

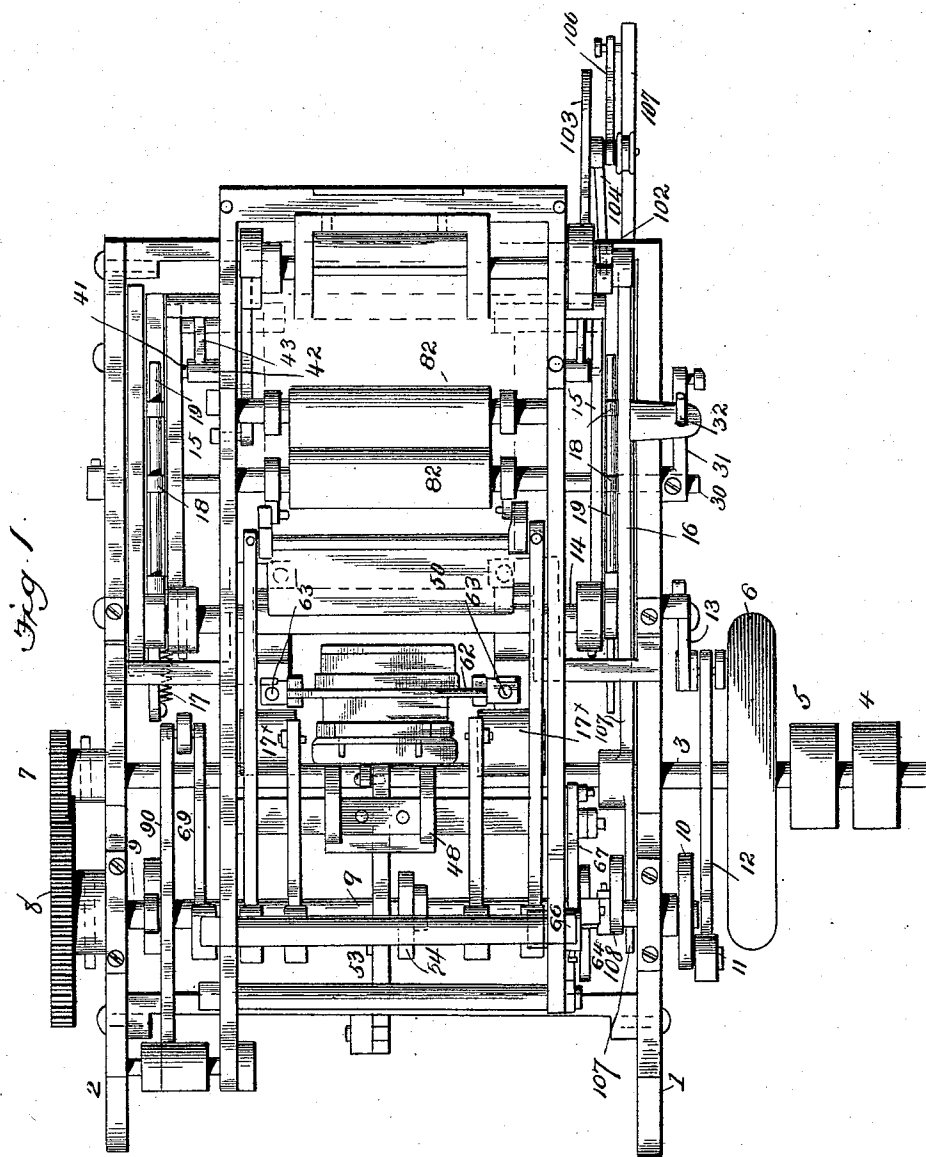
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8 Sheets—Sheet 1.

W. HUGHES.
CIGARETTE MACHINE.

No. 536,146.

Patented Mar. 19, 1895.



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(No Model.)

8 Sheets—Sheet 2.

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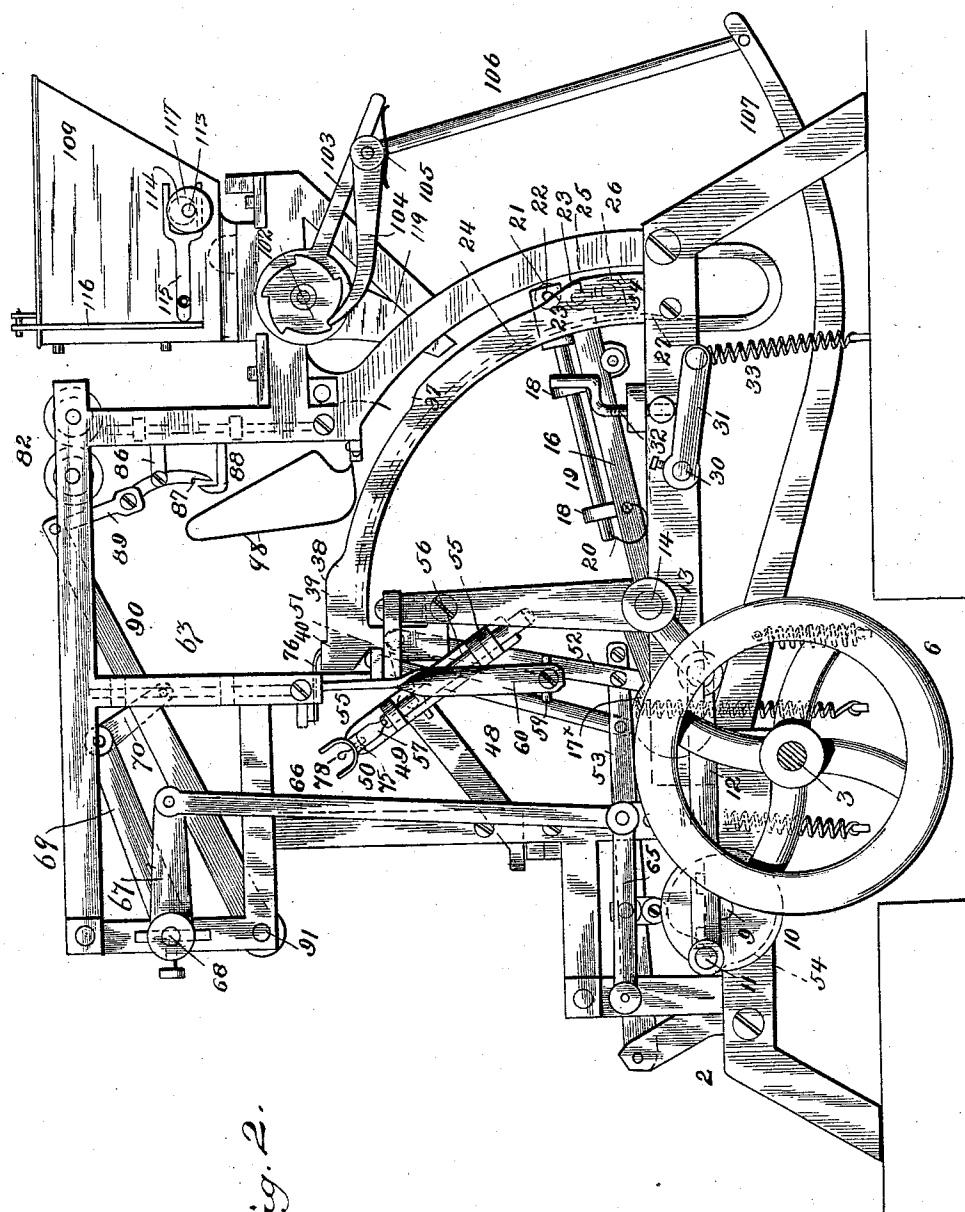


Fig. 2.

