(No Model.) 3 Sheets—Sheet 1.

J. E. RICKARDS.

CIGAR MACHINE.

No. 444,768. Patented Jan. 13, 1891.

FIG. 1.

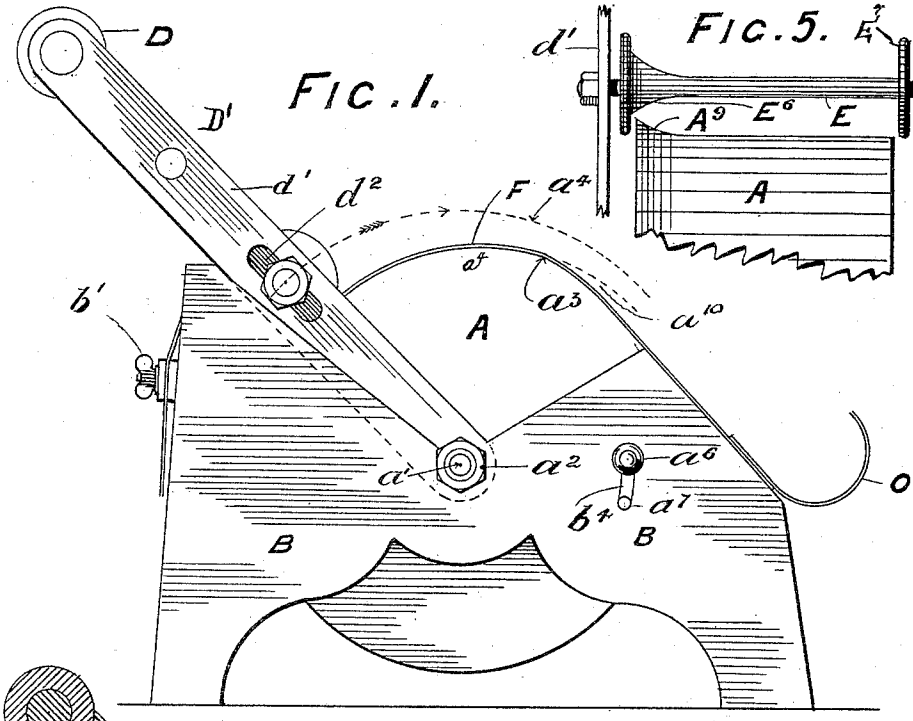


FIG. 5.

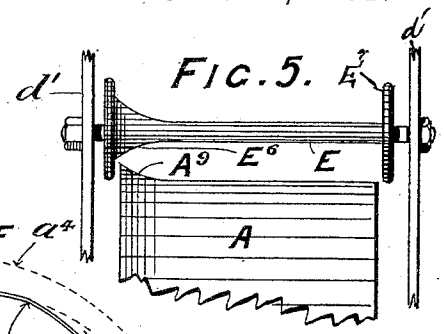


FIG. 2.

