

(No Model.)

2 Sheets—Sheet 1.

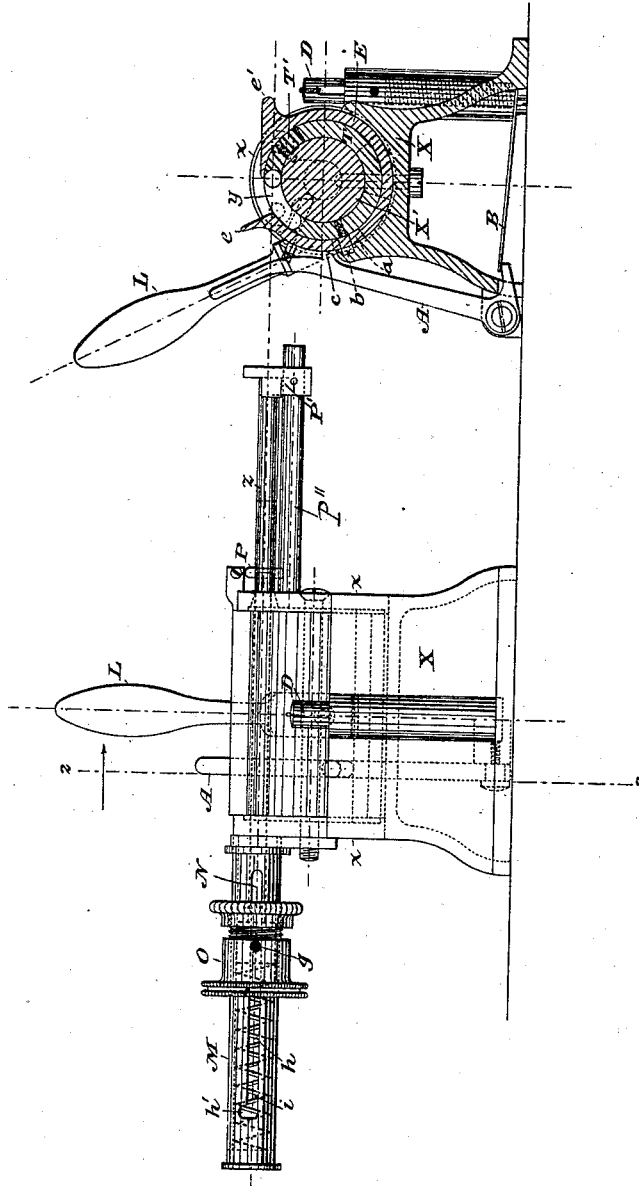
E. A. DURAND.  
CIGARETTE MACHINE.

No. 422,193.

Patented Feb. 25, 1890.

