

No. 762,068.

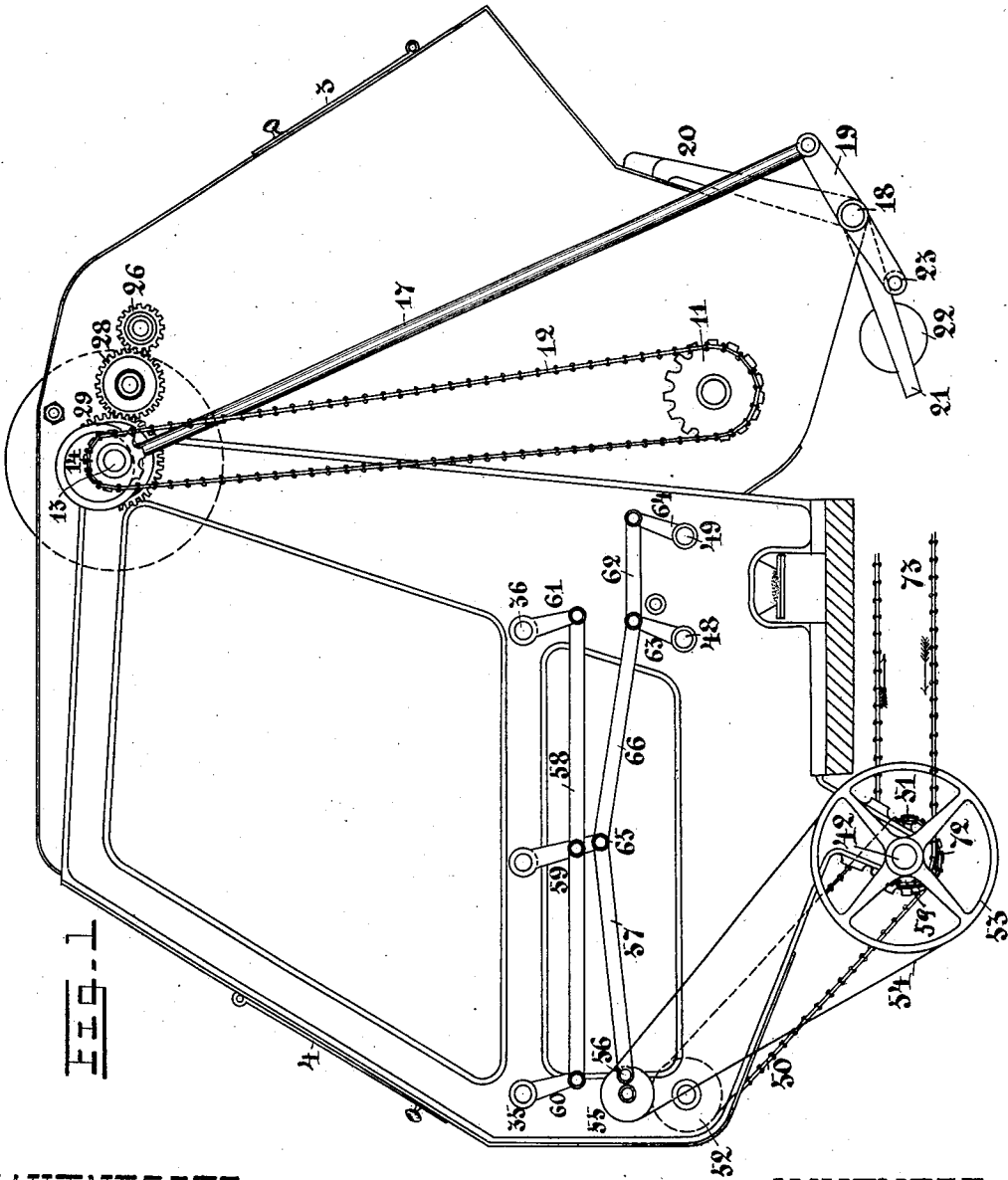
PATENTED JUNE 7, 1904.

L. LINDELÖF.
MACHINE FOR AUTOMATICALLY PREPARING AND FEEDING TOBACCO FOR
CIGARETTE MACHINES.

APPLICATION FILED OCT. 5, 1901.

NO MODEL.

4 SHEETS—SHEET 1.



WITNESSES

Ewald Selmar
Everedakimalkovitch

INVENTOR

Lennart Lindelöf
by Axel Paul
his atty

No. 762,068.

