

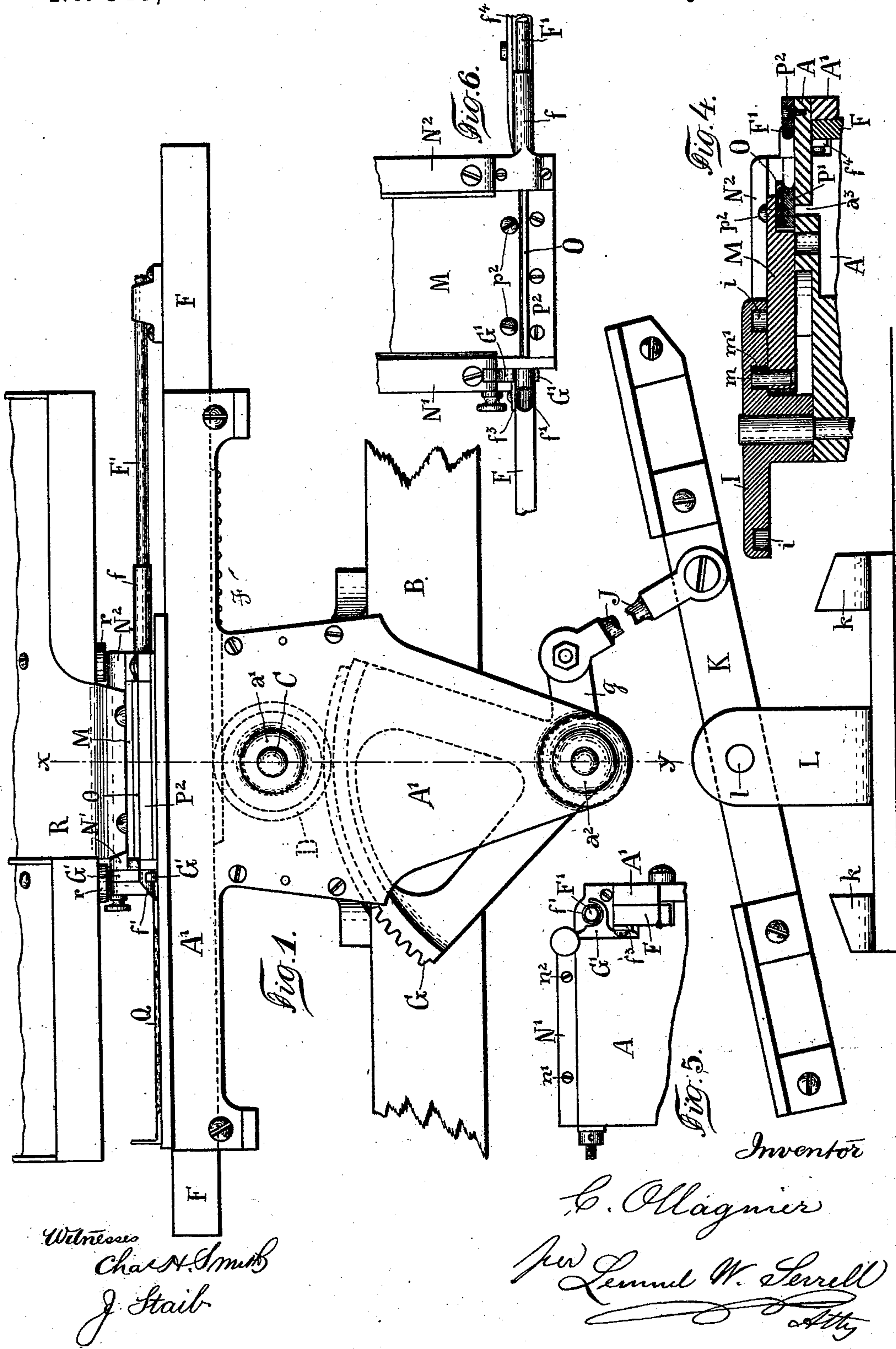
(No Model.)

2 Sheets—Sheet 1.

C. OLLAGNIER.  
CIGARETTE MACHINE.

No. 543,189.

Patented July 23, 1895.



