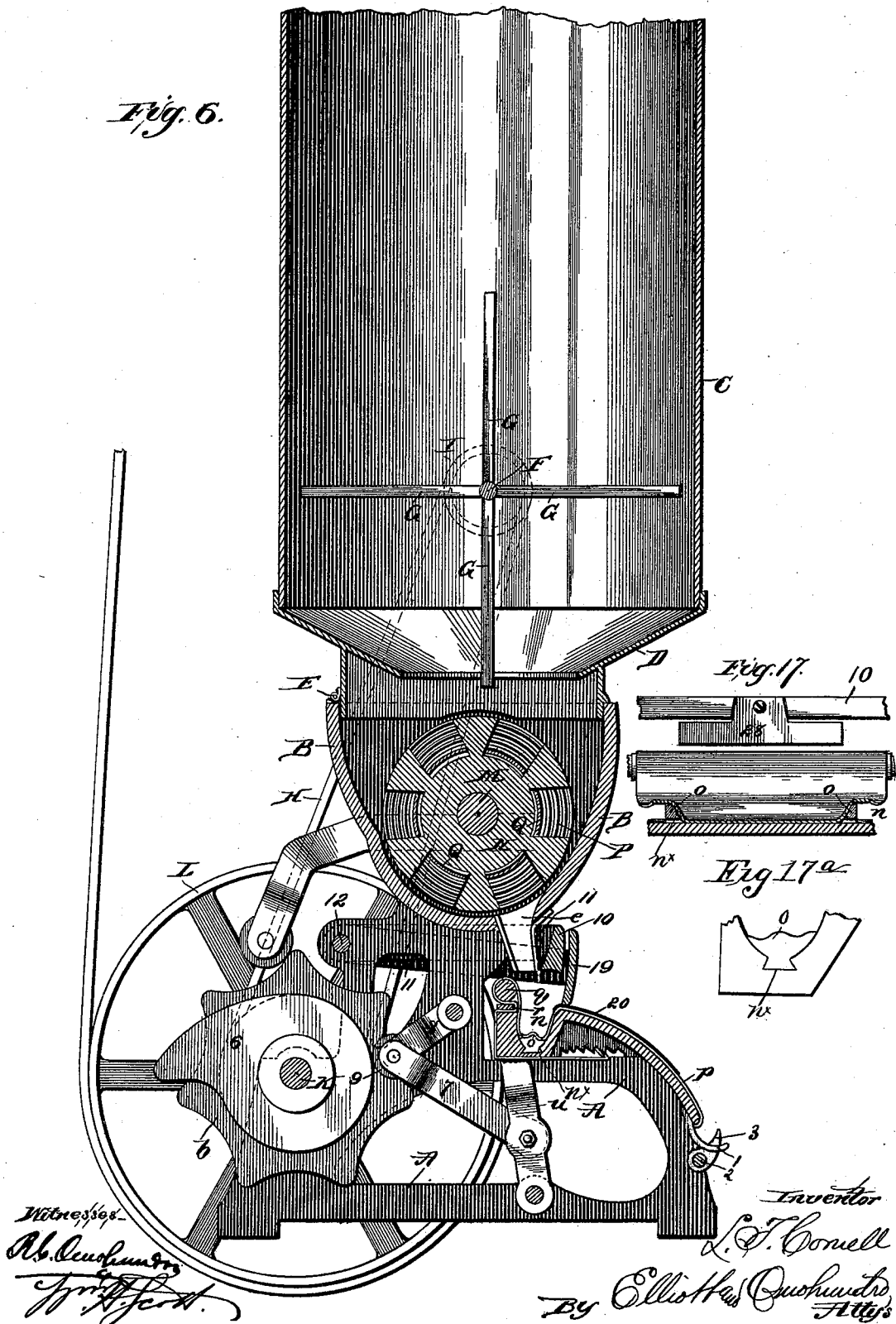
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Fig. 6.



