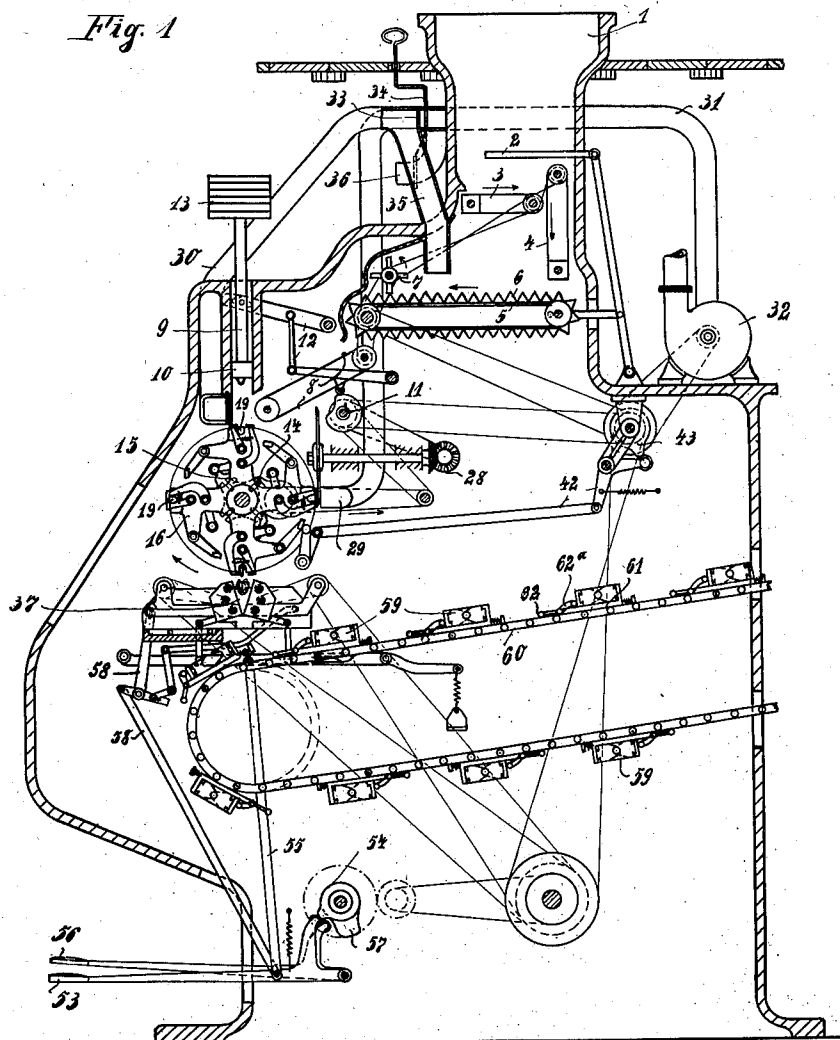


O. PREISLER & A. FRITZ.
CIGAR MACHINE.
APPLICATION FILED MAR. 27, 1913.

1,079,581.

Patented Nov. 25, 1913.

