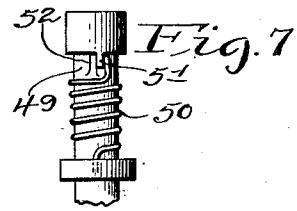
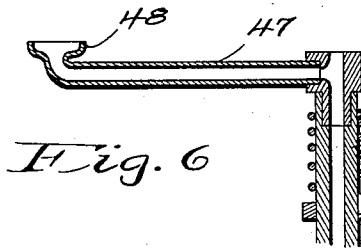
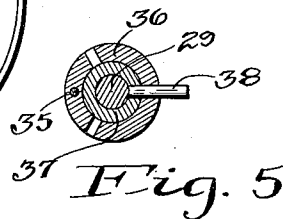
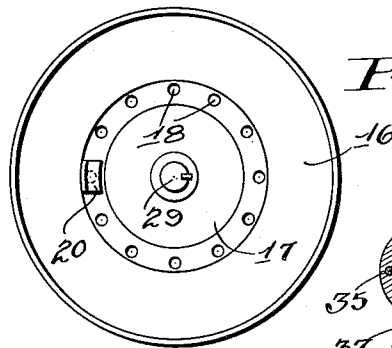
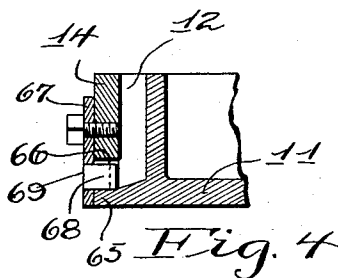
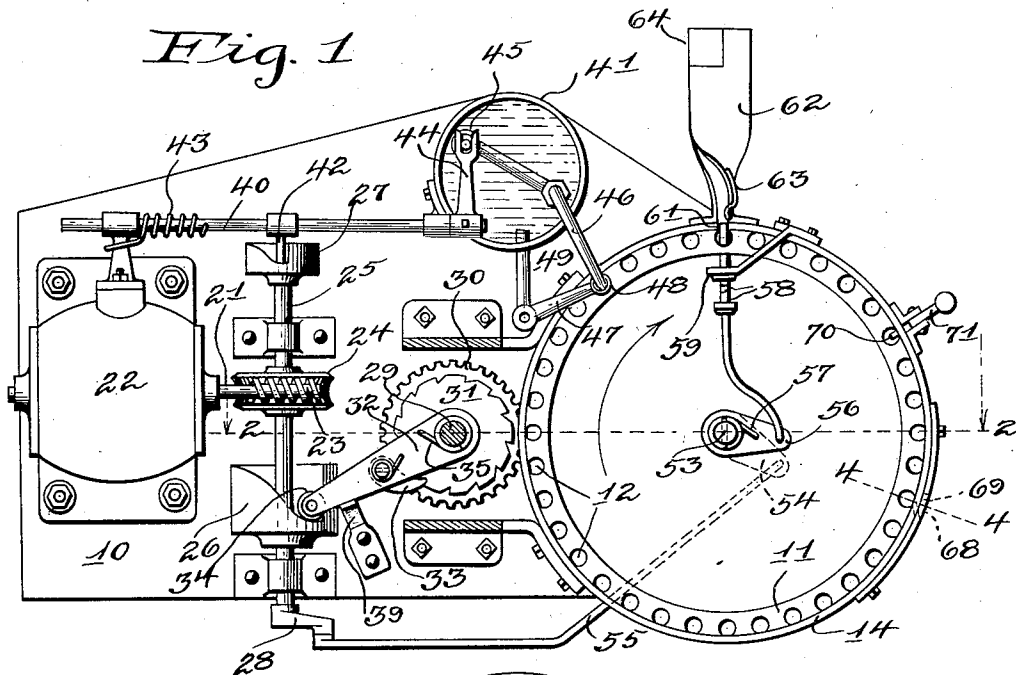


P. J. RUSCHER.
CIGARETTE MACHINE.
APPLICATION FILED AUG. 8, 1912.

1,057,983.

Patented Apr. 1, 1913.

