(No Model.) 6 Sheets—Sheet 1.

# J. A. BONSACK.

## CIGARETTE MACHINE.

No. 573,640. Patented Dec. 22, 1896.

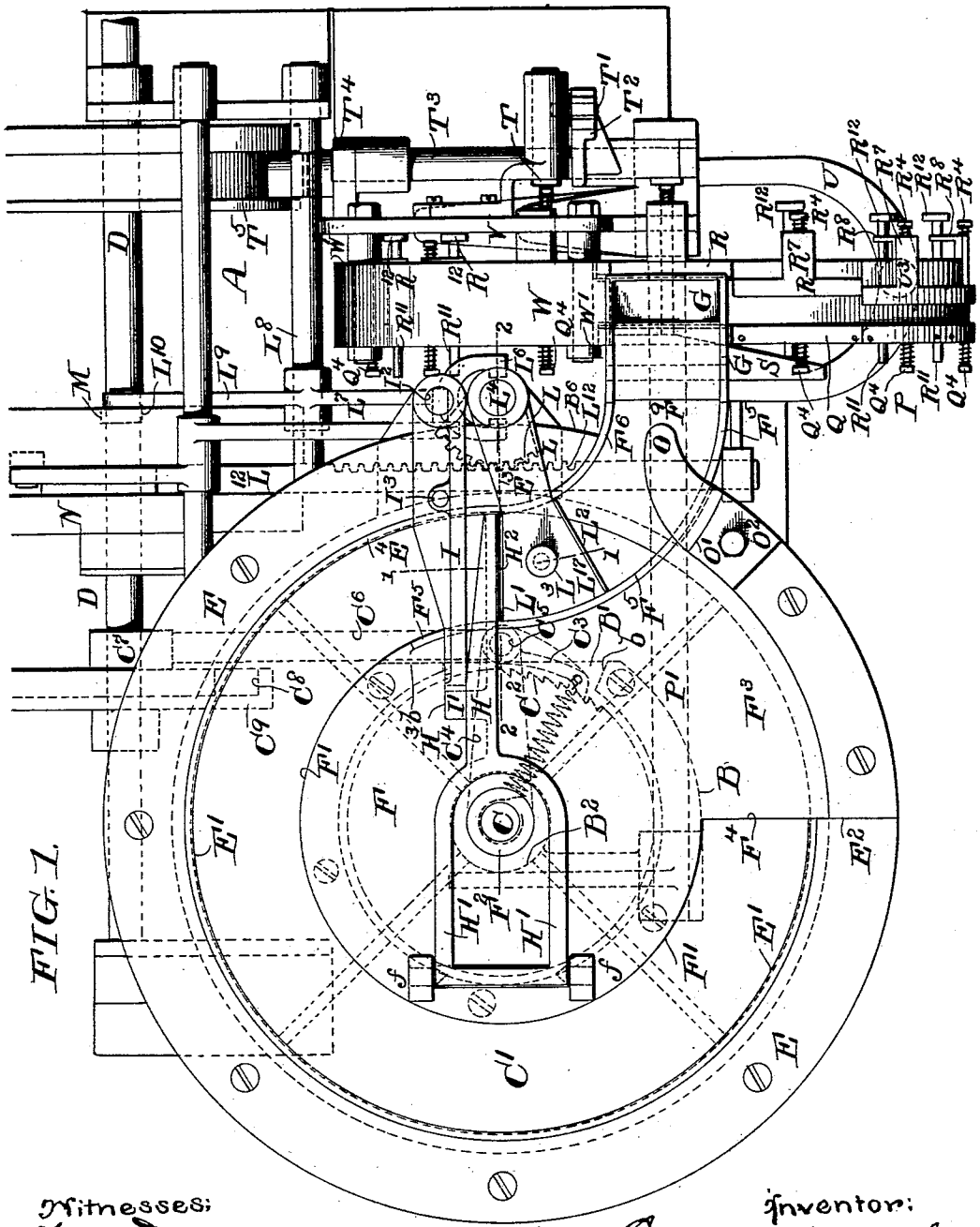


FIG. 1.

