(No Model.)

G. E. LE CLAIR.

TOBACCO CUTTING MACHINE.

No. 457,402. Patented Aug. 11, 1891.

Fig. 1.

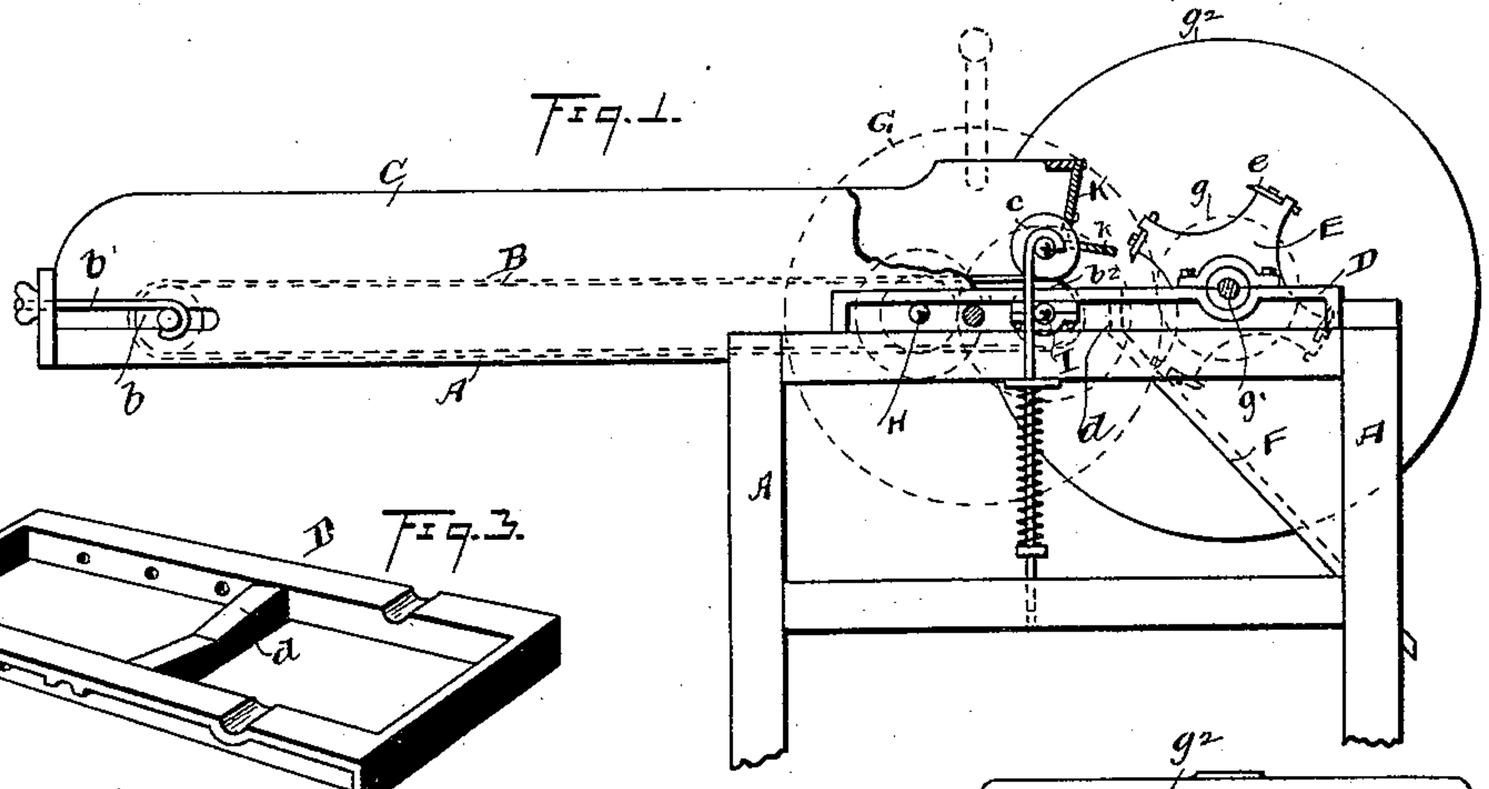


Fig. 3.

Fig. 2.