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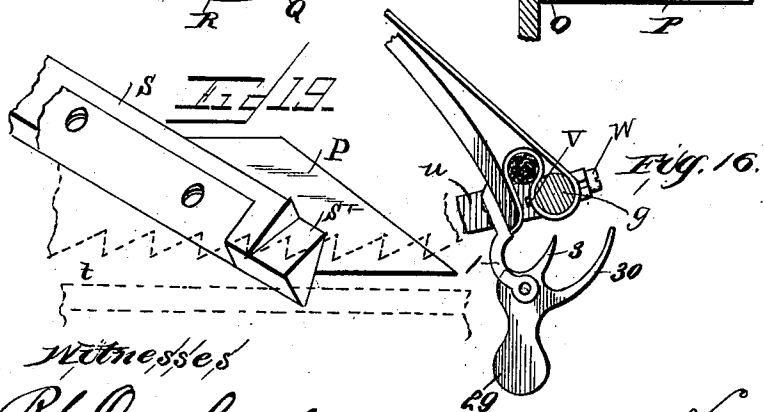
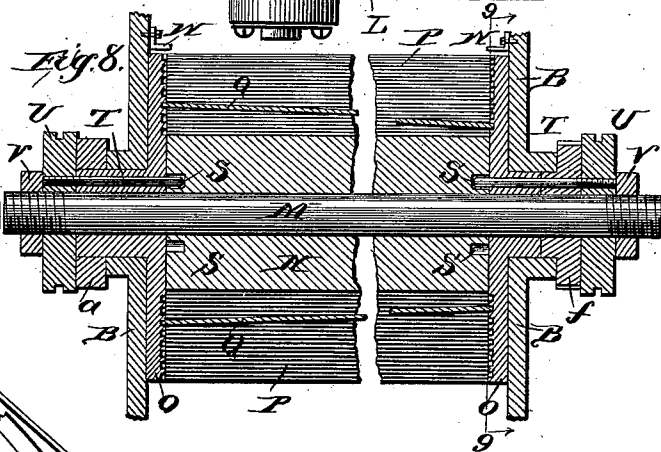
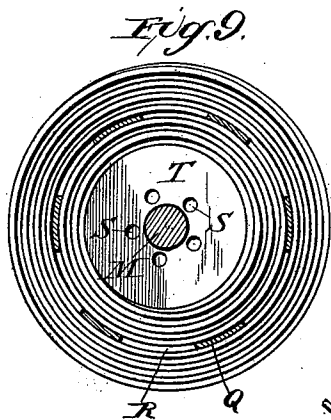
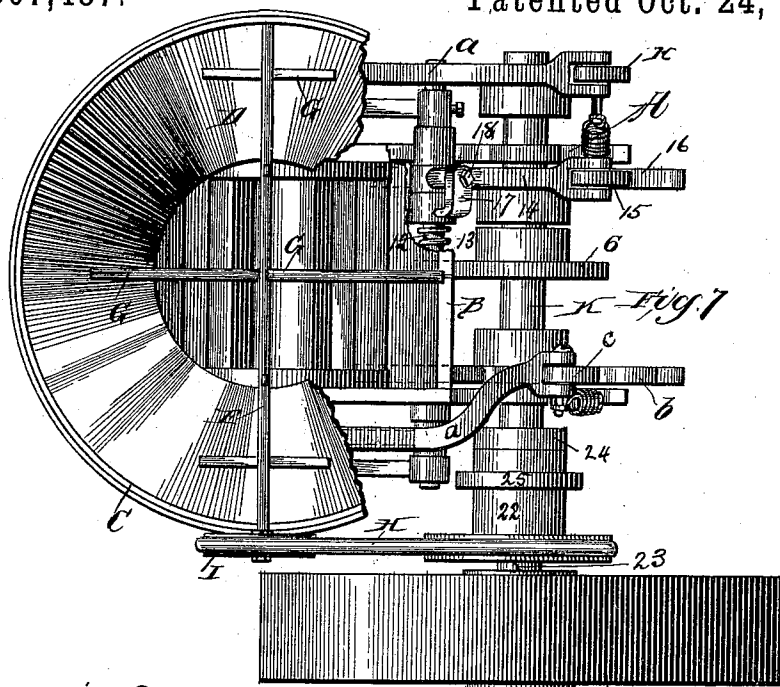
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5 Sheets—Sheet 4.

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Patented Oct. 24, 1893.



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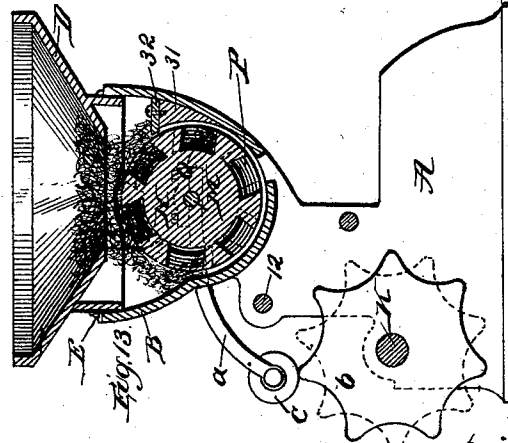
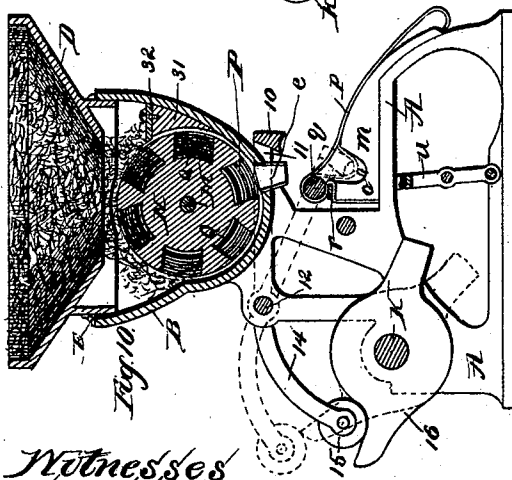
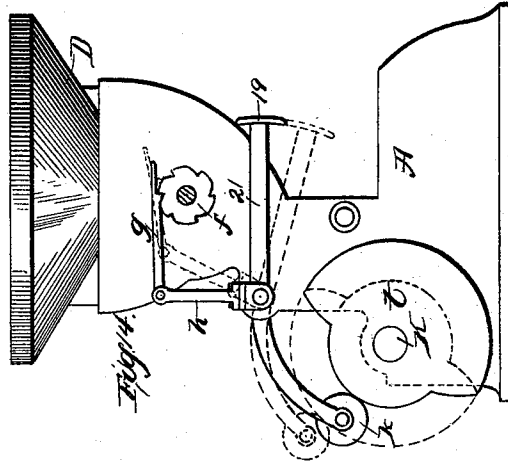
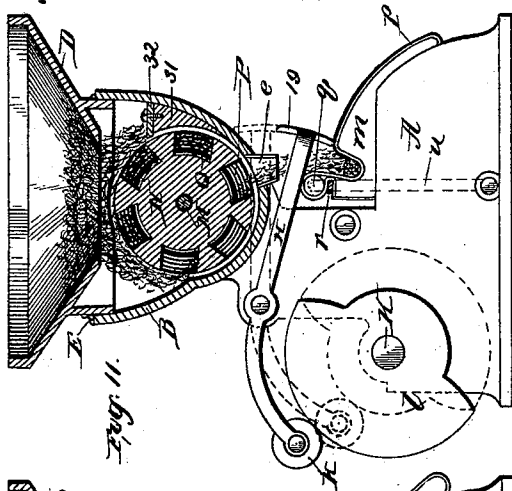
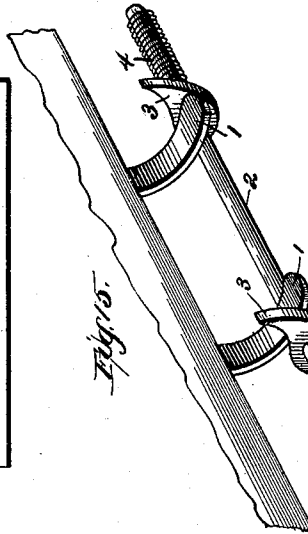
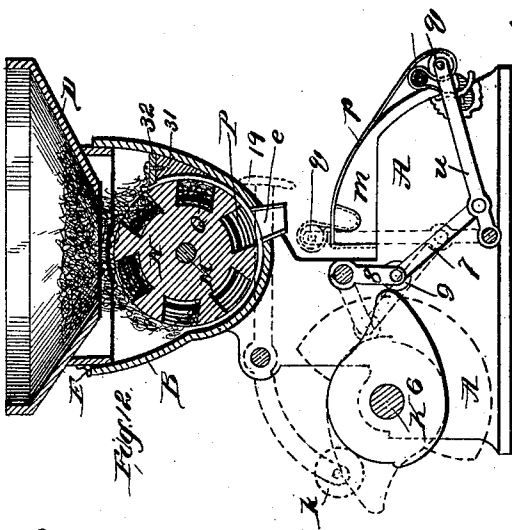
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No. 507,487.