Witnesses:
Henry Drury
D. Stewart

Inventor:
James A. Bonsack
by his atty
Francis T. Chambers

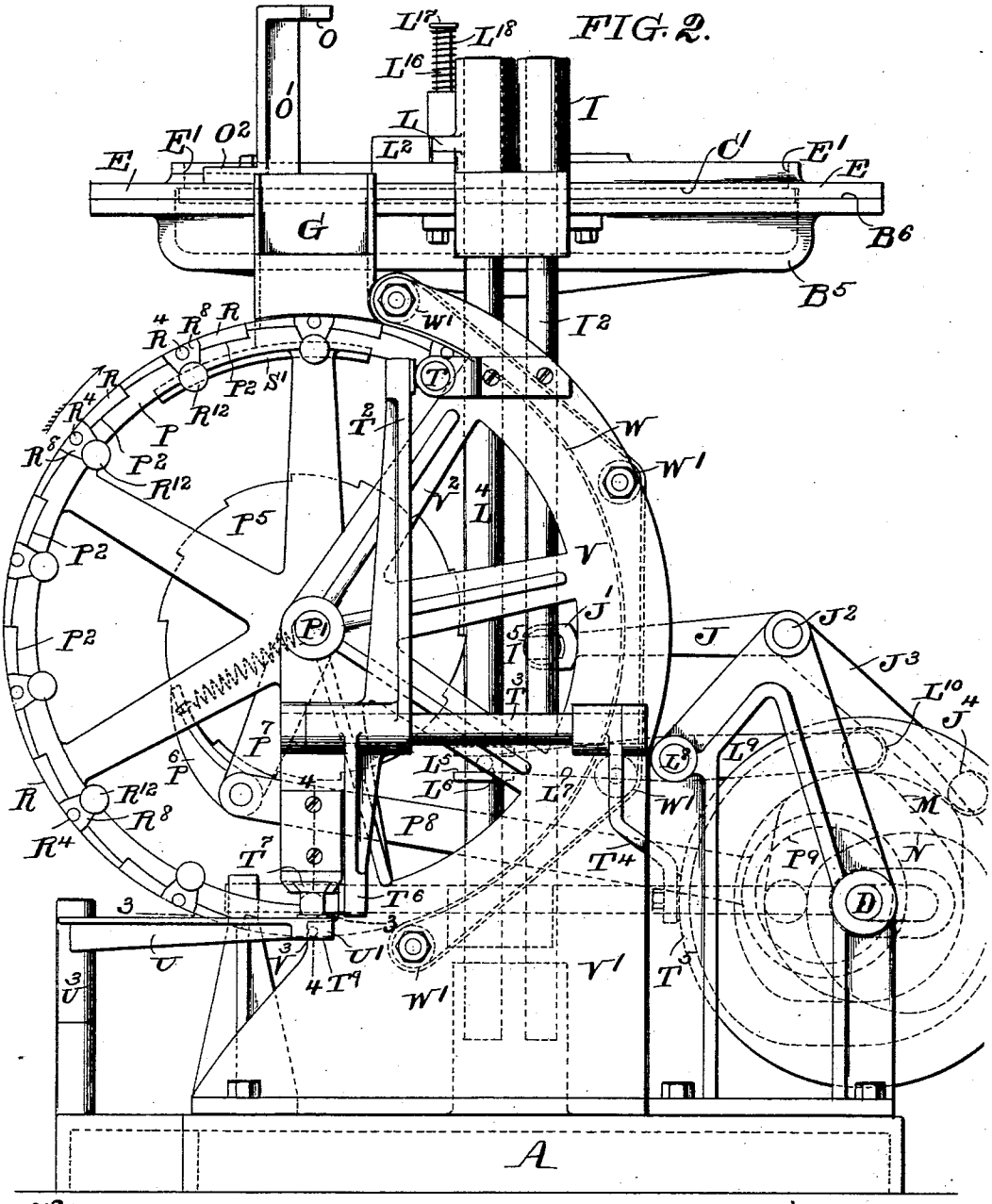
(No Model.) 6 Sheets—Sheet 2.

# J. A. BONSACK.

## CIGARETTE MACHINE.

No. 573,640. Patented Dec. 22, 1896.

FIG. 2.




Witnesses:
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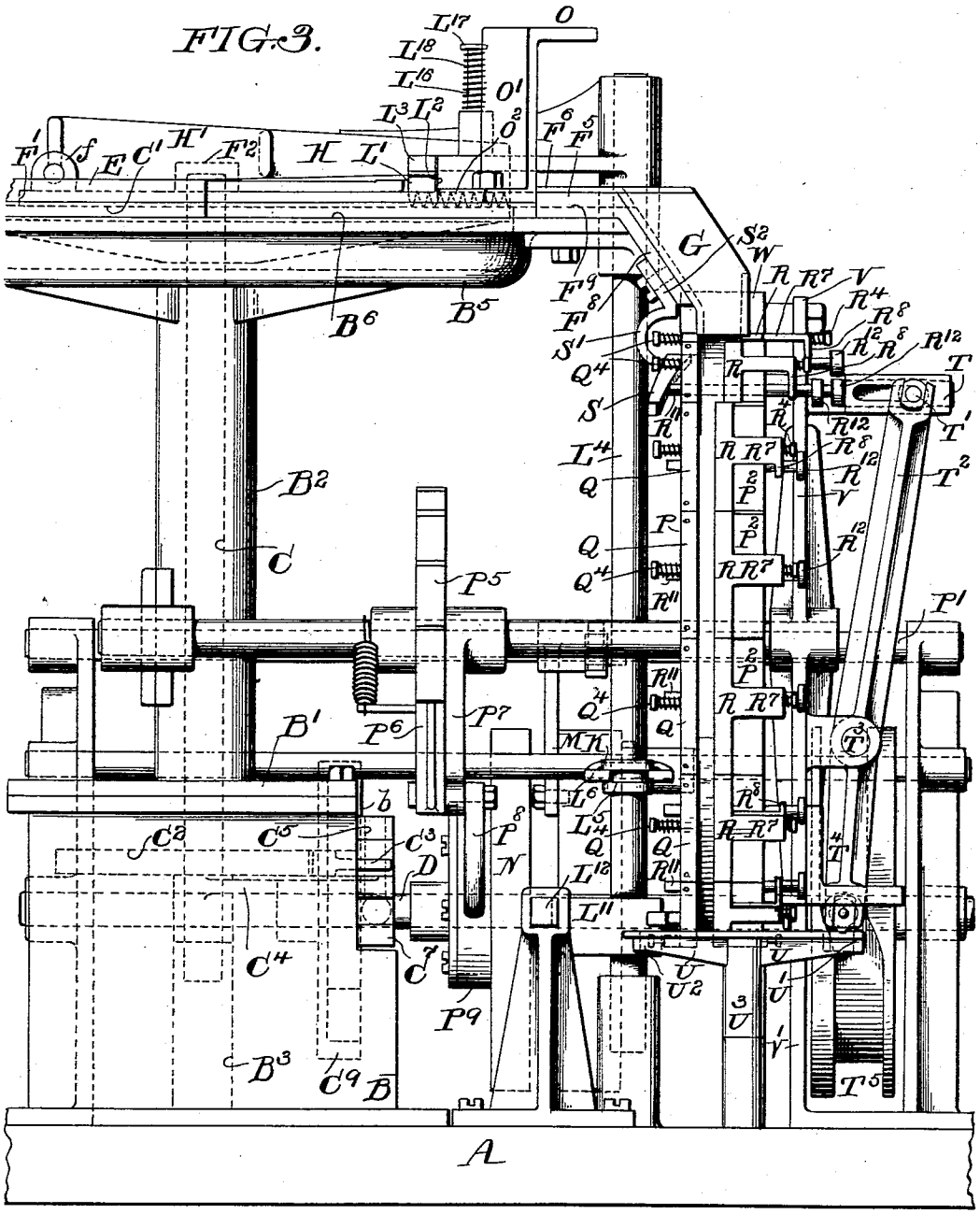
(No Model.) 6 Sheets—Sheet 3.