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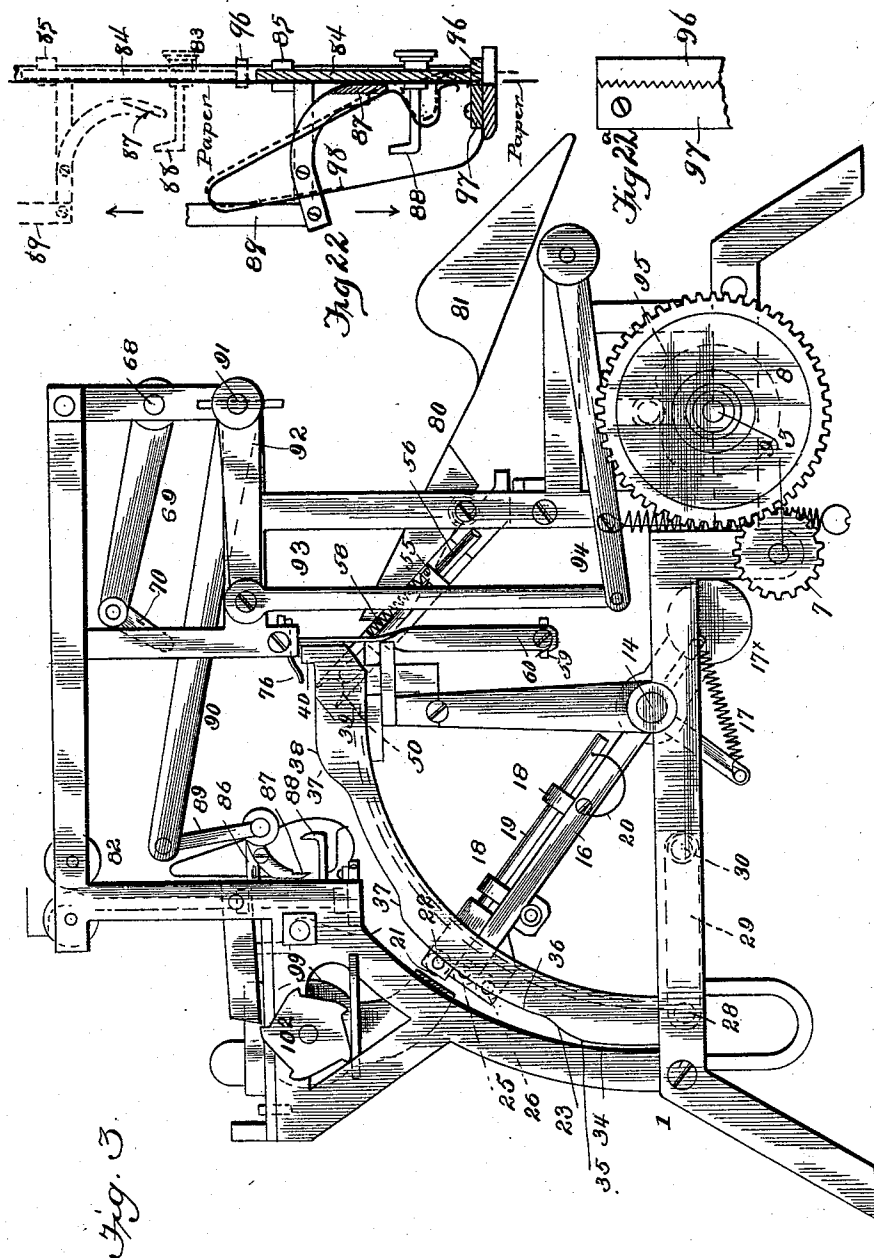
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8 Sheets—Sheet 3.

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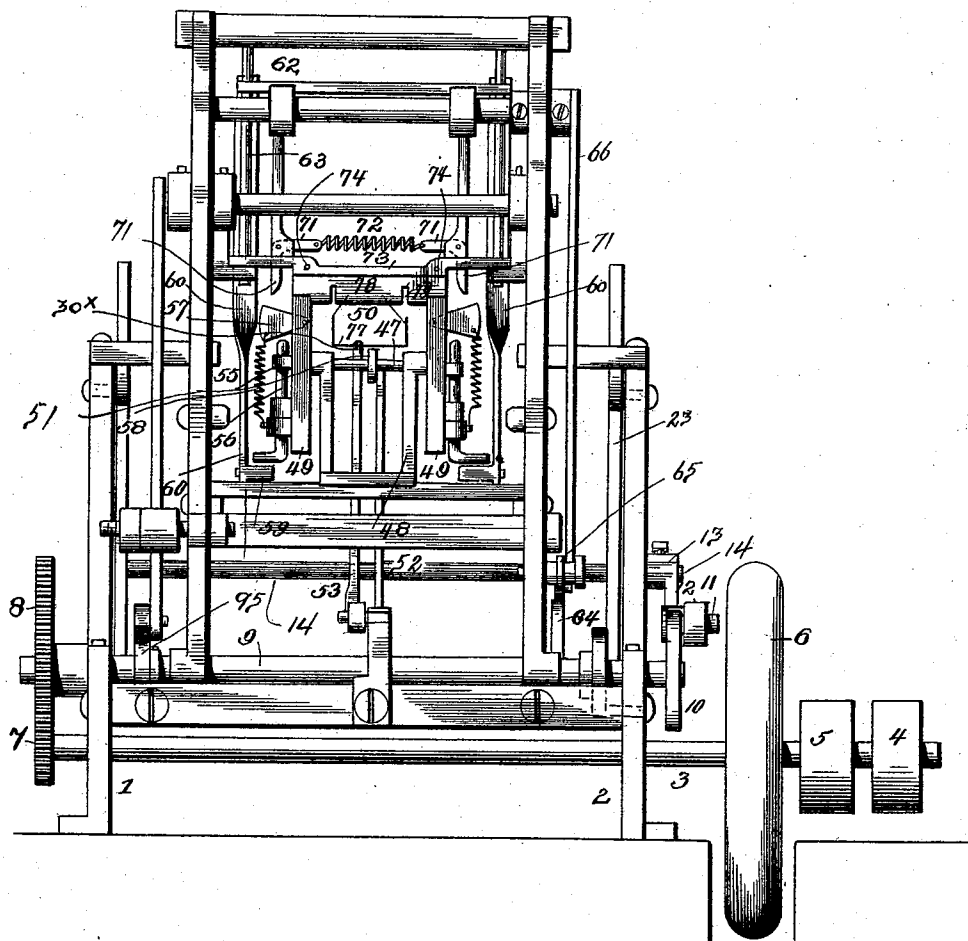
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Fig. 4.