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UNITED STATES PATENT OFFICE.

LEWIS T. CORNELL, OF CHICAGO, ILLINOIS, ASSIGNOR TO SAMUEL I. SMITH
AND BERTHA S. SMITH, OF SAME PLACE.

CIGAR-BUNCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 507,487, dated October 24, 1893.

Application filed September 19, 1889. Serial No. 324,377. (No model.)

To all whom it may concern:

Be it known that I, LEWIS T. CORNELL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Cigar-Bunching Machines, of which the following is a specification.

This invention relates to improvements in cigar bunching machines, that is to say, that class of machines for first bunching or rolling the scrap within the binder prior to the insertion of the bunch into a mold for properly shaping the cigar.

The prime object of this invention is to provide improved means for so distributing the scrap within a roll or bunch that the bunch, when completed, will have substantially the same shape as the finished cigar.

Another object is to provide an improved automatic feed for the scrap, delivering the same to the binder at any desired interval, and of such a character that the scrap will be automatically disposed lengthwise of the bunch when deposited in the binder, whereby the superiority of the cigar is materially promoted.

A further object is to provide improved means for adjusting the feed adjustably in such manner that the scrap may be distributed uniformly throughout the length of the bunch, or in greater quantities at either end of the bunch, whereby the shape of the cigar may be readily altered at the will of the operator, and either end thereof increased or decreased in diameter without unusual compression of the scrap or filler, and finally my invention has for its object to simplify the construction and operation and reduce the cost of manufacture of bunch rolling machines, and at the same time promote the durability thereof and materially increase the capacity of the machine.

My invention consists in certain features of novelty hereinafter fully described with reference to the accompanying drawings and more particularly pointed out in the claims.

In the said drawings, Figure 1 represents a side elevation of a cigar bunching machine embodying my invention; Fig. 2, a similar view, taken from the opposite side of the machine; Fig. 3, a detail elevation of a portion of the hopper, not shown in Figs. 1 and 2,

showing the manner of applying power to the agitator of the hopper; Fig. 4, a rear elevation of my machine; Fig. 5, a front elevation thereof; Fig. 6, a central vertical section through the same, the plane of the section cutting the feed cylinder about midway between its ends; Fig. 7, a plan view thereof with the top of the hopper removed and a portion of the hopper support broken away; Fig. 8, an enlarged detail longitudinal section through the dropping or feed wheel; Fig. 9, a central vertical section on the line 9-9 of Fig. 8, looking in the direction indicated by the arrows; Figs. 10, 11, 12 and 13, detail vertical sections, more particularly designed to show the various operations of the machine in forming the bunch, and the cams for producing the same; Fig. 14, a detail side elevation showing the manner of simultaneously operating the binder holder and feed; Fig. 15, a detail perspective view of one form of my automatic bunch catcher; Fig. 16, a similar view of a modified form thereof; Fig. 17, a detail section through the receiving mold of the rolling bed, showing the adjustable apron guides and flanges for determining the length of the cigar; and Fig. 17^a is a detail view showing one of the adjustable apron guides and a portion of the rolling bed in side elevation and on an enlarged scale; Fig. 18, a detail section through the actuating roller of the apron and its bearings, showing the manner of adjusting the same. Fig. 19 is a detail perspective view of the apron adjusting bar.

