(Model.) 3 Sheets—Sheet 1.

J. DE LA MAR.

MACHINE FOR STRIPPING AND BOOKING TOBACCO.

No. 346,028. Patented July 20, 1886.

Fig. 1.

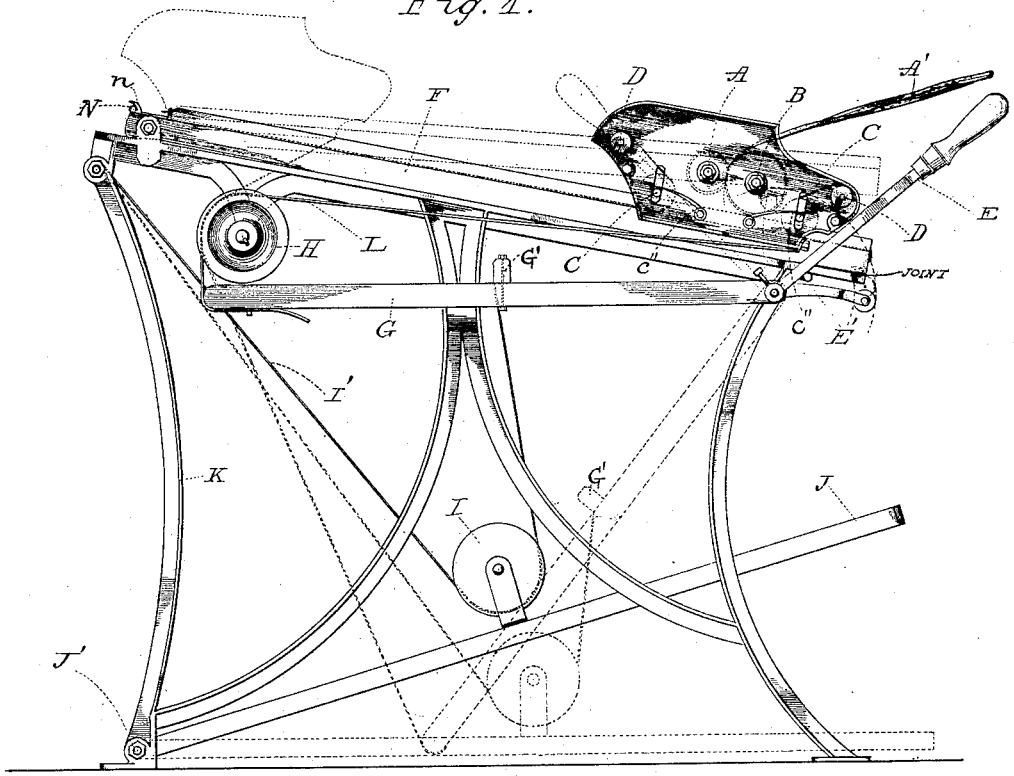
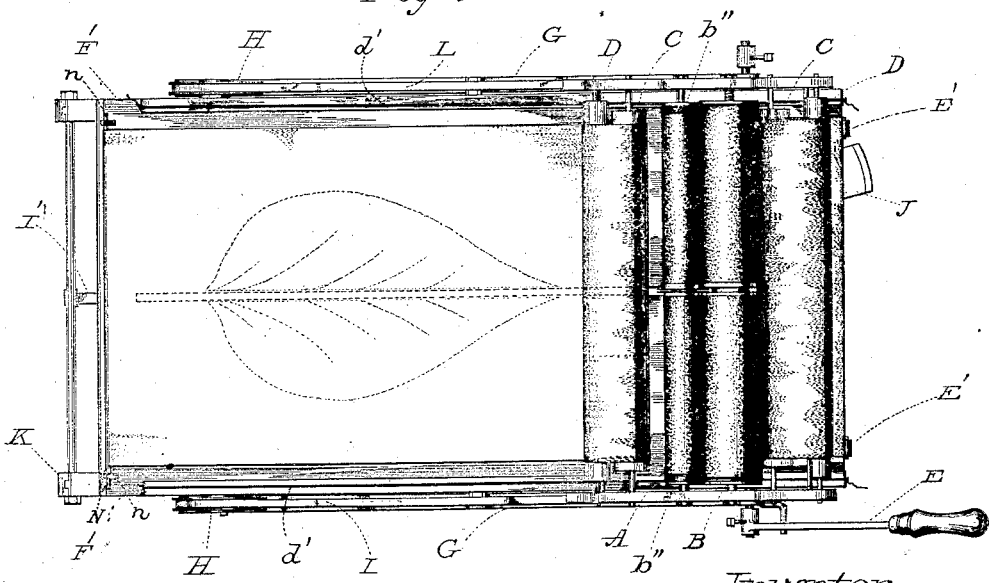