2 SHEETS—SHEET 1.



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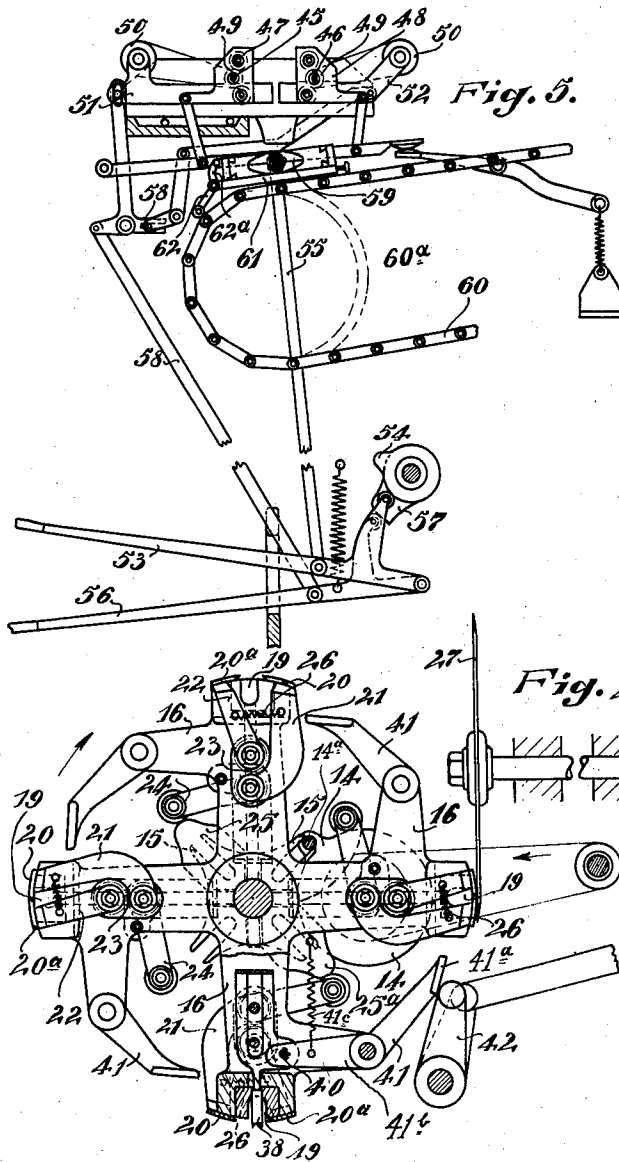
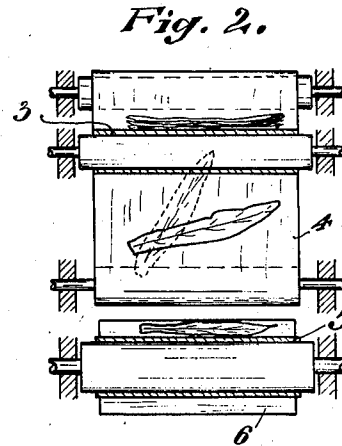


Fig. 4.

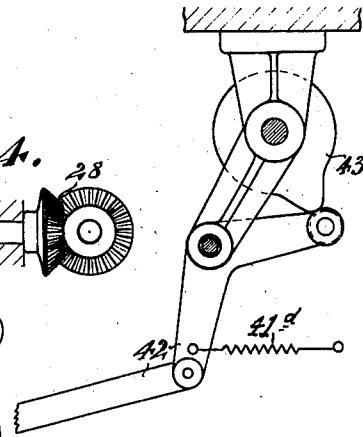


Fig. 3.



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UNITED STATES PATENT OFFICE.

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CIGAR-MACHINE.

1,079,581.

Specification of Letters Patent.

Patented Nov. 25, 1913.

Application filed March 27, 1913. Serial No. 757,216.

To all whom it may concern:

Be it known that we, OTTO PREISLER and ANTON FRITZ, subjects of the German Emperor, residing, respectively, at Grossauheim, near Hanau, and Darmstadt, both in Germany, have invented certain new and useful Improvements in Cigar-Machines, of which the following is a specification.

The invention relates to machines for making cigars and cigar fillers, the novel features of which reside more particularly in the apparatus for feeding, arranging, and pressing the broken tobacco leaves, of which the fillers are formed, prior to delivery thereof to the wrapping mechanism.

The invention is illustrated in the accompanying drawing, in which:

Figure 1 is a longitudinal section of the machine. Fig. 2 is a section on the line A—B of Fig. 1, drawn to a larger scale. Fig. 3 is a perspective view of a detail, and Figs. 4 and 5 are views, to a larger scale, of the preliminary molding device and the final molding device respectively.

Fragments of tobacco leaf pass from the mixing table into the hopper 1, in which they are slightly agitated by a reciprocating slide 2, the broken leaves then dropping onto an endless conveyer band or apron 3, the upper course of which travels as indicated by an arrow in Fig. 1, toward a vertically moving apron 4. Between the said aprons 3 and 4 there is a narrow space through which the leaves are moved for the purpose of spreading them. Each of the aprons 3 and 4 travels at one end over a squared roller, so that the aprons have a somewhat jerky movement, which is found to improve the work. The aprons are slightly elastic, so that they retain close contact with the squared rollers in the course of the rotation of the latter.

Underneath the aprons 3, 4 there is arranged a conveyer band 5 moving as indicated in Fig. 1 by an arrow, this conveyer being provided on its face with bars 6, of triangular cross section whereby V-shaped grooves are formed which extend across the band transversely to the direction of travel of the same. After having passed between the aprons 3, 4, the tobacco leaves fall into the said grooves formed on the band 5.