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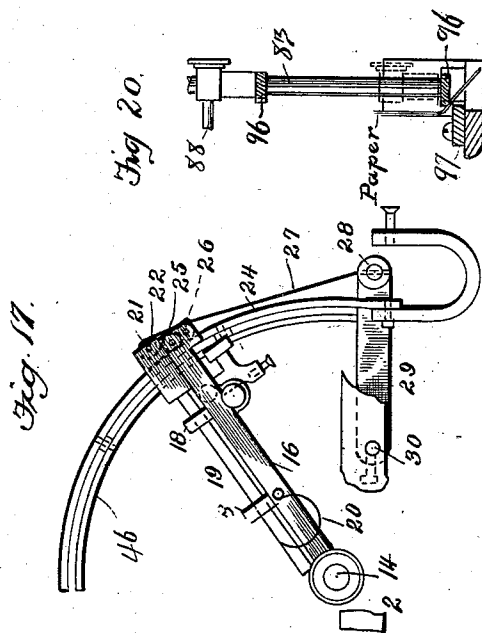
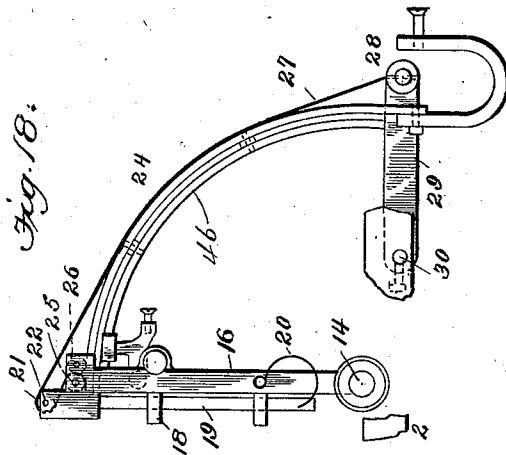
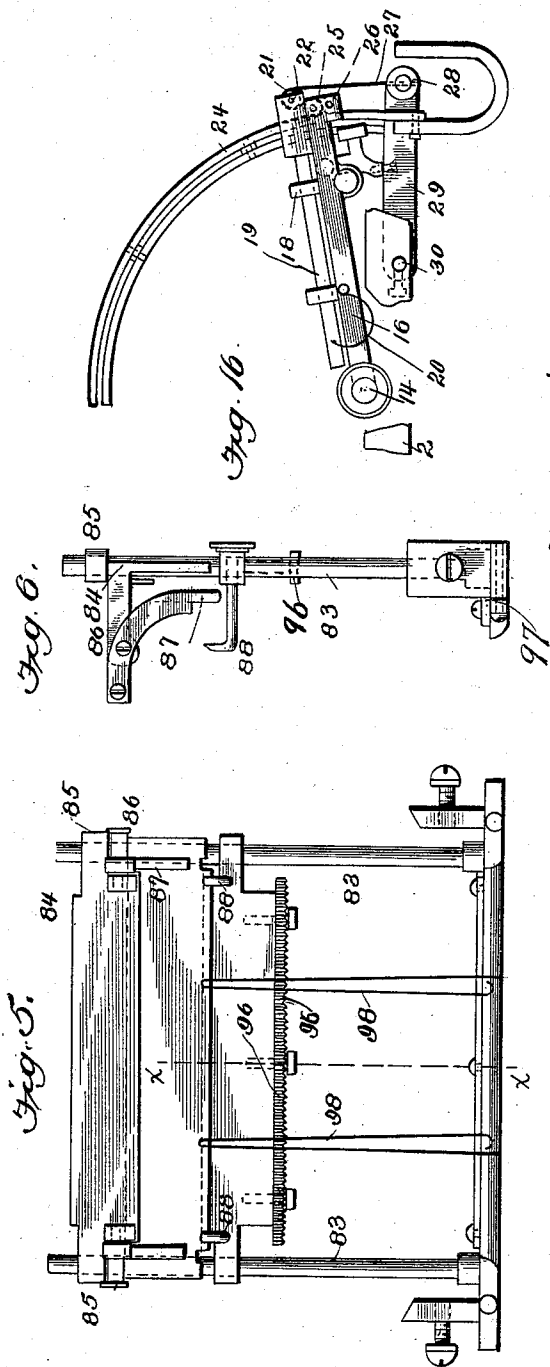
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8 Sheets—Sheet 6.

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Fig. 7.

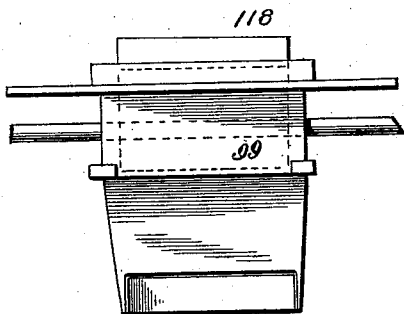


Fig. 8.

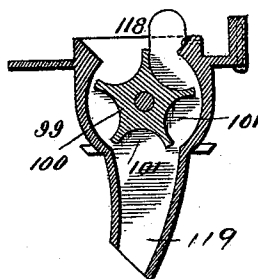


Fig. 9.

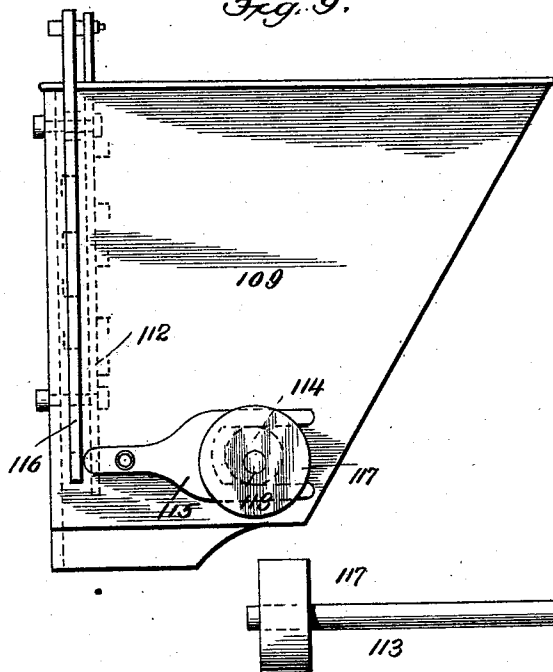
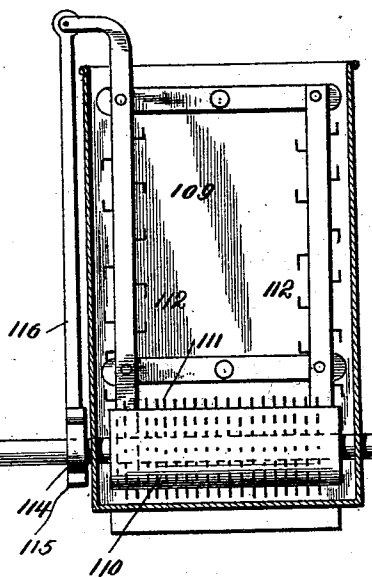


Fig. 10.



