

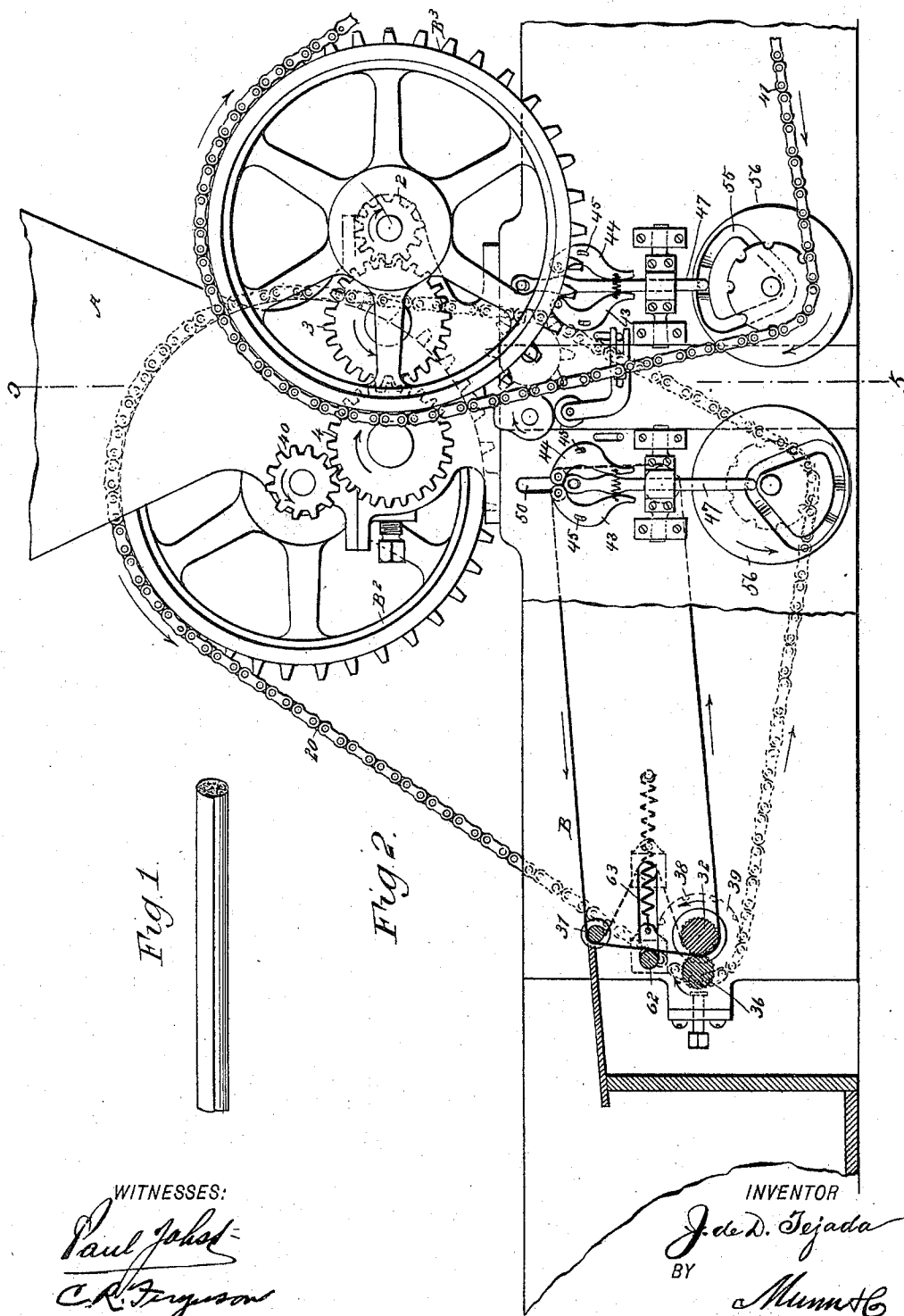
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9 Sheets—Sheet 1.

J. DE DIOS TEJADA.
CIGARETTE MACHINE.

No. 584,655.

Patented June 15, 1897.



WITNESSES:
Paul J. J. J.
C. R. Ferguson

INVENTOR
J. de D. Tejada
BY
Munn & Co.
ATTORNEYS.

(No Model.)

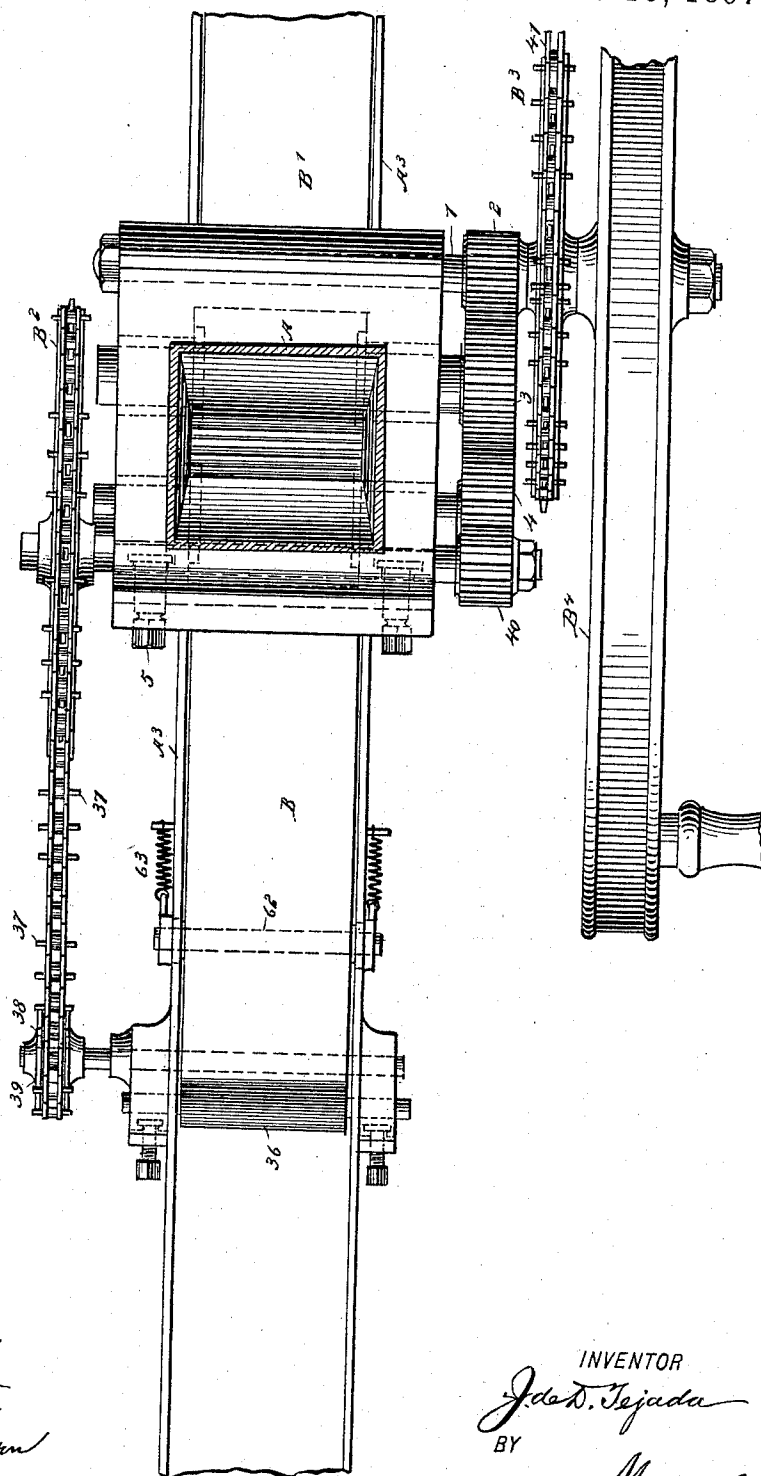
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CIGARETTE MACHINE.