Mounted above the front or delivery end of the conveyer band 5 there is a positively driven fan 7, the vanes of which sweep in close proximity to the bars 6, and by the

draft which they create blow the leaves projecting above the bar ridges into the V-shaped grooves. Those leaves which the fan 7 fails to blow into the grooves are caught by the blades when passing underneath the fan, and are thus thrust into the grooves. The leaves then drop off the band 5 onto an endless-conveyer band 8, which feeds them to the preliminary molding device. The band 8 has its delivery end in a slot in the guide 9 of a stamp 10, the latter being raised at intervals by means of levers 12 actuated by a cam 11. The stamp 10 is loaded with a weight 13, which, when the raised stamp is released by the cam 11, forces it down by gravity.

Underneath the stamp there is a drum or star wheel 16 which is intermittently rotated by drivers 14^a on a disk 14, the drivers being adapted to enter slots in a Maltese cross 15, which is fixed to the same shaft as the star wheel 16, so that at every revolution of the disk 14 the star-wheel is rotated through 90°. The star wheel 16 is provided with four primary molds 19. Over such mold 19 there are arranged two slides 20, 20^a, the slide 20 being actuated by a lever 21 and the slide 20^a by a lever 22. The said levers 21, 22 are connected with one another by gears 23, so that they rock in opposite directions. The lever 21 has an arm 24 provided at its end with a roller, which rides over an abutment 25 when the star wheel 16 rotates, whereby the levers 21, 22 are rocked so that the slides 20 and 20^a are moved apart, this occurring when the mold under the slides is in its uppermost position, underneath the stamp 10. The stamp then descends and the tobacco leaves fed forward by the conveyer band 8 are pressed into the mold. When the stamp 10 has been raised again the star-wheel 16 is rotated through 90°, whereby the arm 24 is removed from the abutment 25, and the slides are moved over the mold by the action of a spring 26, so that they retain the tobacco in the mold. In the course of the rotation of the star-wheel such tobacco as may project between the slides 20, 20^a, is cut off by a continuously rotating circular knife 27, the latter being driven by bevel gearing 28. The severed pieces of tobacco are sucked into a pipe 29. The latter, and also another suction pipe 30, the intake end of which terminates at the lower end of the guide for the stamp 10, are connected to

a pipe 31 leading to an exhaust fan 32. To prevent the sucked particles of tobacco from entering the exhaust fan 32, and direct them onto the conveyer band 5, a grid 33 with a slide 34 behind it is arranged inside the suction pipe 31. Immediately in front of the grid 33 there is arranged a conduit 35, and branching off from the pipe 31 behind the grid 33 there is a pipe 36 through which air can be sucked.

The slide 34 is arranged so that when it is moved to cover the grid and close the suction pipe 31 to the pipes 29 and 30, the branch pipe 36 is open, whereas when the slide exposes the grid so that the exhaust fan can suck through the pipes 29, 30, the pipe 36 is closed by the slide. In the latter case the particles of tobacco are sucked through the pipes 29 and 30 up to the grid 33, where they are retained by the suction. When the slide is moved so as to cover the grid the fan sucks through the pipe 36, with the result that the tobacco drops down the pipe 35. Upon further rotation of the star-wheel 16 the mold which has passed the knife 27 is moved to its lowest position, in which it discharges the pressed tobacco leaves into the final molding device 37. To allow the pressed tobacco, which is now a filler, to drop out of the mold, the slides 20, 20^a must be moved apart again. For this purpose the roller on the arm 24 rides on to an abutment 25^a. In order to insure that the filler is discharged from its mold in the proper position, the base of each mold is formed by a sliding plunger 38, which is connected by a pin 40 with a double armed lever 41. When the mold arrives at its lowest position, the arm 41^a of the lever 41 is raised by means of levers 42 actuated by a cam 43, so that the arm 41^b of the lever rocks downward and depresses the plunger 38, as shown in Fig. 4. The plunger is then raised again by a spring 41^c, and the levers 42 are retracted by a spring 41^d. The final molding device comprises rollers 45, 46, which are mounted between plates 47, 48, three on each side of a vertical passage, the three rollers on each side being geared with each other by pinions 49. The central pinions are driven by belts and pulleys 50.