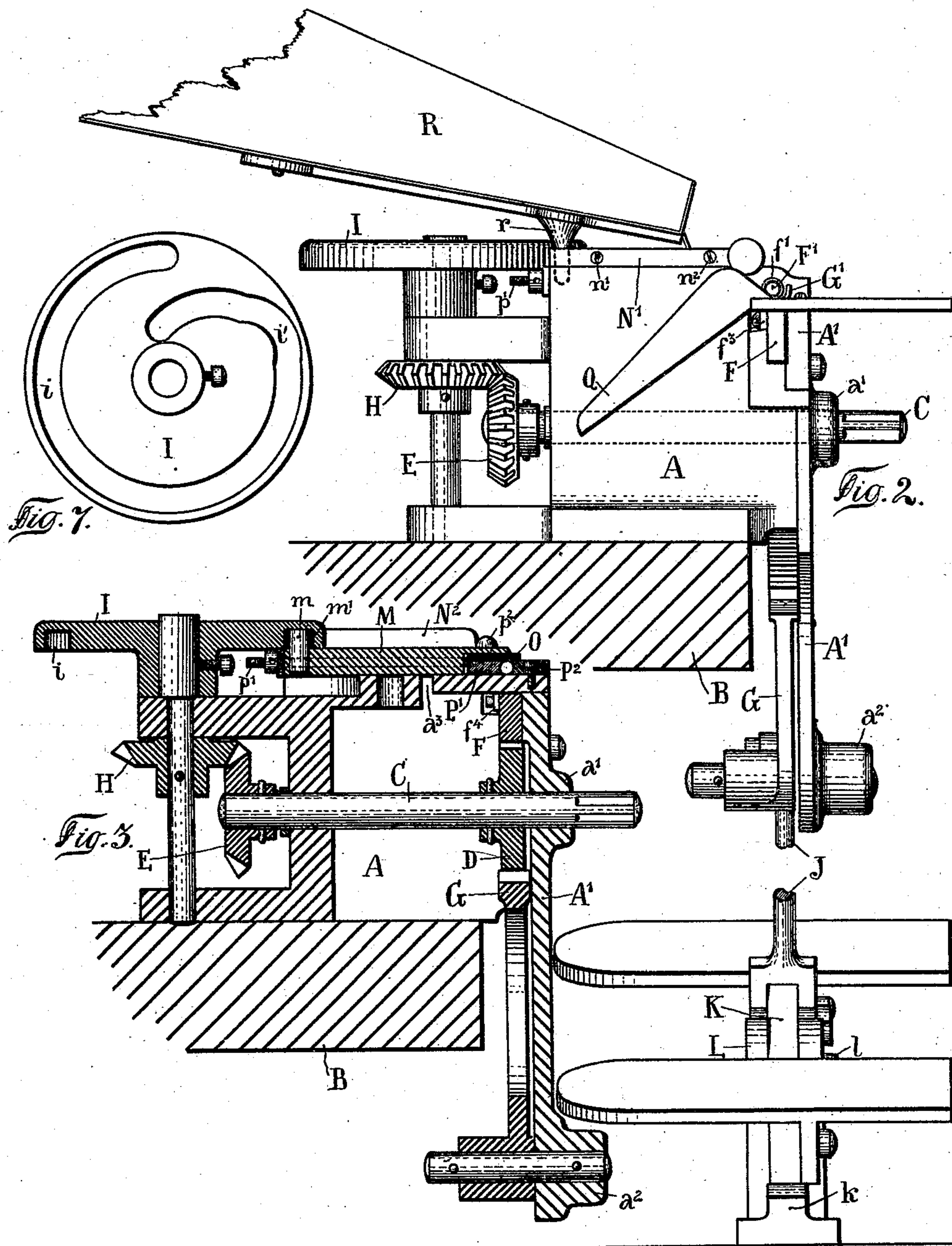
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Witnesses

Charles Smith  
J. Staib

Inventor

C. Ollagnier  
per Lemuel W. Perrell  
Att'y



# UNITED STATES PATENT OFFICE.

CHRISTOPHE OLLAGNIER, OF GENEVA, SWITZERLAND.

## CIGARETTE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 543,189, dated July 23, 1895.

Application filed March 29, 1895. Serial No. 543,659. (No model.) Patented in Switzerland October 4, 1894, No. 9,085.