# J. A. BONSACK.

## CIGARETTE MACHINE.

No. 573,640. Patented Dec. 22, 1896.

FIG. 3.




Witnesses:
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(No Model.) 6 Sheets—Sheet 4.

# J. A. BONSACK.

## CIGARETTE MACHINE.

No. 573,640. Patented Dec. 22, 1896.

FIG. 4.

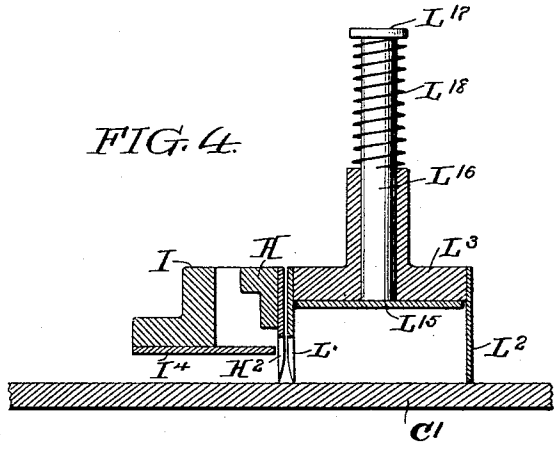



FIG. 5.

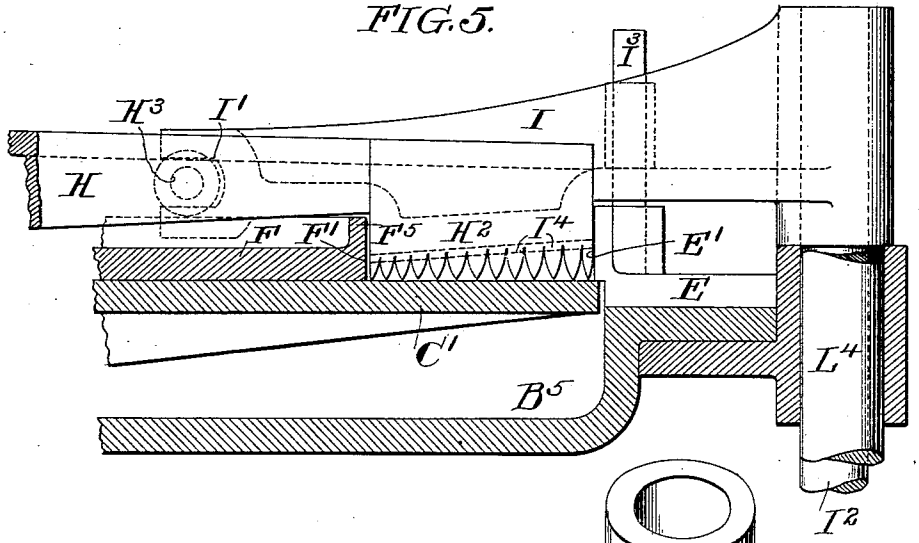
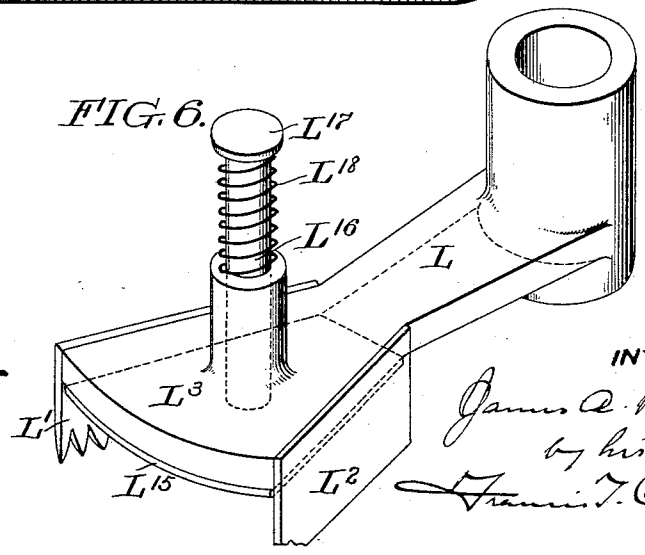



FIG. 6.




WITNESSES:

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(No Model.) 6 Sheets—Sheet 5.

# J. A. BONSACK.

## CIGARETTE MACHINE.

No. 573,640. Patented Dec. 22, 1896.

FIG. 7.

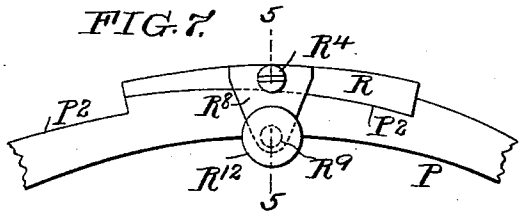



FIG. 16.

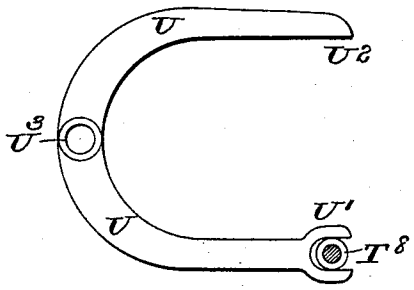



FIG. 8.