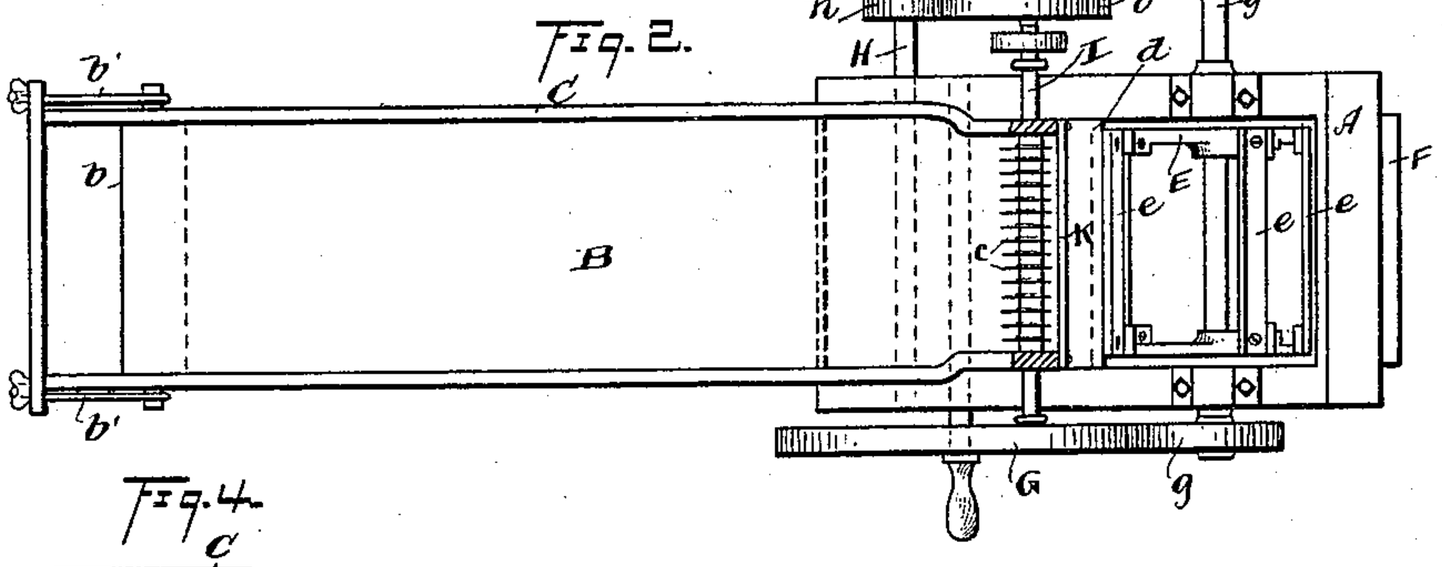


Fig. 4.

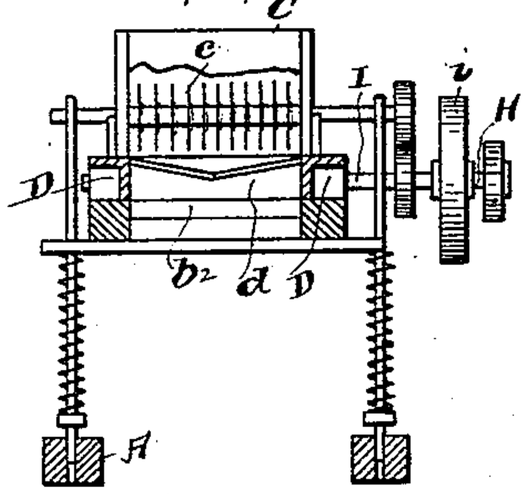
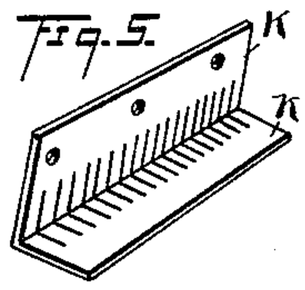


Fig. 5.



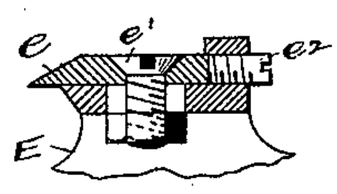
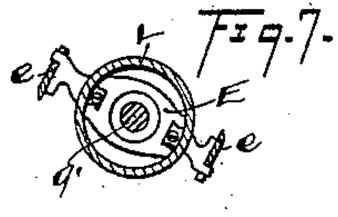


Fig. 6.

Fig. 7.



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UNITED STATES PATENT OFFICE.

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TOBACCO-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 457,402, dated August 11, 1891.

Application filed May 31, 1890. Serial No. 353,818. (No model.)

To all whom it may concern:

Be it known that I, GEORGE E. LE CLAIR, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Tobacco-Cutting Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to that class of tobacco-cutting machines which are designed to cut leaf-tobacco preparatory to making up the same into cigars, the product of which machine is commonly known as "scrap," and is in condition to be used as filling in cigars which are themselves made by machines.

In the accompanying drawings, Figure 1 is a side elevation of the machine embodying my invention, the wheels on the near side of the view outside of the frame being in dotted lines, so as to disclose the mechanism behind. Fig. 2 is a plan view of the machine. Fig. 3 is a perspective of the bed-frame. Fig. 4 is a cross-section of the machine, showing the relation of the cutting-disks to the bed-frame. Fig. 5 is a perspective of the angle-iron cleaner and presser-bar. Fig. 6 is a section of a portion of the cutter-head enlarged and showing the construction for adjusting the knives. Fig. 7 is a view of a modification.