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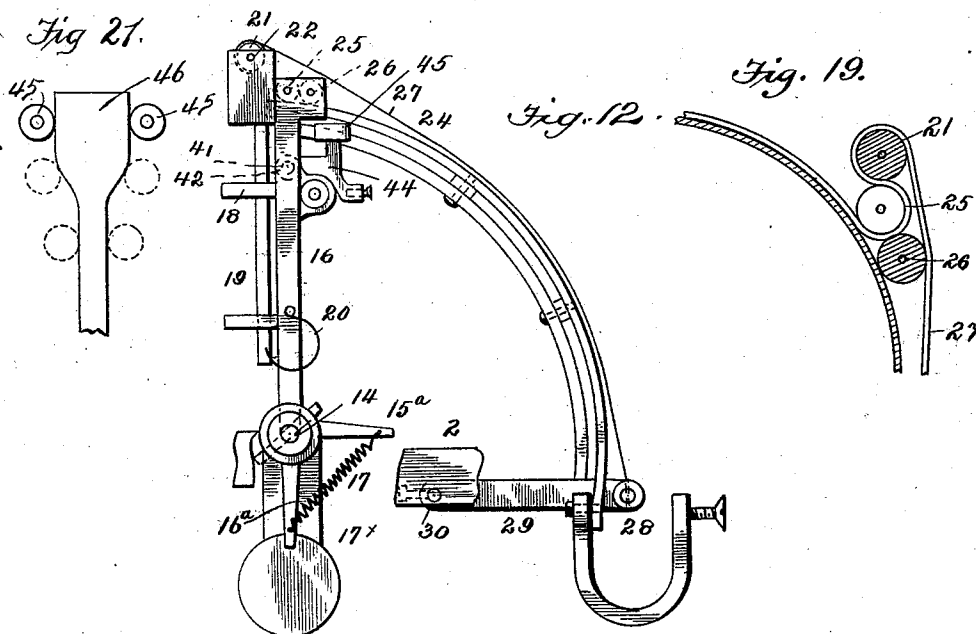
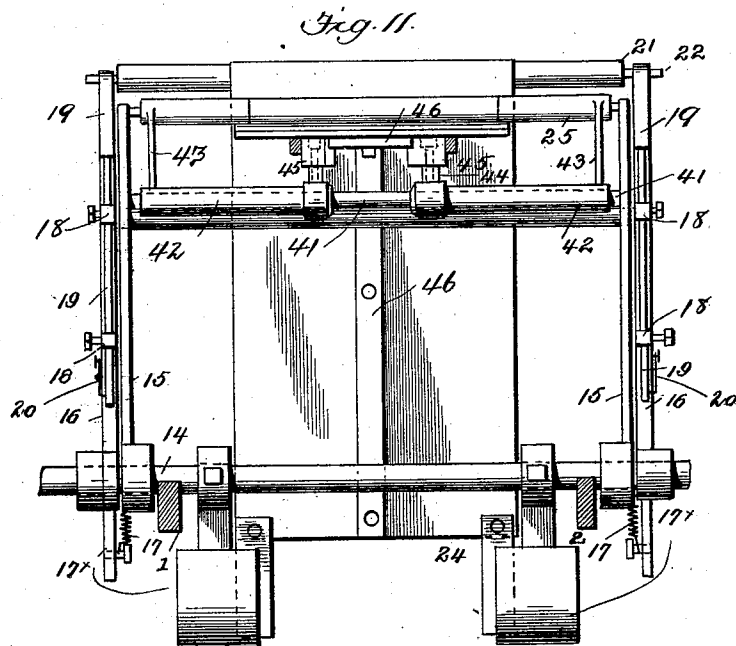
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No. 536,146.

Patented Mar. 19, 1895.



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8 Sheets—Sheet 8.

W. HUGHES.
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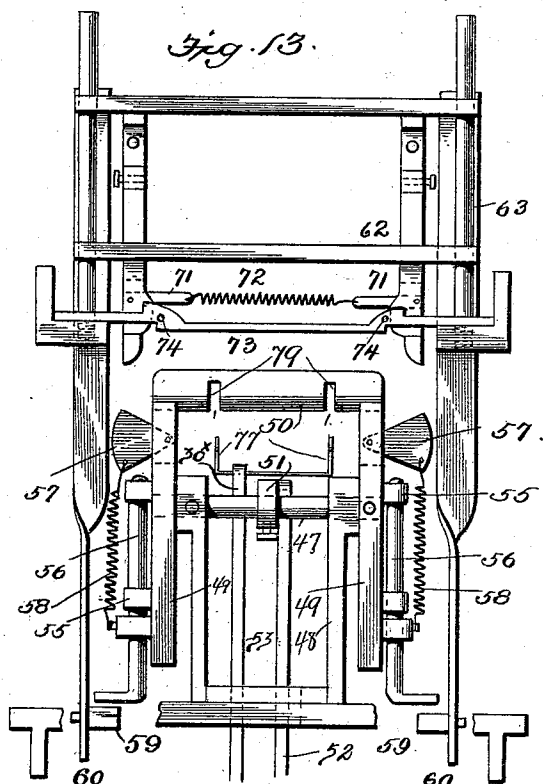


Fig. 14.

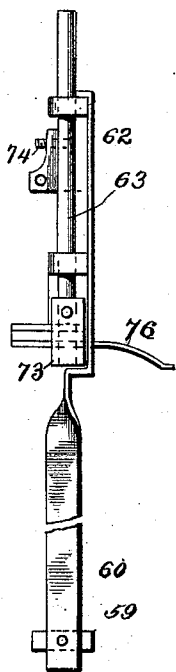
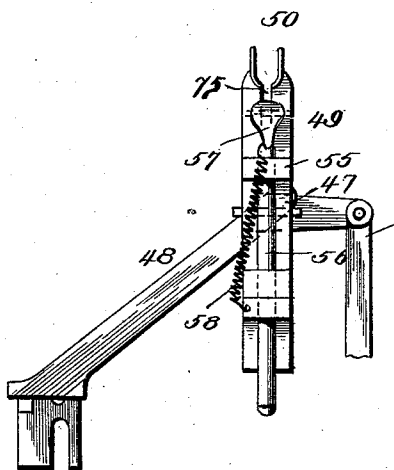


Fig. 15.



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UNITED STATES PATENT OFFICE.

WILLIAM HUGHES, OF MEXICO, MEXICO.

CIGARETTE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 536,146, dated March 19, 1895.

Application filed August 23, 1893. Serial No. 483,837. (No model.) Patented in Mexico September 28, 1891, No. 177, and in Spain June 14, 1893, No. 14,349.

To all whom it may concern:

Be it known that I, WILLIAM HUGHES, a citizen of the United States, residing at Mexico city, in the Republic of Mexico, have invented certain new and useful Improvements in Cigarette-Machines, (the same having been patented to me only in the following countries, to wit: in Mexico September 28, 1891, No. 177, and in Spain No. 14,349, dated June 14, 1893, registered in Colonial Office March 31, 1894;) and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to new and useful improvements in cigarette machines and especially to that kind employed in the manufacture of cigarettes having tucked in or folded ends and popularly termed "Mexican" or "Havana" cigarettes, and has for its object to provide such a machine wherein the tobacco is fed in measured quantities to wrappers fed to the machine from a roll of paper and cut into the proper lengths just before receiving the tobacco and the wrapper and tobacco rolled to form the cigarette and the ends tucked or folded in and the finished cigarettes finally delivered from the machine of a uniform size and each containing the predetermined quantity of tobacco, the entire operation being automatic.

The invention consists in the improved construction, arrangement and combination of parts which compose the various mechanisms as will be now fully described and afterward specifically pointed out in the appended claims.

In the accompanying drawings Figure 1 represents a top plan view of my machine; Fig. 2, a side elevation thereof; Fig. 3, a similar view looking from the other side of the machine; Fig. 4, an end elevation of the machine; Fig. 5, a front elevation of the paper feeding and cutting mechanism; Fig. 6, a side elevation of the same; Fig. 7, a front elevation of the tobacco measuring device; Fig. 8, a vertical cross section of the same; Fig. 9, a side elevation of the feed hopper; Fig. 10, an end elevation of the same, the end wall of the hopper being removed; Fig. 11, an

end elevation of the cigarette rolling mechanism; Fig. 12, a side elevation of the same; Fig. 13, an end elevation illustrating the mechanism for folding or tucking in the ends of the cigarette; Fig. 14, a side view; Fig. 15, a detail side elevation of the device for receiving the cigarette after it has been rolled and holding the same during the operation of folding or tucking in the ends. Fig. 16 is a view of the cigarette rolling apron and immediate connections in their lowermost position. Fig. 17 is a similar view of the same parts in their central position, and Fig. 18 is a similar view of the same parts in their upper position. Fig. 19 is a detail sectional view illustrating the path of the rolling apron around the guide rollers. Fig. 20 is a detail vertical transverse section of the paper cutting devices on line $x-x$ Fig. 5, showing the severing of the paper. Fig. 21 is a detail view of the cam guide. Fig. 22 is a detail vertical section through the paper feeding and cutting devices, illustrating clearly the operation of the parts. Fig. 22^a is a detail plan view of the cutting blades.