The spindles of the lower pinions are mounted in slides 51, 52, and also form pivots for the plates 47 and 48, so that the latter, carrying the rollers, are capable of rocking as shown in Fig. 1, to enable the filler forced out of the primary mold to drop between the rollers 45 and 46. Binders may be applied by means of these rollers 45, 46, or the application of the binders may take place outside the machine, after the fillers have been finally shaped by the finishing molds to be described hereinafter. The rocking movement is effected by means

of levers 55 actuated by a spring loaded lever 53. The latter is adapted to be used as a treadle, or is automatically actuated by a cam 54.

After the release of the lever 53 by the foot or cam, the plates 47, 48 with the rollers 45, 46 are rocked toward each other by the spring action, with the filler between the rollers, and the latter perform the second molding operation. After the completion of this operation the slides 51, 52, with the plates and rollers, are pulled apart as shown in Fig. 5, this being effected by means of a train of levers 58 actuated by a lever 56. The latter is used as a treadle, or is actuated by a cam 57. The filler then drops into one of the finishing molds 59. The bi-partite molds 59 are carried by supports 61 on an endless conveyer 60, the rear member of each mold being slidable and abutting against the arm 62^a of a bell-crank 62 pivoted to the support 61. The other arm 62^b of the bell-crank projects over the conveyer 60, and lies close to the same, so that when the conveyer is straight the bell-crank cannot rock and allow the slidable mold member to move away from the fixed member. The rollers 45, 46 are disposed above a sprocket 60^a round which the molds 59 on the conveyer travel upward toward the said rollers. In the course of this upward travel the conveyer, bent on the circumference of the sprocket, allows the bell-crank arm 62^b to drop, so that the movable mold-member can slide away from the fixed member, whereby the mold is opened to receive the filler. When the conveyer is straightened out again, after leaving the sprocket, it rocks the bell crank and thereby closes the finishing mold, with the filler therein.

What we claim as our invention and desire to secure by Letters Patent of the United States is:—

1. In a cigar machine the combination of a hopper, a traveling apron in said hopper, a second traveling apron perpendicular to the first-mentioned apron, arranged with a small clearance between said aprons, an endless conveyer band below said aprons, a series of transverse bars of triangular cross-section fixed to said band to form V-shaped grooves thereon, a series of traveling molds arranged to consecutively receive tobacco from said conveyer, and a plunger arranged to press tobacco delivered by said conveyer into said molds.

2. In a cigar machine the combination of a hopper, a traveling apron in said hopper, a second traveling apron perpendicular to the first-mentioned apron, arranged with a small clearance between said aprons, an endless conveyer band below said aprons, a series of transverse bars of triangular cross-section fixed to said band to form V-shaped

grooves thereon, a fan-wheel having vanes sweeping over said transverse bars, a series of traveling molds, means for delivering tobacco from said conveyer to said molds consecutively, and a plunger for pressing tobacco into said molds.

3. In a cigar machine the combination of a hopper, a traveling apron in said hopper, a second traveling apron perpendicular to the first-mentioned apron, arranged, with a small clearance between said aprons, an endless conveyer band below said aprons, a series of transverse bars of triangular cross-section fixed to said band to form V-shaped grooves thereon, a fan-wheel having vanes sweeping over said transverse bars, a series of traveling molds, means for delivering tobacco from said conveyer to said molds consecutively, a weighted plunger for pressing tobacco into said molds, and means for alternately raising and dropping said plunger.

4. In a cigar machine the combination of conveyer mechanism, a series of molds, a rotatable carrier whereby said molds are carried in a circular path about a horizontal axis and are consecutively moved to a position at the top of said path to receive tobacco from said conveyer mechanism, a plunger arranged to press tobacco delivered by said conveyer mechanism into said molds, movable mold-covers, and means whereby said covers are temporarily withdrawn from said molds at the top and at the bottom of the mold-path.

5. In a cigar machine the combination of conveyer mechanism, a series of molds, a rotatable carrier whereby said molds are carried in a circular path about a horizontal axis and are consecutively moved to a position at the top of said path to receive tobacco from said conveyer mechanism, a plunger arranged to press tobacco delivered by said conveyer mechanism into said molds, on each of said molds two slide-covers, arranged to close the mold-orifice by moving toward each other, means whereby said covers are temporarily withdrawn from the respective molds at the top and at the bottom of the mold-path, and a knife adjacent said mold-path for cutting away tobacco projecting from said molds between the meeting edges of said slide-covers.