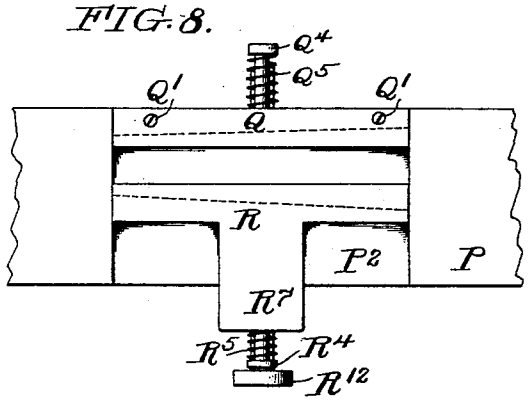



FIG. 17.

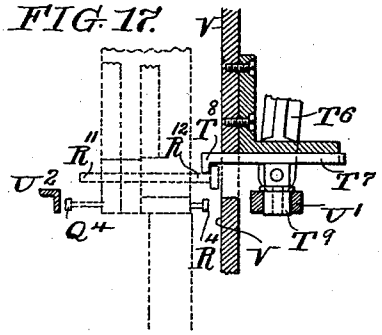



FIG. 9.

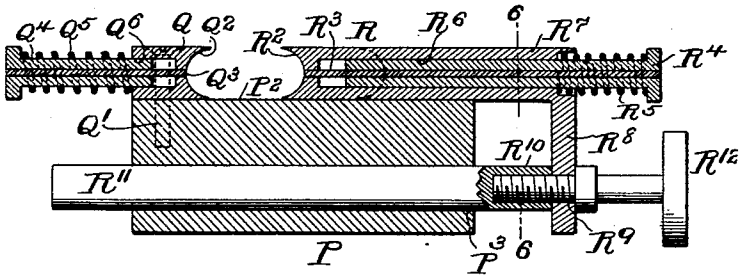
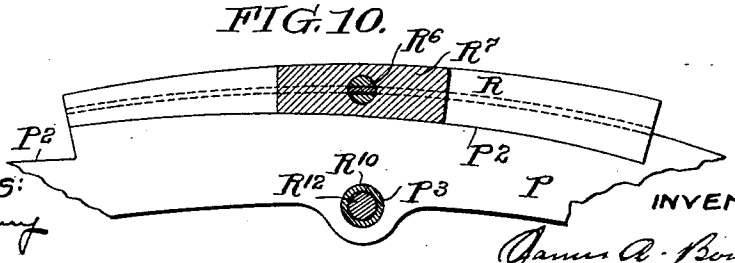



FIG. 10.




WITNESSES:

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(No Model.) 6 Sheets—Sheet 6.

# J. A. BONSACK.

## CIGARETTE MACHINE.

No. 573,640. Patented Dec. 22, 1896.

FIG. 20.

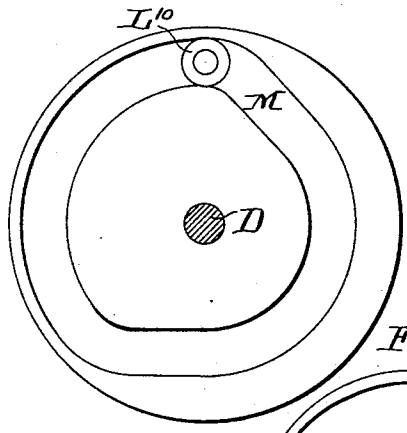



FIG. 19.

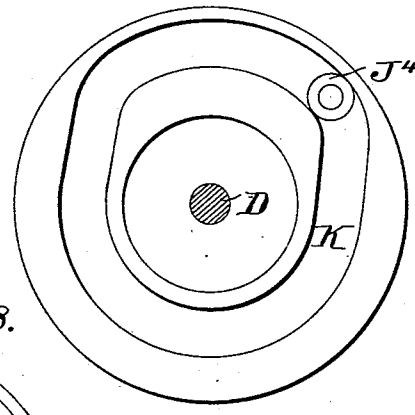



FIG. 18.

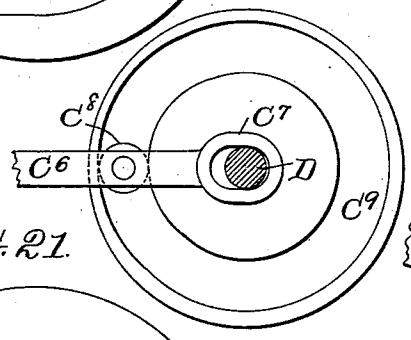



FIG. 22.

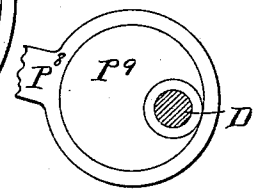



FIG. 21.

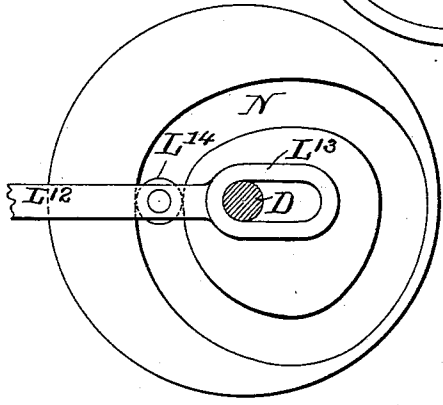



FIG. 11.

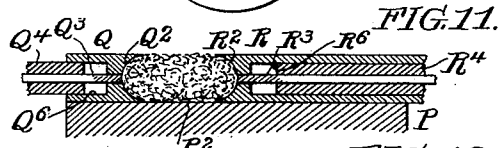



FIG. 12.

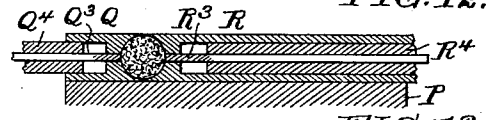



FIG. 13.

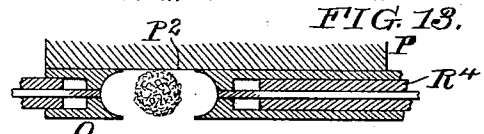



FIG. 15.