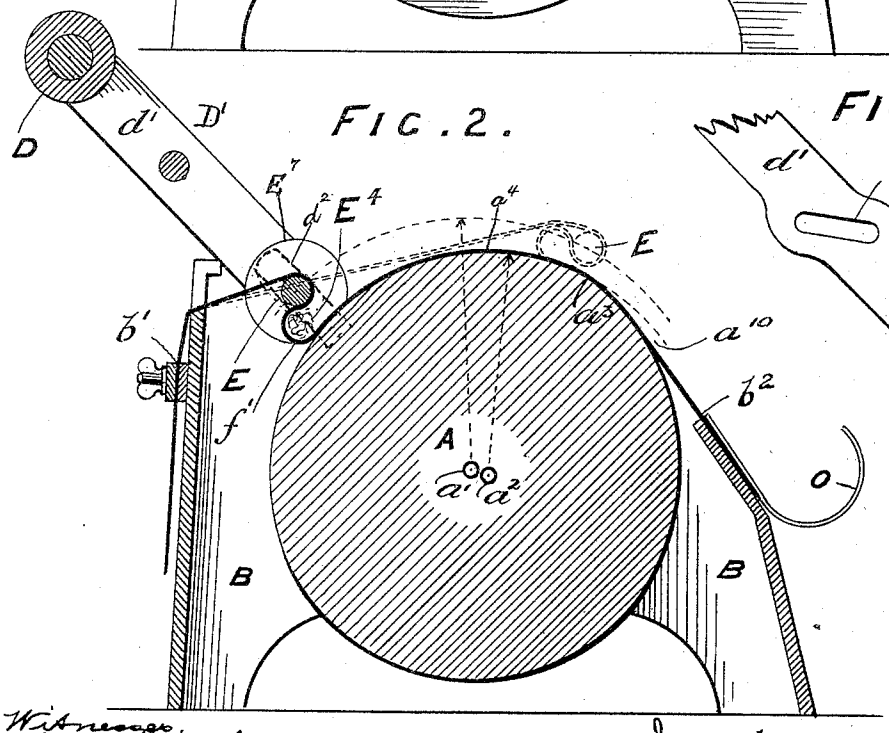
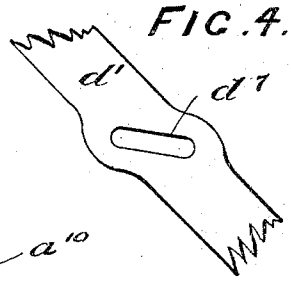


FIG. 4.



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(No Model.) 3 Sheets—Sheet 2.

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FIG. 3.

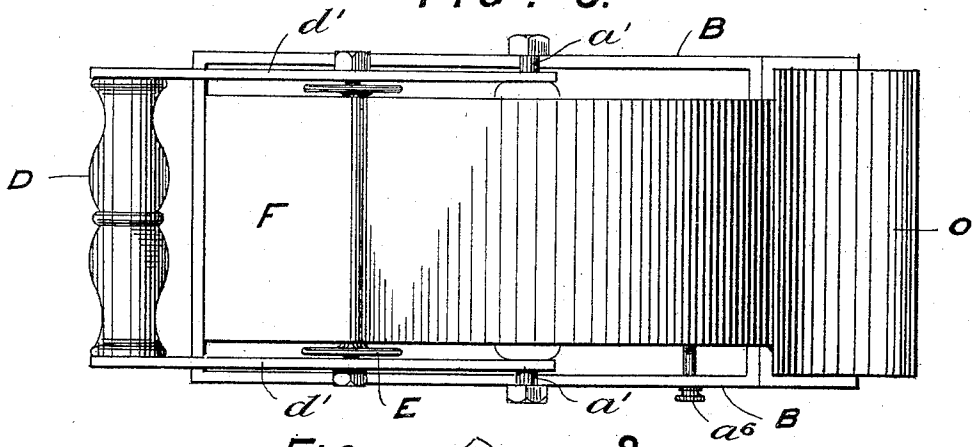

FIG. 8.

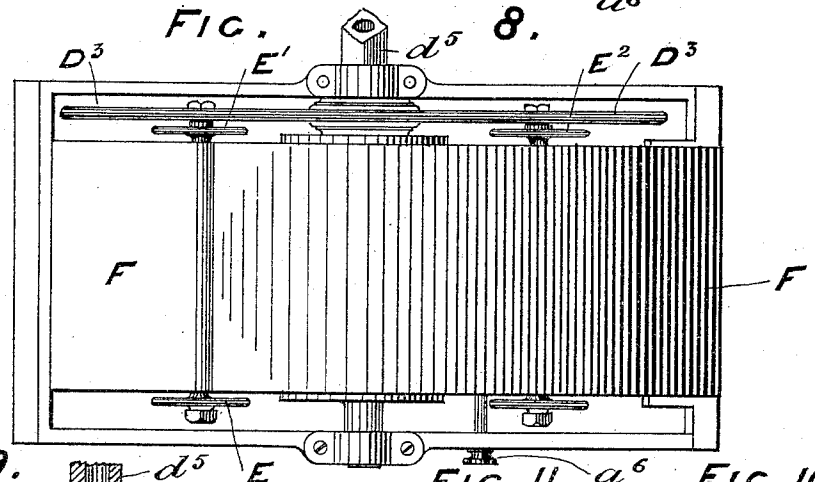

FIG. 9.