Fig. 2.



Witnesses.
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F. J. Taylor

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(Model.) 3 Sheets—Sheet 2.

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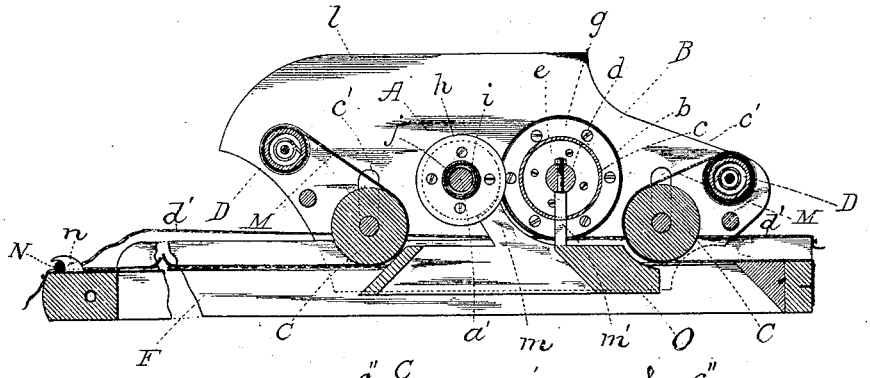
Fig. 3.



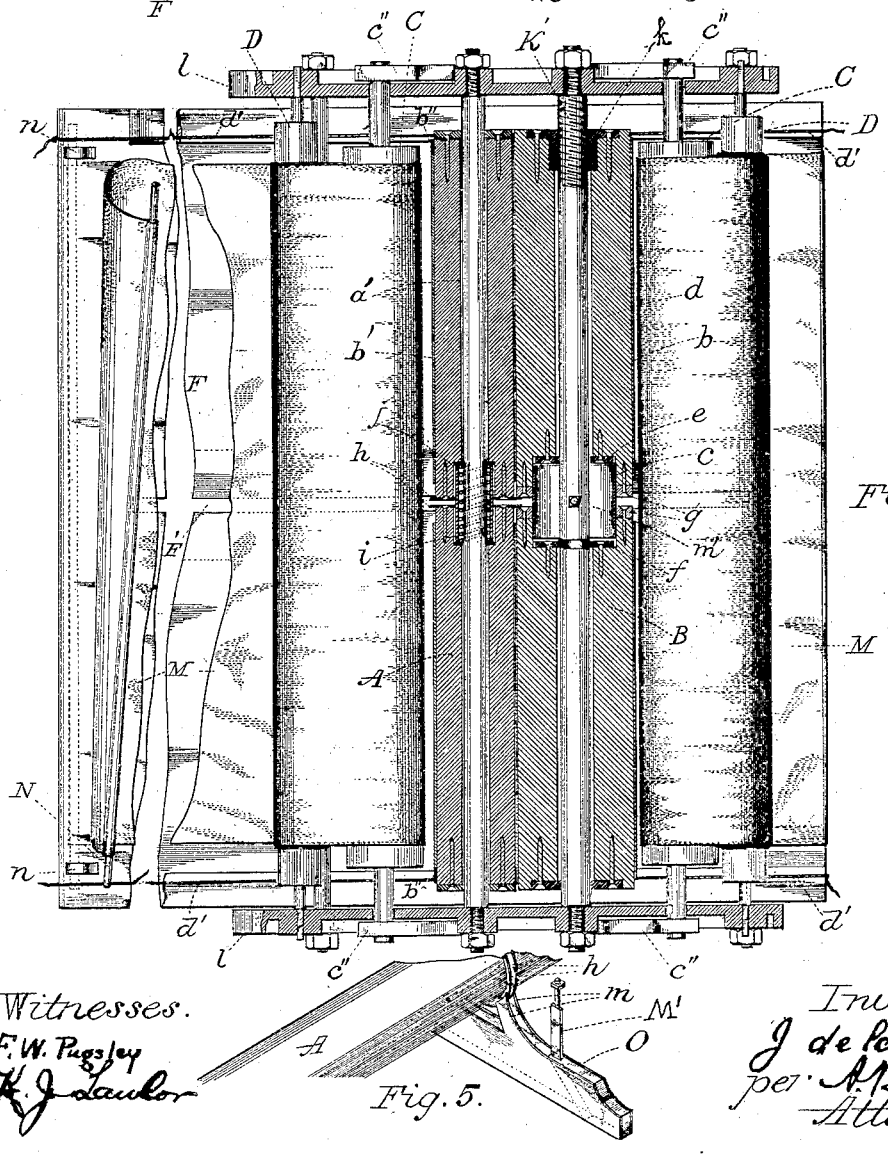


Fig. 4.

Fig. 5.

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MACHINE FOR STRIPPING AND BOOKING TOBACCO.

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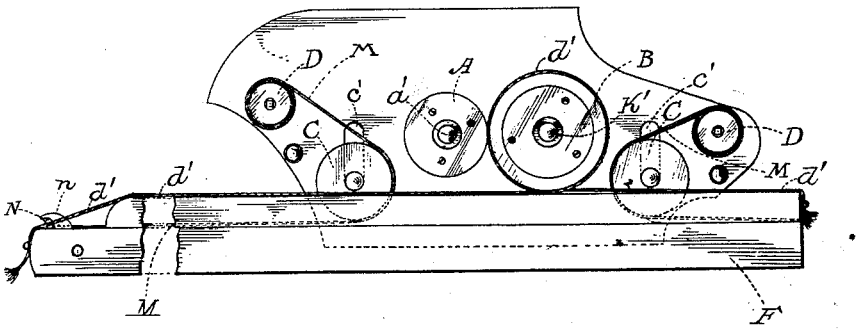
Fig. 6.



Witnesses:
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K. J. Taylor

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UNITED STATES PATENT OFFICE.

JOSEPH DE LA MAR, OF POUGHKEEPSIE, NEW YORK.

MACHINE FOR STRIPPING AND BOOKING TOBACCO.

SPECIFICATION forming part of Letters Patent No. 346,028, dated July 20, 1886.

Application filed April 14, 1885. Serial No. 162,180. (Model)

To all whom it may concern:

Be it known that I, JOSEPH DE LA MAR, a citizen of the United States, residing at Poughkeepsie, in the county of Dutchess and State of New York, have invented a new and useful Machine for Stripping and Booking Tobacco, of which the following is a specification.

My invention relates to the production of a machine for manipulating tobacco-leaves for cigar-manufacturing purposes, ordinarily called "stripping" and "booking," which has heretofore been and is still largely done by hand.

The following is a complete description of my machine, its mode of construction and operation, as it is fully shown and illustrated in the accompanying drawings.

Figure 1 is a side view of my machine, in which the dotted lines show the changes of position which take place in the action of the operative parts. Fig. 2 is a plan view of my machine, looking down upon it. Fig. 3 is a sectional view of the sliding frame that moves to and fro on the table, taken through the middle thereof. Fig. 4 shows an enlarged plan view of the sliding frame and its parts with horizontal section of the cutting-rollers. Fig. 5 shows the stem-guide. Fig. 6 shows a detail view of the sliding frame on the table, looking at the side thereof.

