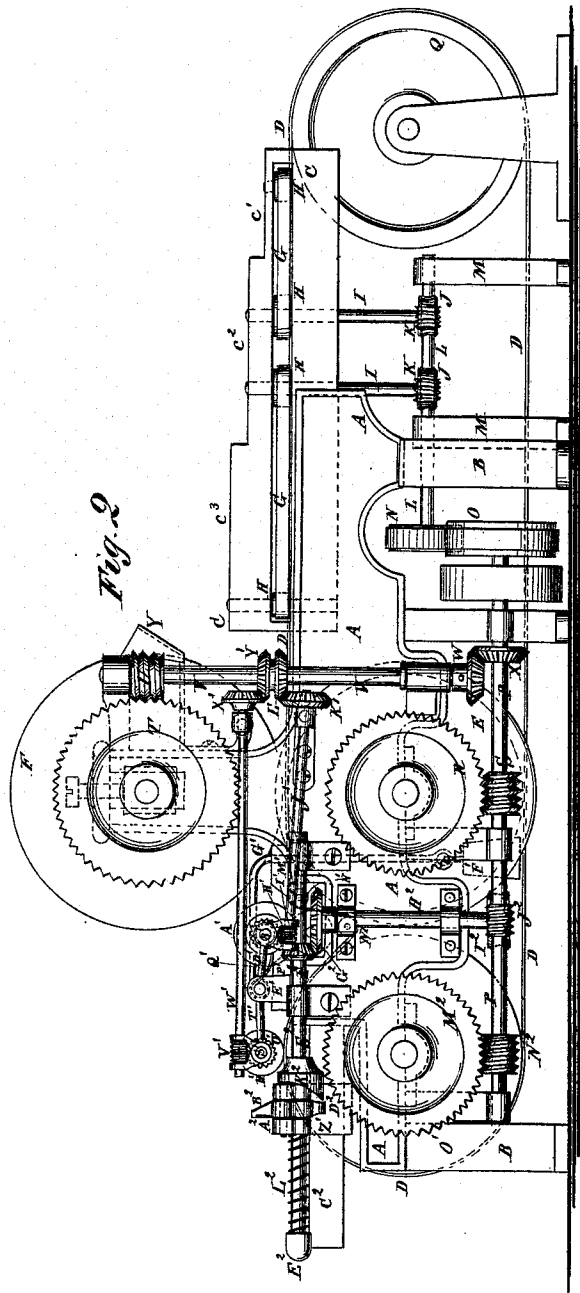
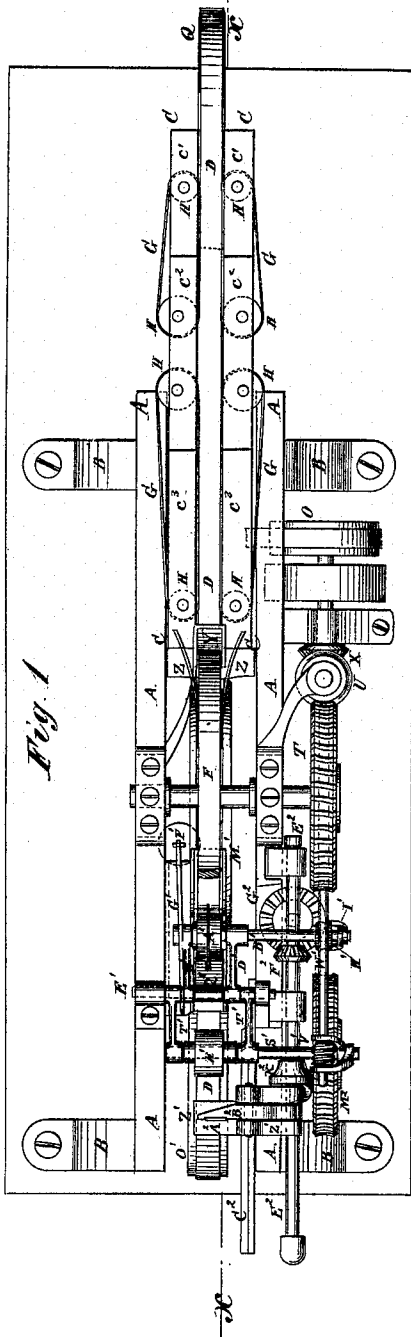


T. F. MORRIN.
PLUG TOBACCO MACHINE.

No. 175,136.