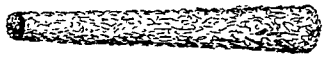
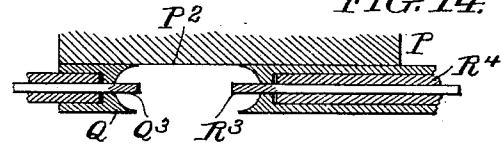


FIG. 14.

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INVENTOR:

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# UNITED STATES PATENT OFFICE.

JAMES A. BONSACK, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE BONSACK MACHINE COMPANY, OF SALEM, VIRGINIA.

## CIGARETTE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 573,640, dated December 22, 1896.

Application filed June 15, 1894. Serial No. 514,630. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES A. BONSACK, a citizen of the United States, residing in the city and county of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Cigarette-Machines, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part thereof.

My invention relates to cigarette-machines, and particularly to the mechanism used for molding tobacco into rods of proper form and consistency to be used in filling separate cigarette-tubes.

My object is to provide improved mechanism for separating proper charges of tobacco from the mass fed to the machine, molding it to shape, and discharging it from the machine, and I have chiefly in view the preparation of a conically-molded filler to be used in filling conical cigarette-tubes.

In order that the special form of mechanism illustrating one form of my improvements and hereinafter particularly described, and shown in the accompanying drawings, may be more readily understood, I will first make a brief and general statement of the construction and operation of the main features or parts of such mechanism, as follows: An intermittently rotating table is provided with a channel or conduit extending in a circular direction partly around the table and then leading off from its edge or margin. The top of the table forms the bottom of this channel, while stationary walls of the desired height form the edges of said channel, the width of the channel being substantially equal to the length of the cigarette-fillers desired. Tobacco is placed in this channel and disposed to form a ribbon of the width of the channel and of a thickness required for the diameter or size in cross-section of the cigarette-fillers. When this tobacco ribbon has, by the rotation of the table, been carried around to a point in the channel preferably near its departure from the table, a toothed divider is brought down upon the ribbon and divides off therefrom a charge or quantity of tobacco sufficient for a single filler, and a separator is brought down and sweeps such divided charge through the remainder of the channel and delivers it to a chute which in turn delivers the charge to molding mechanism, by which it is compressed into the desired shape and size for the fillers. The molding mechanism is arranged on the circumference of an intermittently rotating drum, and, in the main, consists of two dies, each having substantially the shape in longitudinal section of one-half of the formed filler. These dies are constructed and are arranged to open to receive the charge of tobacco between them and then to be closed to compress it to the filler shape. The formed fillers are discharged from the dies near the bottom or under side of the drum in their completed condition ready to be inclosed in suitably-formed wrappers.

The nature of my improvements will be best understood as described in connection with the drawings in which they are illustrated, and in which—

Figure 1 is a plan view of my improved mechanism; Fig. 2, a rear elevation of the mechanism as shown in Fig. 1; Fig. 3, a side elevation of the same mechanism. Fig. 4 is a cross-sectional view of a part of the machine, taken on the line 1 1 of Fig. 1; Fig. 5, a sectional view of the same part of the machine, taken on the line 2 2 of Fig. 1. Fig. 6 is a perspective view of the main separating device. Fig. 7 is a side view, on an enlarged scale, of a portion of the mold-carrying drum, showing a mold in place thereon. Fig. 8 is a face view of the same mechanism; Fig. 9, a cross-section on the line 5 5 of Fig. 7, shown on an enlarged scale; Fig. 10, a cross-sectional view on the line 6 6 of Fig. 9. Figs. 11 to 14 are views illustrating the operation of the sectional molds upon the tobacco filler; Fig. 15, a perspective view of a conical filler such as the molds are adapted to produce. Fig. 16 is a view of the finger which operates one of the mold-stripping devices and its connected mechanism, taken on the line 3 3 of Fig. 2. Fig. 17 is a sectional view on the line 4 4 of Fig. 2, showing the mechanism for opening the mold and for operating the mold-strippers; and Figs. 18 to 22,

inclusive, are views of the cams and eccentrics by which in my machine motion is given to various operative parts.

A indicates the framing of the mechanism; B, a circular box, partially cut away, as indicated at *b b*, Figs. 1 and 3.

B′ is a plate secured to the top of the circular box B and from the center of which extends the hollow column $B^2$.

$B^3$ is a stop in the center of the box B, upon which is supported a shaft C, which runs through the hollow column $B^2$ and supports at its top a substantially horizontal rotating table C′. From the top of the column $B^2$ extends the table-casing $B^5$, which extends beneath the table C′ and preferably upward, so that its flange $B^6$ will lie close to and slightly above the bottom of the table. Upon the top of this flange $B^6$ is secured the rim E, having an upwardly-extending annular shoulder E′, which projects slightly over the edge of the table, and which, as shown, extends from the point $E^2$ (see Fig. 1) to the point $E^3$. Between these points the shoulder or flange E′ forms a retaining-wall for the tobacco, which is fed upon the table C′ at or near the line indicated in Fig. 1 at $F^4$. The inner wall for the tobacco fed upon the table is formed by the rim F′ of the plate F, which it is advisable to partly support, as shown, upon the end of the shaft C, as by means of the cap $F^2$. The plate F has an extension $F^3$, which entirely crosses the table, one edge of which, $F^4$, corresponds with the edge $E^2$ of the rim E, as shown in Fig. 1, while upon the other side of the extension a raised flange $F^5$ forms one wall of the conduit through which the tobacco is led from the table. The other wall, $F^6$, of this conduit is also formed in the same plate F, or rather the part $F^3$ thereof. The bottom of the channel between the walls $F^5$ and $F^6$ is indicated at $F^9$ and should be on a level with the top of the table C′. The height of the wall or ledge of F′ should be somewhat less than the height of the wall or ledge of E′, the said walls thus serving as a guide to the operator in feeding tobacco between them upon the face of the table, and so that the ribbon of tobacco fed to the table will be suitable for the formation of conical fillers. The shape of the table, or rather of the channel upon the face thereof into which the tobacco is fed, is also well adapted for the formation of these conical fillers, as obviously the separator taking away charges of tobacco from the table will, by reason of its shape, tend to separate the ribbon with a greater mass of tobacco on the outside of the channel.