I will now explain the parts of my machine by reference to the letters upon the drawings.

A A show the smaller roller, or really the two smaller rollers, upon the common shaft.

B B show the larger cutting-rollers, composed of two independent parts on the same shaft.

E shows the lever by which the bed of the table is elevated by the action of its short arms E′ E′, Figs. 1 and 2, and the friction-rollers on the ends of the short arms.

D D show the spring-rollers on each side of the cutting and booking rollers.

C C show the booking-rollers, and *c′* the slots in which the axles of the booking-rollers play, and *c″* shows the springs which hold down these rollers.

d shows the shaft or axle of the larger cutting-rollers. *d′* shows the cords, whose ends are fastened to each end of the table and pass once around the ends of these rollers and lie along the cleats on which these larger rollers revolve.

b shows the felt covering of the larger rollers, and *b′* the felt covering of the smaller rollers.

a′ shows the shaft of the smaller cutting-rollers.

b″ shows the friction-bands around the outer ends of the smaller rollers, by which these rollers take motion from the larger ones.

F shows the bed of the table.

F′ F′ show the cleats on each side of the table.

G G show the levers.

G′ shows their connecting-rod.

H H show the pulleys over which the straps from the front end of the sliding frame pass to the ends of the long arms of the levers G G.

I shows the pulleys attached to the treadle.

J shows the treadle.

J′ shows the manner of fastening the end of the treadle to the frame.

K shows the four-legged frame which supports the table.

K′ shows the thread on the shaft of the right-hand part of the larger cutting-roller, and *k* shows the corresponding socket or nut in the roller.

I′ shows the cord or strap, which passes from the middle of the rod G′ to and around the treadle-pulley I and up to the middle of the rear end of the frame K, as shown in Fig. 1.

L shows the straps passing from the front edge of the sliding frame under the outer edge of the same and over the pulleys H H down to the long ends of the levers G G.

l shows the side of the sliding frame, which projects, as shown in dotted line, over the sides of the table.

i shows the spring that separates the smaller rollers and makes their steel projecting plates form shears with the like plates on the larger rollers.

j shows the brass tube incasing the spring *i*.

h h show the steel plates on the ends of the smaller cutting-rollers, and *g g* show corresponding steel plates on the inner ends of the larger cutting-rollers, and between them, as in Fig. 4, is shown the slot in the table.

M M show the aprons.

N shows the rod in the end of the rear apron, to facilitate its removal from the booked tobacco.

n n show the lugs on the rear end of the table, to hold the rod N.

O shows the stem-guide.

m shows the slot through which the stem drops.

M′ shows the bolt and nut which secure the stem-guide to the shaft of the larger cutting-rollers.

Fig. 3 shows the stem-guide in position, and Fig. 5 shows it detached.

Fig. 6 shows the sliding frame as seen from the side, presenting a view of the cutting-rollers, the spring-rollers, booking-rollers, aprons, and cord.

The stem-guide and cutting-plates are shown in Figs. 3, 4, and 5.

I have a frame and table so constructed that by a simple lever motion I can change the plane or surface of the table from a horizontal to an inclined position, which I do to make the machine work easier. The sliding frame, Fig. 6, that holds the most essential parts of my machine, moves to and fro on the table. The table F is in a horizontal position when the operator feeds the leaf, and causes the sliding frame to recede from him by pressing his foot on the treadle J, which, by levers G G and straps L L, is connected to the front edge of the sliding frame. The rollers B B are rotated by cords *d′* on each side of the table, which are fastened to each end of the table and pass once around the ends of the large rollers in grooves prepared for them, and their companion rollers are rotated by friction-bands *b″*, impinging against those rotated by the cords above described, partially by friction on the cleats. To bring the frame back to the operator, the end of the table next the operator is dropped by pulling back the handle of the adjusting-brackets E′ and the foot taken from the treadle, when the movable frame descends by gravity to the operator. The bed of the table F has a slot, *m′*, in the middle, in which runs a slide attached to the shaft *d*, on which the larger rollers are journaled and revolved. This slot serves to guide the central stem of the tobacco-leaf after it is cut out by the cutters, and the stem passes through the slot and falls on the floor, while the sides of the leaves are deposited on the table each side of the slot.