Patented March 21, 1876.



WITNESSES:

A. W. Almy
J. Goethals

INVENTOR:

T. F. Morrin

BY

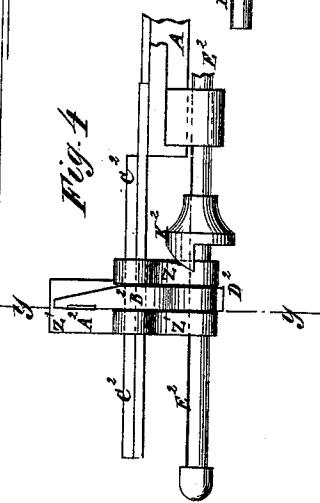
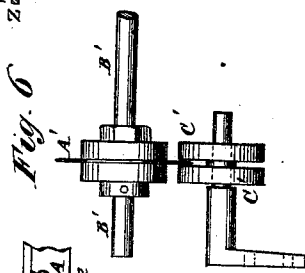
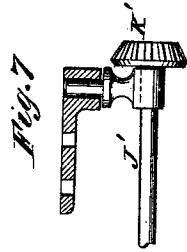
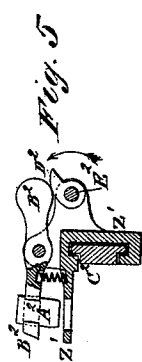
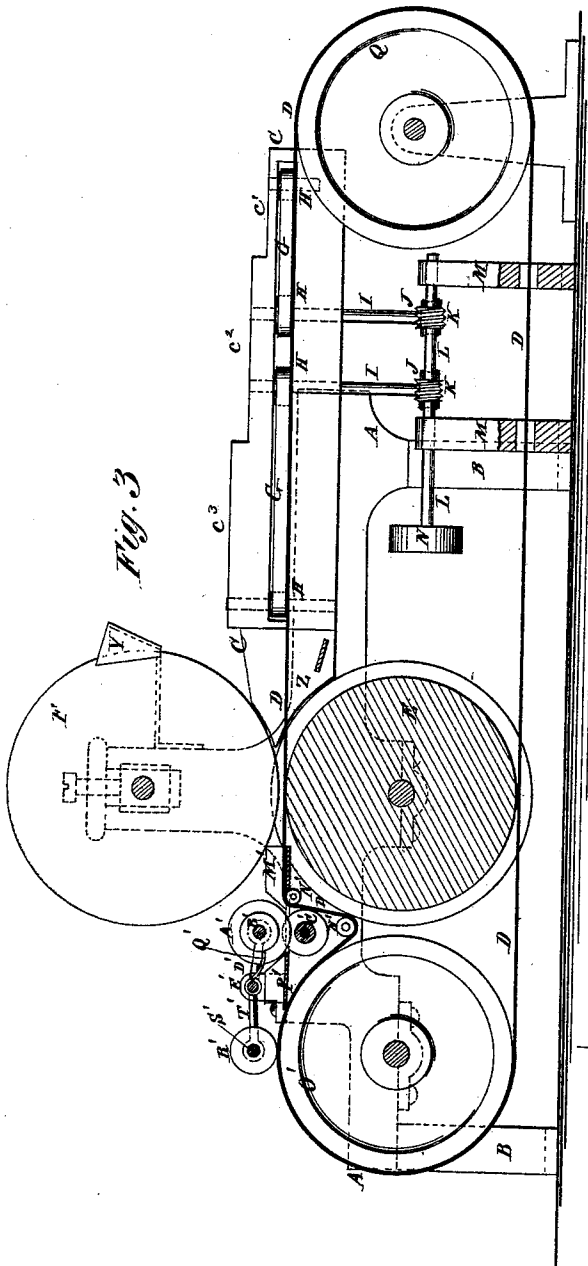
Munn & Co.

ATTORNEYS.

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UNITED STATES PATENT OFFICE.

THOMAS F. MORRIN, OF JERSEY CITY, NEW JERSEY.

IMPROVEMENT IN PLUG-TOBACCO MACHINES.

Specification forming part of Letters Patent No. 175,136, dated March 21, 1876; application filed December 27 1875.