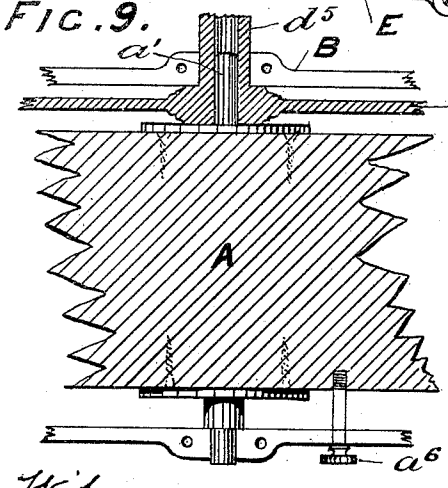

FIG. 11.

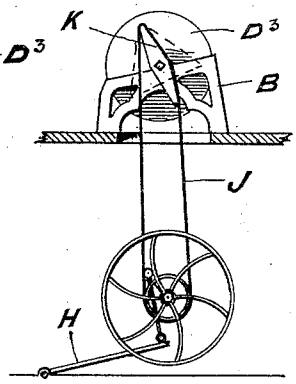

FIG. 10.

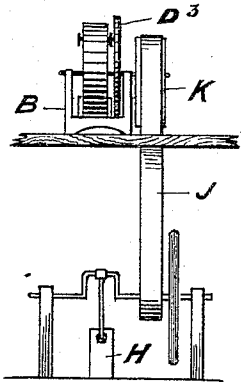

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FIG. 6.

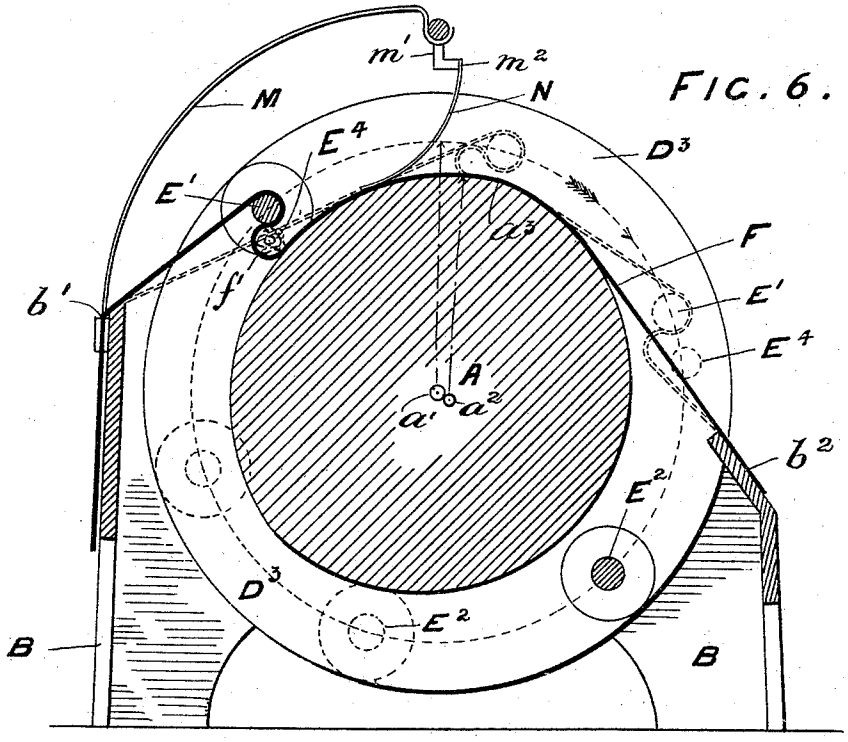
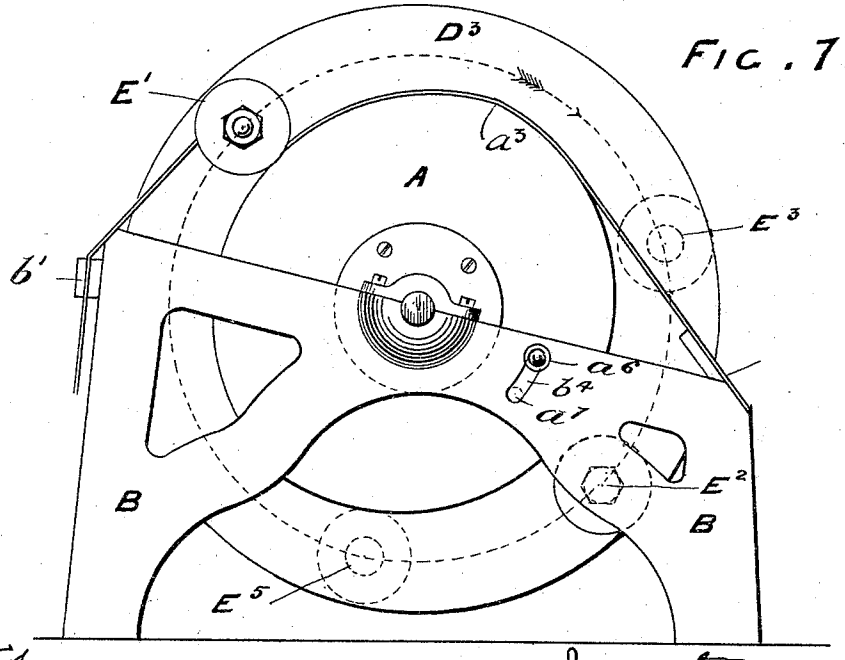