2 SHEETS-SHEET 1.



Witnesses
H. C. Russell
H. M. Hardy

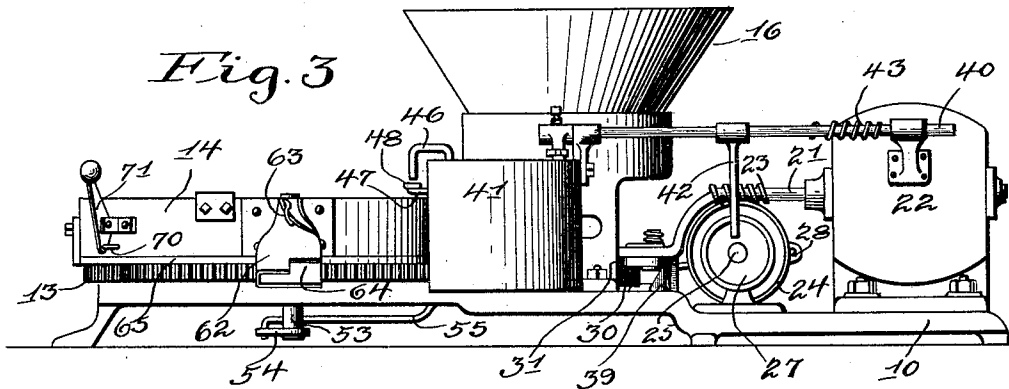
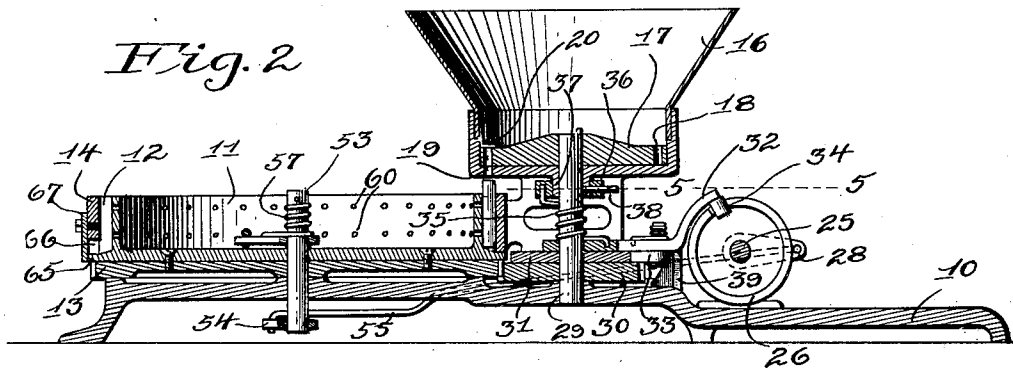
Inventor
Peter J. Ruscher
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2 SHEETS-SHEET 2.



Witnesses
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UNITED STATES PATENT OFFICE.

PETER J. RUSCHER, OF ST. PAUL, MINNESOTA, ASSIGNOR TO R. SCHIFFMANN COMPANY, OF ST. PAUL, MINNESOTA, A CORPORATION OF MINNESOTA.

CIGARETTE-MACHINE.

1,057,983.

Specification of Letters Patent.

Patented Apr. 1, 1913.

Application filed August 8, 1912. Serial No. 714,011.

To all whom it may concern:

Be it known that I, PETER J. RUSCHER, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented new and useful Improvements in Cigarette-Machines, of which the following is a specification.

My invention relates to improvements in cigarette machines, and is designed for use in the manufacture of cigarettes, particularly those for medicinal purposes.

It is common practice to fill a paper tube or wrapper, tucked at one end and having a mouth piece at its other end, with powdered, ground or granulated material and then place a porous plug or stopper in the mouth piece to retain said smoking material within the wrapper.

The object of my invention is to provide an improved machine adapted to automatically form porous plugs or stoppers of glutinous material within the mouth pieces of cigarettes.