Similar letters and numerals of reference indicate the same parts in the several figures of the drawings.

Referring by letter to the accompanying drawings, A indicates the frame or standards of my machine, B a hollow shell or casing mounted thereon, semicircular in cross section, and C a hopper located above the casing and provided with an inclined or tapering bottom, D, hinged at E to the rear side of the casing so that the hopper may be tilted backwardly and thus give access to the interior of the casing.

Extending through the hopper, in a line with the casing and journaled in the walls thereof, is a shaft, F, provided with a series of fingers,

G, projecting radially therefrom, which mechanism, as a whole, constitutes a stirrer or agitator for the scrap contained in the hopper and is driven by means of a belt, H, working over a pulley, I, mounted upon the end of the shaft F outside of the hopper, and over another pulley, J, loosely mounted upon a line or power shaft, K, journaled in the lower part of the frame A to the rear of the casing, to which power may in turn be applied, through the medium of a pulley, L, mounted on the end thereof, or any suitable form of gearing.

Through the casing, B, and lying horizontally and axially therein, parallel with the power shaft, extends a short shaft, M, upon which is mounted a horizontal drum or cylinder, N, the ends of which are opposed by a pair of disks, O, corresponding in diameter with the drum or feed cylinder and provided with elongated hubs extending through and journaled in the end walls of the casing, B, which hubs constitute bearings for the short shaft, M, which projects axially therethrough. The feed cylinder or drum is provided with a series of longitudinal peripheral grooves, P, of a uniform depth, extending from end to end thereof, in which lie and work a series of strips or plates, Q, each constituting the bottom of a recess or pocket, and bearing at their ends respectively in spiral grooves, R, formed in the opposing faces of the disks, O, so that, whenever the disks are rotated independent of the cylinder, these plates or bottoms, Q, will be caused to approach and recede from the center or axis of the cylinder, the same ends of all of the bottom plates, that is, all of the ends engaged by the same disk, moving simultaneously, and in substantially the same degree. These recesses, P, in the feed drum, constitute pockets for reception of the scrap from the hopper, and each holds a measure of scraps sufficient to form one bunch, and obviously, by the employment of my adjustable bottoms, Q, not only may the quantity of scrap in the pockets be easily altered and regulated at the will of the operator, but, by the independent adjustment of the opposite ends of the bottoms, they may be set at such an angle as to throw the major portion of the scrap toward either end of the bunch, or distribute the scrap uniformly throughout the length of the bunch. For making this adjustment I provide, in the ends of the cylinder N, an annular series of sockets, S, into one, at each end of which, projects a pin, T, working through a perforation in the hub of the disk, O, and secured at its opposite end to a hand wheel, U, loosely mounted upon the shaft M and confined between the hub of the disk and a nut, V, on the end of the shaft, by which arrangement the nut may be unscrewed, the hand wheel slid longitudinally upon the shaft until the pin attached thereto is withdrawn from engagement with the socket S, when the disk may be rotated upon the shaft until the bottoms are adjusted to the proper depth in the pockets and the hand wheel

again slid longitudinally on the shaft until the pin engages another socket in the cylinder, when the nut may be turned up and the parts securely locked in their adjusted position. It will, of course, be understood that either end of the adjustable bottoms Q may be operated and adjusted independent of the other, and that the adjustment may be readily and quickly made.

Within the hopper the joints between the disks and the walls of the casing and the cylinder are each protected by an overhanging flange or shoulder, W, secured to and projecting inwardly from each of the opposing walls and formed on the arc of a circle so as to lie as close as possible to the periphery of the disk and cylinder so as to prevent the scrap dropping in between these members.

In operation it is of the utmost importance that the scrap may be arranged as near as possible lengthwise of the bunch, so as to both facilitate the rolling and shaping of the bunch, and improve the draft of the cigar, to which end I propose to rock or shake the cylinder continuously during the operation of the machine, causing the scrap to settle gradually toward the bottoms of the pockets and completely fill the same, the shaking action and settling of the scrap tending to align or straighten the scrap in the pockets, to which end I employ a rocker-arm, a, secured upon the hub of one of the disks, O, by a frictional clamp or hold, which, while it imparts to the disk, and consequently the feed cylinder, a rocking action, it at the same time permits the independent turning of the cylinder and disk, if sufficient power be applied. This friction clamp or hold for the attachment of the arm, a, to the hub of the disk, O, may be of any of the well known constructions. The form shown in the drawings consists of a divided journal box held together by screws, see Fig. 2, but this especial arrangement is not essential. This arm is actuated by means of a star cam-wheel, b, mounted upon the power shaft, K, with which engages an anti-friction roller, c, journaled in the end of the arm and held in close relation to the cam by a coil-spring, d, secured at its ends respectively to said arm, and to a stationary portion of the frame of the machine. With this arrangement, during the rotation of the power shaft, the rocker-arm will be continuously and rapidly vibrated so as to cause a corresponding oscillation or rocking of the feed cylinder, into the pockets of which the scrap will thereby be caused to settle, the agitator above the feed cylinder effectually preventing the clogging of the same and enabling the perfect filling and leveling of the pockets. As before mentioned, each pocket contains a measure of scrap sufficient to make a single bunch, and it is designed that, at each complete operation, the feed cylinder shall make a partial rotation sufficient to move one pocket around to, so as to register with a discharge spout, e, in the bottom of

the casing, B, to which end I mount upon the shaft M a ratchet-wheel, *f*, between the hand wheel, U, and the hub of the disk O, upon the opposite end from the rock-bar, through which wheel the pin, T, from the hand wheel, passes, thus causing all the parts to operate in unison. This ratchet wheel is actuated by a pawl, *g*, pivoted to the end of an upright arm, *h*, projecting from the side arm of the binder holder (to be hereinafter described), and radially from the pivot, *i*, thereof, as more clearly illustrated in Figs. 1 and 14.