FIG. 7.



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UNITED STATES PATENT OFFICE.

JOHN EDWARD RICKARDS, OF BIRMINGHAM, ENGLAND.

CIGAR-MACHINE.

SPECIFICATION forming part of Letters Patent No. 444,768, dated January 13, 1891.

Application filed April 15, 1890. Serial No. 347,986. (No model.) Patented in England July 17, 1889, No. 1,443, and March 25, 1890, No. 4,630.

To all whom it may concern:

Be it known that I, JOHN EDWARD RICKARDS, of 106 New Street, Birmingham, in the county of Warwick, England, and a subject of the Queen of Great Britain, have invented certain new and useful Improvements in Cigar-Machines, (for which I have obtained the following patents: English, No. 1,443, dated July 17, 1889, and No. 4,630, dated March 25, 1890,) of which the following is a specification.

My invention has for its object improvements in machines for making cigars, cigarettes, and other similar articles, by which I enable the operator to make such articles much more rapidly and efficiently than hitherto, while at the same time less experienced workers are required than when engaged in the manufacture of the same by hand.

In order that my invention may be clearly understood and more easily carried into practice, I have appended hereunto three sheets of drawings, upon which I have fully illustrated the nature of my said improvements.

Figure 1 is a side elevation of one type of my improved machine. Fig. 2 is a section through the center of same. Fig. 3 is a plan of same. Fig. 4 is an elevation of a portion of one of the handle-supports d', showing a different form of slot d^7. Fig. 5 is a front elevation of a part of the table A and bunching-roller E, showing a modification in their shape. Fig. 6 is a section showing a modified form of machine capable of being worked by hand or treadle. Fig. 7 is a side elevation of same. Fig. 8 is a plan of same. Fig. 9 is a horizontal section through the pivots of the table A. Fig. 10 is a front elevation showing a treadle attachment. Fig. 11 is a side elevation of Fig. 10.

In carrying my invention into effect I form the body or table A of my machine of metal, wood, or other suitable material, and mount the same in the stand or support B, upon which it may be made to turn upon the pivots or axle a', as may be required by the particular article to be manufactured, and is made sufficiently wide to take either one or several of such articles.