*To all whom it may concern:*

Be it known that I, CHRISTOPHE OLLAGNIER, manufacturer, residing at Geneva, Switzerland, have invented certain new and useful Improvements in Cigarette-Machines, of which the following is a specification.

This invention relates to certain new and useful improvements in that class of machines for manufacturing cigarettes for which the paper tubes are previously made on other suitable machines, such tubes needing only to be filled with tobacco by means of the present machine in their whole length or in part of it. Such paper tubes may be provided or not with a cardboard mouthpiece.

My improved machine is especially characterized by a device intended to compress the tobacco which is to be introduced into such cigarette to a predetermined degree, and then the compressor is retracted before the tobacco is introduced into the paper tube. This feature of my improved machine has for its object to reduce to zero, or nearly so, the number of defective cigarettes produced, the defective cigarettes produced by some other machines being numerous. The latter have generally been constructed with a view of making the entire cigarette automatically without any hand-work. This I have found to be practically prejudicial to the quality of work done, and my opinion is based on the fact that, according to the hygrometrical state of the tobacco, which is very variable, the volume of tobacco which must be filled into each paper tube must be varied according to the said hygrometrical state, which can only be made by hand, the touch of a clever workman being the best regulator for such work.

In the accompanying drawings, Figure 1 is a front elevation of one form of my improved machine, part of which is supposed to be broken away so as to draw that part of the machine which is affixed to the floor near that part of the same which is affixed on a suitable table. Fig. 2 is a similar end view of the machine. Fig. 3 is a section on the line  $x y$  of Fig. 1, in which the compressor is shown at the end of its positive stroke. Fig. 4 is a reproduction of part of Fig. 3, showing the compressor in its retracted position. Figs.

5 and 6 are separate views of the device for holding and abandoning the paper tube. Fig. 7 is an underneath view of the cam-wheel I.

In all the figures the same letters of reference refer to the same parts.

A is the frame of that part of the machine which is to be affixed to a table B of any kind and of suitable height. The frame A has a front-plate A' provided with two sleeves  $a^1$  and  $a^2$ .

C is a spindle supported in the frame A and plate A', and said spindle has secured to it the gear-wheels D and E. The wheel D gears with a rack F and also with a toothed segment G, and the latter is pivoted at  $a^2$  in a boss on the plate A'. The wheel E gears into a wheel H, secured to the shaft of the cam I.

It is to be understood that the gears just described, which are intended to transmit the rocking movements of the toothed segment G on the one hand to the rack F and on the other hand to the cam I, may be of any desired kind and that I do not limit myself to the above-described combination of wheels. There may be interposed, for instance, one or more intermediate gears intended to reduce the amplitude of oscillation of the said segment G and of the corresponding treadle without reducing the amplitude of oscillation of the cam I and of the to-and-fro motion of the rack F.

To the toothed segment G there is provided an arm  $g$ , the end of which is connected by means of an adjustable rod J to a rocking lever K of the treadle. The said rocking lever K is journaled at  $l$  to a bearing L, which is affixed to the floor and which is provided with suitable projections  $k$  to limit the stroke of the treadle-lever. By alternately acting upon the right or the left treadle one causes the segment G to be alternately rocked in either direction, which causes the cam I to be partially rotated and the rack F to be drawn to and fro.

The cam I has on its lower face a groove in the form of a spiral, as shown in Fig. 7, in which engages the roller  $m'$ , which surrounds the pivot  $m$  fixed to the sliding compressor M. The groove  $i$  of the cam I has a check  $i'$ , formed so as to slightly retract the compressor M without completely opening the mold, of which the front of said compressor bears one-



half portion, after the tobacco has been compressed and before it is drawn into the paper tube.

The compressor M slides between two guides 5 N' and N<sup>2</sup> on the frame A, and two suitable screws n' and n<sup>2</sup> are provided in view of exactly regulating the said guides. The front part of the compressor M is formed so as to overlap the knife-blade O and the half-mold 10 P', fixed to the same by means of bolts p<sup>2</sup>, which are engaged through suitable slots of such overlapping part of compressor M, so as to allow the position of the said knife and half-mold to be exactly regulated with respect 15 to the to-and-fro sliding compressor M, suitable set-screws p', Fig. 3, being moreover provided for that object. The thickness of the knife-blade O may be augmented or diminished at will if the thickness of the mold is to 20 be diminished or augmented. This allows one and the same machine to be used with different sets of molds and knives intended to form cigarettes of different diameter, of round or elliptic shape.