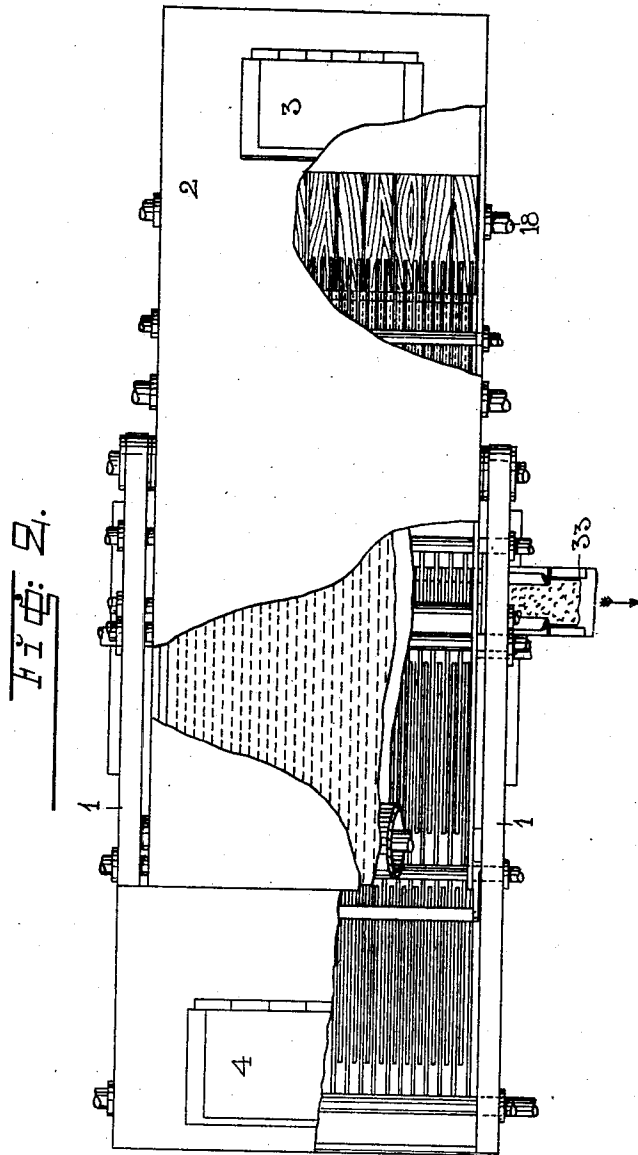
PATENTED JUNE 7, 1904.

L. LINDELÖF.
MACHINE FOR AUTOMATICALLY PREPARING AND FEEDING TOBACCO FOR
CIGARETTE MACHINES.

APPLICATION FILED OCT. 5, 1901.

NO MODEL.

4 SHEETS—SHEET 2.



Witnesses
Ewald Selmar
Lerdahmckvist.

Inventor
Leonard Lindelöf
by Carl Paul
his atty

No. 762,068.