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Fig. 3.



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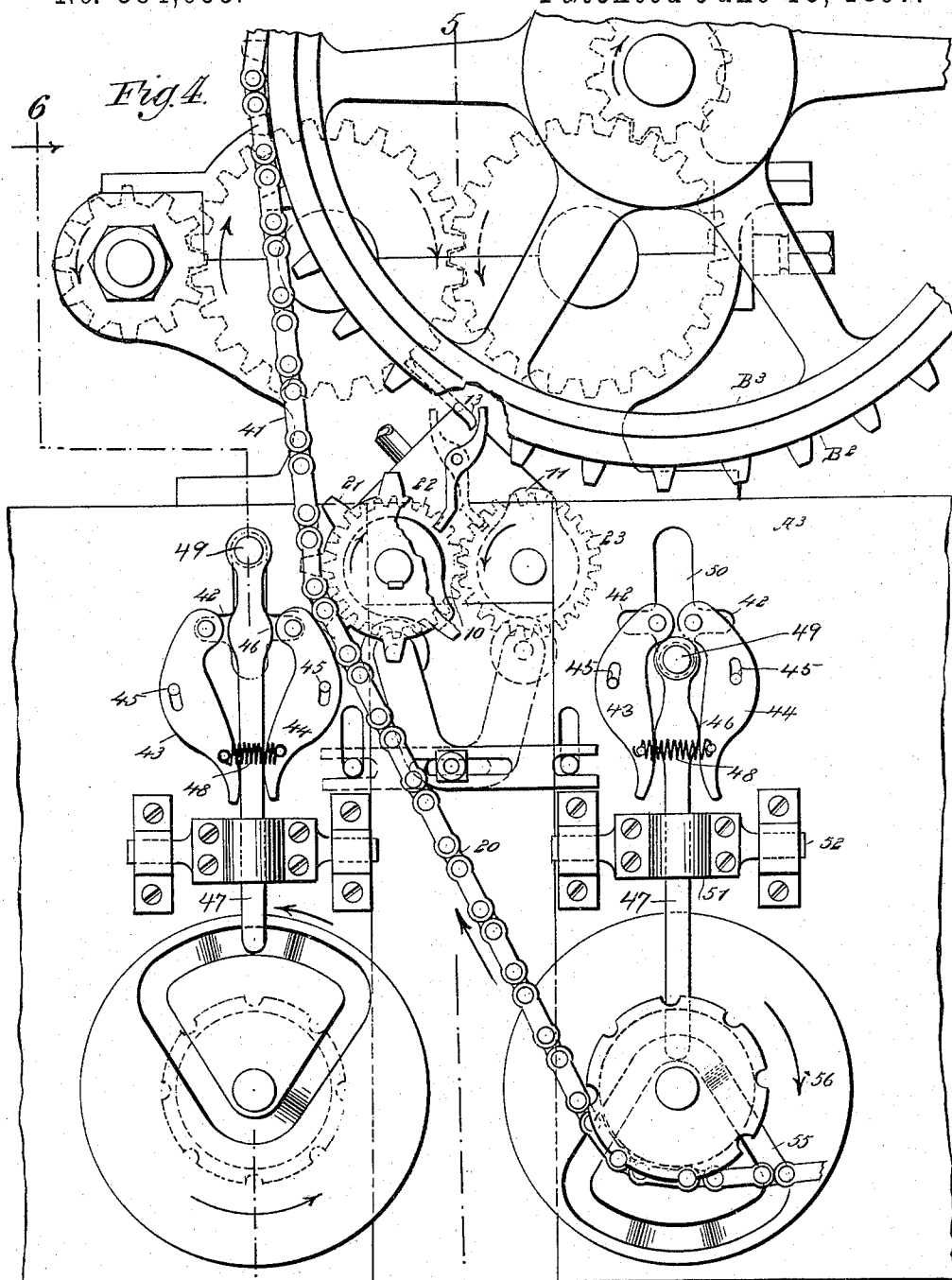
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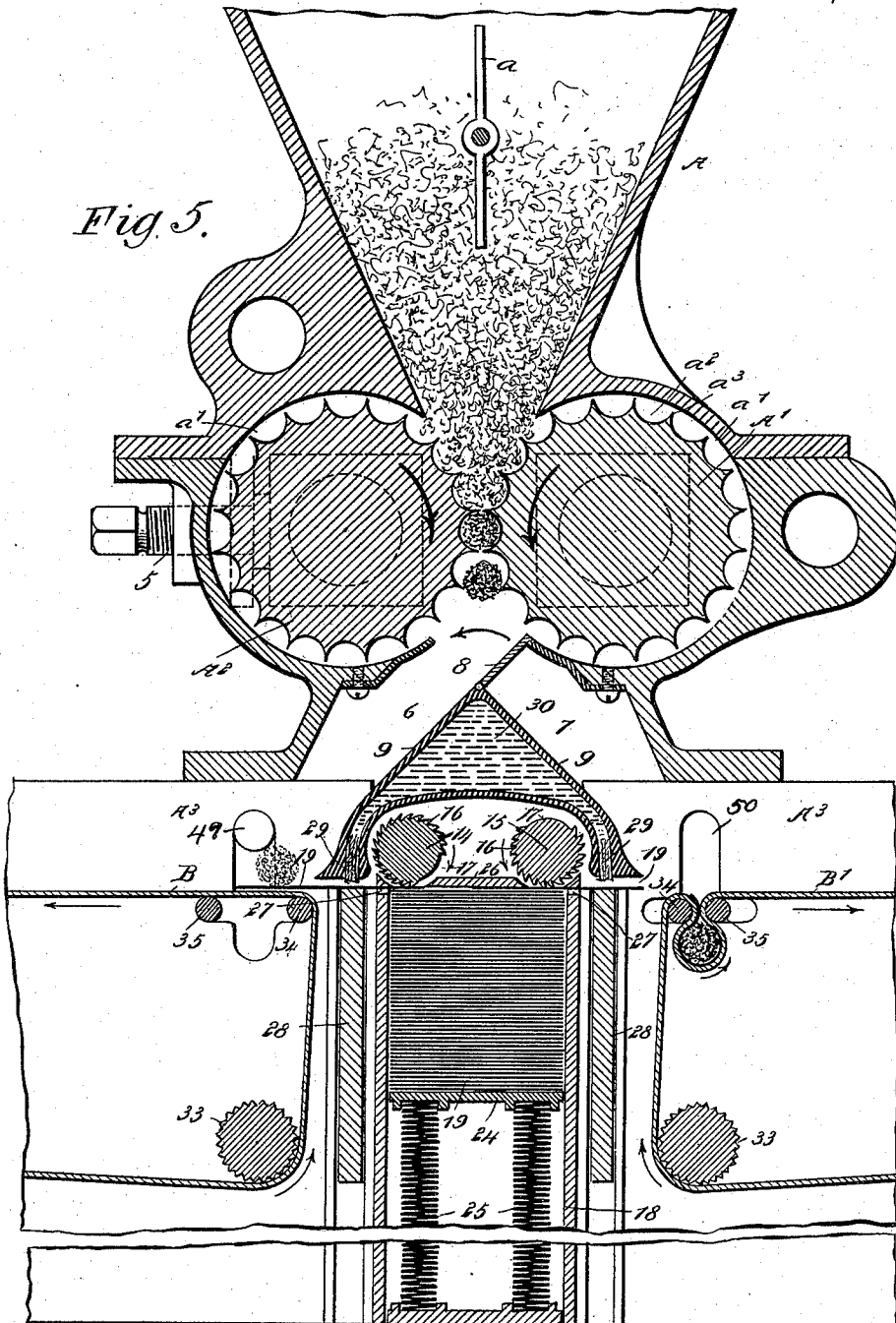
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Fig. 5.