P<sup>2</sup> is one-half part of the mold fixed to the 25 frame A, and when the compressor is moved into its front position, as shown in Fig. 3, the parts P' and P<sup>2</sup> form with one another a tubular mold, in which the tobacco is compressed 30 after the knife O has cut off those parts of said tobacco which extend beyond the top of the half-mold P<sup>2</sup>.

The rack F carries a piston-rod F', guided in a sleeve f, which forms a prolongation of the 35 cylindrical mold formed of the parts P' and P<sup>2</sup>, as above specified. At the other end of such cylindrical mold there is affixed a sleeve f', intended to be introduced into the paper tube which is to be filled up with tobacco. A 40 clutch, formed of a pair of nippers G', provided with a suitable spring, is disposed so as to normally press the paper tube upon the sleeve f', so as to firmly grasp the same while the tobacco is introduced into it. On the 45 other hand, the rack F carries two wedges or beveled pieces f<sup>3</sup> and f<sup>4</sup>, which are intended to open the clutch G'. The wedge or beveled piece f<sup>3</sup> is intended to open the clutch G' when the piston-rod F' is completely retracted 50 to the right out of the mold P' P<sup>2</sup>, so as to have the clutch G' opened to allow the workman to engage a paper tube upon the sleeve f' within said clutch G'.

The wedge or beveled piece f<sup>4</sup> is intended 55 to open the clutch G' when a predetermined length of the piston-rod F' is passed into the mold—that is to say, when the paper tube is filled up to a predetermined length (for instance, up to the cardboard tube) with tobacco. 60 The paper tube is then abandoned to itself by the clutch G', and the cigarette falls through a channel Q into a suitable box. (Not shown.)

The wedge or beveled piece f<sup>4</sup> is adjustable on the rack F in view of allowing one to vary at will the length of the tobacco-cylinder engaged 65 in the paper tube when the clutch G' is opened. R is a hopper, fixed to the frame A by means of pins r. The said hopper is divided into two cells by a suitable partition, the left cell 70 being intended to receive the paper tubes intended to be filled up and the right cell being intended to receive the tobacco.

The frame A has a slot a<sup>3</sup>, through which the powdered tobacco may escape to prevent its obstructing the passage of the sliding com- 75 pressor M.

The machine works as follows: The workman having his two feet on the treadles presses the left one down and causes thereby the rack F and rod F' to be retracted to the right, and 80 the compressor M to be retracted and the mold P' P<sup>2</sup> and also the clutch G to be opened by the wedge f<sup>3</sup>. The workman then passes a paper tube over the sleeve f' and engages a certain quantity of the tobacco contained in the 85 hopper into the mold between the pieces P' P<sup>2</sup>. Then the workman presses the right treadle down, whereby the following operations take place successively in the order as given below: The clutch G' is shut—that is to say, the 90 paper tube affixed. The tobacco contained between the pieces P' and P<sup>2</sup> is compressed and those parts of the same extending beyond the part P<sup>2</sup> are cut off. The compressor M is slightly retracted, so as to allow the com- 95 pressed tobacco to slightly expand and to be easily moved along the tubular mold formed of the parts P' and P<sup>2</sup>. The tobacco is moved by the piston-rod F' into the paper tube. The clutch G' is reopened, so as to allow the 100 filled paper tube to fall into the channel Q, and finally the compressor M is retracted. Then the above operations begin again.

I claim as my invention—

In a machine for making cigarettes a mold 105 composed of two parts one of which is stationary and the other movable, a cam having a spiral groove, a pin connection to the moving part of the mold, the groove of the cam being 110 formed so as to first close the mold and compress the tobacco and then slightly to retract the moving side of the mold for lessening the pressure upon the tobacco and then to open the mold and hold the same during the remainder of the rotation of the cam, substan- 115 tially as described.

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

CHRISTOPHE OLLAGNIER.

Witnesses:

E. GRUER SCHMEID,  
OTTO H. MAY.