In order to more clearly understand the invention in its details, it may be stated that the tobacco is conveyed to the machine by an endless apron, at the end of which are arranged the feed-rolls and the series of cutting-disks, through which the stock is fed to a transverse revolving cutter, the disks serving to cut the stock in strips longitudinally and the revolving cutter to sever the strips into scraps. For this purpose I provide a suitable frame A, extending out at one side a sufficient distance to accommodate the endless apron or conveyer B and the hopper C. The said apron turns over suitable rolls at its extremities, the outer roll b having tightening mechanism, consisting here of a hooked rod b', engaging the spindle of the roll and having a thumb-nut to tighten or loosen it. This or equivalent mechanism may be used for this purpose. At the inner end the apron turns over a corresponding roll b^2, which likewise constitutes one of the feed-rolls, another roll being placed above the said roll b^2 and having the cutting-disks c arranged at suitable intervals thereon. These disks are of a diameter corresponding to the lower feed-roll, and the disks are arranged sufficiently high above said roll to avoid cutting the endless apron which is stretched over the roll, but yet serving to cut the tobacco in longitudinal strips as it is passed through between said disks and the apron and roll beneath.

It will be understood that the tobacco is in a moistened state when fed through this machine, so that the work can be accomplished and the tobacco kept in the desired condition.

D is a metallic bed-frame fixed upon the main frame of the machine by suitable means and provided at its center with a transverse cutter-bar d. This bar is inclined on its upper edge or surface inwardly and downwardly from a horizontal plane to the center from both sides, so as to form a central depression somewhat below each end of the bar or side of the frame. This cross-bar is beveled from its cutting-edge back to the other edge, as shown, so as to enable the cutting-edge to be kept sharp or approximately sharp for coaction with the blades of the cutter-heads. In work of this kind there is constant tendency for the tobacco to crowd away in front of the knife and to avoid being cut, and to meet this tendency I make the lowest point in the cutter-bar d at the center. Then as the blades e of the cutter-head E are straight horizontal blades and work horizontally they crowd the material that refuses to be cut toward a common center from both sides, where it becomes compacted and readily yields to the knives. This construction has the further advantage of enabling me to use a single cutter-blade extending from end to end of the head E, and a single cutter-bar forming part of the frame D, thus simplifying and cheapening construction.

The cutter-head is fixed on a shaft journaled on the frame D, and the knives are set so as to just clear the angular edge of the cross-bar d. Thus it occurs that when the stock

has been cut in longitudinal strips by the circular knives and is fed through to the cutter-blades *e* over bar *d* it is then cut transversely by the said knives, whence it drops upon the chute F and is delivered where desired. It will be seen by this arrangement that if there be any crowding at all it is toward the central depressed portion of the cutter-bar; but inasmuch as the bevel of this bar runs from its opposite ends I am enabled to get the necessary shearing cut by making the angle of the bevel, as compared with a horizontal plane, at least one-half less than is required when the cutting-knife is set at an angle and works on a plane straight cutter-bar. It follows that no objectionable crowding toward the center occurs, and that I get a clean perfect cut of the stock and the most satisfactory results in this particular.

The knives *e* are shown in Fig. 6 as adjustable by screws *e'* and e^2, to take up wear, and the mechanism by which the cutter-head is turned and the stock is fed is arranged in such manner that the stock is cut the desired length. This driving mechanism, as here shown, consists in a drive-wheel G, which may be run by hand or power, and meshes with a small wheel *g* on the shaft *g'*, carrying the fly-wheel g^2. The sprocket-chain runs from shaft *g'* to counter-shaft H, which has gear *h* meshing with gear *i* on the shaft I, carrying the cutting-disks. From this shaft the lower feed-roll *b* is driven, and through it the endless apron or conveyer is carried around. Suitable spring mechanism is provided to hold the shaft I down in its working position; but the spring will permit the cutting-blades to ride up over any foreign substances that may be fed in with the tobacco, and which would work injury if the bearings of the said shaft I were perfectly rigid.

K is an angle-plate fixed at the inner end of the hopper and provided with slots in its angle adapted to the cutter-disks and serving to clean the same, and the lower portion *k* of said angle-plate bears upon the stock and keeps it pressed downward preparatory to being cut by the revolving blades *e*.

I have shown the cutter-head E as provided with four blades, which are suited in number to the propelling mechanism and serve to cut the stock the length I desire. In some instances, however, it may be desirable to cut the stock at a greater length, and in such cases I substitute a drum *v*, with two blades *e* instead of four. In that case the drum serves to size or fix the length of the stock that is cut, and the blades perform their function as before.

By having the endless apron pass around the lower feed-roller beneath the cutting-disks I get a steady certain feed, and this enables me to employ only the two rollers, including the disks, thus simplifying the machine.

What I claim as my invention, and desire to secure by Letters Patent, is—

In a tobacco-cutting machine, a bed-frame D, having near its center and arranged outside of the cutter-box a transverse cutter-bar *d*, deepest at its center and gradually rising from its center to its ends, in combination with a pair of feed-rolls in the cutter-box and behind said cutter-bar, an endless feed-apron B, extending around the lower feed-roll, and a series of cutting-disks *c* on the upper feed-roll, and a drum carried by the frame D, having arms and cutter-blades *e* on the arms having their cutting-edges parallel to the axis of the drum, substantially as described.

Witness my hand to the foregoing specification this 1st day of February, 1890.

GEORGE E. LE CLAIR.

Witnesses:

H. T. FISHER,

NELLIE L. MCLANE.