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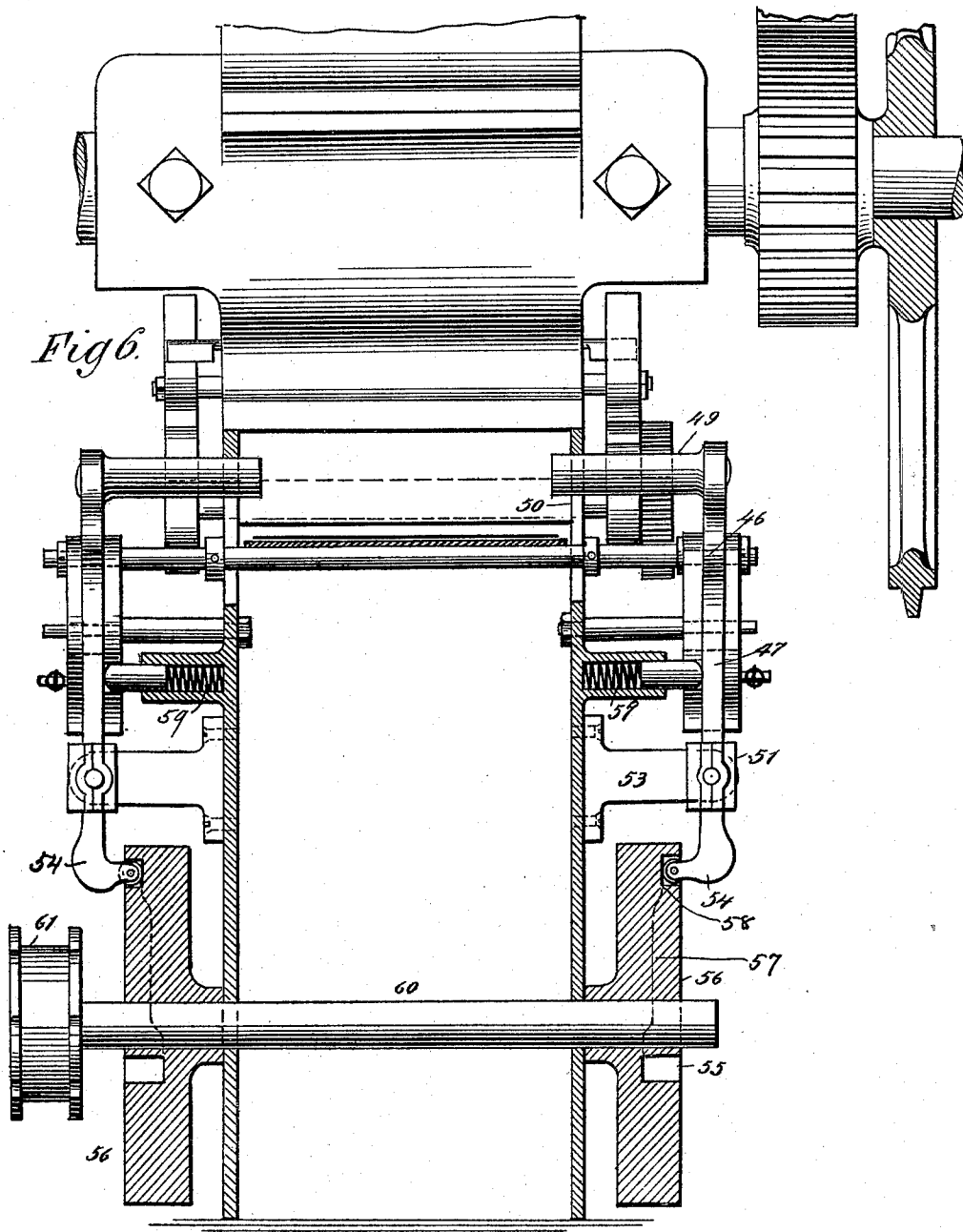
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9 Sheets—Sheet 5.