The object of having a table, instead of a drum, is to better book the leaves and keep them in position, which can be more satisfactorily done upon a standing stationary level place than upon a drum or revolving surface. I therefore construct a frame, K, of iron or wood, standing on four legs, having its surface inclined about ten inches to the front, and on this I place the slotted table, so adjusted that the front of the table can be raised from its supporting-frame and lowered thereto at the pleasure of the operator. On each side of the table, at the edge, I place a cleat about one inch high and an inch and a half wide, which form the track on which the frame-containing rollers move. I construct a movable or sliding frame of the same width as the table, having flanges that extend down a little over the cleats, in which frame are journaled the shafts that carry the rollers, the spring, and booking-rollers, and cutters, which comprise the principal operative parts of my invention or machine. Two levers, G G, one on either side and beneath the table, are journaled on a rod under the front edge of the frame on which the table rests, and are connected by a rod, G′, passing from one to the other under the table and mortised in each at about one-third of their length from the front ends. These levers play from a position parallel to the top of the frame nearly down to the floor. Two belts, one on each side of the machine, connect the front edge of the sliding frame with the long ends of these levers, passing over pulleys situated on the outside of the table-frame and over the ends of the long arms of levers G G. I place beneath the frame on which the table rests, and journaled to the front part of the table-frame, near the ground, a treadle, J, reaching to the front of the machine near the right foot of the operator. To this treadle is attached a pulley, I, near its middle point, and a cord or strap, I′, passes beneath this pulley attached at one end to the middle point of the rod connecting the levers, and at the other end to the upper part of the rear of the table-frame. This treadle gives motion to the levers that moves the sliding frame on the table. This frame consists of two sides of cast-iron or wood, which are held in upright position by the axles of the rollers B B and A A, and two rods at their extremities.

To cause the larger rollers to revolve with a regular positive motion, I have a groove cut in the outer ends of the sections of this roller, in which runs a cord, *d′*, that passes once around the roller, and is secured to each end of the table, and lies taut along the above-described cleats F′. To revolve the smaller companion-rollers in the desired direction, I transmit motion from the larger rollers by means of rubber or friction bands *b″*, or rings on each outer end of the smaller rollers, which impinge upon the corresponding larger roller, and are caused to revolve with the larger rollers, but in the opposite direction. Both the rollers are cut into two parts in the center, over the slot in the table, and their inner ends are provided with steel flat rings or disks *h h* and *g g*, having sharp cutting-edges. The rings on the ends of the smaller rollers project about one-fourth of an inch beyond the surface of their rollers, and these edges work within those of the larger rollers, forming cutting-edges or shears with them. The left side or half of the larger roller is provided with a groove and a lug on its shaft, or a lug on the roller and groove in the shaft, which prevents this half of the roller from moving sidewise on the shaft. The right-hand half of this roller and the shaft are pro-

vided with screw and threads K′ and *k*, whereby as it revolves it moves on the shaft and expands or contracts the distance between the steel plates on the inner ends of the parts of the roller, so as to conform to the size of the tobacco-leaf.