A further object is to provide in a device of this kind, means for receiving a plurality of cigarette tubes containing a pulverulent material, means for supplying each tube, in turn with a measured quantity of granulated glutinous material, means for moistening said material within the mouth pieces of the tubes, to thereby form porous stoppers to retain the filler within said tubes and means for delivering the cigarettes in orderly, parallel relation to each other for packing.

In the drawings, Figure 1 is a plan view of my improved machine partly broken away to show the driving mechanism; Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1; Fig. 3 is a side elevation of my machine; Fig. 4 is a detail sectional view taken on the line 4—4 of Fig. 2; Fig. 5 is a sectional view taken on the line 5—5 of Fig. 2; Fig. 6 is a detail vertical view of the overflow drain; Fig. 7 is an elevation of the same and Fig. 8 is a plan view of the hopper and delivery disk.

Referring to the accompanying drawings, I have used the reference numeral 10 to indicate the platform or base of my machine. The table 11 having a series of vertical sockets 12 formed in its periphery and

designed to receive cigarettes, is revolubly mounted on the base 10. This table is provided with a gear wheel 13 and is surrounded by a stationary jacket 14 adapted to retain cigarettes within the sockets of said table. The hopper 16 on the base 10 is designed to contain a granular glutinous substance, such as glue or gum. The delivery disk 17 revoluble in the hopper 16 is formed with a series of vertical perforations or measuring chambers 18, each perforation being arranged to register with the opening 19, in said hopper, which is located directly above the path of the sockets 12 in the rotary table 11. A thin metal clip 20 mounted on the hopper 16 is arranged above the opening 19 and adjacent to the upper face of the delivery disk 17. This clip prevents the escape of the contents of said hopper, which would otherwise occur upon movement of said disk 17 to a position in which a perforation 18 registers with the opening 19.

The following means have been provided for intermittently turning the table 10 and delivery disk 17, whereby cigarettes in the sockets 12 of the table 11 may be presented, one at a time beneath the hopper 16 and said disk may be operated to deliver a measured quantity of glue from said hopper to each cigarette. The drive shaft 21 of the motor 22 is supplied with a worm 23 in mesh with the worm gear 24 on the cam shaft 25. On this shaft 25 are mounted the cams 26 and 27 and the crank 28. The vertical shaft 29 revoluble in the hopper 16 and base 10 is fixed at its upper end to the delivery disk 17 and near its lower end is mounted the gear wheel 30 and ratchet wheel 31, said gear wheel 30 being arranged to mesh with the gear wheel 13 on the table 11. The arm 32, loosely mounted at one end on the shaft 29, is provided with a spring actuated dog 33, in engagement with the ratchet wheel 31, and with a roller 34 in position to contact with the cam 26. The spring 35 coiled about the shaft 29 is attached at one end to the arm 32 and at its other end to the collar 36, which may be turned on the hub 37 of the hopper 16 and locked in various positions thereon by means of the pin 38. This spring arrangement provides a method for

conveniently altering the tension of said spring 35. The cam 26 swings the arm 32 on the shaft 29 to coil the spring 35 and said spring returns said arm and operates through the dog 33 and ratchet wheel 31 to turn the shaft 29 and through said shaft to revolve the table 11 and delivery disk 17. The stop 39 on the base 10 extends into the path of the arm 32 to limit the return of said arm. The gear wheels 13 and 30 located respectively on the table 11 and shaft 29 are timed so that at the completion of the return stroke of the arm 32 a perforation 18, in the delivery disk 17, will register with the opening 19 in the hopper 16, and one of the sockets 12 in the table 11 will rest directly beneath said opening. By this arrangement a pre-determined quantity of glue is presented above a cigarette in the table 11 and is liberated from the delivery disk 17 by the jar caused by the impact between the arm 32 and stop 39, to fall by gravity into the mouth piece of a cigarette, through the opening 19 in the hopper 16.