Fig-2-

Fig-1-



Witnessed:-  
W. H. H. H.  
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Eugene A. Durand.  
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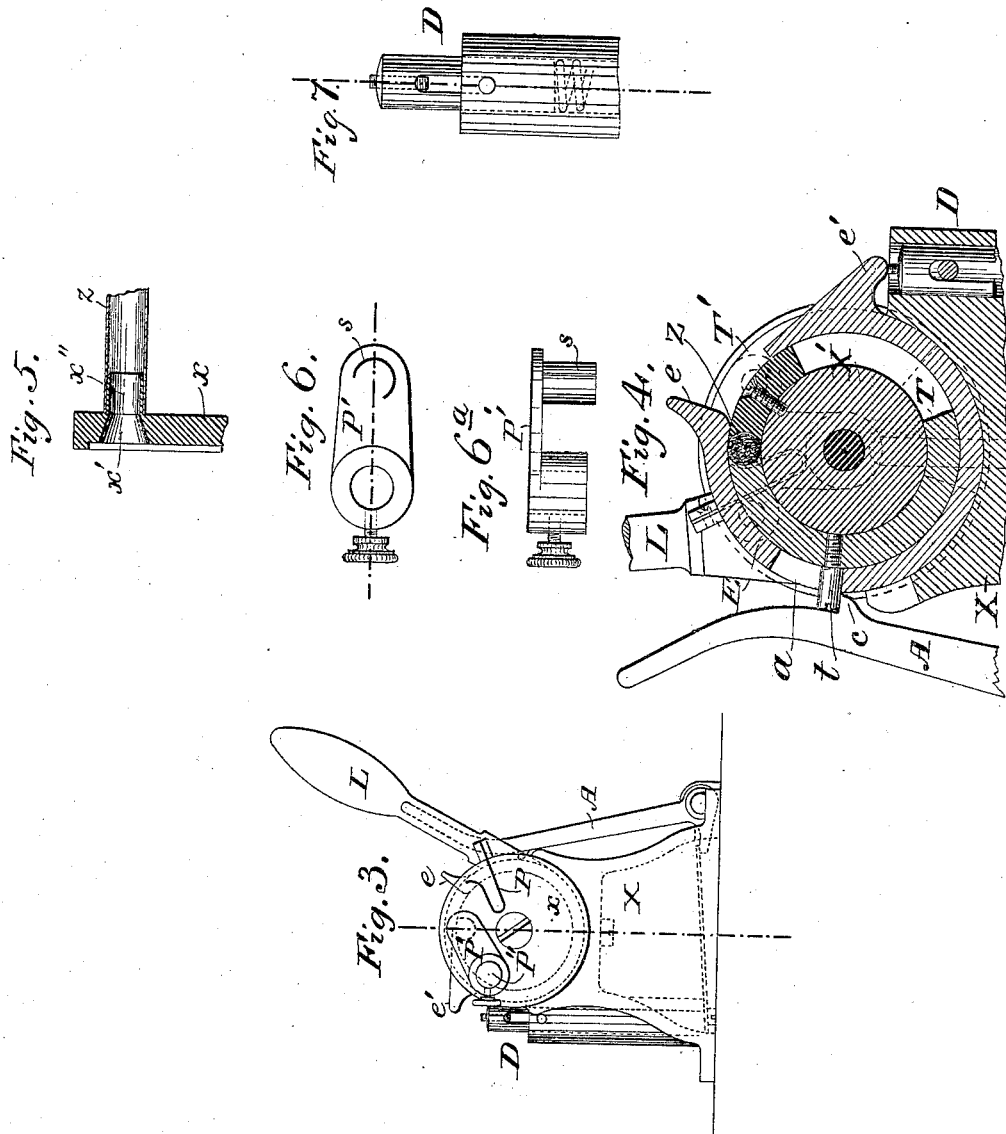
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2 Sheets—Sheet 2.

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Witnesses:

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# UNITED STATES PATENT OFFICE.

EUGÈNE ALFRED DURAND, OF PARIS, FRANCE.

## CIGARETTE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 422,193, dated February 25, 1890.

Application filed August 13, 1888. Serial No. 282,598. (No model.) Patented in France October 22, 1885, No. 171,805; in Belgium August 18, 1886, No. 74,262; in Germany August 21, 1886, No. 38,799, and in England August 23, 1886, No. 10,763.

*To all whom it may concern:*

Be it known that I, EUGÈNE ALFRED DURAND, a citizen of the French Republic, and a resident of Paris, France, have invented certain Improvements in Cigarette-Machines, (for which a patent has been granted in France, No. 171,805, dated October 22, 1885; in Great Britain, No. 10,763, dated August 23, 1886; in Belgium, No. 74,262, dated August 18, 1886, and in Germany, No. 38,799, dated August 21, 1886,) of which the following is a specification.

My invention relates to that class of cigarette-machines wherein the roll of tobacco or other material to form the cigarette is formed by lateral pressure between two semi-cylindrical fluted faces, and is then driven out longitudinally into a previously-formed tube of paper or the like; and the object of the invention is to produce a durable and compact machine, easily operated and adapted to be lubricated without danger of contaminating the material of which the roll is formed.