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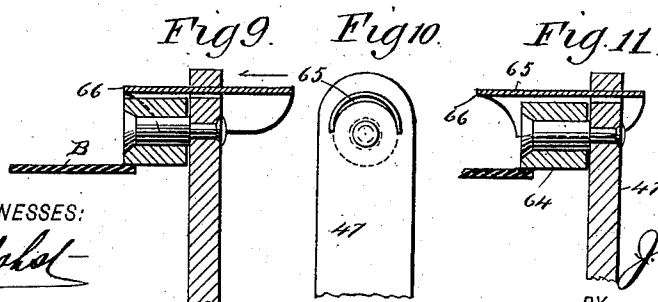
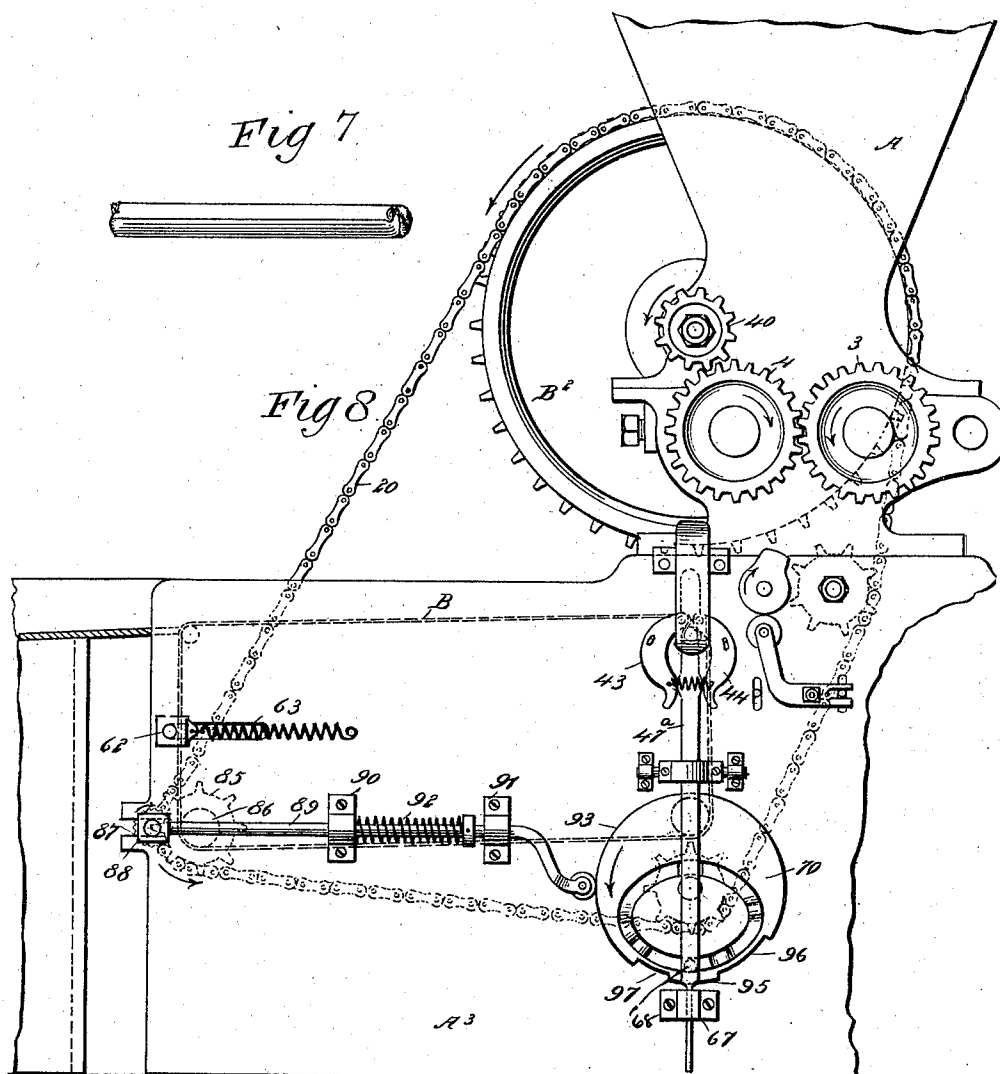
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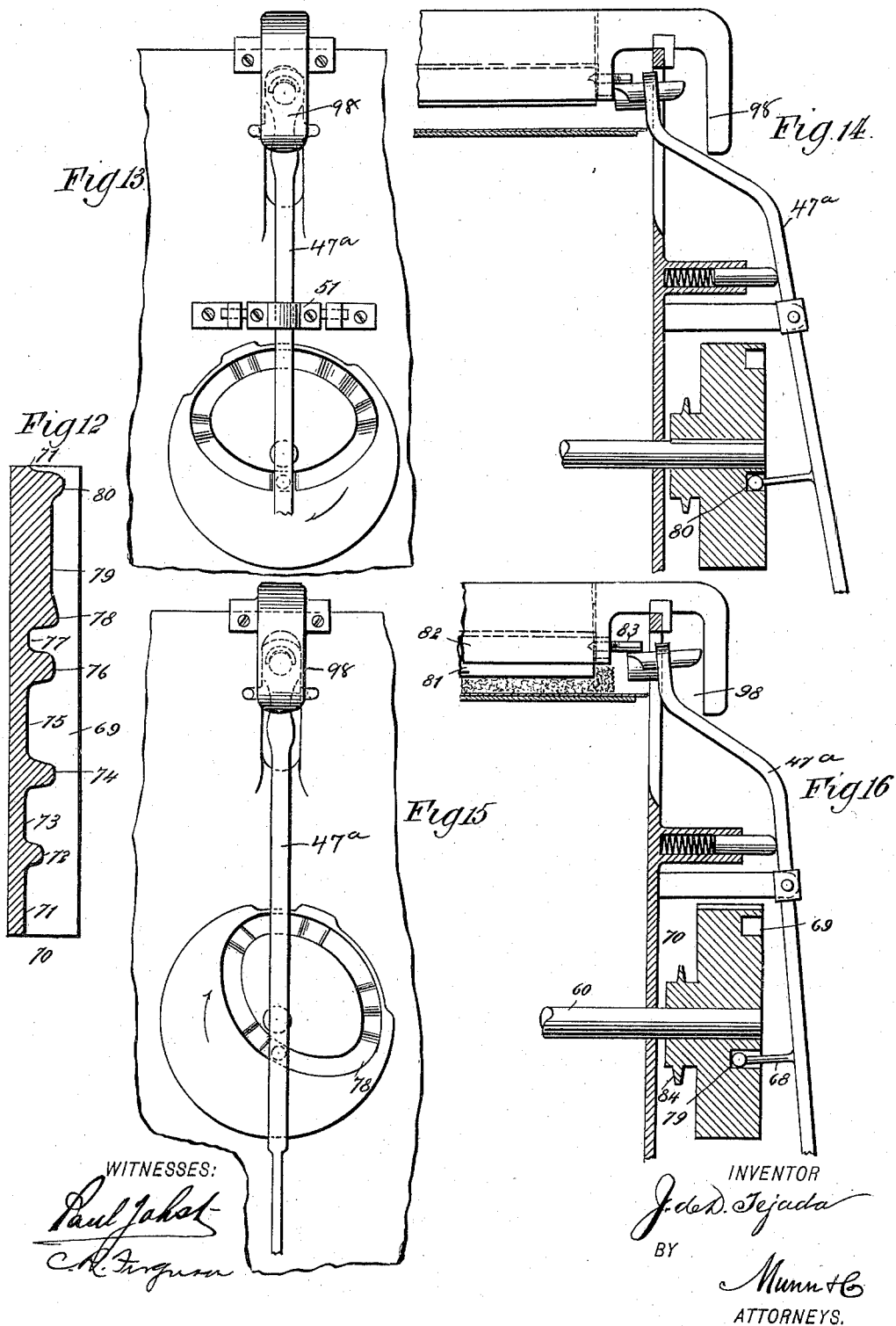
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(No Model.)