The side arm of the binder holder is provided with an arm or extension, *j*, at one side of the machine, extending to the rear of the pivot, *i*, in the end of which is journaled an anti-friction roller, *k*, engaging a cam, *l*, upon the power shaft, K, by means of which the arm, and consequently the ratchet, has imparted thereto an intermittent action sufficient to overcome the frictional hold of the rocker-arm, *a*, upon the hub of the disk, O, and partially rotate the cylinder so as to cause the next pocket to register with the discharge spout from the casing.

Below, and extending forwardly of the casing, is located a curved or convex rolling bed, *m*, terminating at the upper end thereof, immediately beneath the discharge spout of the casing, in a transverse concavity or receiving mold, *n*, in which are located a pair of adjustable apron guides, *o*, one near each end thereof and curving or slanting toward each other, between which the scrap is dropped and confined during compression, and by which the length of the bunch is determined, these guides having a dovetail connection with the bottom of the receiving mold *n* or groove so that they may be adjusted by hand suitable distances apart.

Rigidly secured to the lower end of the rolling bed, by screws or otherwise, is one end of a flexible bunch-rolling apron, *p*, arranged to lie upon the rolling bed and extending beyond the upper end thereof, spanning the receiving mold *n*, and around an actuating roller, *q*, (the construction and operation of which will be described farther on,) under a guide strip, *r*, and thence back beneath the rolling bed where its inner end is secured to an adjustable cross-bar, *s*, projecting through slots in the end walls of the bed, the upper edges, *t*, of which are toothed, as shown, so as to be engaged by an angular portion *s'* of the ends of the adjustable bar, *s*, and thus permit the latter to be locked at any point of its adjustment. Obviously either side of the apron may be adjusted independent of the other by moving the bar, *s*, in the slots, *t*, so as to leave more or less slack at either side of the apron, according to the shape of the bunch to be formed. The apron passes under the lower edge of the bar, *s*, as shown in Fig. 19, and is secured at its extremity to the front side of such bar; and thus any pull on the apron will cause the angular portion, *s'*, to bind in the notches with

great force and prevent the movement of the bar along the slot. The apron has sufficient slack at all times to be forced down into and so as to lie upon the bottom of the receiving mold, *n*, in the rolling bed covering the apron guides, *o*, to receive the scrap when deposited in the apron pocket as it rests in the mold *n* by the automatically operated feed cylinder.

The roller *q* for actuating the apron is journaled in the free ends of a pair of upright pivoted arms, *u*, having one fixed journal and one spring seated journal, so that the roller may be readily removed from its bearings, each of the journals bearing directly in a longitudinal groove *v*^x formed in each of the arms *u*, annular grooves, *v*, formed in screws *w*, working vertically or longitudinally in the arms, *u*, so that the roller may be readily adjusted, and either end thereof adjusted independent of the other, so as to cause the roller to work or move along the bed with one end farther from the bed than the other, instead of parallel thereto, as would otherwise be its normal operative position. This roller, as in other bunch making machines, lies upon the under side of the apron, and when the pocket is filled with scrap, is designed to move along with the apron in the usual manner, causing the latter to roll the scrap in the binder and discharge the completed bunch at the lower end of the rolling bed, where it is caught by an automatic bunch catcher, comprising two curved arms, 1, secured to the lower end of the bed, and a cross rock shaft, 2, journaled in the frame of the machine, provided with two curved fingers, 3, in close relation to and opposing the fixed arms, 1, so as to grasp or pinch the bunch therebetween, which shaft is actuated in one direction by a coil spring, 4, sleeved thereon and attached at its ends respectively to said shaft and the frame of the machine.

The shaft 2 in order that it may be turned in the opposite direction, so as to overcome the torsion of this spring, is provided with a radial or crank arm, 5, on one end thereof, adapted and arranged to be engaged by a suitable projection *u*^x on one of the arms, *u*, carrying the actuating roller at the time the roller completes its stroke, so that the fingers, 3, will move away from the arms, 1, and permit the bunch to be dropped by the apron between them and the arms, but which, immediately the roller returns to its normal position, will be thrown forward by the spring, 4, so as to grasp the bunch and hold it in position until removed by the operator.

The arms, *u*, carrying the actuating roller, as more clearly illustrated in Figs. 6 and 12, are preferably actuated by a cam, 6, also mounted upon the power shaft, K, through the medium of a pair of links, 7—8, pivoted together and having an anti-friction roller, 9, journaled on their pivot connection for engaging the cam, and at their opposite ends pivotally connected respectively with the arms, *u*, and the frame of the machine.