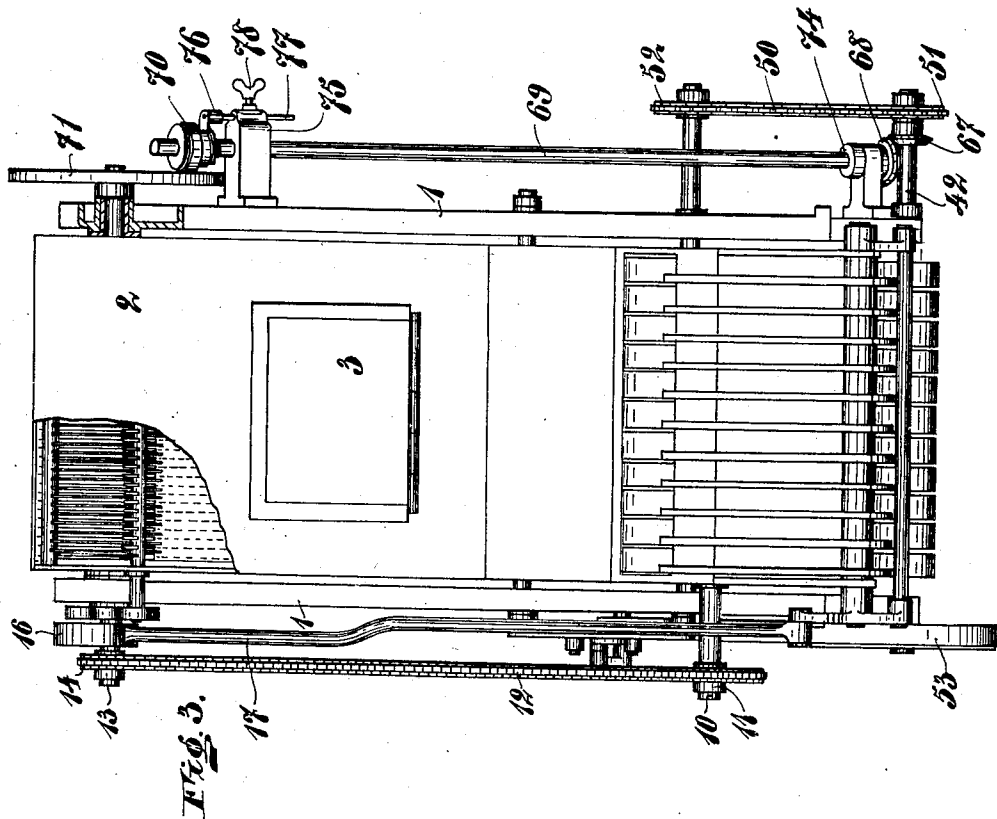
PATENTED JUNE 7, 1904.

L. LINDELÖF.
MACHINE FOR AUTOMATICALLY PREPARING AND FEEDING TOBACCO FOR
CIGARETTE MACHINES.

APPLICATION FILED OCT. 5, 1901.

NO MODEL.

4 SHEETS—SHEET 3.



Witnesses:
Gustaf Isfält
Gerdahmalmkvist.

Inventor:
Lemar Lindelöf
by Olof Dahl
his att'y

No. 762,068.

PATENTED JUNE 7, 1904.

L. LINDELÖF.
MACHINE FOR AUTOMATICALLY PREPARING AND FEEDING TOBACCO FOR
CIGARETTE MACHINES.

APPLICATION FILED OCT. 5, 1901.

NO MODEL.