Means for softening the dry granulated glue, to cause the granules to adhere to each other and to the sides of the mouth piece of a cigarette, are provided consisting of a rock-shaft 40 supported at one end on the motor 22 and at its other end on the liquid supply tank 41. This rock-shaft is turned in one direction by the lever 42 which is operated by the cam 27 and in the opposite direction by the spring 43. The arm 44 on said shaft is connected with a pump 45 in the tank 41, and is adjustable on the shaft 40 to alter the stroke of said pump. An elongated spout 46 on the pump 41 opens above the path of the sockets 12 in the table 11. The operation of this pumping mechanism in connection with that of the delivery disk and table driving mechanism, results in dropping a small quantity of water or other liquid on the glue in one cigarette, while a succeeding cigarette is being supplied with glue from the hopper. A waste pipe 47 having a cup-shaped end 48 is pivoted horizontally on the drain pipe 49 which leads to the tank 41. Said waste pipe is normally held by the spring 50 with its lug 51 engaging the stop 52 on said drain pipe and with the cup 48 beneath the opening of the spout 46. Cigarettes in the rotary table 11 come in contact with the waste pipe 47 and swing it aside as they advance to position beneath the spout 46 of the pump 45. In case cigarettes have been omitted from the table, said pipe 47 retains its normal position to receive the discharge from the pump 45 and thereby prevents the flow of water into the empty sockets 12.

The mechanism for discharging the plugged cigarettes from the table 11 comprises an upright shaft 53 journaled in the

base 10, the gear wheel 13 and table 11, as illustrated in Fig. 2. The arm 54 at the lower end of the shaft 53 is connected by the rod 55 with the crank 28 on the cam shaft 25. The lever 56, loose on the shaft 53, is yieldingly secured thereto by the spring 57 and is attached to the plunger rods 58. These rods, slidably supported in the guide 59, are adapted to pass through the apertures 60 in the table 11 to eject a cigarette from a socket 12 and force the same, through the slot 61 in the jacket 14, into the trough 62. This mechanism is operated as the table rests at the end of each stop and successively discharges the completed cigarettes. The spring catch 63 on the trough 62 engages the cigarettes as they pass from the table 11 to prevent the same from clogging between the jacket 14 and said table as the latter is turned. The trough 62 is shaped to guide the cigarettes from a vertical to a horizontal plane where they are easily accessible for packing through the hand opening 64.

The bottoms of the sockets 12 are beveled and the jar of the table 11 caused by the impact between the arm 32 and stop 39 shakes waste material from said sockets to the flange 65, in the recess 66 which is formed by cutting away a portion of the jacket 14. The metal cover 67 (shown in Figs. 1 and 4) is mounted on said jacket to inclose said recess, and is provided with an obliquely arranged tongue 68 adapted to remove said loose waste material from the flange 65 and discharge the same through the opening 69 in said cover 67.

A stop for discontinuing the operation of the machine consists of a pin 70 and an operating lever 71 pivoted on the jacket 14 for extending said pin through said jacket and into one of the sockets 12 of the table 11. The movement of the lever 71 in one direction engages the pin and table and prevents movement of the latter against the action of the spring 35, while movement of said lever in the other direction removes said pin from the path of the table and permits its normal rotation.

In operation, tubes containing smoking material are inserted in the sockets 12, by hand or other suitable means. These tubes are carried, step by step, on the table in the direction indicated by the arrow in Fig. 1, and are presented, in turn, beneath the opening 19 of the hopper 16. The movement of the delivery disk 17 is synchronous with that of the table 11 and as each tube is presented beneath the hopper 16 a quantity of glue is delivered thereto from one of the perforations 18 in said disk. The cigarettes are then carried from beneath the hopper to a position beneath the spout 46, where each receives a drop of water to moisten

the glue and thereby form a porous stopper of the granules which are thus caused to adhere to each other and to the sides of the tube. The plugs having been formed, the cigarettes are carried to a position adjacent to the trough 62, and are, in turn, discharged from said table by the plunger rods 58 and are forced through the trough, one after the other, where they are easily accessible for packing. The lever 71 is operated to start or stop the rotation of the table 11. Variable quantities of glue may be utilized by interchanging disks having larger or smaller perforations 18, and more or less water may be delivered from the pump 45 by adjusting the arm 44 on the rock-shaft 40.

