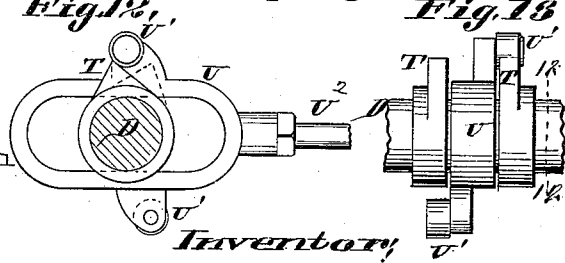
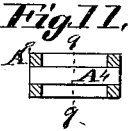
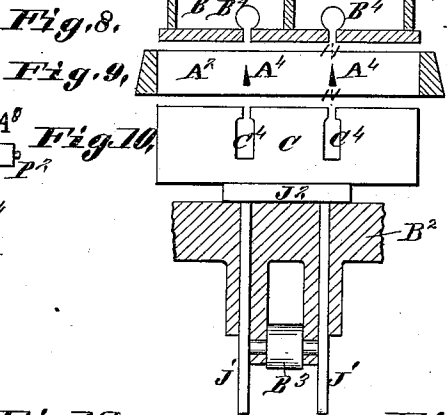
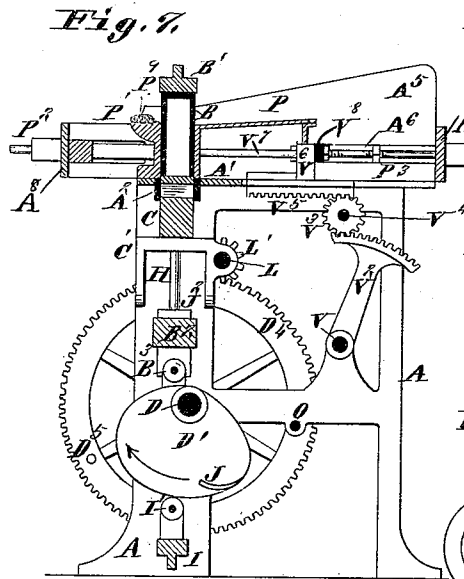
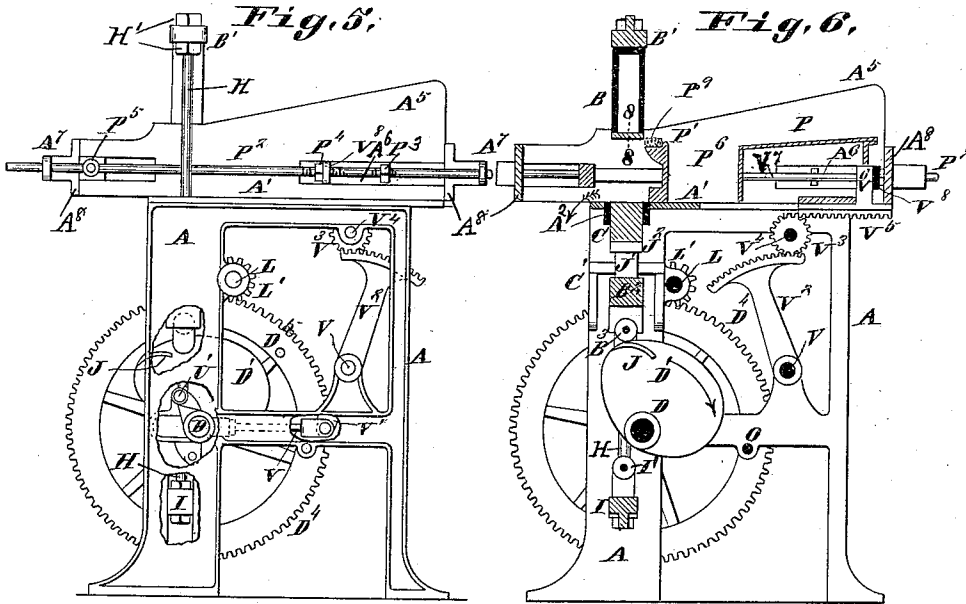


T. PUETZ, Jr.

PLUG TOBACCO MACHINE.

No. 330,849.

Patented Nov. 17, 1885.



Attest;
 Victor A. Lewis
 Gear Wheel Clock

Inventor,
 Tillman Puetz Jr.
 By Knight Bros
 Attys

UNITED STATES PATENT OFFICE.

TILLMAN PUETZ, JR., OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-THIRD
TO GEORGE W. BRANSFORD, OF SAME PLACE.

PLUG-TOBACCO MACHINE.

SPECIFICATION forming part of Letters Patent No. 330,849, dated November 17, 1885.

Application filed December 20, 1884. Serial No. 150,843. (No model.)