4 SHEETS—SHEET 4.

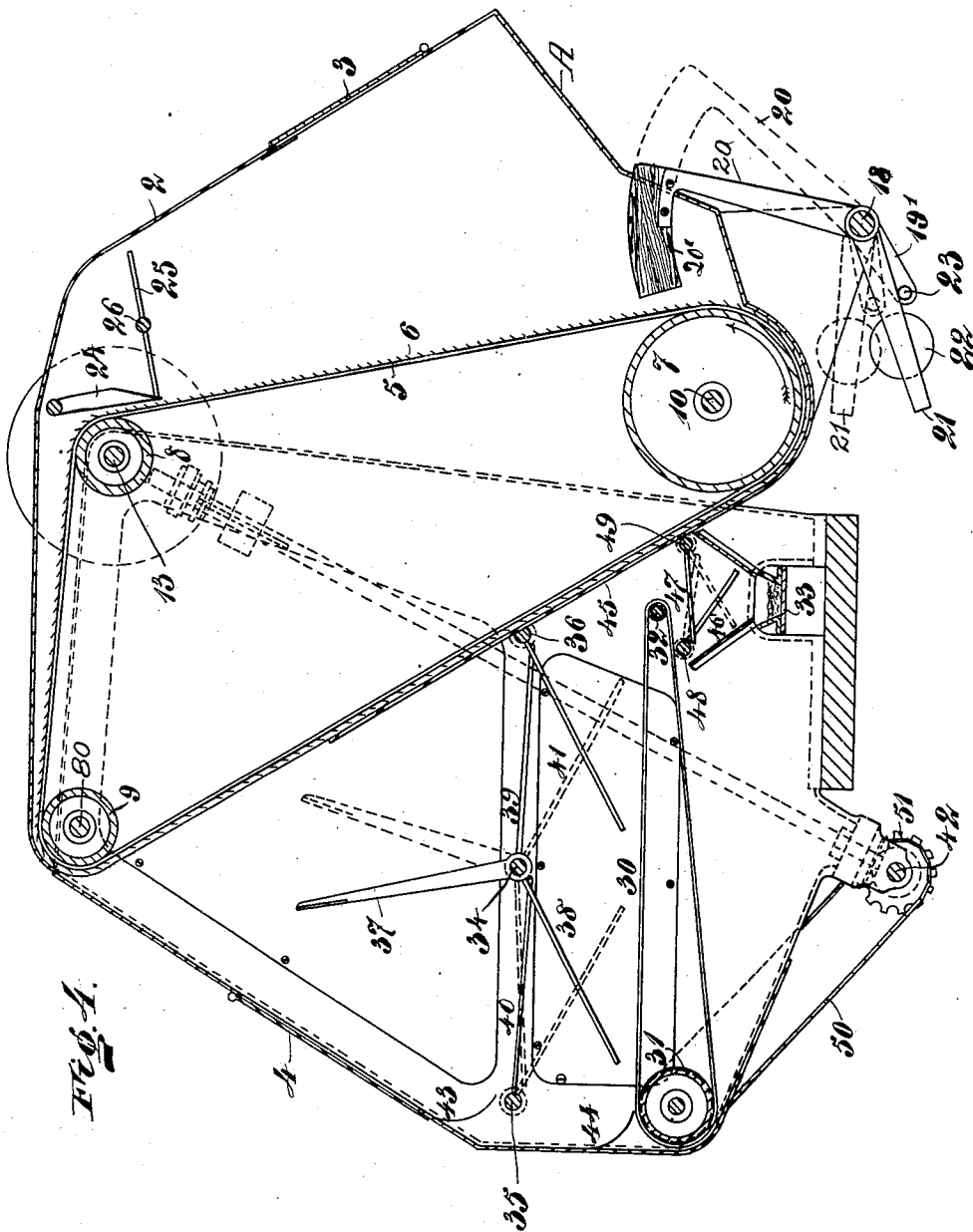


FIG. 1.

Witnesses:
Mustaf T. Späet.
Gerd Schmitt.

Inventor:
Leonard Lindelöf
by Osplan
in att'y

UNITED STATES PATENT OFFICE.

LEONARD LINDELÖF, OF HELSINGFORS, RUSSIA.

MACHINE FOR AUTOMATICALLY PREPARING AND FEEDING TOBACCO FOR CIGARETTE-MACHINES.

SPECIFICATION forming part of Letters Patent No. 762,068, dated June 7, 1904.

Application filed October 5, 1901. Serial No. 77,741. (No model.)

To all whom it may concern:

Be it known that I, LEONARD LINDELÖF, a subject of the Emperor of Russia, and a resident of Estnsägatan 11, Helsingfors, Finland, Russia, have invented a new and useful Improvement in Machines for Automatically Preparing and Feeding Tobacco for Cigarette-Machines, of which the following is a specification, reference being had to the drawings accompanying and forming a part hereof.

The present invention relates to a machine for automatically feeding and preparing tobacco for cigarette-machines, especially of that kind in which the tobacco for the purpose of forming a layer or string of uniform thickness is fed onto an endless belt, ribbon, or the like.

The invention consists, briefly, in combination, with a machine of the aforesaid kind, of an endless belt, ribbon, or the like running over rollers or cylinders and provided with inclined hair-fine teeth or prongs, the said belt or ribbon being adapted to bring up from a tobacco-reservoir a layer of tobacco and leave the same to a spreading device which further disintegrates the partly-floppy tobacco dropping down from the said toothed belt or ribbon before it arrives to the belt which carries the tobacco to the cigarette-machine. The thickness of the layer of tobacco which is drawn up by the said toothed belt or ribbon may be regulated by means of one or more stationary or movable combs, which strike off the superfluous tobacco and throw it back into the said tobacco-reservoir. The said spreading device may suitably consist of two or more horizontal rows of arms, beaters, or the like having a quick reciprocating motion in vertical direction in such a manner that the one row is raised when the other is lowered, whereby the floppy tobacco is thrown about on the said rows of arms or beaters until all the tobacco-fibers have been separated from each other and dropped down between the said arms or beaters. In order to mix the tobacco in the said reservoir and to cause the said toothed belt or ribbon to catch and bring up the tobacco, movable elastic presses are provided which at intervals press the tobacco in the said tobacco-reser-

voir against the said toothed belt or ribbon and are withdrawn while fresh quantity of tobacco is brought in between the toothed belt or ribbon and the said presses.

In the accompanying drawings, in which same parts are indicated by the same reference characters throughout, a suitable constructional form of the invention is illustrated.