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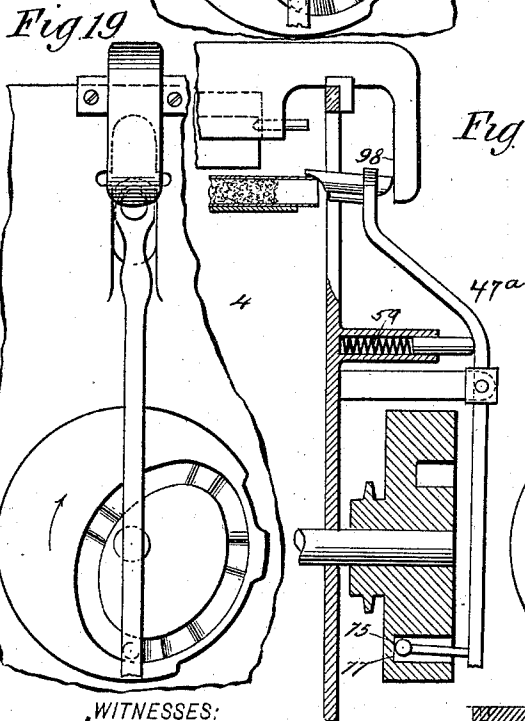
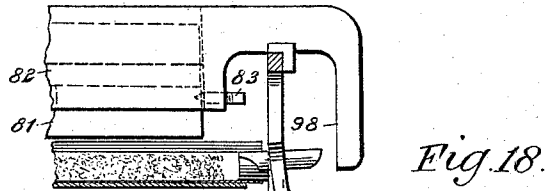
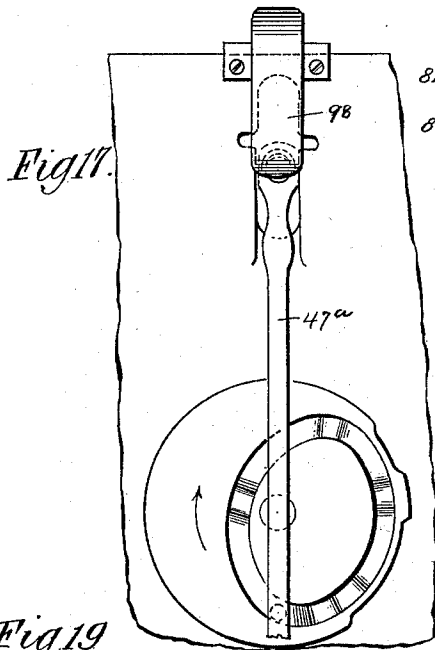


Fig. 20.

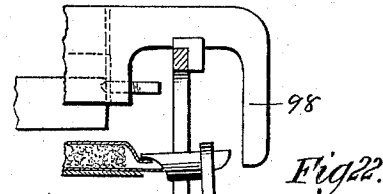
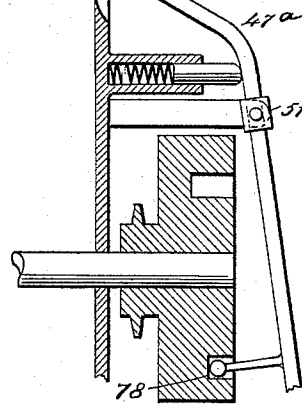
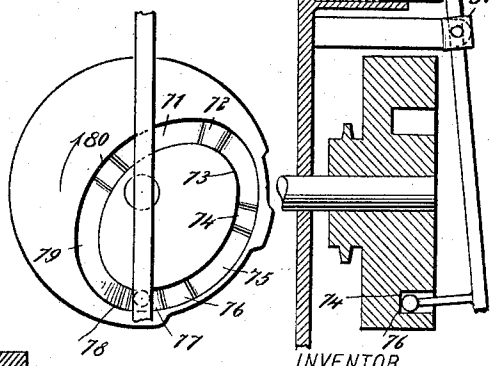
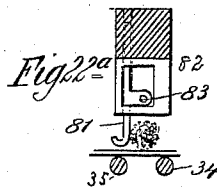


Fig. 22.



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(No Model.)

J. DE DIOS TEJADA.
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No. 584,655.

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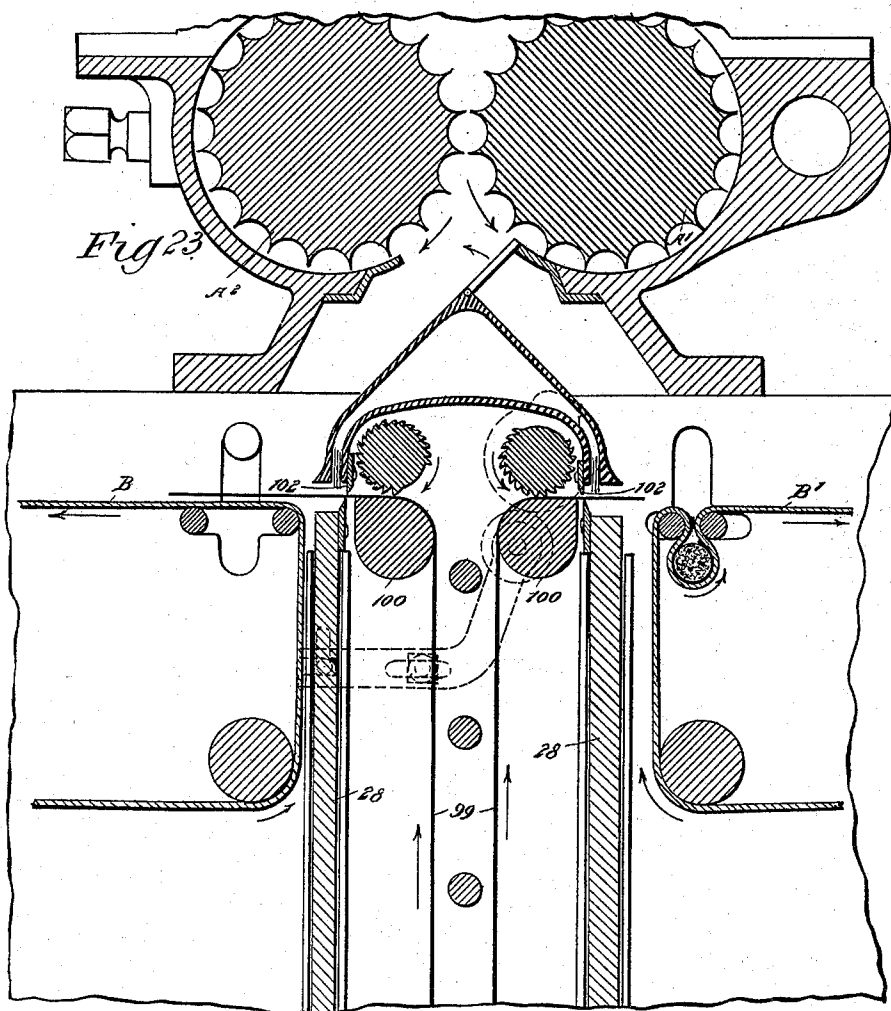


Fig. 24



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UNITED STATES PATENT OFFICE.

JUAN DE DIOS TEJADA, OF COXSACKIE, NEW YORK.

CIGARETTE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 584,655, dated June 15, 1897.

Application filed July 25, 1896. Serial No. 600,459. (No model.)

To all whom it may concern:

Be it known that I, JUAN DE DIOS TEJADA, of Coxsackie, in the county of Greene and State of New York, have invented certain new and useful Improvements in Cigarette-Machines, of which the following is a full, clear, and exact description.