Like numerals of reference mark the same parts wherever they occur in the various figures of the drawings.

Referring to the drawings by numerals, 1 and 2 mark the sides of the main supporting frame which are held together at a suitable distance apart, by bolts, rods or braces of any desirable number and shape. Mounted in suitable bearings near one end and in the lower part of said frame is a drive shaft 3, provided at one end with two pulleys 4, 5, and a fly wheel 6; and at its other end with a pinion 7. Over the pulley 4 passes a belt (not shown) which is driven by any suitable engine or motor, or power of any preferred description to rotate the shaft 3 which communicates motion to all the parts of the machine. Should it be desired to run the machine by hand, a crank may be secured on shaft 3. The pinion 7 meshes with a larger pinion 8 which is secured to one end of the shaft 9 which is provided with four cams for operating the levers connected with the various mechanisms as hereinafter described. The shaft 9 is also provided at its end opposite the pinion 8 with a disk 10 which carries a wrist pin 11 jour-

naled in one end of a connecting rod 12 which at its other end is connected to a crank arm 13 secured to one end of a shaft 14 and imparts to said shaft an oscillating movement. Rigidly secured to the shaft 14 are two arms 15 and loosely mounted upon said shaft adjacent to arms 15 are two arms 16. The lower extremities 15^a of the arms 15 are bent at right angles to said arms and are connected to the lower ends 16^a of the arms 16 by coiled springs 17 as shown in Fig. 12 of the drawings. To the shaft 14 are rigidly connected counter weights 17^x which tend to swing the arms 15 and 16 into a perpendicular position. Each of the loose arms 16 is provided with eyes or loops 18 in which is free to slide a rod 19, the lower end of each of said rods being connected by a spring 20 to the arm 16 said springs exerting their force to draw the said rods downward. Journaled in the upper ends of said rods is a roller 21, see Figs. 3 and 12, the journals 22 of which project beyond or on each side of the rods and rest or bear upon arc-shaped guides 23, Fig. 3. Between the arc-shaped guides 23 is arranged a table 24 secured at top and bottom to the frame of the machine, and slightly below the upper edges of the said arc-shaped guides. Projecting inwardly from the upper ends of the arms 15 are two short stubs 25, see Fig. 11 and journaled in the upper ends of said arms and just in the rear of said stubs, journaled in lateral extensions of arms 15 is a roller 26 the purpose of which will be hereinafter set forth. To the upper end of the table 24 is clamped one end of an apron 27 formed of cloth, rubber or any other suitable material, the other end of said apron being secured to a clamp bar 28 which is carried by the outer ends of two arms 29 which, at their inner ends are rigidly secured to a shaft 30 journaled in the frame of the machine, and to one end of said shaft 30 is rigidly secured a lever 31 which is engaged by an adjusting screw 32 by means of which the amount of slack in the cloth composing the apron is regulated and adjusted. In order to afford the apron the proper yielding tension I prefer to provide a spring 33 engaging the lever 31 that exerts its force to draw or force down the lever 31 and with it the clamp bar 28. The apron 27 passes under the ends of the stubs 25 and thence over the roller 21 and from the roller 21 to the clamp bar 28. The rolling mechanism is in the positions shown in Figs. 2 and 16 when the paper for the wrapper is fed down and dropped upon it, and the tobacco is then deposited in the wrapper in the bend of the apron around the short stubs 25, the space between them being just the length of the tobacco portion of the cigarette, such stubs limiting the length. See Fig. 11. The wrapper is wider than this space and its ends are around the stubs. As soon as the tobacco is deposited the arms 15 and 16 are carried upward and the wrapper rolled around the tobacco. To assure the ac-

curate and tight rolling of the cigarette, the arc shaped guides 23 are irregularly shaped. At the lowest position of the journals of roll 21 the guide is high, as at 34, so that by the journals 22 of roll 21 resting thereon, that roll is held away from the table far enough to permit of the free passage of the tobacco into the bight or fold of the apron as clearly shown in Fig. 16. As soon as the roll 21 starts along the guides its journals ride down an incline 35 to a second level 36 of the said guides which brings the roller 21 nearer to the table 24 thus partially closing over the tobacco and during the time the journals 22 travel over the level 36, the wrapper is rolled around the tobacco, the position of the parts being plainly shown in Fig. 17. When the level 36 has been traversed another incline 37 is encountered, (see Fig. 2,) and the roller 21 is brought closer to the table 24 so that in passing the next level —38— of the guides the cigarette is tightly rolled and the rolling operation completed.

At the upper portion 39 of the guides they are raised to raise the roller 21 to release the cigarette from the fold in the apron and are provided with a projection 40 which serves as a stop to prevent further movement of the roller 21 for the purpose hereinafter described. Before the cigarette is discharged from the apron it is necessary that the ends of the stubs 25 be withdrawn from the ends of the cigarette, which is accomplished as follows, (see Figs. 11 and 12:) The outer ends of said stubs are loosely fitted in the upper ends of the arms 15. A rod or shaft 41 is secured to the arms 15 at a point below the stubs, and on said rod are fitted sleeves 42 which carry at their outer ends, arms 43 which engage said stubs 25 and their inner ends have affixed thereto arms 44 carrying at their extremities guide rollers 45. Said guide rollers bear against the opposite sides of an arc-shaped guide 46 secured to the under side of the table 24 and at its upper end said guide increases in width, so that as the cigarette rolling mechanism approaches the limit of its upward movement the sleeves 42 carrying the arms 43 which engage the stubs 25 are forced apart, thus forcing apart the stubs 25 and withdrawing them from the ends of the cigarette at the same moment that the roller 21 has reached the projection or stop 40 on the arc-shaped guides 23 and is prevented from further movement. The stubs, and the roller 26 carried by the arms 15, however, continue their forward movement, and the stubs having now been disengaged from the ends of the cigarette, the roller 26 in their rear forces the cigarette from the apron into the cigarette holder hereinafter described.

To receive the cigarette after it has been rolled and discharged from the apron and to hold it during the operation of tucking or folding in the ends, I provide mechanism constructed as follows, (see Figs. 12 and 13:) A shaft 47 is journaled in two standards 48 secured to the frame of the machine and to op-

posite ends of said shaft are firmly secured two arms 49 which carry at their upper ends a U-shaped holder 50 adapted to hold and receive the rolled cigarette. To the shaft 47 is
 5 keyed a lever 51 which at its end is pivotally secured to one end of a connecting rod 52 the other end of which is pivotally connected to the end of a lever 53 pivoted to the frame of the machine and which is engaged by a cam
 10 54 mounted on the shaft 9 which operates to raise and lower said lever 53 and through the medium of the connections thus described rocks the shaft 47 and thus oscillates the holder 50 said holder moving in the arc of a
 15 circle. When the cigarette has been rolled and is about to be discharged the shaft 47 has operated to swing the holder 50 over against the table, in the position shown in Fig. 3, and as the cigarette is discharged from the apron,
 20 it drops into the holder. The shaft 47 now rocks in the reverse direction until the holder 50 has assumed a perpendicular position. When in this position the cam 54 on the shaft 9 which raises and lowers the lever 53 to rock
 25 the shaft 47, now presents a regular or concentric surface to said lever and neither operates to raise or lower the lever and hence the holder, for an interval, remains in a perpendicular position to permit the ends of the
 30 cigarette to be tucked or folded in, which is accomplished as follows, see Fig. 4: The arms carrying the holder 50 are each provided with perforated ears or lugs 55 within which are arranged to freely slide rods 56 which at their
 35 upper ends bear against the under sides of fingers 57 which are pivoted to said arms near their upper ends and said fingers are normally held down or depressed by means of springs 58. The rods 56 are bent at right angles at
 40 their lower ends, as shown in Fig. 13 and are engaged by projections 59 on the lower ends of rods 60 which rods pass through suitable guides 61 formed on or secured to the frame of the machine, and at their upper ends are
 45 secured to a frame 62 which is adapted to move up and down upon two guide rods 63 which movement is communicated by means of a cam 64 mounted on the shaft 9 which raises and lowers a lever 65, pivoted at one
 50 end to the frame of the machine and at its other end pivotally secured to a connecting rod 66, the upper end of the connecting rod being similarly connected to a lever 67 rigidly mounted on a shaft 68 and a second lever 69
 55 rigidly connected to said shaft and at its other end pivotally connected to a link 70 which is pivoted to the frame 62 moving on the guide rods 63. Near the lower opposite corners of said frame are pivoted the elbow fingers 71,
 60 their upper members being connected by a coiled spring 72 and their lower members projecting vertically downward. The spring 72 exerts its force to swing the lower portions of the fingers 71 outward. A cross bar 73 is
 65 secured to the lower ends of the guide rods 63 and is provided with two pins or projections 74 adapted to engage the upper members of