After the rolling of each bunch the apron is depressed into the mold, *n*, in the rolling bed, and after the scrap has been deposited in the pocket, it is compressed therein by means of a plunger, 10, extending parallel with the mold *n*, and lying just forward of the discharge spout *e* of the casing. This plunger has two arms, 11, extending rearwardly from each end thereof, which arms are secured to the cross shaft, 12, journaled in the frame of the machine and has sleeved thereon a spiral spring, 13, secured at its ends respectively to said shaft and to the frame of the machine in such a manner that the tension thereof normally tends to elevate the plunger. Near one end of this shaft, as more clearly shown in Fig. 4, is loosely mounted rearwardly extending arm, 14, carrying an anti-friction roller, 15, on the free end thereof, engaging a cam wheel, 16, mounted upon the power shaft of the machine, by means of which the arm is actuated. The vertical movement of this arm is transmitted to the shaft through the medium of a crank arm, 17, keyed thereon, with its free end bent over and lying immediately above the arm 14, and provided with a set screw, 18, working through the crank arm and bearing upon the arm, 14, which arrangement, it will be readily understood, permits the adjustment of the stroke of the plunger by causing it to descend to a greater or less depth in the receiving mold *n*. The spring, 13, on the shaft, 12, also causes the arm, 14, or rather, the anti-friction roller thereon, to remain in close relation with the cam, 16, by which it is actuated.

Just forward of the plunger and lying parallel therewith is the binder holder, 19, adapted and arranged, when brought down, to bear upon the rolling bed just forward of the edge of the mold, *n*, so that when the binder, 20, (see Fig. 6,) is laid upon the apron and slightly overhanging the edge of the mold *n* this holder will come down and impinge against the apron and rolling bed so as to hold the binder on the apron until the actuating roller of the apron starts forward, when it will rise and release the binder, and at the same time move out of the path of the actuating roller. This binder holder, before referred to, also has rearwardly extending arms, 21, which are loosely journaled upon the shaft, 12, or, if desired, upon a separate pivot, *i*, having a coincident axis, as before described, and is actuated by the arm, *j*, (see Fig. 1) in unison with the feed cylinder.

In practice the first operation of the machine is the descending of the plunger so as to depress the apron into the mold *n*, after which the binder is laid upon the apron. The binder holder moves down so as to hold the binder in position and also constitute an extended front wall for the pocket, immediately following which the scrap is deposited in the pocket of the apron by the automatic feed cylinder. Then the actuating roller of the apron starts forward, but its motion is mo-

mentarily arrested until the plunger descends and compresses the scrap in the mold *n* and again ascends out of the way, after which the roller again starts forward and the binder holder simultaneously rises out of the way and permits the continued travel of the roller to the end of the bed, rolling the scrap into the binder and depositing the completed bunch upon the automatic bunch holder in the manner before described, after which the roller returns to its normal position, the plunger again descends depressing the apron into the mold *n*, and the operation is again repeated.

In the practical operation of my machine I prefer to have it automatically stopped after making each bunch, which operation may be accomplished in many ways well known to one skilled in the art, being now employed in various classes of machinery, and simply requiring a separable clutch, either friction toothed or of any other character that will accomplish the desired result.

For clearness I have illustrated one form of clutch, consisting of a sliding collar, 22, upon the power shaft, *K*, upon which is preferably mounted the pulley, *J*, for operating the agitator, the face of which, opposing the hub of the belt pulley, *L*, is provided with an annular series of sockets, with which engages a correspondingly located pin, 23, upon the hub of the belt pulley, this collar being spring seated against a fixed collar, 24, on a stationary portion of the frame of the machine so that it is normally moved longitudinally upon the shaft into engagement with the hub of the pulley. This collar is also provided with an annular peripheral cam, 25, with which engages a spring actuated hook, 26, pivoted to the frame of the machine and controlled by a rod, 27, connecting it with a treadle, so that, whenever it is designed to operate the machine, it is only necessary to depress the treadle and release the hook, when the collar will be thrown against and into engagement with the pulley so as to, through the medium of the pin and sockets, transmit the rotary motion of the pulley to the shaft, upon which the pulley turns freely, but immediately the treadle is released, the hook will rise into the path of the cam upon the collar, thereby causing the latter to move endwise upon the shaft and withdraw the sockets thereof from engagement with the pin on the belt pulley, and thus stop the machine. This action may take place at each complete operation of the machine, but as long as the foot is held upon the treadle the operation of the machine will be continuous.

It will be observed that the operator is not required to use the fingers for depressing the apron into the mold, *n*, but that the compressing plunger is, at least for this purpose, being caused by its operating cam to make two actions to one of all the other parts, and, of course, being so timed that the pocket in the apron is formed before the scrap is deposited therein, and the compression takes place af-

ter the scrap is deposited in the pocket, the plunger in the mean time remaining at rest and out of the way of the other moving parts. This plunger 10 may also be provided with a detachably operating or acting portion, 28, as more clearly illustrated in Fig. 17, screwed or otherwise secured to the plunger so that the operating portion of the plunger may be readily and quickly changed, according to the length of the cigar being made, the apron guides, *o*, being given a corresponding adjustment. The binder holder also subserve a double purpose, that is, besides its function as a binder holder it constitutes an extension of the front wall of the mold *n*, so as to prevent the scrap being thrown out upon the rolling bed in the act of being deposited in the pocket. The apron and its actuating roller likewise subserve a two-fold purpose, for, besides their proper functions, previously described, they, when in their normal position, illustrated in Fig. 6, constitute an extension of the rear wall of the receiving mold *n*, and in conjunction with the binder holder, serve to absolutely insure the proper depositing of the scrap in the pocket formed by the apron as it rests in said mold *n*.