Figure 1 shows an apparatus according to the present invention in front elevation. Fig. 2 shows a plan view of the same, partly in section. Fig. 3 is a side view partly in section. Fig. 4 is a vertical longitudinal section of the apparatus.

Referring to the drawings, 1 represents a cast-iron frame which supports the most of the bearings of the apparatus. Between the side pieces of the said frame a covering 2 is provided, the said covering inclosing the said tobacco-reservoir A, the presses 20 21 20', the toothed feeding-belt 5, and striking-off combs 24 25. 3 represents a door or lid provided in the said covering 2, through which the tobacco is brought into the said reservoir, and 4 is another door through which the machine may be observed and the parts working on the left side may be reached.

5 represents an endless feeding-belt, which is provided on its outer side with a great number of teeth or prongs 6 in form of short pins or needles. The said feeding-belt runs over three drums or cylinders 7, 8, and 9, of which 7 is the driving-drum and is placed at the bottom of the room inside said covering 2, whereas the drums 8 and 9 are placed in the upper part of the same. The axle 10 of the drum 7 is driven from the shaft 42 by means of the bevel-wheels 67 and 68, the shaft 69, the friction-wheels 70 and 71, the shaft 13, the sprocket-wheels 14 11, and the chain 12. The drums 8 and 9 are loosely mounted on their shafts 13 and 80. The shaft 42 is driven from the main shaft of the cigarette-machine by means of the chain 73 and the sprocket-wheel 59. In order that the speed of the said feeding-belt 5 may be varied at will in relation to the other movements of the machine, so as to regulate the quantity of tobacco fed by the belt 5, the friction-wheel 70 can be moved along the shaft 69. The

fork 76, the pin 77 of which can be shifted in a bracket 75 and be fixed in the desired position by means of a set-screw 78, is adapted to keep the said friction-wheel 70 in any desired position.

On the shaft 13 outside the front side of the covering 2 is fixed an eccentric 16, which by means of the rod 17 gives the two-armed lever 19, attached to the one end of the shaft 18, an oscillating movement. To the other end of said shaft 18 is attached a single-armed lever 19'. The two levers 19 and 19' are connected to each other by means of the rod 23, so that the same is moved up and down, whereby it will take up alternately the two positions shown in Fig. 4. On the shaft 18 between the side walls of the said covering 2 is loosely mounted a number of elbow-shaped levers 20 21, which at their upper ends are provided with clamps 20'. These clamps 20', which constitute the above-mentioned presses, enter openings in the covering 2 each time the rod 23 is lowered and are pressed against the feeding-belt 5 by means of weights 22, fixed on the arms 21. By the upward movement of the rod 23 the arms 21 are lifted and the clamps 20' are withdrawn from the tobacco-reservoir. By these movements of the clamps the tobacco in the lower part of the tobacco-reservoir is pressed against the pins or needles of the feeding-belt 5. In the upper part of the covering 2, Fig. 4, two striking-off combs 24 25 are provided, the object of the said combs being to regulate the thickness of the tobacco layer on the feeding-belt 5 and to retain the superfluous tobacco. The comb 24 is stationary and the comb 25 rotary. The teeth of the latter move between the teeth of the former and strike off the tobacco from the same. The said rotary comb 25 is fixed on the shaft 26, which is rotated by the shaft 13 by means of the gearing 27 28 29.

The tobacco fed to the belt 5 is by the same carried over the drum 9 to the left part of the covering 2, drops down onto another endless belt or ribbon 30, running between and over the drum 31 and the roller 32, and is brought by the belt or ribbon last mentioned to a third endless ribbon 33, running to the cigarette-machine. Hereby the machine must effect a uniform distribution of the tobacco dropping down. In the path of the tobacco from the first to the second belt are for this purpose provided rows of parallel arms or beaters 38, 39, 40, and 41, fixed to shafts 34, 35, and 36. Of the said rows of arms 38 and 39 are fixed on the shaft 34, whereas the row 40 is fixed on the shaft 35 and 41 on the shaft 36. The rows of arms 38 and 40 and 39 and 41 cooperate in such a manner that the arms or beaters of the one shaft pass between the arms or beaters of the other. The movement of the said arms or beaters is oscillating and is effected by the shaft 42 by means of a suitable