The intermittent rotary motion is given to the table C′ through the shaft C by means of the ratchet-wheel $C^2$, (see Figs. 1 and 3,) which is secured to the shaft and which is operated upon by a pawl $C^3$, secured to a rock-shaft $C^4$, held in contact with the teeth of the ratchet-wheel by a spring, as indicated in Fig. 1, and operated by a rod $C^6$, connected with a pin $C^5$, by which also the pawl and rock-shaft are connected together, the rod $C^6$ having a yoke $C^7$ at its end, which extends over the main shaft D of the machine and having attached to it a cam-roller $C^8$, which runs in the groove of the cam $C^9$. (See Figs. 1, 3, and 18.)

G, Figs. 1, 2, and 3, indicates a chute which leads from the end of the offtake-channel $F^9$ to the molding apparatus. The tobacco is constantly fed to the rotating table, and the ribbon of tobacco formed upon its surface is separated into charges and carried to the chute by the mechanism I will now describe.

H is a lever pivoted, by means of yoke H′, to the ear *f f*, extending up from the plate F. Upon the free end of the lever H is secured a toothed divider, (best shown in Fig. 5 and marked $H^2$,) the divider being as long as the breadth of the channel formed on the face of the table C and extending across it, as indicated. The lever H is given an up-and-down motion by means of the reciprocating bracket I, a yoke I′ at the end of which engages a pin $H^3$ between the ends of the lever H.

$I^4$ (see Figs. 4 and 5) is a stripper fastened to the bracket I, so that its edge will lie close to the toothed divider $H^2$.

$I^3$ indicates a guide-pin for holding the bracket I in proper alinement, and $I^2$ is a vertical rod to which the bracket I is secured. This rod $I^2$ is given a vertical reciprocating motion at proper intervals by means of the bell-crank lever J $J^3$, a fork J′ at the end of one arm of which engages a pin $I^5$ on the rod $I^2$. The lever is pivoted at $J^2$ and has at the end of its arm $J^3$ a cam-roller $J^4$, which runs in the groove of a cam K, secured to the shaft D, as best shown in Figs. 2 and 19. The form of this cam and the arrangement of the mechanism are such that the divider $H^2$ is held up above the tobacco ribbon while the table is in motion and is brought down into the channel and its teeth pass into the ribbon of tobacco when the table comes to a rest.

It will be seen that, owing to the point of attachment of the bracket I to the lever H, the divider $H^2$ will rise more rapidly than the stripper $I^4$, the effect of which is the same as though the stripper moved down along the teeth of the divider to strip the said teeth of any tobacco which they may carry upward with them. The function of the divider $H^2$ is to act in conjunction with a separator L′, which, after each intermittent motion of the table, carries away the portion of the tobacco ribbon fed forward by the table. This separator L′ (see Figs. 1, 4, and 6) is secured to a lever L, which in turn is secured to the end of a reciprocating and oscillating rod $L^4$. As shown, the outer end of the lever L is broadened out, as indicated at $L^3$, the separator L′ being fastened to the rear edge of this broadened part, while a pusher-plate $L^2$ is fastened to the front edge thereof. Below this broad face of the lever lies a stripper $L^{15}$, secured to an upwardly-projecting rod $L^{16}$, having a head $L^{17}$, $L^{18}$ indicating a spring the function of which is to normally hold the stripper-plate

in its uppermost position, as indicated in Figs. 4 and 6.

A vertical reciprocating motion is given to the rod $L^4$ by mechanism indicated in Figs. 1, 2, 3, and 20, that is, by the pivoted lever having arms $L^7$ $L^9$, pivoted at $L^8$, having a clutch L at one end which engages with a collar $L^5$ on the rod $L^4$, while at its other end it has a cam-roller $L^{10}$, which runs in the groove of a cam M. The oscillating motion is given to the shaft $L^4$ by means of the rack $L^{12}$, which engages a toothed segment $L^{11}$ upon the shaft and the inner end of which is supported by yoke $L^{13}$ on the shaft D. A cam-roller $L^{14}$ (see Fig. 21) is fastened to the rack-rod and runs in a cam N. The shape of the cams M and N, operating upon the shaft $L^4$, is such that the separator L' is brought down upon the tobacco ribbon when the table C' comes to a rest and at the same time with the toothed divider $H^2$. The oscillating motion imparted to the shaft then causes the separator to sweep outward along the channel $F^9$, carrying a charge of tobacco with it, which it leaves close to the mouth of the chute G. The shaft and the separator then rise above the channel and sweep back in this elevated position to the point indicated in Fig. 1, and the separator then comes down again to remove another charge. The function of the pusher $L^2$ is simply to push the charge of tobacco left by the separator into the chute, this of course being accomplished in the next outward sweep of the lever L.

To prevent tobacco sticking in the teeth of the separator is the function of the stripper-plate $L^{15}$, and its time of operation is naturally that at which the separator rises after depositing its charge at the mouth of the chute G. It is operated by the finger O, (see Figs. 1, 2, and 3,) which projects out over the channel $F^9$ from a standard O', secured, by means of a flange $O^2$, to the plate $F^3$. As the lever L rises at the end of its outward sweep the head $L^{17}$ of the stripper-rod $L^{16}$ comes in contact with the finger O, so that the stripper $L^{15}$ is in effect pushed down along the teeth of the separator, freeing them from particles of tobacco which may adhere to them.

The chute G leads, as I have already stated, to the molding mechanism, which, as illustrated, is carried by an intermittently-revolving wheel or drum P, carried on a shaft P'.