The advantages of my machine include among others rapidity and efficiency in forming the plugs, economy in the use of glue and protection of the tubes against injury which frequently occurs when the glue is sifted into, and steam or other moisture is applied to, a plurality of nested tubes.

The word glue when used in this specification and in the claims is intended to include gum and any other suitable glutinous substance.

Having described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a device of the class described, the combination of a base, a rotary table on said base for receiving a plurality of cigarettes, means for supplying said cigarettes with measured quantities of ground glue, and means for moistening the glue within said cigarettes to form porous plugs therefor.

2. In a device of the class described, the combination of a base, a rotary table for receiving a plurality of cigarettes, a hopper on the base adapted to contain a supply of granulated glutinous material, means in said hopper for delivering measured quantities of said glutinous material to said cigarettes and means for moistening said material within said cigarettes to form porous retaining plugs therefor.

3. In a device of the class described, the combination of a base, a table for receiving a plurality of cigarettes revoluble on said base, a hopper designed to contain a supply of granulated glue, a delivery disk revoluble within the hopper and adapted to deliver the glue in measured quantities from said hopper to the cigarettes and means for moistening the glue within said cigarettes to form porous retaining plugs therefor.

4. In a device of the class described, the combination of a base, a table revoluble on said base, for receiving a plurality of cigarettes, means for supplying said cigarettes with measured quantities of ground glutinous material, means for moistening said

material within the cigarettes to form porous filler retaining plugs therefor and means for discharging the cigarettes from said table.

5. In a device of the class described, the combination of a base, a table, for receiving a plurality of cigarettes, revoluble on said base, means for intermittently rotating said table, means for automatically supplying one of the cigarettes with a quantity of ground glutinous material when said table is at rest, and means for thereafter softening the glue within said cigarette to form a porous filler retaining plug therefor.

6. In a device of the class described, the combination of a base, a table, for receiving a plurality of cigarettes, intermittently revoluble on said base, means for supplying a cigarette with ground glue, means for moistening the glue within a cigarette to form a porous plug therefor and means for discharging a plugged cigarette from said table, all of said operations being performed simultaneously and when said table is at rest.

7. In a device of the class described, the combination of a rotary table for receiving a plurality of cigarettes, means for intermittently rotating said table, means for successively supplying the cigarettes with ground glutinous material, means for thereafter moistening the glue within said cigarettes to form porous retaining plugs, and means for discharging the cigarettes from said table.

8. In a device of the class described, a hopper adapted to contain glue and having an opening in its base, a delivery disk revoluble in the bottom of said hopper and formed with perforations adapted to register with said opening, a cover for the perforations when so registered with said opening, a rotary table beneath the opening in said hopper for receiving cigarettes and means for intermittently turning said table and delivery disk, whereby at each step a cigarette is presented beneath said opening and supplied with a measured quantity of glue from said hopper.

9. In a device of the class described, the combination of a base, a hopper adapted to contain granulated glue and having an opening in its floor, a delivery disk revoluble in the bottom of said hopper and formed with perforations adapted to register with the opening, a cover for the perforations when so registered, a table, revoluble on said base, and provided with a series of sockets adapted to receive cigarettes and arranged to pass beneath said opening, and means for imparting a step by step movement to said table and delivery disk whereby at each step a cigarette is presented beneath the opening and supplied with glue.

10. In a device of the class described, the combination of a base, a hopper adapted to contain glue and having an opening in its floor, a delivery disk revoluble in the bottom
5 of said hopper and formed with perforations adapted to register with the opening, a cover for the perforations when so registered, a table, revoluble on said base, and provided with a series of sockets adapted to receive
10 cigarettes and arranged to pass beneath said opening, means for imparting a step by step movement to said table and delivery disk whereby at each step a cigarette is presented beneath the opening and supplied with
15 glue, a liquid supply tank on the frame, a pump within said tank and means for operating said pump to deliver a quantity of liquid to the glue within a cigarette to thereby form a porous retaining plug therefor.