To all whom it may concern:

Be it known that I, THOMAS F. MORRIN, of Jersey City, in the county of Hudson and State of New Jersey, have invented a new and useful Improvement in Machine for Forming Plug-Tobacco, of which the following is a specification:

Figure 1, Sheet 1, is a top view of my improved machine. Fig. 2, Sheet 1, is a side view of the same. Fig. 3, Sheet 2, is a vertical longitudinal section of the same, taken through the line *x x*, Fig. 1. Fig. 4, Sheet 2, is a detail top view of the device for cutting off the plugs. Fig. 5, Sheet 2, is a detail section of the same, taken through the line *y y*, Fig. 4. Fig. 6, Sheet 2, is a detail view of the device for splitting the strip or long plug. Fig. 7 is a detail section of the swiveled bearing for the shaft that drives the cutter.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish an improved machine for pressing tobacco leaves to form plug-tobacco, splitting it into strips of the required width, and cutting said strips into pieces or plugs of the desired length.

The invention consists in the graduated feed-gages, provided with the short side belts, in combination with the feed-belt, and with the frame of the machine in the combination of the rotary cutters, one or more, their shaft, and pivoted arms, the grooved roller, and the guide-plates with the feed-belt, the pressing-wheels, and the large wheel that drives the feed-belt.

A are the side frames of the machine, which are attached to and supported by legs B of suitable length. To the inner sides of the rear parts of the side frames A are attached two frames, *c*, between which passes the endless belt or apron D that carries the tobacco leaves forward to the pressing-wheels or rollers E F, and the pressed tobacco forward to the cutters.

The part of the frames *c* above the belt D is made with three steps, *c*¹ *c*² *c*³. The upper surface of the first or rear step, *c*¹, is at such a height above the belt D as to hold a fixed amount of tobacco, say, twenty ounces. The next step, *c*², will hold as much more, or forty ounces in all, and the next step, *c*³, will hold as much more, or sixty ounces in all. An attendant stands at each step and feeds in the tobacco, so as to keep it all the time even with

the top of the said step. The effect of this manner of feeding is that the plug, when pressed, has a uniform hardness and thickness, and a uniform structure.

The frames *c* are each provided with two or more short endless belts, G, to prevent the graduated or step gages *c*¹ *c*² *c*³ from retarding the forward movement of the tobacco, which would affect the uniformity of the plug. The shortness of the belts G enables them to be made so tight as to prevent them from slipping upon the tobacco, so that they will carry it along evenly.

The belts G pass around pulleys H attached to the shafts I, which pass up through the said frames *c*, and have screw-wheels J attached to their lower ends to mesh into the worms or endless screws K, attached to the shaft L. The shaft L revolves in bearings in supports M beneath the machine, and to it is attached a pulley, N, to receive a belt which passes around a pulley, O, attached to the shaft P. The shaft P revolves in bearings in suitable supports, and to it is attached a pulley to receive the driving-belt.

The endless carrier-belt D passes around a large pulley, Q, pivoted at the rear end of the machine.

From the forward end of the graduated gages C the belt D passes to and between the pressing-wheels E F, which are placed the one above the other. The lower wheel E is pivoted to the frames A, and in its face is formed a groove of the width to be given to the plug. The wheel F is made of such a width as to fit into the groove of the wheel E. The journals of the wheel F revolve in bearings that slide up and down in slots in the frames A, or in brackets attached to said frames, and that are held down to press the plug to any desired thickness by set-screws.

To a journal of the lower wheel E is attached a large screw-wheel, R, which meshes into a worm, S, attached to the driving-shaft P. To a journal of the upper wheel F is attached a large screw-wheel, T, which meshes into a worm, U, attached to the vertical shaft V. The shaft V revolves in bearings attached to the frame A, and to its lower end is attached a bevel-gear wheel, W, which meshes into a bevel-gear wheel, X, attached to the driving-shaft P. Y is a hopper-shaped scraper made open at the top and at one side. The scraper Y is supported from the frame A, and

fits upon the rim of the wheel F to scrape off anything that may adhere to said wheel, and is designed to hold a sponge saturated with rum, to dampen the face of the said wheel and prevent the tobacco from sticking to it. Z are guide-wings attached to the frame A between the gages C and the wheels E F, to guide the tobacco into the groove of the wheel E, and prevent any of the leaves from straggling.