This invention relates to machines for making cigarettes of the class in which a paper wrapper is employed.

The object of my invention is to provide a machine for making cigarettes combining accuracy and rapidity in its action and in which all the operations for the making of a cigarette shall be automatic.

The invention consists in the construction and novel arrangement of parts, as will be hereinafter specified, and particularly pointed out in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 represents a cigarette as completed by one example of my invention. Fig. 2 is a side elevation of a machine for making the cigarette shown in Fig. 1. Fig. 3 is a plan view thereof. Fig. 4 is a side elevation, on an enlarged scale, opposite to that of Fig. 2, with certain parts omitted to more clearly show other parts. Fig. 5 is a section through the line 5 5 of Fig. 2. Fig. 6 is a partial elevation and partial section, with certain parts omitted, through the line 6 6 of Fig. 4. Fig. 7 shows a cigarette of modified construction. Fig. 8 is a side elevation of a machine for making the cigarette shown in Fig. 7. Fig. 9 is a sectional view of a part employed for tucking in the ends of the paper, showing the tucker in one of its positions. Fig. 10 is a rear side elevation thereof. Fig. 11 is a view similar to Fig. 9, but showing the tucker in another of its positions. Fig. 12 is a diagrammatic view of a cam employed for causing the desired movements of the tuckers. Fig. 13 is a side elevation of the cam and the tucker connections and showing the cam in one of its positions. Fig. 14 is a partial section and partial elevation thereof. Fig. 15 is a view similar to Fig. 13, but showing the parts in another position. Fig. 16 is a partial section and partial elevation thereof. Figs. 17 to 22 show

the same parts in different positions. Fig. 22^a is a detail showing a movable guide-plate employed. Fig. 23 is a sectional elevation of the machine, showing a modified construction wherein the paper is supplied from a roll; and Fig. 24 shows a cheroot-shaped cigarette that may be made by slight modifications in the formers.

Referring, first, to the example of my invention for making the cigarette shown in Fig. 1, in which the ends of the paper are not folded or tucked and in which one edge of the paper is secured to the body by means of an adhesive material, A designates a hopper or feed-receptacle for the tobacco, in which a revolving stirrer *a* may be placed, the outlet of the hopper A communicating with chambers *a'*, in which the revolving and coacting filler-formers A' A² are placed.

The filler-formers A' A² are cylindrical in form, with longitudinal channels *a*², conforming in cross-section to one-half the circumference of a filler. The edges *a*³ of the channels are preferably made quite sharp, so as to cut or sever a filler from the mass of tobacco. Rotary motion is imparted to the filler-formers A' A² from the main shaft 1 by means of a gear-wheel 2 on the main shaft, meshing with a gear 3 on the shaft of the filler-former A', and a gear 4 on the shaft of the filler-former A², meshing with the gear 3. One of the filler-formers, as here shown the filler-former A², is adjustable relatively to the other, so that the cutting edges *a*³ of the respective filler-formers may be moved toward or from each other. For this purpose I journal the shaft of the filler-former A² in sliding bearings, which may be regulated by means of screw-bolts 5, extended through tapped holes in the wall of one of the chambers *a'*.

From the filler-formers the compressed or formed fillers drop alternately through chutes 6 7 to the wrapping-aprons B B'. For directing the formed fillers to the chutes 6 7 alternately I employ a deflector-plate 8, which is pivotally connected to the apex of the inclined bottomed walls 9 of the chutes. The deflector 8 is moved back and forth to its two positions by means of cams 10 11, engaging with fulcrumed arms 12, one arm of which is designed to engage with lugs 13, projected from the outwardly-extended ends of the pivot-rod of the

deflector, and the other arms being extended into the line of movement of the cams, as plainly shown in Fig. 4. The cams 10 11 are mounted at opposite sides of the machine on the journals of the paper-feeding rollers 14 15, the said journals being extended through bearings in the side frames A³ of the machine.

The paper-feeding rollers 14 15 for a portion of their circumference are provided with longitudinal corrugations or teeth 16, and the remainder of the circumference is smooth, as shown at 17. They are located at opposite sides of the upper end of a paper-receptacle 18, within which the sheets of paper 19 of the required size are placed. Rotary motion in opposite directions is imparted to the feeding-rollers from a sprocket-wheel B² by means of the sprocket-chain 20, engaging with a sprocket-wheel 21 on the journal of the feeding-roller 15, which has on its opposite end journal a gear-wheel 22, meshing with a gear-wheel 23 on the journal of the roller 14.

The package or pile of cut papers 19 is placed on a follower 24, impelled vertically in the receptacle 18 by means of springs 25, the top sheet of paper bearing against the lower side of a retaining-strip 26, extended across the top of the receptacle 18. The sheets of paper are fed to the respective aprons B B' through apertures 27 in the sides of the receptacle 18, and after the sheets shall have reached their proper positions on the aprons plungers 28 force the edge of the paper upward against adhesive-applying brushes 29, inserted in the outlets of the adhesive-container 30, which is located over the feeding-rollers.

It will be observed that the rollers 14 15 successively feed the sheets of paper in the opposite directions, and that when the smoother surface 17 is over the paper the feeding of the sheet will cease.

I will now describe the means for rolling the paper around the formed tobacco filler. The endless aprons B B' are in constant motion, excepting a short stop during the time of applying adhesive material to the paper, and as the operating parts for the respective aprons are alike I will describe but one.

The apron B extends around a roller 31, having journal-bearings in the side frames of the machine, thence around a longitudinally-ribbed feed-roller 32, having journal-bearings in the side frame, thence around a roller 33, also having journal-bearing in the side frames, and then over doubling-rollers 34 35. To insure a close contact of the apron with the feed-roller, I may employ a presser-roller 36, bearing against the apron on the outer side opposite the feed-roller.

Rotary motion is imparted to the feed-roller by means of the sprocket-chain 20, which has several sets or series of laterally-extended sprockets 37, adapted to engage in notches 38 in the peripheral flanges of the wheel 39, mounted on the shaft of the feed-roller. The sets of lateral sprockets 37 are so spaced one

set relatively to another that when the sections of the chain from which the lateral sprockets are omitted pass over the wheel 39 no motion will be imparted thereto and consequently the apron will be at rest during the time required to force the edge of the paper against the adhesive-applying brush.

It may be here stated that motion is imparted to the sprocket-wheel B² in unison with the similar sprocket-wheel B³ by means of a gear-wheel 40 on the shaft of the wheel B², meshing with the gear 4. A drive-wheel B⁴ is mounted on the shaft 1, upon which the wheel B³ is also mounted. The wheel B³, through its sprocket-chain 41, operates the parts for the apron B' in the same manner as the parts coacting with the apron B are operated.