$P^5$ is a ratchet-wheel secured to this shaft, and the desired intermittent motion is given to the drum by means of the pawl $P^6$, pivoted to the end of a rock-lever $P^7$ and actuated by a rod $P^8$, (see Figs. 2 and 22,) said rod having at its end an eccentric-strap which passes around an eccentric $P^9$ on shaft D.

A series of mold-supporting tables $P^2$ $P^2$, &c., are formed upon the periphery of the drum P. These tables are preferably curved in the direction of the circumference of the drum or not in line with each other where the molds are to be used for making conical fillers. The curved tables $P^2$ are drawn longitudinally from centers eccentric to the drum and so as to give the face of the drum the ratchet-like appearance indicated in the drawings. The sole purpose for thus shaping the tables $P^2$ is to bring the top of the dies to the same level, that is, in the case of the drum indicated to bring the tops of the dies into the circumference of a cylinder drawn around the axis of the drum, this being desirable when a belt or equivalent device is used to hold the tobacco in the die-cavities between the points where the dies are filled and emptied, as will be hereinafter described.

Upon each table $P^2$, I secure a two-part die or mold, the parts of which are to separate so as to open the cavity between them in order to receive the charge of tobacco, then close together in order to mold and compress it in proper shape, transport the molded filler to the point of delivery, keeping it compressed in the meantime, then open to release the filler, and preferably open still farther to receive a further charge. I prefer not to open the dies to their full extent for the discharge of the filler, because by limiting the opening I can better regulate the point at which the filler is discharged, and to insure the discharge of the filler I provide stripper-plates, which, when the die is open, project inward from the inner faces of the die-sections, so as to push the filler out in case it tends to stick to either die. In the mechanism shown (see especially Figs. 7, 8, 9, and 10) I provide one fixed die-section, (indicated at Q,) and which may be fastened to the table $P^2$, as by screws Q', and one sliding die-section R. As shown, this die-section R is provided at its rearward end $R^7$ with the downwardly-projecting arm $R^8$, which arm is secured to the end of a slide-rod $R^{10}$, which moves in a hole $P^3$, extending through the drum below the table $P^2$, and has a projecting end $R^{11}$. The arm $R^8$ in the construction illustrated is clamped to the other end of the rod $R^{10}$ by means of a screw $R^9$, which has a projecting flanged head $R^{12}$.

$Q^2$ and $R^2$ indicate the active faces of the fixed and movable dies, and it will be noticed that the dies are not only conical in shape, but curved so as to conform to the curvature of the table $P^2$, upon which they rest, and so that their tops lie substantially in the same cylindrical surface. The inner face of each die-section is slotted to give passage to a stripper-plate, (indicated at $Q^3$ and $R^3$, respectively.) These plates are secured to guide-rods $Q^4$ and $R^4$, which move in holes $Q^6$ and $R^6$, formed in the rear of the dies, the guide-rods extending out beyond the backs of the dies and being held in their outermost position by means of springs, (indicated at $Q^5$ and $R^5$.) In this outermost position the stripper-plates are flush with the face of the dies, and when the guide-rods are thrust in against the resistance of the springs the stripper-plates assume substantially the position indicated in Fig. 14.

To consider now especially the action of the

dies in a machine constructed as shown in the drawings, I will note that prior to going into registration with the chute G each movable die R is thrown back to its extreme position by the action of the stationary cam S, secured to arm S', which in turn is conveniently secured to the under side of chute G, (see Figs. 1 and 3,) which, as the drum revolves, engages each projecting end $R^{11}$ of the slide-pins $R^{10}$, pushing it and the attached die-section outwardly, thus bringing the surface of the table $P^2$ lying between the die-faces $Q^2$ and $Q^3$ to registration with the chute, where it receives a charge of tobacco therefrom. The die R next moves into registration with the die-closing plunger indicated at T. (See Figs. 1, 2, and 3.) This plunger has a reciprocating motion imparted to it by means of the lever, having arms $T^2$ and $T^4$, pivoted at $T^3$, the arm $T^2$ engaging a pin on the plunger T, as indicated in Fig. 3, while the arm $T^4$ is provided with a cam-roller which runs in the groove of a drum-cam $T^5$ on shaft D. The plunger T, acting on the head $R^{12}$ of the screw $R^9$, moves the movable die-section inwardly over the table $P^2$ and closes the die. A plate V, secured at its base V' to the main frame, is arranged alongside of one end of the drum and at such a distance from it as to serve as an abutment to the heads $R^{12}$ and prevent them, or the die to which they are connected, moving outwardly until the proper time comes to open the die and discharge the filler.

In order to retain the charge of tobacco between the dies and insure that the entire charge is engaged between the die-faces, I provide a leveling and retaining device having for its function to press the tobacco between the open dies and prevent its escaping until the dies have seized and molded it. Preferably I employ for this purpose a belt W, the inner face of which lies in contact with the tops of the dies, while its outer face runs around a series of rollers W' W', which are conveniently supported on or near the margin of the plate V, motion being, of course, imparted to the belt by the revolution of the drum, and the belt extending, as shown, from the point where the molds are charged past a point where they are closed, and preferably to the point where they are opened to discharge the molded fillers. A fixed plate having the conformation of the inner face of the belt may measurably take its place in the combination indicated, but obviously will be much less efficient, as the belt traveling with the die has no tendency to carry any tobacco out of it.