gearing described herebelow. On the said shaft 34 are, moreover, fixed two arms 37, arranged near the side walls of the coverings and turned upward, the upper end of the said arms 37 being connected to each other by means of a plate parallel to the said shaft 34 and forming a fan. The object of this arrangement is to effect an air-current against the feeding-belt 5 in order that the tobacco may easier drop down from the needles of the said feeding-belt 5 and that the flocks of tobacco may be thrown to both sides of the shaft 34. In order that the tobacco may not be thrown too far to the side by the said spreading device, guide-plates 43 and 44 are provided at the wall of the covering 2, and at that side where the feeding-belt 5 returns to the drum 7 a guarding-wall 45, reaching above the beaters, is provided. In the path from the second to the third feeding-belt the tobacco passes likewise two cooperating series of beaters 46 and 47 swinging about the shafts 48 and 49. By means of the said beaters the tobacco will form a uniform layer on the third feeding-belt, which layer is fed to the cigarette-machine. The movement of the second feeding-belt is effected by the shaft 42 by means of the chain 50 and the sprocket-wheels 51 52. The movement of the said beaters is effected, as before mentioned, by the same shaft. On the shaft 42 is fixed a pulley 53, connected by means of a belt 54 to a pulley 55. The said pulley 55 is provided with a crank-pin 56, to which is attached a rod 57, which is thus given a reciprocating movement. On the shafts 34, 35, and 36 are fixed cranks 59, 60, and 61, connected to one another by means of a rod 58. On the shafts 48 and 49 are fixed two cranks 63 and 64, connected to each other by means of a rod 62. To an extension of the crank 59 is fixed a pin 65, to which the other end of the rod 57 is pivotally attached, the said pin being, moreover, connected to the cranks 63 and 64 by means of the link 66. The reciprocating motion of the rod 57 is thus transformed to a swinging movement of the said cranks 59, 60, 61, 63, and 64. In this manner a swinging movement is given to the beaters above mentioned.

Referring to the aforesaid, the working of the machine is as follows: The tobacco having been brought in through the door 3 falls down between the moving belt 5 and the presses 20', which latter in their movement against the said belt press the tobacco against the same, so that the inclined needles 6 of the belt catch the tobacco. The combs 25 and 24 strike off the superfluous tobacco, so that the feeding-belt 5 carries a comparatively uniform layer of tobacco to the first beaters, between which the tobacco is disintegrated into separated fibers, which fall down onto the belt 30, whereupon the tobacco arrives to the rows of arms 46 and 47 and from there onto the

belt 33, which may be either a separate belt feeding the tobacco over to the cigarette-machine or may be the endless belt of the latter.

Having now described my invention and how it may be carried out, what I claim as new, and desire to secure by United States Letters Patent, is—

1. In a machine for automatically preparing and feeding tobacco to a cigarette-machine, the combination of, a number of drums, a toothed endless ribbon running over said drums, combs adapted to rake off the superfluous tobacco from the said endless ribbon, presses adapted to intermittently press the tobacco against said ribbon, means for actuating said presses, oscillating beaters, and means for actuating said beaters substantially as and for the purpose set forth.

2. In a machine for automatically preparing and feeding tobacco to a cigarette-machine the combination of, a number of drums, a toothed endless ribbon running over said drums, means for moving said drums, combs adapted to rake off the superfluous tobacco from the said endless ribbon, presses adapted to press the tobacco against said ribbon, means for actuating said presses, oscillating beaters, means for actuating said beaters, fans, means for actuating said fans, an endless ribbon

below said beaters, means for moving the last-mentioned endless ribbon, a second set of beaters, and means for moving said second set of beaters, substantially as and for the purpose set forth.

3. In a machine for automatically preparing and feeding tobacco to a cigarette-machine, the combination of, a number of drums, a toothed endless ribbon running over said drums, means for moving said drums, combs adapted to rake off the superfluous tobacco from the said endless ribbon, presses adapted to press the tobacco against said ribbon, means for actuating said presses, oscillating beaters, means for actuating said beaters, fans, means for actuating said fans, an endless ribbon below said beaters, means for moving the last-mentioned endless ribbon, a second set of beaters, means for moving said second set of beaters, and a third endless ribbon, running to the cigarette-machine, substantially as and for the purpose set forth.

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

LEONARD LINDELÖF.

Witnesses:

V. LAURM,
O. LÖNNBERG.