the fingers 71, for the purpose hereinafter described.

As the frame carrying the rods 60 is raised 70 through the medium of the cam and levers above described said rods 60 lift the rods 56 which bear against and swing inwardly the fingers 57 against the lower portion of each end of the cigarette supported in the holder 75 50 and form the first tucks in the cigarette, the ends of said holder being slotted at 75 for the reception of said fingers. As the rods 60 descend the springs 58 retract the fingers 57 and as the frame carrying the fingers 71 de- 80 scends the upper members of said fingers strike the pins or projections 74 on the cross bar 73 forcing inward the lower ends of said fingers as they descend against the upper sides of the ends of the cigarette and forming 85 the second and final folds or tucks therein. To the under side of the cross bar 73 is secured a curved plate 76 which projects over the holder 50 while the ends of the cigarette are being tucked or folded and prevents the 90 cigarette from being forced from the holder. By the time this operation has been completed the cam operating the lever 53 which oscillates the holder 50 has brought its irregular or cam surface again into engagement 95 with said lever and the shaft 47 is rocked and the holder swung away from the end of the table into the position shown in Fig. 2, in position to discharge the cigarette, which is accomplished as follows: Rigidly secured to 100 the lever 53 is a wire 77 bent to form two arms 78 which at their outer ends are curved, as shown and as the holder 50 swings into position shown in Fig. 2 said wire arm 78 projects through suitable slots 79 formed in the bottom 105 of the holder 50 and pushes the cigarette therefrom, whereupon it falls upon an inclined plate 80 secured to the frame of the machine. Said inclined plate 80 is rolled or curled up at one side at an angle as at 81, Fig. 3, in such 110 manner that as the cigarette drops thereon it is caused to roll off to and into any suitable receptacle instead of rolling directly down and off the inclined plate.

The paper feeding and cutting mechanism 115 is constructed as follows, particular reference being had to Figs. 2, 3, 5 and 6: The paper is wound upon a drum or spool, not shown, preferably journaled above the machine and passes between two guide or feed rollers 82. 120 Rigidly secured to the frame below said rollers are two guide rods 83 Figs. 5 and 6. Arranged between said guide rods is a clamp plate 84 provided with perforated ears or lugs 85 which fit over said guide rods and free to 125 move up and down thereon. From each side of said clamp plate projects a bracket 86 to which is pivoted a curved clamp-plate 87 adapted to alternately engage the first named clamp plate and the two hooks 88 secured 130 thereto. The pivoted clamp plate 87 at its upper end, is loosely connected by means of a link 89 to one end of a lever 90 the other end of said lever being secured to a shaft 91 jour-

naled in the frame and to said shaft is rigidly secured a lever 92 which is connected by a connecting rod 93 to one end of lever 94 the other end of the lever 94 being pivotally secured to the frame of the machine. The lever 94 is engaged by a cam 95 on the shaft 9 (see Fig. 1) which, in its revolution, raises and lowers said lever and, through the medium of the connections above described, raises and lowers the pivoted clamp plate 87 and the sliding clamp plate 84. In descending, the free end of the pivoted clamp plate 87 is forced against the sliding clamp plate 84 as shown in Fig. 3 and the paper is grasped between said clamp plates and fed downward, but in ascending the link 89 causes the pivoted clamp plate to move outward or away from the sliding clamp plate, the hooks 88 serving as stops, and the paper is released. To the lower edge of the sliding clamp plate is secured a cutting blade 96 and a cutting blade 97 is also secured to the frame between the lower portions of the guide rods. As the clamp plates approach the lowest limit of their movement the cutters or blades engage the paper and sever it as indicated in Figs. 20, 21 and 22. Springs may be employed to facilitate the raising of lever 90 and the clamp plates if desired. Wire guides 98 secured to the frame serve to guide the paper between the cutters and also to free the edge of the paper therefrom, said guides being shown in Figs. 2 and 5 of the drawings. The wire guides 98 are shown most clearly in Fig. 22. When the clamp plates are raised, as shown in said figure the wire-guides expand and push the lower end of paper away from the cutter 97, (as indicated in dotted lines.) Then when the clamp plates descend the lower ends of the wire-guides are forced back of the front edge of cutter 97 so that the paper is caught between cutters 96 and 97 and severed, but as soon as the clamp plate rises the wire-guides spring outward and disengage the paper from cutter 97 as described. As the wrappers are cut from the paper they fall down upon the apron and are caught by the fold thereof. At this moment a quantity of tobacco sufficient to form one cigarette is fed to the apron as follows: At one end of the frame is secured a cylindrical casing 99 (see Fig. 8) having an opening at top and bottom, and within said casing is journaled a rotary cylinder 100 provided with semi-circular grooves 101, each of which is designed to hold just enough tobacco to form one cigarette. Upon one end of the shaft of said cylinder is rigidly fixed a ratchet wheel 102 and loosely mounted on said shaft is an arm 103 to which is pivoted a pawl 104 held in engagement with the teeth of said ratchet wheel by means of a spring 105. (See Fig. 2.) The arm 103 is pivotally connected, by means of a connecting rod 106 to one end of the lever 107 which at its other end is pivoted to any suitable part of the frame of the machine and is engaged by a cam 108 on the shaft 9. (See Fig. 1.)

Referring to Figs. 9 and 10 the numeral 109 indicates a hopper which is designed to rest over the cylindrical casing shown in Fig. 8 and has journaled at its bottom a cylinder 110 provided with wire teeth 111 and has pivoted to one of its sides agitators 112. To the end of the shaft 113 of said cylinder is affixed an eccentric 114 which works within the slotted end of a pivoted lever 115, the other end of said lever being connected to one end of a connecting rod 116 which at its other end is connected to the agitators 112. Upon the shaft 113 is keyed a pulley 117 which is connected by means of a belt (not shown) with the pulley 5 on the drive shaft 3, thus revolving the toothed cylinder 110 and communicating an oscillating movement to the agitators 112. The tobacco passes from the hopper 109 into the grooves 101, of the intermittently rotating cylinder 100, and as said cylinder rotates the surplus tobacco is scraped or evened off by means of a scraper 118 secured to the casing. The grooves 101 discharge their contents, one at a time, through a spout 119 into the apron upon which has been deposited the wrapper, and both wrapper and tobacco are then rolled to form the cigarette, as before described.

From the foregoing description the operation of my improved machine will be readily understood.