At the point where the dies are to discharge the fillers they are opened in consecutive order by the mechanism best shown in Figs. 2 and 17, namely, by the hooked end $T^8$ of a reciprocating slide $T^7$, which works in an aperture formed through the plate V, and in turn engages each of the heads $R^{12}$ and pulls them and the movable die back or outward. Motion is imparted to the slide $T^7$ by means of the lever-arm $T^6$, which is fastened to the same rock-shaft $T^3$ as the lever $T^2$, which is used in closing the die, so that each motion of the rock-shaft closes one and opens another of the dies. The stripper $R^3$, operating in the movable die, is, as the die is drawn out by the slide $T^7$, brought in contact with a ledge of the plate V, as indicated in Fig. 17, thus causing the stripper to remain stationary and assume the position indicated in Fig. 14 as the die R is retracted. At the same time a positive inward motion is given to the stripper $Q^3$ in the stationary die by means of the finger $U^2$ (see Figs. 16 and 17) at one end of the U-shaped lever U, pivoted at $U^3$ and having a fork U' at its other end, which is engaged by a pin $T^9$ at the end of the lever $T^6$, Figs. 2, 3, and 16. It will readily be seen that by this arrangement the finger $U^2$ is brought in contact with the guide-rod $Q^4$ substantially at the same time when guide-rod $R^4$ comes in contact with the ledge of plate V, and thus the two strippers are operated simultaneously. The molded fillers being discharged, the dies are carried upward by the drum and are again opened to their fullest extent, as previously described, and so on indefinitely.

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

1. The combination of the intermittently-rotating substantially horizontal feed-table with guide-walls, as E' and F', extending above the face thereof, and an intermittently-acting separator arranged to act alternately with the motion of the table and carry off therefrom the tobacco fed forward by each motion of the table.

2. The combination of the intermittently-rotating substantially horizontal feed-table with guide-walls, as E' and F', extending above the face and around the center thereof, and an intermittently-acting separator arranged to act alternately with the motion of the table and carry off therefrom the tobacco fed forward by each motion of the table.

3. The combination of the intermittently-rotating substantially horizontal feed-table with guide-walls, as E' and F', extending above the face thereof, the outer wall E' being of greater height than the inner wall, and an intermittently-acting separator arranged to act alternately with the motion of the table and carry off therefrom the tobacco fed forward by each motion of the table.

4. The combination of the intermittently-rotating substantially horizontal feed-table with guide-walls, as E' and F', extending above the face thereof, a separator as L', a vertically-movable shaft $L^4$ to which said separator is attached, mechanism for moving said shaft up and down and mechanism for oscillating said shaft whereby the separator is made to engage the tobacco fed forward by

the table, carry it away by a circular sweep and return above the level of the tobacco on the table for a fresh charge.

5. The combination of the intermittently-rotating substantially horizontal feed-table with guide-walls, as E′ and F′, extending above the face thereof, a separator as L′, a vertically-movable shaft $L^4$ to which said separator is attached, mechanism for moving said shaft up and down, mechanism for oscillating said shaft, a pusher-plate $L^2$ arranged in front of the separator and operated substantially as and for the purpose specified.

6. The combination with the intermittently-rotating feed-table C′, of the pivoted lever H, a toothed divider $H^2$ secured to the free end thereof, the lever-actuating bracket I connected to lever H between its ends, a stripper $I^4$ attached to bracket I, means for raising and lowering bracket I, and the separator L′, all substantially as and for the purpose specified.

7. An intermittently-actuated mold-carrier in combination with a series of two-part filler-molds mounted thereon, and mold-actuating mechanism arranged to act upon each mold in turn and whereby each mold is operated to close on a filler, transport it to the place of delivery and open to release the molded filler.

8. An intermittently-actuated mold-carrier in combination with a series of two-part filler-molds mounted thereon, mold-actuating mechanism arranged to act upon each mold in turn and whereby each mold is operated to close on a filler, transport it to the place of delivery and open to release the molded filler, and means for holding the tobacco in the mold before and while it is closing to form the filler.

9. An intermittently-actuated mold-carrier in combination with a series of two-part filler-molds mounted thereon, mold-actuating mechanism arranged to act upon each mold in turn and whereby each mold is operated to close on a filler, transport it to the place of delivery and open to release the molded filler, and a leveling and tobacco-retaining device extending between the points where the molds are filled and emptied.

10. An intermittently-actuated mold-carrier in combination with a series of two-part filler-molds mounted thereon, mold-actuating mechanism arranged to act upon each mold in turn, and whereby each mold is operated to close on a filler, transport it to the place of delivery, and open to release the molded filler, and a leveling and tobacco-retaining belt extending between the points where the molds are filled and emptied, and moving with the molds with which it is in contact.

11. The mold-carrying drum P having a series of curved tables $P^2$ formed on its face in combination with a series of two-part longitudinally-curved conical filler-molds, one operating upon each table and the top of the molds lying in and describing a circle drawn from the axis of the drum, a belt W lying against the tops of the molds between the points where the molds are filled and emptied, and mechanism for consecutively operating the molds and intermittently rotating the drum.

12. A two-part cigarette-filler mold in combination with spring-retracted strippers, as $Q^3$ $R^3$, constructed and arranged to be separately and successively projected from the inner faces of the mold-sections when the mold is opened, and means for projecting the same.

13. In combination with a mold-carrying drum P, a series of two-part molds operating upon the face of said drum, mechanism for closing the molds, mechanism for opening the molds to permit the molded fillers to be withdrawn, and mechanism for further opening said molds preparatory to recharging them with tobacco.

14. In combination with a mold-carrying drum P, a series of two-part molds operating upon the face of said drum, mechanism for closing the molds, mechanism for opening the molds to permit the molded fillers to be withdrawn, strippers as $Q^3$ $R^3$, mechanism for forcing said strippers through the inner faces of the mold-sections to free the fillers, and mechanism for further opening said molds preparatory to recharging them with tobacco.

15. In combination with the mold-carrying drum P, a series of fixed mold-sections Q secured thereon, a series of coacting sliding mold-sections R also secured to the face of the drum, stripper-plates $Q^3$ and $R^3$ having outwardly-extending stems $Q^4$ $R^4$ and retracting-springs, a reciprocating mold-opening slide, as $T^7$, an abutment or ledge V arranged to intercept the stem $R^4$ and force the strippers $R^3$ into the movable mold-section as said section is retracted by the slide $T^7$, and a finger $U^2$ operated by the lever $T^6$ and arranged to press against the stem $Q^4$ and operate the stripper $Q^3$.

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Witnesses:
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