The doubling-rollers 34 35 are movable toward and from each other and the ends of the rollers project through horizontal slots 42 in the side frame A³ and have journal-bearings in rock-arms 43 44, fulcrumed on pins 45, extended from the side frames through elongated openings in the arms intermediate of the ends. The doublers are forced toward each other by means of cam projections 46 on vertically movable and oscillating rods 47, contacting the inner surfaces of the lower extensions of the rock-arms. The doublers are moved from each other when the cam-surfaces 46 are moved out of engagement with lower ends of their rock-arms by springs 48, having the ends secured to the lower portion of the respective rock-arms of each pair. The office of these doublers is to fold the apron over the upper side of the cigarette, as shown in the apron B' in Fig. 5, after a section of the apron shall have been drawn down between the doublers by means to be described. At the upper ends the rods 47 have fingers 49 extended from them at substantially right angles and through vertical slots 50 in the side frames A³, which, in connection with the slots 42, form substantially cross-shaped openings.

As before mentioned, the rods 47 have a vertical reciprocating movement and also an oscillating movement toward and from the side frames. With this end in view each rod 47 passes loosely through a block 51, which has rocking or trunnion bearings 52 in posts 53, extending from the side frames. The rod 47 has an inwardly-turned lower end 54, which extends into a cam-groove 55 in the outer face of a cam-wheel 56. The cam-groove 55 is substantially triangular, and its side walls engaging with the end 54 of the rod 47 or an anti-friction roller or ball carried by said end will cause the vertical movements of the rod, and the face projections 57 58 within the groove 55 will throw the lower end of the rod 47 outward and consequently the finger 49 will be moved inward.

The function of the fingers 49 is threefold—that is, they serve when in their extreme upward and inward position as stops to temporarily prevent the filler from rolling to its final

place between the doublers 34 35, then they move outward and downward along the end of the filler to the ends of the paper upon which they bear, then their continued downward movement draws a section of the apron down, and with it the paper and filler, then they are drawn slightly outward, serving to straighten the paper and to act as stops to prevent the tobacco from escaping from the ends of the wrapper, and the continued downward movement carries the doublers to the position shown in connection with the apron B' in Fig. 5. After this operation the fingers are again drawn outward, upward, and inward to their initial position. Of course the cam-groove and its projections and depressions are suitably shaped and spaced for these operations. The rod 47 may be held in engagement with the cam by a spring 59.

Coacting cams 56 are mounted on a shaft 60, which has at one end a peripherally-notched sprocket-wheel 61, with which the sprocket-chain 41 engages and operates with a momentary stop at the same time and in the same manner as heretofore described in connection with the feed-roller of the apron.

The operation of this example of my invention is as follows: The filler is dropped from the filler-former onto the paper in position on the apron and against the fingers 49, where it is held during the applying of adhesive material to the paper. The apron now takes motion, and the fingers operate, as before described, to draw a section of the apron down and the doublers inward at the same time. The continued movement of the apron will roll the paper firmly around the filler and press the glued portion of the paper in close contact with the formed body. After the complete rolling the parts operate to separate the doublers. Then the apron-section resumes its initial position and ejects the finished cigarette, which may then roll down the apron to a receptacle placed to receive it. During the operation of rolling a cigarette the position of the apron between the rollers 31 32 is as shown in full lines in Fig. 2. Upon the completion of a cigarette the slack is taken up by a take-up roller 62, which has its journal-bearings in blocks movable in longitudinal slots in the side frames and connected to springs 63, which at their opposite ends are secured to a fixed portion of the machine.

It is obvious that the spring-impelled take-up roller after the rolling of a cigarette will take up the slack of the apron, as indicated by dotted lines in Fig. 2.

The machine thus far described and as before stated is for making the cigarette shown in Fig. 1.

I will now describe the modifications of the machine for making the cigarette shown in Fig. 7.

It is to be understood that the main features of this machine and their operation are the same as those heretofore described in con-

nection with the first example, the modifications residing, mainly, in the means and operation for tucking in the ends of the paper of the cigarette shown in Fig. 7, in which no adhesive material need be used and therefore mechanism for applying it may be omitted, and there are certain other modifications, as will more fully appear.

Projected inward from the upper end of the rod 47^a is a finger 64, which performs the drawing-down and paper-smoothing service like the finger 49, heretofore described. It also serves as a support for a tucker-finger 65, which is movable longitudinally through an opening in the rod 47^a at the upper side of the finger 64. This tucker-finger is made substantially in the form of a stub-pen, and, in fact, stub-pens may be employed for the purpose. The sides of the finger are curved downward and rearward from the point or nib 66. The lower portion of the rod 47^a is movable in a guideway 67, secured to the side frame A³, and it also has a pin 68, extended into the cam-groove 69 of the cam-wheel 70. This cam-groove is oval in contour, and its base is provided with cam projections and depressions, which are distinctly shown in the diagrammatic view Fig. 12, and are as follows: depression 71, projection 72, depression 73, projection 74, depression 75, projection 76, depression 77, projection 78, depression 79, and projection 80.

It will be seen that the depressions 71, 73, 75, and 77 are all in the same plane and that the depression 79 is in a plane nearer the front face of the cam-wheel and that the several projections extend to different planes with the exception of the projections 74 76, which are in the same plane.

81 is a stop-plate for stopping the tobacco filler directly between doublers 34 35. It is movable vertically in a guide or boxing 82, extended across the machine above the apron. At each end the stop-plate has a pin 83, extended outward through an opening in the end of the guide or boxing 82 and into the line of vertical movement of the fingers 64. The stop-plate is located over the outer doubling-roller, (herein indicated as the roller 35,) as plainly shown in Fig. 22^a. In this example of my improvement the cams 70 are in constant rotation, the motion being imparted by the sprocket-chain heretofore described engaging with an ordinary sprocket-chain wheel 84 on the cam-shaft or made integral with one of the cams, and the chain engages with a similar sprocket-wheel 85 on the apron-feeding roller 86, which in this example has a smooth exterior. There are two momentary stops to the apron during the tucking in of the ends of the paper. With this end in view I provide the corrugated presser-roller 87, having journal-bearings in sliding boxes 88. From the boxes 88 arms 89 extend through bearings 90 91, secured to the side frames, and at the ends these arms 89 have antifric-tion-rollers which bear against the periphery

of the cam-wheels 70 and are held in engagement with the cam-wheels by means of springs 92, abutting at one end against the bearing 90 and at the other end against a collar on the arm. Obviously when the antifriction-rollers are against the projected peripheral cam-surfaces 93 95 of the cam-wheels the bearing-roller will be forced away from the apron and the smooth roller 86 may turn without imparting motion to the apron; but when the antifriction-rollers enter the depressed peripheral cam-surfaces 96 97 the presser-roller will be moved against the apron to press it firmly against the feed-roller, so that motion will be imparted to the apron.