As the rolling mechanism reaches the limit of its downward movement over the table the proper length of paper is fed to the cutters and after being cut off drops upon the apron and is caught by the fold formed therein by the rolling mechanism. A measured quantity of tobacco sufficient for one cigarette is then discharged upon the wrapper by the tobacco feeding mechanism and the rolling mechanism in its upward movement over the table rolls the wrapper and tobacco into cylindrical form to make the cigarette. The rolled cigarette is then discharged from the apron and caught by the holder 50 and by said holder is presented to the tucking fingers and held stationary until the fingers have tucked or folded in the ends of the cigarette when the holder resumes its movement until the ejecting mechanism discharges the finished cigarette upon the delivery table from whence it rolls off into a suitable receptacle.

The different operations above described are all performed automatically, and no attention or care of an attendant is necessary excepting to keep a supply of tobacco in the feed hopper.

Having described my invention, what I claim is—

1. In a cigarette machine the combination with the paper feed mechanism and mechanism for automatically feeding measured quantities of tobacco to the machine, of a table, an apron disposed above said table, rolling mechanism engaging said apron to form a fold therein and operating to roll the wrapper and tobacco in said fold, means for removing the cigarette from said apron and presenting it to

the tucking devices and means for tucking or folding in the ends of the cigarette, substantially as described.

2. In a cigarette machine, the combination with the paper feed mechanism and mechanism for automatically feeding measured quantities of tobacco to the machine, of a table, an apron disposed above said table, means for rolling the cigarette in said apron, a holder adapted to receive the cigarette from the apron and present it to the tuckers, and mechanism for tucking or folding in the ends of the cigarette, substantially as described.

3. In a cigarette machine, the combination with the paper feed mechanism and mechanism for automatically feeding measured quantities of tobacco to the machine, of a table, an apron secured above said table, rolling mechanism engaging said apron to form a fold therein and operating to roll the wrapper and tobacco in said fold, means for tucking or folding in the ends of the cigarette, and a holder for receiving the cigarette from the apron and thereafter holding the cigarette stationary while said tucking operation is being performed, substantially as described.

4. In a cigarette machine, the combination with the paper and tobacco feeding mechanism, of a table, an apron secured above said table, rolling mechanism engaging said apron to form a fold therein and operating to roll the wrapper and tobacco in said fold, an ejector for ejecting the rolled cigarette from the apron, a holder for receiving the cigarette from the apron and holding the same while its ends are tucked and tucking fingers for tucking or folding in the ends of the cigarette, substantially as described.

5. In a cigarette machine, the combination with the paper and tobacco feeding mechanism, of a table, an apron secured above said table, rolling mechanism engaging said apron to form a fold therein and operating to roll the tobacco and wrapper in said fold and an ejector for ejecting the rolled cigarette from the apron, an oscillating holder for receiving the cigarette from the apron and delivering the same to tucking fingers and holding it stationary during the operation of tucking, and tucking fingers for tucking or folding in the ends of the cigarettes, substantially as described.

6. In a cigarette machine, the combination with the paper and tobacco feeding mechanism, of a table, an apron secured above said table, rolling mechanism engaging said apron to form a fold therein and operating to roll the wrapper and tobacco in said fold, an ejector for ejecting the rolled cigarette from the apron, an oscillating holder for receiving the cigarette from the apron and holding the same stationary while its ends are being tucked, tucking fingers for tucking or folding in the ends of the cigarette, and an ejector for discharging the completed cigarette from the holder, substantially as described.

7. In a cigarette machine, the combination

with the paper and tobacco feeding mechanism, of a curved table, an apron secured at one end of said table and at its other end secured to an adjustable clamp bar, the said bar oscillating rolling mechanism engaging said apron to form a fold therein and operating to roll the tobacco and wrapper in said fold, means for oscillating said rolling mechanism such substantially as described, means for removing the cigarette from the apron and presenting it to the tuckers, and means for tucking or folding in the ends of the cigarette.

8. In a cigarette machine, the combination with the paper and tobacco feeding mechanism, of a curved table, an apron secured at both ends above said table, oscillating arms carrying rollers traveling back and forth over said table and engaging said apron to form a fold therein and operating to roll the paper and tobacco in said fold, a holder for receiving the cigarette from the apron, and presenting it to the tuckers, and mechanism, such substantially as described, for tucking or folding in the ends of the cigarette.

9. In a cigarette machine, the combination with the paper and tobacco feeding mechanism, of a curved table, cam guides arranged upon both sides of said table, two arms rigidly secured to a rock shaft and provided at their extremities with two stubs and a roller, two arms loosely mounted on said rock shaft and connected with said rigidly mounted arms by elastic connections and carrying a roller whose ends run upon the cam guides, the roller carried by the loose arms engaging the apron to form a fold therein and oscillating back and forth over the table to roll the wrapper and tobacco to form a cigarette and discharge the same from the apron, substantially as described.

10. In a cigarette machine, the combination with the paper and tobacco feeding mechanism, of a curved table, curved cam guides arranged upon both sides of said table and provided at their upper extremities with stops, an apron secured at both ends above the table, two arms rigidly secured to a rock shaft and provided at their extremities with two horizontally movable stubs and a roller, two arms loosely mounted on said rock shaft and connected with the rigidly mounted arms by elastic connections and carrying a roller whose ends run upon the cam guides, said stubs and the rollers carried by the loose arms engaging the apron to form a fold therein and oscillating back and forth over the table to form a cigarette and discharge the same from the apron, substantially as set forth.

11. In a cigarette machine, the combination with the paper and tobacco feeding mechanism, of a curved table, curved cam guides arranged upon both sides of said table and provided at their upper ends with stops, an apron secured at both ends above said table, two arms rigidly secured to a rock shaft and provided at their extremities with two horizon-

tally movable stubs and a cigarette ejecting roller, two arms loosely mounted upon said rock shaft and connected with the rigidly mounted arms by elastic connections, vertically movable rods mounted in bearings on said arms, springs for retracting said rods, and a roller journaled in the outer extremities of said rods and having reduced ends traveling over the cam guides, said stubs and the latter roller engaging the apron to form a fold therein and oscillating back and forth over the table to form a cigarette and discharge the same from the apron, substantially as described.

12. In a cigarette machine, the combination with the paper and tobacco feeding mechanism, of a curved table, curved cam guides arranged on both sides of said table and provided at their upper extremities with stops, an apron secured at both ends above said table, two arms rigidly connected to a rock shaft and provided at their extremities with two horizontally movable stubs and a cigarette ejecting roller, two arms loosely mounted upon said rock shaft and connected with the rigidly mounted arms by elastic connections, vertically movable rods mounted in bearings on said arms, springs for retracting said rods, a roller journaled in the outer extremities of said rods and having reduced ends traveling over the cam guides, said stubs and the last named roller engaging the apron to form a fold therein and oscillating back and forth over the table to form a cigarette, and means for separating the said stubs at the end of the upward movement of said spindles, substantially as and for the purpose specified.

13. In a cigarette machine, the combination with the paper and tobacco feeding mechanism, of a curved table, an apron secured at both ends over said table, the pairs of oscillating arms respectively carrying at their extremities two stubs and two rollers oscillating over said table and adapted to form a fold in the apron and roll the paper and tobacco in said fold, two sliding sleeves mounted upon a fixed shaft and connected to said stubs and provided with arms carrying guide rolls engaging a cam guide secured beneath the table and operating to separate the said stubs at the end of the upward movement over the table, and said cam guide, substantially as described and for the purpose specified.

14. In a cigarette machine the combination with the paper and tobacco feeding mechanism, the table and cigarette rolling and discharging mechanism, of the curved oscillating holder slotted as shown and carried by two oscillating arms mounted on a rock shaft, and fingers adapted to be projected through said slots into the holder to eject the cigarette, substantially as described.