11. In a device of the class described, the combination of a base, a hopper adapted to contain granulated glue and having an opening in its floor, a delivery disk revoluble in
25 the bottom of said hopper and formed with perforations adapted to register with the opening, a cover for the perforations when so registered, a table, revoluble on said base, and provided with a series of sockets adapted to receive cigarettes and arranged to pass
30 beneath said opening, means for imparting a step by step movement to said table and delivery disk whereby at each step a cigarette is presented beneath the opening and supplied with glue, a liquid supply tank on
35 the frame, a pump within said tank, means for operating said pump to deliver a quantity of liquid to the glue within a cigarette to form a porous retaining plug therefor and means for discharging the cigarettes
40 from said table.

12. In a device of the class described, the combination of a base, a table for cigarettes, revoluble on said base, a hopper adapted to
45 contain granulated glue or the like, a perforated disk within said hopper for delivering the contents thereof to said cigarettes, a gear wheel on said table, an upright shaft revoluble in the base, an arm loosely mounted
50 on said shaft, a coiled spring on said shaft extending from said arm to said hopper, a ratchet wheel and gear wheel on said shaft, the last mentioned gear wheel being in mesh with the gear wheel on the table, a
55 dog on said arm in engagement with said ratchet wheel, a power driven cam shaft on the base, a cam on said shaft in operative connection with said arm for moving the same to contract the spring, said spring being
60 adapted to return the arm and rotate said disk and table.

13. In a device of the class described, the combination of a base, a hopper on said base, a delivery disk within said hopper, a

table revoluble on said base, a gear wheel
65 on said table, an upright shaft revoluble in the base, an arm loosely mounted on said shaft, a coiled spring on the shaft extending from said arm to said hopper, a ratchet
70 wheel and gear wheel on said shaft, said first and last mentioned gear wheels being in mesh, a dog on said arm in engagement with said ratchet wheel, a power driven cam shaft on the base, and a cam on said shaft
75 in operative connection with said arm to move the same and thereby contract said spring, which is adapted to return the arm and rotate said disk and table.

14. In a device of the class described, the combination of a base, a hopper on said
80 base, a delivery disk within said hopper, a table revoluble on said base, a gear wheel on said table, an upright shaft revoluble in the base, an arm loosely mounted on said shaft, a coiled spring on
85 the shaft extending from said arm to said hopper, a ratchet wheel and gear wheel on said shaft, said first and last mentioned gear wheels being in mesh, a dog on said arm in engagement with said ratchet wheel, a power
90 driven cam shaft on the base, and a cam on said shaft in operative connection with said arm to move the same and thereby contract said spring, which is adapted to return the arm and rotate said disk and table, and
95 means for manually adjusting the tension of said spring.

15. In a device of the class described, the combination of a base, a hopper on said
100 base, a delivery disk within said hopper, a table, revoluble on said base, a gear wheel on said table, an upright shaft revoluble in the base, an arm loosely mounted on said shaft, a coiled spring on the shaft extending from said arm to said hopper, a ratchet
105 wheel and gear wheel on said shaft, said first and last mentioned gear wheels being in mesh, a dog on said arm in engagement with said ratchet wheel, a power driven cam shaft on the base, a cam on said shaft
110 in operative connection with said arm to move the same and thereby contract the spring, which is adapted to return the arm and rotate said disk and table, and a stop to limit the return stroke of said arm.

16. In a device of the class described, the combination of a base, a hopper on said
120 base, a delivery disk within said hopper, a table, for containing cigarettes revoluble on said base, a power driven cam shaft on said base, means in operative connection with said cam shaft for intermittently rotating said disk, an upright shaft revoluble in the base, plunger rods yieldingly connected with the shaft, an arm on said shaft,
125 a crank on the cam shaft and a connecting rod between said arm and crank for turning said shaft to reciprocate said plunger rods,

whereby cigarettes are discharged one at a time from said table.

17. In a device of the class described, the combination of a base, a hopper on said base, a perforated disk within said hopper for delivering the contents thereof, a power driven cam shaft on the base, a liquid supply tank, a pump within said tank, a rock shaft, an adjustable arm on said shaft in operative connection with the pump, a cam on said cam shaft, a lever on the rock shaft in engagement with said cam for turning said shaft to operate said pump, a table revolvable beneath the said hopper and pump and means in operative connection with said cam shaft for intermittently rotating said table and disk.