My invention will be fully described hereinafter, and its novel features carefully defined in the claims.

In the accompanying drawings, illustrative of my invention, Figure 1 is an elevation of the front of a machine embodying my improvements. Fig. 2 is a vertical transverse section of the machine seen in Fig. 1, taken in the plane indicated by the dotted line 2 2 in Fig. 1. Fig. 3 is an end elevation of the machine, showing the end at the right in Fig. 1. Fig. 4 is a transverse section of the body or operative portion of the machine, taken in the same plane as Fig. 2, but on a scale double that of the principal figures. This view shows the operative parts of the machine in a position different from that seen in Fig. 2. Figs. 5, 6, 6<sup>a</sup>, and 7 are detail views on the same scale as Fig. 4.

These views will be hereinafter described. X is a stout bed-plate of any kind, in which is formed a parti-cylindrical or trough-like seat. This bed plate or piece has heads or ends *a a*, and between these is fixed a cylindrical core X', which is concentric with the parti-cylindrical seat in the bed-piece X. Between the core and seat is an annular space.

E is a parti-cylinder or envelope, which rests

and fits exteriorly the seat in the bed-piece and is provided with an operating-handle L, whereby this parti-cylinder or envelope may be turned about its axis in its seat.

Within the part E and occupying the residue of the annular space between the concave bed-piece and the core X' are the two parti-cylindrical demi-molds or mold-sections T and T'. The section T' is fixed in position by attachment to the core; but the section T is free to move about the core to a limited extent.

Between the opposed faces of the sections T and T' is a space *y* to receive the tobacco or other substance from which the cigarette is to be made, and these opposed faces or edges of the sections T and T', which effect the compression and molding, have each a semi-cylindrical concave matrix, whereby, when they are brought together on the material, they mold it into the form of a cylinder or roll.

Movement is imparted to the mold-section T through the medium of the part E in the manner following: In the envelope is formed a slot *a*, and in the section T is fixed a projecting stud or screw *t*, which projects outwardly into and engages the slot *a*. This engagement of the screw *t* with the slot in the envelope causes the section T to partake of a part of the movement of the envelope E, but not of the whole movement.

Fig. 2 shows the mold open. The tobacco or other material is placed in the space *y* and the handle L is pushed over toward the right in Figs. 2 and 4. The first effect is to move the envelope E about and independently of the section T by reason of the slot *a*; but when the end of this slot engages the stud *t* the mold-section T moves with the envelope, and this movement is continued until the matrices of the mold-sections are together, as seen in Fig. 4, and the tobacco between them is formed into a roll Z, as seen in the figure. Before the mold-section T has completed its movement, however, the advancing lip or margin *e* of the envelope E will have passed over the fixed mold-section T', and thus entirely inclose the tobacco within the space *y*. The object of this construction is to have the tobacco wholly surrounded or embraced while it is being compressed, so that it cannot protrude

and be nipped between the faces of the mold-sections, and at the same time to enable the lip or margin *e* of the envelope *E* to draw back and leave a clear space for the insertion of the material into the mold. When the compression of the roll is being effected, a projecting lug *e'* on the envelope *E* strikes on the crown of a spring-buffer *D*. (Seen detached in Fig. 7.) This buffer is adjustable, so as to regulate the pressure to be put on the material, and it comprises as its elements an upright cylinder fixed to the base and containing a coil-spring, a follower resting on said spring and provided with a slot which is engaged by a pin in the cylinder, which thus forms a limiting-stop, and a steel screw in the top of the follower for the lever *L* to impinge upon. This screw permits of regulating the extent of movement of the lever *L* under a given force applied thereto.

To hold the mold closed on the roll of material a spring-latch is provided, as best seen in Figs. 2 and 4. A latch-lever *A* is pivoted to the base of the machine and provided with a holding-spring *B*. This latch bears elastically on the envelope *E*, and a tooth *c* thereon wipes over and engages the projecting end of the stud *t* or some suitable projecting part.