If the two larger rollers and shaft are taken out of the frame and reversed from right to left, then the leaves may be fed from the opposite end of the machine, and the motion of the frame from the operator will contract the space between the cutters to correspond with the diminishing size of the stem of the leaf. The plates *h h* of the smaller rollers work within those of the larger ones, and are held firmly against them as they revolve by a spiral spring, *i*, on the shaft between the parts of the smaller rollers, pressing them apart constantly. This spring is covered by a brass tube, *j*, to protect it from dirt. Both these rollers A B are covered with felt or rubber *b b′*, or other suitable material, and are kept moist or wet, to prevent the leaves from drying while passing through the machine. To prevent the leaves from being too much pressed while being booked on the table, I take the weight of the sliding frame on the slats or cleats above mentioned by the larger rollers traveling on said cleats. For the purpose of pressing the tobacco-leaves together, keeping them covered and protected, I place two other rollers, C C, in the sliding frame, one on each side and near the cutting-rollers, journaled in perpendicular slots *c′* in the frame, and enough shorter than the cutting-rollers, so that they will drop down between the cleats on the table, and I hold them down by spiral or other springs *c″*, applied to the shafts of the rollers within or outside the frame. I also place two spring-rollers, D, in said frame outside of these and above them, whose office is to hold continually taut two aprons, M M, which cover the table and pass around the booking-rollers C C near the cutters, and the aprons are fastened at one end to the spring-rollers, and at the other end the aprons are attached to the ends of the table. The apron on the back side of the frame is attached to a rod, N, slipped in eyes *n*, fastened to the table for convenience of removing or examining the tobacco beneath it. These aprons may be made of muslin or cloth of any kind or other suitable material.

The spring-rollers are so wound and set that they keep the aprons taut continually.

The tobacco can be removed when the frame is at the front of the table by lifting the far end of the apron by its rod out of the eyes and casting it over the frame. The aprons are kept moist continually.

To operate my machine, the lever-bracket, journaled on a rod attached to the frame on which the table rests, is forced back and its arms rise against the bed of the table between the sides of the frame and elevate that end of the table to nearly a horizontal position. Then the sliding frame is set in motion by power applied to the treadle, and as the cutting-rollers begin to move the operator feeds the leaf into the double shears formed by the cutting-rollers, the stem being between them, and he smooths the leaf as it lies on the large rollers. The stem is thus cut out, and the leaves are deposited on the table, each side of the slot, and through the slot the stem falls upon the floor. The one leaf is now booked and lies on the table beneath the front apron. The lever at the left hand of the operator is pulled back and the power taken from the treadle, the front edge of the table is lowered, so that the sliding frame descends by gravity to the operator ready to have another leaf fed. It will be observed that the front booking-roller is so near the large cutting-roller that the apron which travels around it catches and presses the leaf on the table and one or the other of the aprons constantly covers the leaves outside the cutting-rollers and protects them from the air.

Having thus described my invention, its construction, and operation, what I claim, and desire to obtain Letters Patent for, is—

1. The combination, with the sliding frame and the stripping and booking devices, of the inclined frame and the levers and short arms for elevating the same, as shown and described.

2. In a stripping and booking machine, the slotted table with levers and short arms for elevating the table, in combination with the sliding frame carrying the expanding-rollers and cutters, booking-rollers, spring-rollers, and stem-guide, as shown and described.

3. In a stripping and booking machine, the combination of the slotted table, the sliding frame, the two spring-rollers, two aprons, two booking-rollers, the rollers carrying cutters, the stem-guide, the inclined frame, levers for elevating the table, and means for operating the sliding frame, substantially as shown and described.

4. The rollers A A, provided with disk-cutters upon their inner ends, and having an expanding-spring arranged between them, in combination with the rollers B B, having cutters upon their inner ends, one of said rollers being provided with screw-threads, and the stationary shaft *d*, having screw-threads which engage those of the roller, as set forth.

5. In a stripping and booking machine, the slotted table, in combination with the sliding frame, the cutting rollers A A and B B, the former being held apart by an expanding-spring and the latter separated automatically by the screw-nut K′ and screw-thread *k* on stationary shaft *d*, and the stem-guide O, carried by the sliding frame and working in the slot of the table, as shown and described.

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