That portion a^4 of the curve of the table A upon which the rolling is effected is made eccentric, the center or axis of the said table being at a^2. A handle or lever-frame D, consisting of two side arms d' and a top cross-bar D', is mounted at the lower end of said side arms on pivots a', which extend outward from the ends of the table near its axis a^2. To provide for making articles of different sizes each arm d' of this lever has in it a slot d^2, Fig. 1, or d^7, Fig. 4, in which the gudgeons of the bunching-roller E are mounted. Slots d^2 are longitudinal with respect to said arms, and allow said bunching-roller to be adjusted directly toward or from the pivotal line of said handle or lever-frame—that is to say, very nearly in a direct line toward or from the center or axis a^2 of said table. The slot d^7 (shown in Fig. 4) is oblique instead of longitudinal, crossing the central longitudinal line of the arms d', in which it is formed at an acute angle. Only one such slot is shown, because the corresponding slot in the other side arm of the handle or lever is in every respect similar thereto and parallel in position. When arms having these oblique slots are used, instead of the pair of arms having the longitudinal slots d^2, the adjustment of the bunching-roller necessarily will not be directly toward the pivotal line of said handle, but tangentially, or nearly so, with respect to the curved periphery of the table. In consequence the adjustment of the bunching-roller will bring the bunching-roller farther forward in the direction of its oscillation or farther backward, whereas when the longitudinal slots d^2 are used its position in this regard is unchanged. Since any change in the position of the bunching-roller must affect its action in rolling the tobacco, it is desirable to have at command means for inward and outward and forward and backward adjustment thereof, and both of these adjustments may be effected by a single motion when the oblique slots d^7 are used.

When the handle or lever-frame D is turned forward on its pivotal line, the latter being very near the center of the table, as stated, and the part a^4 of said table being eccentric thereto, the bunching-roller following a curvilinear course is necessarily brought nearer and nearer to said part a^4 of the table until the point a^3 is reached, when the eccentricity

of said part a^4 of said table prevents the said roller and lever-frame from moving farther independently in this direction.

At the one end of the curved table A, I attach to the stand B, at b', so as to be adjustable, a vulcanized linen or other suitable bunching-apron F, of a width suitable for the article or articles to be made, and under this bunching-apron F the revolving bunching-roller passes, the bunching-apron F being left loose enough for a portion to be pressed in between the bunching-roller E and the table A, forming a bight or pocket f', the other end being then secured to the stand B at b^2. By these means the material which is fed in at f' is gradually compressed during its progress until it reaches the point a^3, thereby obtaining a better and closer compression of the material than if the centers a' and a^2 were in the same position.

For making an article of first-class finish it is desirable that the article should be rolled after the outer covering has been secured around the material; but it will be seen that if the inner material of the article were compressed after the outer covering has been wrapped round and gummed it would cause a wrinkle in the outer covering, and for the purpose of obviating this disadvantage I mount the table A so as to turn upon its pivots a', which movement occurs when the article being manufactured is rolled to the narrowest point of compression a^3, at which point the outer covering of the article is secured, the table A traveling with the bunching-roller E, by which means the bunching-apron simply revolves the article E^4 without compressing it, but for the purpose of giving it a finish. The table A is prevented from turning while the bunching-roller E passes over the first part by means of friction at the bearing, the amount of friction being regulated so that the movement takes place immediately before the bunching-roller arrives at the point a^3, and upon feeding in the material for the next article the table A is turned back to its former position by hand, the pin a^6 being provided in the side of the table A working in slot b^4, which is provided in the stand B to regulate the amount of travel of the said table A, this pin and the material at the end of the slot acting as a stop to prevent the table from turning forward beyond a certain point. The circle of the table A is cut away at a^{10}, so as to allow the article E^4 to fall out between the said bunching-roller and table.