To all whom it may concern:

Be it known that I, TILLMAN PUETZ, Jr., of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Plug-Tobacco Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure 1 is a rear end elevation of my improved machine. Fig. 2 is a front elevation of same. Fig. 3 is a top view showing the charger in its forward position, and Fig. 4 is a similar view showing the charger in its rear position. Fig. 5 is a side elevation with parts of the frame broken away to show parts behind it. Fig. 6 is a vertical section taken on line 6 6, Fig. 4. Fig. 7 is a vertical section taken on line 7 7, Fig. 3. Fig. 8 is an enlarged detail vertical section of the upper plunger, taken on line 8 8, Fig. 6. Fig. 9 is an enlarged vertical longitudinal section of the mold, taken on line 9 9, Fig. 11. Fig. 10 is an enlarged side view of the lower plunger and a detail sectional view of its supporting beam or bar. Fig. 11 is a transverse section of the mold, taken on the line 11 11, Fig. 9. Fig. 13 is an enlarged view of the cams for operating the charger, showing part of the shaft to which they are secured. Fig. 12 is a transverse section taken on line 12 12, Fig. 13.

My invention relates to an improved machine for forming tobacco into plugs; and my invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Referring to the drawings, A represents the frame of the machine, having a table, A', in which is fixed a mold, A². (See Figs. 4, 6, 7, 9, and 11.) B represents the upper plunger, operated by a cam, D', and C the lower plunger, operated by cams J on the cam D' on a shaft, D, journaled to the frame A. The upper plunger is carried by a beam, B', secured to it, and by a beam, B², connected by rods H and nuts H'. The rods extend below the beam or cross-piece B², and secured to their lower ends is a beam or cross-piece, I, provided with a friction-roller, I', against which bears the cam D' on the shaft D, and the beam B² has a friction-roller, B³, against which the cam bears.

As these three beams or cross-bars are connected by the rods, and as the plunger B is formed upon or secured to the upper beam, it will be seen that as the shaft D turns the cam D' will cause the vertical reciprocation of the upper plunger, it being pulled down when the cam presses against the roller I' and raised when the cam presses against the roller B³. The lower plunger is supported by brackets C', secured to the frame of the machine, when in its normal position—that is, while the pressing is being done. (See Figs. 1, 2, 6, and 7.) After the tobacco is pressed the plugs are ejected by an upward movement of the lower plunger, caused by small cams J on the cam D', that come against vertical plates J', extending down through the beam or bar B², (see Figs. 1, 2, 6, 7, and 10,) and formed on or secured to the lower plunger or to an intermediate block, J², preferably the latter, in order that the plunger may be conveniently taken out or removed when it is desired to add or substitute smaller or larger plungers and molds for different-size plugs. The cams J do not come against the plates J' until the upper plunger has been raised. (See Fig. 6.) As soon as the cams have passed the plates, the lower plunger falls onto the brackets C', and the block J² falls onto the beam B².

The mold is provided with knives A⁴, (see Figs. 4, 9, and 11,) to cut the tobacco into plugs of proper size as the upper plunger descends, the plunger having slots B⁴ to receive the knives, and the lower plunger having slots C⁴ to receive the knives as the lower plunger is forced into the mold to eject the plugs. (See Figs. 8, 9, and 10, which represent enlarged views of the upper and lower plungers and the mold between them.) The shaft D is connected to a drive-shaft, L, by means of a cog-wheel, D⁴, and pinion L'. The shaft L is provided with a pulley, L², loose thereon, and having a notched hub to receive a sliding clutch, M, keyed to or otherwise made to turn with the shaft, and operated by a lever, N, fulcrumed at N' to the frame of the machine, and having secured or connected to it a rod, O, that extends across the machine and bears against a flange of the wheel D⁴, (see Figs. 3, 5, and 6,) provided with a perforation, D⁵, to receive the end of the rod. When the clutch is forced

into engagement with the pulley by the lever, the end of the rod is pulled out of the perforation D⁵, and the lever is then released, allowing the end of the rod to be pressed against the flange of the cog-wheel by a spring, O', surrounding the rod between one side of the frame A and a nut or projection, O², on the rod. (See Figs. 1 and 2.) When the cog-wheel has made one revolution, the end of the rod will enter the perforation D⁵ simultaneous with the clutch being disengaged from the pulley by the spring O', thus forming a positive lock to the machine at each operation of the parts.