15. In a cigarette machine, the combination with the paper and tobacco feeding mechanism, the table, and cigarette rolling and discharging mechanism, of the curved oscillating holder slotted as shown and carried by two os-

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cillating arms mounted on a rock shaft, fingers adapted to be projected through said slots into the holder to eject the cigarette, and an inclined table, rolled or curved up angularly at one side and adapted to catch the cigarette as it falls from the holder, substantially as and for the purpose specified.

16. In a cigarette machine, the combination with the paper and tobacco feeding mechanism, the table and cigarette rolling and discharging mechanism, of the curved oscillating holder slotted as shown and carried by two oscillating arms mounted on a rock shaft, fingers adapted to be projected through said slots into the holder to eject the cigarette, and an arm rigidly connected with the rock shaft and pivotally connected with a connecting rod which in turn is similarly connected with a lever which is engaged by a cam on a driven shaft and operates through the medium of said lever, connecting rod and arm to rock said shaft and thus swing the holder forward to receive the cigarette from the apron and swing it rearwardly to where the cigarette is discharged, substantially as described.

17. In a cigarette machine, the combination with the paper and tobacco feeding mechanism, the cigarette rolling and discharging mechanism and tucking fingers, of the holder carried by two oscillating arms, a cam mounted upon a driven shaft, and connection between said cam and oscillating arms operating to swing the holder forward to receive the cigarette as it is discharged from the apron and then present it to the tucking fingers and hold it stationary while having its ends tucked and finally swinging said holder rearwardly to discharge the cigarette, and a curved plate secured above the holder and serving to hold the cigarette therein while being tucked substantially as described.

18. In a cigarette machine, the combination with the paper and tobacco feeding mechanism, the cigarette rolling and discharging mechanism and the oscillating holder slotted at its ends as described, of the tucking fingers pivoted to the arms which support the holder and normally held down by springs, the rods mounted in bearings formed upon said arms and bearing against the under side of said fingers, and means for automatically raising and lowering said rods to operate the tucking fingers, substantially as shown and described.

19. In a cigarette machine the combination with the paper and tobacco feeding mechanism, and the cigarette rolling and discharging mechanism of the oscillating holder and pivoted tucking fingers above and below said holder and mechanism for causing said fingers to alternately engage the upper and lower sides of the ends of the cigarettes and tuck in or fold the same, substantially as described.

20. In a cigarette machine the combination with the paper and tobacco feeding mechanism, the cigarette rolling and discharging mechanism, and the oscillating holder, of a

reciprocating frame sliding upon guide rods and carrying pivoted elbow tucking fingers, and pins or projections secured in a cross bar adapted to engage the upper members of said tucking fingers and cause the lower members thereof to swing inwardly and tuck or fold in the ends of the cigarettes substantially as described.

21. In a cigarette machine the combination with the paper and tobacco feeding mechanism, the cigarette rolling and discharging mechanism, and the oscillating holder, of a reciprocating frame sliding upon guide rods and carrying pivoted elbow tucking fingers, the upper members of said tucking fingers being connected by elastic connection, and pins or projections secured on a cross bar adapted to engage the upper members of said tucking fingers and causing the lower members thereof to swing inwardly and tuck or fold in the ends of the cigarettes, substantially as described.

22. In a cigarette machine the combination with the paper and tobacco feeding mechanism, the cigarette rolling and discharging mechanism, of a reciprocating frame sliding upon guide rods and carrying pivoted elbow tucking fingers, connected at their upper ends by an elastic connection, pins or projections secured on a cross-bar adapted to engage the upper members of said tucking fingers and cause the lower members thereof to swing inwardly, a curved holder carried by oscillating arms, rods mounted in bearings in said arms and adapted to engage the under side of pivoted tucking fingers to raise and swing inwardly said fingers, springs normally holding said fingers down, rods carried by the said sliding frame and adapted to engage the rods which engage the under side of the tucking fingers to raise said rods, and mechanism for raising and lowering the said frame to alternately cause the tucking fingers to engage the ends of the cigarette and tuck or fold in the same on opposite sides substantially as described.

23. In a cigarette machine the combination with tobacco feeding and cigarette rolling mechanisms; of the paper feeding and cutting mechanism consisting of a reciprocating clamp plate, carrying a cutter; a clamp plate pivoted on and moving with the reciprocating plate; a stationary cutter below the pivoted plate, and means for reciprocating the clamp plates longitudinally of the strip of paper and causing the pivoted plate to engage the reciprocating plate and clamp the paper therebetween in one movement, and to release the paper upon their return movement, the paper being severed during the feed stroke of the plates by the cutters, substantially as and for the purpose described.

24. In a cigarette machine the combination with tobacco feeding and cigarette rolling mechanisms, of the paper feeding devices consisting of a reciprocating plate mounted on guides, and provided with projecting brackets,

a clamp plate pivoted on said brackets and moving with said reciprocating plate, means for directing a strip of paper between said plates and mechanism connected to said clamp plate and adapted to first clamp it against the reciprocating plate and then to move both plates to feed the strip of paper in one movement, and in the reverse movement to first draw the pivoted plate away from the reciprocating plate and then move both plates back, substantially as described.

25. In a cigarette machine the combination of tobacco feeding and cigarette rolling mechanisms and paper feeding mechanism consisting of two plates pivotally connected together, stationary guides for one of said plates, mechanism connected to the other plate for reciprocating the plates and adapted to clamp the plates together when moving them in one direction and to separate the plates when moving them in the other direction, with a stationary cutter at the lower ends of the guides, and a movable cutter attached to the lower edge of the plate sliding on the guides whereby the cutters are operated by the paper feeding mechanism, substantially as and for the purpose specified.

26. In a cigarette machine, the combination with the cigarette rolling and tobacco feeding mechanism, of the paper feeding mechanism, consisting of a reciprocating frame sliding upon suitable guide rods and carrying a clamp plate a pivoted clamp plate carried by said frame, hooked arms, secured to said frame, a cutting blade carried by the reciprocating frame and a cutting blade secured to the frame of the machine below said frame, a link connected to said pivoted clamp plate, a cam mounted on a driven shaft and connections between said cam and link operating to raise and lower said frame, substantially as described.

27. In a cigarette machine the combination with the tobacco feeding and cigarette rolling mechanism, of the paper feeding mechanism, comprising a vertically reciprocating frame carrying a clamp plate, the pivoted blade adapted to alternately engage and disengage the clamp plate to grasp and release the paper, a fixed cutting blade secured beneath the cutting blade carried by the frame, said cutting blades co-operating to sever the paper into equal lengths and wire guide fingers secured to the frame of the machine and serving to guide the paper to the cutters and to disengage the same therefrom when cut, substantially as described.

28. In a cigarette machine, the combination with paper feeding and cigarette rolling mechanism, of the tobacco feeding mechanism consisting of the rotary measuring cylinder and its casing, the hopper secured above the same and provided with a rotary toothed cylinder and oscillating agitators.

29. In a cigarette machine, the combination with the paper feeding and cigarette rolling

mechanism, of the tobacco feeding mechanism
consisting of a rotary measuring cylinder and
its casing and the hopper secured above the
same and provided with a toothed cylinder
5 fixed upon a shaft mounted in bearings in
said hopper, said shaft being provided at one
end with a pulley and an eccentric, a pivoted
lever operated by said eccentric, and pivoted

oscillating agitators in said hopper operated
by said lever, substantially as described. 10
In testimony whereof I affix my signature
in presence of two witnesses.

WILLIAM HUGHES.

Witnesses:

WM. M. EDGAR,

J. B. PHIPPS.