With a machine constructed in accordance with my invention I am enabled to so distribute the scrap that the completed bunch will have substantially the same shape as the finished cigar, whereby is obviated the necessity for undue and unusual compression at any point of the cigar when placed in the molds to produce the desired shape, and which undue compression must necessarily take place if the scrap is uniformly distributed throughout the length of the bunch, as is done in many of the prior machines; and in such prior machines the compression of the rolling apparatus and the mold is solely depended upon to secure the proper shape of the cigar. With my machine, however, exactly the reverse is the case, for the scrap is distributed throughout the length of the bunch in greater or less quantities toward either end of the cigar, according to its intended shape, and the rolling apparatus is made to conform to the shape of the bunch of scrap, and not the bunch made to fit the rolling apparatus, as in prior machines, the final mold with my machine serving merely to give a uniformity of finish, smoothness and compression which cannot be given by the rolling apron, but the shape is primarily determined by the distribution of the scrap.

Another important feature of my invention is the disposition of the scrap lengthwise of the bunch, due to the constant rocking or shaking of the automatic feed cylinder while the pockets thereof are being filled, this shaking tending to settle the scrap in the pockets and automatically arrange the same lengthwise, thereby materially facilitating the rolling and shaping of the bunch, and at the same time enhancing the superiority of the finished cigar.

In Fig. 16 I have shown a modification of my automatic bunch catcher, in which the gripping fingers, 3, are actuated by gravity, 70 or rather by a weight instead of a spring, as in Fig. 15, which is accomplished by having the said fingers pivoted directly to the arms, 1, and providing them with a depending weight, 29, so disposed, relative to the fingers, 75 that the gravity thereof will cause the fingers to normally stand in a nearly upright position so as to hold the bunch between them and the curved arms, the finger also having a mate, 30, extending forward thereof and in line with 80 the movement of the apron actuating roller, *q*, so that the space between the arm, 1, and fingers, 3, may be automatically opened for reception of the bunch, which they will automatically grasp as soon as the roller returns 85 to its normal position. The number of pockets or recesses in the automatic feed cylinder is, of course, immaterial, and while I have shown six in the drawings, this number may be increased or diminished without any material change in the results produced, for the adjustable bottoms may be applied to any number of the pockets and all the ends thereof adjusted by the spirally grooved or threaded disks constituting the ends of the cylinder 95 regardless of the number, the ends, as before described, approaching and receding from the center or axis of the cylinder, and thus permitting all of the bottoms to lie parallel with the axis of the cylinder, or at any desired angle thereto, accordingly as one or both of the disks *O* may be rotated, for one end of all the adjustable bottoms may rest upon the bottoms of the recesses while the other ends may lie flush with the periphery of the cylinder, or at any intermediate angle. 105

As will be seen by an inspection of Figs. 10, 11 and 12, two or more of the pockets in the feed cylinder are always open to the scrap, and with the constant oscillation or 110 rocking of the cylinder, aside from its intermittent rotation, serves to insure the complete filling of all the pockets, and the disposal of the scrap lengthwise therewith; besides which the agitator, whose fingers come 115 in close proximity to the periphery of the cylinder, rotates in a reverse direction thereto and constantly agitates the scrap so as to prevent choking of the machine, and materially aids in the successful and complete 120 filling of the pockets. To further this end, the wall of the casing on the side toward which the feed cylinder revolves, as shown in said figures, is rounded out so as to conform to the periphery of the cylinder, forming a 125 shoulder, 31, upon which is arranged a horizontal knife or scraper, 32, by means of which all the surplus scrap is removed from the pocket and the protruding portions cut and smoothed so as to leave the pockets evenly 130 filled.

In conclusion I may state that a cigar bunching machine made in accordance with my invention is not only effective in its op-

eration, but simple and economical in its construction, requires little power for its operation, and all of the power is derived from a single shaft, both the plunger and binder holder swinging on pivotal supports on the arc of a circle instead of sliding in a straight line and requiring the employment of considerable and complicated mechanism, as in the prior machines, and all parts are accessible and so readily adjustable that even an unskilled operator can keep the machine in perfect working order and produce a superior article.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a cigar bunching machine, the combination with a bunch rolling apparatus, of a feed cylinder provided with peripheral pockets and mechanism for imparting to said cylinder a continuous oscillation and intermittent axial rotation, substantially as described.

2. In a cigar bunching machine, the combination with a hopper, a bunch rolling apparatus and an agitator, of a feed cylinder located between said apparatus and agitator and mechanism for imparting to said cylinder a continuous oscillation and an intermittent axial rotation, substantially as described.

3. In a cigar bunching machine, the combination of a feed cylinder provided with peripheral recesses or pockets adjustable bottoms for said pockets and spirally threaded disks for adjusting said bottoms, substantially as described.

4. In a cigar bunching machine, the combination of the feed cylinder provided with peripheral recesses or pockets, adjustable bottoms for said pockets, and independently rotatable spirally threaded disks engaging the ends of said bottoms for adjusting the latter independently, substantially as described.