6. In a cigar machine the combination of conveyer mechanism, a series of molds, a rotatable carrier whereby said molds are carried in a circular path about a horizontal axis and are consecutively moved to a position at the top of said path to receive tobacco from said conveyer mechanism, a plunger arranged to press tobacco delivered by said conveyer mechanism into said molds, on each of said molds two slide-covers, arranged to close the mold-orifice by moving

toward each other, means whereby said covers are temporarily withdrawn from the respective molds at the top and at the bottom of the mold-path, and a circular knife rotating adjacent said mold-path for cutting away tobacco projecting from said molds between the meeting edges of said slide-covers.

7. In a cigar machine the combination of conveyer mechanism, a series of molds, a rotatable carrier whereby said molds are carried in a circular path about a horizontal axis and are consecutively moved to a position at the top of said path to receive tobacco from said conveyer mechanism; a plunger arranged to press tobacco delivered by said conveyer mechanism into said molds, movable mold-covers; means whereby said covers are temporarily withdrawn from said molds at the top and at the bottom of the mold-path, ejecting plungers in said molds, and means whereby said ejecting plungers are actuated on arrival at the bottom of the mold-path.

8. In a cigar machine the combination of conveyer mechanism, a series of molds, a rotatable carrier whereby said molds are carried in a circular path about a horizontal axis and are consecutively moved to a position at the top of said path to receive tobacco from said conveyer mechanism, a plunger arranged to press tobacco delivered by said conveyer mechanism into said molds, movable mold-covers, levers carried by said carrier for withdrawing said covers from said molds, and fixed abutments in the path of said levers, whereby the latter are actuated for withdrawing the covers at the top and at the bottom of the mold-path.

9. In a cigar-machine the combination of conveyer mechanism, a series of traveling molds arranged to consecutively receive tobacco from said conveyer mechanism, a plunger arranged to press tobacco delivered by said conveyer mechanism into said molds, a conduit having an intake orifice adjacent the operative position of said plunger, a suction conduit joined to the first-mentioned conduit, a grid at the junction of said conduits, a branch conduit joined to said suction conduit adjacent said grid and terminating over said conveyer mechanism, and a slide for covering said grid.

10. In a cigar-machine the combination of conveyer mechanism, a series of traveling molds arranged to consecutively receive tobacco from said conveyer mechanism, a plunger arranged to press tobacco delivered by said conveyer mechanism into said molds, a knife for cutting away tobacco projecting from said molds, a conduit having an intake orifice adjacent the edge of said knife, a suction conduit joined to the first-mentioned conduit, a grid at the junc-

tion of said conduits, a branch conduit joined to said suction conduit adjacent the grid and terminating over said conveyer mechanism, and a slide for covering said
5 grid.

11. In a cigar-machine the combination of conveyer mechanism, a series of primary traveling molds arranged to consecutively receive tobacco from said conveyer
10 mechanism, a plunger arranged to press tobacco delivered by said conveyer mechanism into said primary molds, means for ejecting tobacco from said primary molds, two vertical series of horizontal parallel
15 rollers, pivoted bearings for the said two series of rollers, means for rocking said bearings whereby the two series of rollers are moved apart at the top for admitting tobacco from the molds, means for driving
20 said rollers, slide carriages for said roller-bearings, and means for moving apart said carriages with the two series of rollers.

12. In a cigar-machine the combination of conveyer mechanism, a series of primary
25 traveling molds arranged to consecutively receive tobacco from said conveyer mechanism, a plunger arranged to press tobacco

delivered by said conveyer mechanism into said primary molds, means for ejecting tobacco from said primary molds, an endless
30 conveyer, a series of mold-supports on said conveyer, bi-partite finishing molds on said mold-supports, each of said finishing molds comprising a member fixed to its support and a member slidable on said support, and
35 on each of said mold-supports a pivoted bell-crank whereof one arm abuts against the slidable mold-member and the other arm trails on the conveyer, said conveyer traveling in an upward direction around a curve
40 whereby the bell-crank is enabled to rock and allow the slidable mold-member to move away from the fixed mold member.

In witness whereof we have signed this specification in the presence of two witnesses.
45

OTTO PREISSLER.
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Witnesses as to Otto Preissler:
JEAN GRUND,
CARL GRUND.

Witnesses as to Anton Fritz:
HENRY HASPER,
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