18. In a device of the class described, the combination of a base, a table on said base for receiving a plurality of cigarettes, means for intermittently turning said table, means for supplying said cigarettes with measured quantities of ground glue, means for moistening the glue within said cigarettes to form porous plugs therefor, and a manually operated stop adapted to engage said table and prevent its rotation.

19. In a device of the class described, the combination of a base, a table revolvable on said base and having a plurality of sockets in its periphery for receiving cigarettes, a jacket surrounding said table, a motor on the frame, means yieldingly connected with said motor for revolving said table, a pin slidable in the jacket, a lever adapted to move said pin to engage or disengage said table and thereby permit or prevent its normal rotation, means for supplying the cigarettes with measured quantities of ground glue, and means for moistening the glue within said cigarettes to form porous plugs therefor.

20. In a device of the class described, the combination of a base, a table having a plurality of sockets in its periphery adapted to receive cigarettes, an annular flange on said table adjacent to the bases of said sockets, a jacket surrounding said table and having a portion cut away to form a recess, a cover on the jacket inclosing said recess, a tongue on said cover adjacent to the face of said flange and arranged obliquely within said recess to remove waste material therefrom, means for supplying the cigarettes with measured quantities of glutinous material and means for moistening the material within said cigarettes to form porous plugs therefor.

21. In a device of the class described, the combination of a base, a table on said base having sockets therein for receiving a plurality of cigarettes, means for successively supplying said cigarettes with measured quantities of glutinous material, means for

moistening said material within said cigarettes to form porous filler retaining plugs therefor, and means for removing waste material from the sockets in said table.

22. In a device of the class described, the combination of a base, a table on said base for receiving a plurality of cigarettes, means for supplying said cigarettes with glutinous material, means for moistening the material within said cigarettes to form porous retaining plugs, means for discharging said cigarettes from said table, and a trough adapted to receive said cigarettes and direct the same from vertical to horizontal positions for packing.

23. In a device of the class described, the combination of a base, a table on said base for receiving a plurality of cigarettes, means for supplying said cigarettes with glutinous material, means for moistening said material within said cigarettes to form porous plugs, means for discharging said cigarettes from said table, a trough adapted to receive the cigarettes and direct them from vertical to horizontal positions for packing, and a catch on said trough arranged to engage and retain the last discharged cigarette.

24. In a device of the class described, the combination of a base, a table on said base for receiving a plurality of cigarettes, a hopper on the base, a perforated disk within the hopper for delivering the contents thereof to said cigarettes, a power driven cam shaft on the base in operative connection with both said table and disk for simultaneously and intermittently turning the same.

25. In a device of the class described, the combination of a base, a rotary table on said base for receiving a plurality of cigarettes, a hopper on the base, a perforated disk within the hopper for delivering the contents thereof to said cigarettes, plunger rods for discharging cigarettes from said table, a power driven cam shaft on the base, means in connection with said shaft for turning said table and disk and for reciprocating said rods.

26. In a device of the class described, the combination of a base, a table on said base for receiving a plurality of cigarettes, a hopper adapted to contain granulated glutinous material, a perforated disk within said hopper for delivering the contents thereof to said cigarettes, plunger rods for discharging cigarettes from said table, a liquid supply tank on the base, a pump, in said tank for delivering liquid to the material within said cigarettes, a power driven shaft on the base, means in connection with said shaft for intermittently turning said table and disk and for operating said plunger rods and pump when said table is at rest.

27. In a device of the class described, the combination of a base, a table, for receiving a plurality of cigarettes, revoluble on said base, means for supplying said cigarettes
5 with granulated glutinous material, a liquid supply tank on said base, a power operated pump within the tank adapted to deliver liquid, in measured quantities to the cigarettes, and a pivoted waste pipe yieldingly

held in normal position to receive the discharge from said pump. 10

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

PETER J. RUSCHER.

Witnesses:

F. M. HARDY,

F. C. CASWELL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