In place of mounting the bunching-roller E in the handle-support d', I may provide the disk D^3, to which one end of the bunching-rollers E and E^2 are secured, so as to project out at right angles to the plane of the disk, as shown by Figs. 6, 7, 8, and 9, in which case the disk D^3 is mounted to rotate upon the pivot a' of the table A, and is provided with the sleeve d^5, which contains the said pivot a', and which is formed with a square end to receive either a handle or pulley by which the disk is made to rotate, as hereinafter described, and thus carrying the bunching-rollers E' and E^2, the said rollers revolving around the table and under the bunching-apron F in the direction of the arrow, the bunching-rollers, which move concentrically to the axis of the table, being thereby brought nearer and nearer to the eccentric part of the periphery of the said table, and the latter being turned forward on its axis, as before described, after the said roller is at the point a^3. The rolling of the cigar or cigarette is effected in the same manner as that before described with regard to Figs. 1, 2, and 3. I may, however, find it convenient to have three or more bunching-rollers fixed to the disk—as, for instance, in using three they would occupy the positions indicated by bunching-rollers E and dotted lines E^3 and E^5, Fig. 7.

The disk D^3 may be made to revolve either by a handle fixed direct upon the sleeve d^5 or by means of the treadle H, which is connected by means of the cranked shaft h' and bunching-apron J to the oblong pulley K, which is mounted upon the square sleeve d^5, so that at each depression of the treadle H one of the bunching-rollers is made to take the course indicated on Fig. 6, the next bunching-roller being then in the first position, ready for the next stroke of the treadle. In the case of three bunching-rollers being used a triangular pulley, as shown by dotted lines in Fig. 11, would be substituted for the oblong pulley shown for the use of two bunching-rollers.

For making cigars and such other shaped articles the table A and bunching-roller E are made to follow the shape of the article to be made—as, for example, in the case of Fig. 5, for making cigars, the surface of the table is raised at A^9 on the one side, and the bunching-roller E is thickened to a corresponding degree at E^6, so that as the cigar is rolled in the band the one end is formed to a point by the extra pressure thus obtained at that end. Near the other end of said roller a disk E^7 is formed, which prevents the escape of the material and causes the cigar to be formed with a square end.

The table A is mounted so as to be interchangeable.

For use in making cigarettes and other gummed articles I may provide the supports M for receiving the strip of wood or other material m', having the face m^2 of the same width as the required width of the gum on the paper and which has been previously pressed upon a gum-pad and then upon the paper N, which adheres to it, becoming gummed thereby, and being hung in the position shown in Fig. 6, so that the paper is snatched off and rolled into the band as the revolving spindle passes over the table.

The operation of forming cigarettes is then as follows: The material is pressed down into the recess f' by means of any suitable instrument, the paper being placed either on the

table, or as before described, and as the bunching-roller travels over the table the material is rolled by the action of the bunching-apron F into the form required with a gentle pressure and gradually becoming more compressed until it arrives at the point a^3, from which point the table turns and travels with the bunching-roller until the article has been given a finishing roll, after which, by reason of the table being cut away, it falls into the cage O or other arrangement made to receive it.

What I claim, then, is—

1. In a machine for rolling cigars and similar articles, the combination of a table having a curved eccentric surface and journals which are free to turn in their bearings to a limited degree, with a flexible bunching-apron arranged over said eccentric surface, a bunching-roller and a support therefor mounted at or near the axis of said table, in order that the said roller in turning forward may approach the eccentric part of the periphery of said table and form a traveling bight in the bunching-apron, substantially as set forth.

2. In a machine for rolling cigars and similar articles, the combination of a table having a curved eccentric surface and journals which are free to turn in their bearings under strain, though held by friction against accidental motion, a stop which prevents the said table from turning too far forward, a bunching-apron extending over the said table, a bunching-lever, a bunching-roller carrried by said lever, and a support carrying the said bunching-lever, the said support being mounted at or near the axis of the table, in order that the forward motion of the said roller may cause it to approach the eccentric part of the periphery of said table and form a bight in the bunching-apron, substantially as set forth.

3. In a machine for rolling cigars and other articles, a table having a curved eccentric surface, in combination with a bunching-apron passing over said surface, a bunching-roller, and a handle or lever-frame which is obliquely slotted to allow the adjustment of said roller, the said lever being pivoted near the axis of said table, all substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I affix my name in the presence of two witnesses.

JOHN EDWARD RICKARDS.

Witnesses:
LEWIS WM. GOOLD,
GEORGE PRICE.