5. In a cigar bunching machine, the combination of a feed cylinder provided with longitudinal peripheral recesses or pockets, adjustable spirally threaded disks constituting the ends of said cylinder and closing the ends of the pockets, and adjustable bottoms for said pockets bearing at their ends respectively in the threads in said disks, substantially as described.

6. In a cigar bunching machine, the combination of a feed cylinder provided with longitudinal peripheral recesses or pockets, an annular series of pockets in the ends thereof, disks constituting the ends of said cylinder, closing the ends of the pockets, provided with spiral grooves in the opposing faces thereof, adjustable bottoms for said pockets bearing at their ends respectively in the grooves in said disks, hand-wheels and pins on said wheels projecting through the disks and engaging the sockets in the cylinder ends, substantially as described.

7. In a cigar bunching machine, the combination of a shaft, a feed cylinder journaled thereon, provided with longitudinal peripheral

potholes, an annular series of sockets in said cylinder, adjustable disks constituting the ends of said cylinder, provided with spiral grooves in the opposing faces thereof, adjustable bottoms for said pockets bearing at their ends respectively in said grooves, hand-wheels longitudinally adjustable upon said shaft, lock nuts therefor and pins secured thereto projecting through disks and engaging the sockets in the cylinder, substantially as described.

8. In a cigar bunching machine, the combination with a feed cylinder, provided with peripheral recesses or pockets and adjustable bottoms for said pockets, of mechanism for imparting to said cylinder a continuous oscillation and intermittent axial rotation, substantially as described.

9. In a cigar bunching machine, the combination with a feed cylinder, provided with peripheral recesses or pockets and adjustable bottoms therefor, of a rocker arm having a frictional connection with said cylinder at one end, a power shaft and a cam thereon engaging and vibrating said arm, and mechanism for imparting an intermittent rotation to said cylinder, substantially as described.

10. In a cigar bunching machine, the combination with a feed cylinder provided with peripheral recesses or pockets and adjustable bottoms therefor, of a rocker arm having a frictional connection with said cylinder at one end, a power shaft and a cam thereon engaging and vibrating said arm, a ratchet wheel secured to said cylinder at the opposite end, a pawl for actuating the same and a cam on said shaft for operating said pawl, substantially as described.

11. In a cigar bunching machine, the combination with a shaft, a feed cylinder journaled thereon provided with longitudinal peripheral recesses or pockets and annular series of sockets in the ends thereof, disks also mounted on said shaft opposing the ends of said cylinder provided with spiral grooves in the opposing faces thereof, adjustable bottoms for said pockets bearing at their ends respectively in the grooves in said disks, hand-wheels also mounted upon said shaft and pins secured thereto projecting through said disks and engaging the sockets in the cylinder, of a rocker-arm having a frictional connection with the hub of one of said disks, the power shaft, a cam thereon for vibrating said arm, a ratchet wheel mounted on the first mentioned shaft between the hand wheel and disk, through which the pin from the hand wheel projects, a pawl for actuating said wheel and a cam on the power shaft for operating said pawl, substantially as described.

12. In a cigar bunching machine, the combination with a feed mechanism, a rolling bed provided with a receiving mold and an apron lying thereon spanning the mold, of a plunger and mechanism for imparting to said plunger a double action for each complete operation of the machine, whereby the said

plunger will first depress the apron into the mold and then compress the scrap therein, substantially as described.

13. In a cigar bunching machine, the combination with a feed mechanism, a rolling bed provided with a receiving mold and a bunch rolling apron lying thereon spanning the mold, of a plunger and mechanism having an adjustable connection with said plunger, for causing said plunger to make two strokes for each complete operation of the machine, substantially as described.

14. In a cigar bunching machine, the combination with a feed mechanism, a rolling bed provided with a receiving mold and a bunch rolling apron lying thereon spanning said mold, of a plunger adapted and arranged to enter said mold, a pivotal support therefor, a power shaft, a cam on said shaft for actuating said plunger and an adjustable connection between said cam and the pivot of the plunger, substantially as described.

15. In a cigar bunching machine, the combination with a rolling bed provided with a receiving mold, of a bunch rolling apron lying thereon spanning the mold, rigidly secured at one end, an adjusting bar around one side of which said apron passes and is secured thereto, and parts having notched slots in which the ends of said bar rest and engage, substantially as described.

16. In a cigar bunching machine the combination with a rolling bed provided with a

receiving mold, a supporting frame therefor having a pair of slots one at each side lying below said bed and having toothed walls on one side thereof, and a bar extending between with its ends bearing in said slot, of a bunch rolling apron lying upon said bed spanning the mold, and secured at one end to said bed and at its opposite end to said bar, substantially as described.

17. In a cigar bunching machine, the combination with the rolling bed, the bunch rolling apron and the actuating roller therefor, of a pair of fixed arms secured to the delivery end of the bed, a projection on one of said arms, a rock shaft journaled in the frame of the machine below said arms, a pair of curved fingers opposing said arms, a spring coiled upon said shaft and secured at its ends respectively to the shaft and frame, and a crank arm on said shaft projecting into the path of movement of said projection, substantially as described.

18. In a cigar bunching machine, the combination with a plunger, a funnel and a bunch rolling mechanism, of a feed cylinder and means for actuating said funnel, plunger and bunch rolling mechanism and continuously oscillating and intermittently rotating said feed cylinder, substantially as described.

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Witnesses:

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