I have described above the roll-forming mechanism, and will now describe the mechanism employed for discharging or ejecting the roll from the matrix of the mold and forcing it into a previously-formed tube of paper or the like.

*N* is a rod or plunger axially aligned with the roll *Z* in the mold and of the same size as the roll. This plunger is adapted to be pushed longitudinally through the mold by a spring.

On the end frame of the machine is secured a tubular spring-casing *M*, over which plays or slides a sleeve *O*, which is connected with the plunger *N* inside of the casing *M* by means of a screw or stud *g* through a longitudinal slot *h* in the casing. The spring *i* inside the casing *M* bears on the head of the plunger *N*. The plunger is retracted and the spring compressed through the medium of the sliding sleeve *O*, and said plunger is held in position drawn back by a lock formed by a lateral branch *h'* of the slot *h*, with which the stud *g* is made to engage by a partial rotation of the sleeve *O* and of the plunger secured thereto.

While the roll *Z* is being compressed and formed the plunger *N* stands drawn back or retracted; but after the molding is effected a previously-formed tube *z*, of paper or the like, is placed in position to receive the ejected roll and the plunger then released, when the latter will drive out the roll and form a cigarette. The plunger may then be retracted, another roll formed, and the operation repeated.

The supporting devices for the tube *z* are illustrated in Figs. 3, 5, 6, and 6<sup>a</sup>. In Fig. 5, which is a sectional view of one end *x* of the

base, is seen the aperture *x'*, through which the roll is ejected, and the tubular nipple *x''* on the end of the base *x*, on which the tube *z* is slipped to receive the ejected roll. To hold this end of the tube firmly in place while the roll is entering it a spring *P* (seen best in Fig. 3) is secured to the envelope *E* in such a position that when the roll is under pressure, as in Fig. 4, this spring will bear on the tube at the point where the latter embraces the nipple *x''*, and thus hold said tube firmly on the nipple.

To support the outer end of the tube *z* an arm *P'* (seen detached in Figs. 6 and 6<sup>a</sup>) is mounted to slide on a fixed rod *P''* on the machine-frame. This arm *P'* may be set at any point on the rod which will best adapt it to the length of the tube *z*, and it is provided at its free end with a parti-tubular support, in which the outer end of the tube *z* will be made to rest.

Having thus described my invention, I claim—

1. In a cigarette-machine, the combination, with the stationary cylindrical core, of the fixed mold-section on said core, the movable parti-cylindrical mold-section, and the movable parti-cylindrical envelope embracing the said mold-sections and connected with the movable mold-section, substantially as set forth.

2. In a cigarette-machine, the combination, with the mold, of the slotted tube *M*, the spring arranged therein, the plunger *N*, also arranged therein and aligned with the mold, the sleeve *O* on said slotted tube and connected with the plunger, and the locking device for holding the plunger retracted, all arranged substantially as set forth.

3. In a cigarette-machine, the combination, with the fixed core, the stationary and movable mold-sections, and the oscillating envelope *E*, of the spring-stop device, substantially as described.

4. In a cigarette-machine, the combination, with the core, the fixed and movable mold-sections, and the oscillating envelope *E*, the latter provided with an operating-handle and a projection *e'*, of the spring-buffer *D*, set in the path of the projection *e'*, as and for the purposes set forth.

5. In a cigarette-machine, the combination, with the molds, the oscillating envelope *E*, and the fixed end frame provided with a tubular nipple *x''*, arranged opposite to the matrix of the mold to receive the cigarette-tube, of the spring *F* on the envelope *E*, arranged in position to bear on the said nipple when the mold is closed, substantially as and for the purposes set forth.

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

EUGENE ALFRED DURAND.

Witnesses:

JULES FAYOLLET,  
AUG. VINCK.