The operation of this example of my improvement is as follows: It is to be understood that the oval cam-groove 69 causes the up-and-down movements of the rod 47^a. I will, therefore, in describing the action refer to the projected and depressed surfaces of the cam. Figs. 13 and 14 show, substantially, the first position of the rod 47^a. As it moves upward the projection 80 rocks the rod, so that the tucker-finger will strike against the end of the guide or boxing 82, with the tucker-finger against the pin 83. By a further upward and inward movement the tucker-finger will be forced back until its point is flush with the end of the finger 64. Now the paper is in place, and the parts begin to lower and move outward to the position shown in Figs. 15 and 16. During this operation the formed filler has rolled down the chute against the lowering stop-plate 81, the rod continues to lower, but no rocking motion is imparted to it, while the pin 68 is in contact with the surfaces 79 78. The surface 78 is slightly projected, so as to maintain the relative inward extension of the fingers during the change of pivoted center of the rod 47^a on its downward course. On the continued downward movement the fingers 64 engage the paper and press it against the edge of the belt, and the same with the filler is drawn down between the doublers to the position shown in Figs. 17 and 18. At the end of this movement the rollers of the arms 89 enter the peripheral depressions 96 97 and the apron turns to make a complete rotation of the cigarette to wind the paper to completion. After this winding the cam-surface 95 moves the bearing-roller away from the apron, so that it ceases to rotate. The rod 47^a is now rising with the pin 68 in the depression 77, allowing the rod to work to draw the parts 64 65 away from the apron and paper tube, and by this outward movement the outer end of the tucking-finger strikes against an abutment 98, forcing the tucker forward, and the several parts are now in the position shown in Figs. 19 and 20. Next the finger 68 rides upon the projection 76, and the tucker-finger is moved inward in the arc of a circle and, engaging the upper side of the paper tube, tucks in the upper side of the end, as shown in Fig. 22. At the end of this movement the pin 68 enters the depres-

sion 75, and the rollers of the arms 89 enter the peripheral depressions 97, which, being one-half the length of the depression 96, will allow a one-half rotation of the cigarette to bring the unfolded sides of its ends upward. After this half-rotation the apron comes to a halt, and the finger 68, riding upon the projection 74, operates the tucker-finger, as before described, to tuck in the ends of the side of the cigarette now uppermost. The cigarette is now completed, and the parts resume the positions indicated in connection with Figs. 13 and 14, and the cigarette rolls down the apron to a receptacle or table.

In the modification shown in Fig. 23 means is provided for feeding a continuous strip of paper 99 and severing therefrom pieces of the required size for a cigarette. The strips are fed from rolls by means of feed-rollers 14 15, as heretofore described, over platens or bed-pieces 100, and the pieces are severed by cutter-blades 101, carried by the plungers 28 and coacting with cutter-blades 102, affixed to the container for adhesive material.

From the foregoing description it will be seen that a machine made in accordance with my invention is adapted to the making of cigarettes with a straight cylindric and pasted wrapper taken from a package previously cut or from pieces severed by the machine from a continuous strip, and that the machine may be adapted to the making of cigarettes with the ends of the paper folded or tucked like those generally used in Spanish America and named in Cuba "Corrientes."

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a cigarette-machine, a hopper, forming-rollers in said hopper, a traveling rolling-apron, doublers arranged beneath said apron, means for moving said doublers toward and from each other, means for drawing a section of the apron between the doublers, a wrapper-receptacle arranged below the hopper, means for forcing the wrappers upward therein, and a wrapper-feeding roller having a longitudinally-corrugated surface and a plain surface, substantially as specified.

2. In a cigarette-machine, the combination of a container for loose tobacco, a filler-former operating therein, an endless traveling rolling-apron, a chute for directing a filler to said apron, doublers for doubling a section of said apron, means for feeding a wrapper to the apron, a stop for holding a formed filler on the wrapper over the doublers, fingers for drawing a section of the apron, with the wrapper and filler, between the doublers, and means for straightening the wrapper on the apron, substantially as specified.

3. In a cigarette-machine, the combination with a traveling rolling-apron, of means for feeding a wrapper thereto, doublers for a section of the apron, and means for drawing a section of the apron and the wrapper between the doublers, means for imparting a longitu-

dinal movement to the drawing device; to straighten the wrapper, substantially as specified.

4. In a cigarette-machine, the combination
5 with a traveling rolling-apron, doublers for a section thereof, rods having fingers for engaging the edges of the apron and a wrapper thereon over the doublers, and means for imparting a vertical reciprocating and also a
10 rocking motion to said rods, substantially as specified.

5. In a cigarette-machine, the combination with filler-feeding mechanism and a traveling rolling-apron, of the doubler-rollers, ful-
15 crumed rock-arms carrying said doubler-rollers, and having cam-surfaces, the vertically-reciprocating and laterally-rocking rods having cam projections for engaging the cam-sur-
20 faces of the doubler-carrying arms, and cams for imparting the said motions to said rods, substantially as specified.

6. In a double cigarette-machine, comprising two traveling rolling-aprons, mechanism, substantially such as described, for conform-
25 ing a section of both aprons to a formed filler, a paper-feeder for each apron, a tobacco-receptacle common to each of said aprons, a filler-former in said receptacle, a deflector for alternately opening and closing passage-ways lead-
30 ing from the former to the respective aprons and means for operating the deflector, substantially as specified.

7. In a cigarette-machine, the combination of a filler-former consisting of grooved cylinders geared to rotate in unison, a traveling
35 rolling-apron, a feed-roller therefor, the doubler-rollers, the vertically-reciprocating and outwardly-moving fingers for drawing a section of the apron between the doubler-rollers, and a sprocket-chain engaging with a
40 sprocket-wheel on the shaft of one of the former-cylinders and imparting motion to all of said parts, substantially as specified.

8. In a cigarette-machine, the combination
45 with a forming and rolling device, of a receptacle for wrappers, a follower for forcing a package of wrappers upward in said recepta-

cle, a feeding-wheel for the wrappers having a serrated portion and a plain portion, an adhesive-material container above the wrapper-
50 receptacle and means for forcing a wrapper against a brush for applying the adhesive material, substantially as specified.

9. In a cigarette-machine, the combination with a filler-former and a traveling rolling-
55 apron, of doublers for said apron, means for operating the doublers, means for feeding a wrapper to the apron, means for drawing a section of the apron and the wrapper between the doublers, means comprising pen-shaped
60 fingers for tucking the ends of the wrapper after the rolling thereof, and swinging arms to which the fingers are adjustably attached, substantially as specified.

10. In a cigarette-machine, the combination
65 with forming and rolling mechanism, substantially such as described, of the vertically movable and rocking rods, the fingers projected inward from the upper ends thereof, the tucker-fingers mounted on and movable
70 longitudinally of said first-named fingers and means for operating said tucker-fingers, substantially as specified.

11. In a cigarette-machine, the combination with a hopper, a filler-former and a traveling
75 rolling-apron, of a wrapper-feeder, tucker-fingers for the ends of the wrapper, a stop-plate for holding a filler in place on the wrapper, the said stop-plate being moved by the
80 tucker-fingers, substantially as specified.

12. In a cigarette-machine, the vertically movable and swinging rods, means for moving
said rods, the fingers extended rigidly from the upper ends thereof, the tucker-fingers movable on the first-named fingers, means
85 for moving said tucker-fingers and abutments against which the ends of the tucker-fingers may strike to move them longitudinally, substantially as specified.

JUAN DE DIOS TEJADA.

Witnesses:

C. SEDGWICK,
C. R. FERGUSON.