The charger by which the mold is filled is made in two parts, P P', sliding between the side pieces, A⁵, and connected by rods P², outside of the side pieces of the table of the machine. It is operated by cams T on the shaft D, (see Figs. 1, 2, 5, 12, and 13,) that bear against friction-rollers U' on a yoke, U, through which the shaft passes, and which is connected by a rod, U², to an arm, V', on a rock-shaft, V, journaled to the frame A, and provided with a cog-segment, V², that engages a pinion, V³, secured to a shaft, V⁴, and meshing into a rack, V⁵, fitting in an opening in the table A'. (See Figs. 1, 3, 6, and 7.) The rack has an upward projection, V⁶, secured to the part P of the charger by bolts V⁷, that preferably extend the entire length of this part of the charger, as shown in Figs. 6 and 7, for the purpose of strengthening it. Secured to this projection V⁶ by the bolts V⁷, or other suitable means, is a cross head or plate, V⁸, extending out through slots A⁶ in the side pieces, A⁵, and its ends are perforated to receive the rods P², on which it moves as the charger is operated, the movement in both directions being limited by nuts or projections P³ P⁴ on the rods. (See Figs. 3, 4, and 5.) When the charger is operated through means of its described connection with the shaft D, the part P is moved the distance between the nuts P³ P⁴ before the part P' commences to move, as the plate V⁸ slides or moves on the rods until it comes to the nuts P⁴, and then it carries the rods forward with it, and also the part P' of the charger, as it is secured to the rods, as shown at P⁵. The rods are supported by and slide in perforated lugs A⁷ on the end pieces, A⁸. The object of having this advance movement of the part P of the charger is to shorten the space or distance between the two parts and compact the tobacco horizontally, which is placed loosely between the two parts of the charger in the space lettered P⁶, and when the charger has moved far enough forward to bring the tobacco over the mold it stops and the upper plunger is brought down, compressing the tobacco in the mold, and is raised again before the charger moves back. The upper plunger being out of the way, the charger recedes. Then the lower plunger comes up in advance of the charger and ejects the plugs, which are shoved off the table, as indicated by the arrow, Fig. 6, the next time the charger comes forward. The

part P' of the charger has a sponge or other wiper, P⁹, to clean the face of the upper plunger as the charger moves back and forth.

I claim as my invention—

1. The combination, with a frame, table, mold, charger, driving-shaft, and means for advancing and retracting the charger, of the main cam having side cams and secured to the driving-shaft, the vertically-moving frame having upper, lower, and intermediate beams, the upper plunger secured to the upper beam, the lower plunger, and supports for the lower plunger, the main cam bearing on the lower and intermediate beams for reciprocating the upper plunger-frame, and the side cams elevating and dropping the lower plunger while the upper plunger-frame is at rest, substantially as set forth.

2. The combination, with a frame, table, mold, charger, driving-shaft, and means for advancing and retracting the charger, of the main cam having side cams and secured to the driving-shaft, the vertically-moving frame having upper, lower, and intermediate beams, the upper plunger secured to the upper beam, the lower plunger, the brackets for supporting the lower plunger, and plates depending from the lower plunger, the main cam bearing on the lower and intermediate beams for reciprocating the upper plunger-frame, and the side cams bearing on the plates for elevating and dropping the lower plunger while the upper plunger is at rest, substantially as set forth.

3. In combination with the upper and lower plungers, cross-beams connected by vertical rods, and a shaft having a cam for operating the upper plunger-frame, the additional cams formed upon or secured to the said cam, and the vertical plates passing through one of the said beams and connected at their upper ends by a block, substantially as and for the purpose set forth.

4. The combination, with a frame, table, charger, means for operating the charger, and means for operating the plungers, of the plunger-frame, upper plunger having openings through the face thereof, a mold provided with knives, and the lower plunger having openings through the face thereof, substantially as set forth.

5. The combination of a frame, a table on the frame, a charger formed with a front part, P', and a rear part, P, guides for directing the movements of the parts, and the devices, substantially as described, by which the parts are operated for receiving, compacting, and delivering the material.

6. The combination, with a frame, table having side pieces, and the upper plunger, of the sliding rods, guides for the rods, and a charger formed in two parts, one part being moved on said rods toward the other part, and both parts being moved with the rods, substantially as set forth.

7. The combination of an upper plunger, table having side pieces, sliding rods, stops P³

and P⁴ on said rods, charger having a part, P', fixed to the rods, and a movable part, P, sliding on the rods toward the other part, and means by which the outer part is moved toward the inner part and advances the rods with the inner part, substantially as set forth.

5 8. The combination of a table, upper plunger, charger having two parts, rods to which the parts are connected, a rack-bar secured to

the outer part, an oscillating arm having a rack- 10 segment, a pinion connecting the rack-segment with the rack-bar, a shaft having cams, and a yoke and rod connected to the oscillating arm, substantially as set forth.

TILLMAN PUETZ, JR.

In presence of—

GEO. H. KNIGHT,
GEO. W. BRANSFORD.