A¹ are circular cutters, one or more of which may be used, and which are attached to a shaft, B¹, at such a distance apart as to cut the plug into strips of the desired width. The plug, while being cut, rests upon the roller C¹, which is grooved to receive the said cutters, and revolves upon a journal attached to the frame A. The cutter-shaft B¹ revolves in bearings in the forward ends of two arms, D¹, the rear ends of which are pivoted to a rod, E¹, passing through holes in lugs formed upon the frames A. This arrangement allows the cutters to rise should they strike any hard substance in the plug. The cutters A¹ are held down with sufficient force to cut the plug by a weight, F¹, the stem G¹ of which rests upon the end of the shaft B¹. To the other end of the shaft B¹ is attached a screw-wheel, H¹, which meshes into a worm, I¹, attached to the forward end of the shaft J¹. To the rear end of the shaft J¹ is attached a bevel-gear wheel, K¹, which meshes into a bevel-gear wheel, L¹, attached to the upright shaft V. The forward end of the shaft J¹ revolves in bearings suspended from the end of the cutter-shaft B¹, and its rear end revolves in a bearing swiveled to the frame A or to a block or bracket attached to said frame.

As the belt D and the plug pass from the wheels E F, they are supported by a guide-plate or spout, M¹, attached to the frame A. At the forward end of the guide-plate M¹ the plug passes between the cutters A¹ and the grooved roller C¹, and the belt D passes around guide-pulleys N¹ to carry it around beneath the grooved roller C¹, and passes thence to and around the large pulley O' and thence back to the large pulley Q. As the split plug passes out from between the cutters A and the grooved roller C¹, it is received upon the guide-plate or spout P', by which it is supported until it passes to the belt D and large pulley O'.

The guide-plate P' also acts as a scraper to separate the plug from the grooved wheel C¹, should it tend to stick to said wheel. Directly above the guide-plate P' is placed a scraper, Q', which is slotted to receive the cutter or cutters A¹, and prevent the plug from sticking to and being raised by said cutters. The split plug is held down upon the large pulley O' while passing over it by a roller, R', attached to the shaft S', which revolves in bearings in the ends of the bars T', the other ends of which are pivoted to the rod E¹. To the end of the shaft S' is attached a screw-wheel, U', which meshes into a worm, V',

attached to the end of the shaft W'. To the rear end of the shaft W' is attached a bevel-gear wheel, X', which meshes into a bevel-gear wheel, Y', attached to the upright shaft V. The forward ends of the shafts S' W' are connected by a coupling, in which they revolve, and the rear part of the said shaft W' revolves in a bearing swiveled to the frame A, or to a block or bracket attached to said frame. As the split plug passes over the large pulley O', it passes upon the block or plate Z', upon which it is cut transversely into short pieces, and which is slotted to receive the edge of the cutter A². The cutter A² is attached to a lever, B², which is pivoted to a slotted projection upon the upper side of outer part of the block Z'. Upon the lower side of the outer part of the block Z' is formed a flange, upon the inner side of which is formed a T-groove to fit upon a T-bar, C², attached to the end of the frame A. The outer end of the lever B² rests upon a cam, D², attached to the shaft E², which revolves in bearings in the outer ends of the block Z'. The shaft E also revolves in bearings attached to the frame A, and to it is attached a bevel-gear wheel, F², which meshes into a bevel-gear wheel, G², attached to the upper end of the upright shaft H². The shaft H² revolves in bearings attached to the frame A, and to its lower end is attached a screw-wheel, I², which meshes into a worm, J², attached to the driving-shaft P. To the shaft E² is attached a cam, K², which rests against the side of the block Z', and is so arranged as to push the block Z' and its attachments forward while the knife A² is cutting, and with the same velocity as the feed, so that the said knife A² may cut off the plug squarely. As the cut is completed the shoulder of the cam K² releases the block Z', and the said block and its attachments are pushed back by a spiral spring, L², placed upon the forward part of the shaft E², ready to make another cut. The feed-belt D is carried forward by the revolution of the large pulley O', which is driven by the screw-wheel M² attached to its journal, and by the worm N² attached to the drive-shaft P.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The graduated feed-gages C c¹ c² c³, provided with the short side belts G, in combination with the feed-belt D and with the frame A of the machine, substantially as herein shown and described.

2. The combination of the rotary cutters A¹, one or more, their shaft B¹, and pivoted arms D¹, the grooved roller C¹, and the guide-plates M¹ P', with the feed-belt D, the pressing-wheels E F, and the large wheel O' that drives the feed-belt D, substantially as herein shown and described.

THOMAS F. MORRIN.

Witnesses:

JAMES T. GRAHAM,
T. B. MOSHER.