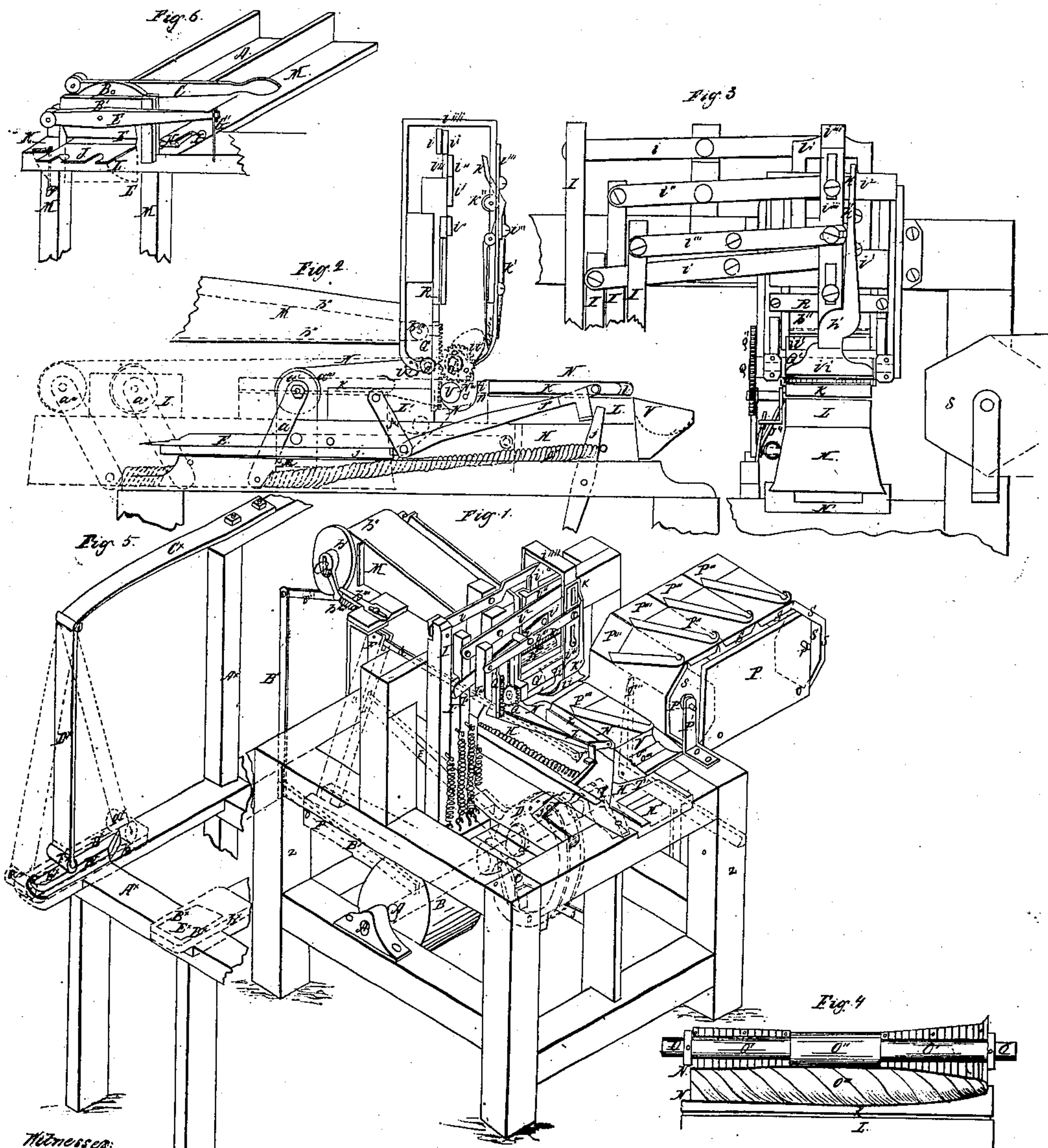


J. C. HINTZ.
CIGAR MACHINE.

No. 95,478.

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Witnesses:
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JOHN C. HINTZ, OF CINCINNATI, OHIO.

Letters Patent No. 95,478, dated October 5, 1869.

IMPROVEMENT IN CIGAR-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOHN C. HINTZ, of the city of Cincinnati, in the county of Hamilton, and State of Ohio, have invented a new and useful Machine for Manufacturing Cigars; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is an isometric view of one of my machines proper; (or, more properly speaking, one-half of my complete machine, there being two machines, one making the right and the other the left-hand cigar;)

Figure 2 is a skeleton side elevation of some of the more important parts of my machine;

Figure 3 is a similar end elevation of my machine, showing also some of the more important parts thereof; and

Figure 4 is a section of the forming-roller O, and the upper and nether beds K and L, the band N, and the cigar O', all in the position they occupy at the moment when the cigar is completed.

(In all these four figures, the same letters refer to the same things.)

Figure 5 is an isometric projection of a machine which is used to cut the band and wrapper for the cigars; and

Figure 6 is another machine, used for cutting the fillers for the cigars, both of which are adapted for use in connection with my cigar-machine.

A is the main or driving-shaft.

B is a large drum, upon which are mounted four cams, which give motion to the lifters I, I', I'', and I''', and another which gives motion to the lever B' B'' and the break B'''.

C is a cam on A, which gives motion to the bent or elbowed lever J, and through it to the other bent lever J', and thence through the bar or arm J'', to the upper bed K, a reverse movement being effected in the return stroke, by means of the contact of the arm J''' with the stop j.

D is an eccentric, also on the main shaft A, which transmits motion, through the pitman E, to the traverse-bar F', the lower end of which is hinged in the strut F, which is securely fixed to the frame Z.

F' connects, by means of the shackle-bar G, with the carriage H, to which it gives an alternating rectilinear movement on the ways H'.

T is another cam on A, which lifts the end of the arm T', into which the strut T'' is hinged, and so situated that its upper end engages the several pins, one after another, situated in the head S of the feed-drum P P', causing it to revolve one-sixth of a revolution for every revolution of A.

H is a hollow bed or carriage, having upon its upper side the beds or platforms K, L, and L', and at-

tached to its front end the hopper V. This bed has a movement on the ways H', back and forth, so as to bring the tables, and other parts required, under the forming-roller O, which movement is communicated by D, as above described.

I I' I'' I''' are four separate lifters, which give motion to the levers i, i', i'', and i''', and these, in turn, give motion to the several gates, slides, or frames T' i' i'' i''', all in a downward direction; and as soon as the lifters escape from their respective cams on B, they are brought back to their original position by the action of the spiral springs attached to I I', &c.

M is a feed-box, supplied with an apron, b'', upon which the filling for the cigars is placed, after having been cut to the proper length by the machine shown in fig. 6.

b is an arm, hinged upon the common spindle or arbor of b', and the roller under b''. This is the feed-apparatus, by which the band b'' is made to carry forward the filling sufficient for one cigar at each revolution of the machine, the other and smaller roller in M being seen at b'''.

N is a band, usually of leather or India rubber, having one of its ends secured to the under side of the bed K, and the other to the roller a''. This strap or band, when the machine is in the position shown in full lines in fig. 2, depends, as seen at N', loosely. The bed K, having been forced back to the position shown by dotted lines at l l', fig. 3, is ready to receive the filling U, which has been cut from the mass lying on the feed-band b'', received in the crib Q', compressed into a somewhat compact form and circular shape by the cover i i'.

The bed H, as it moves on, brings the arm J''' in contact with the stop and slide j, which forces K back to its original position, by which the band N is shortened, and the same movement of H disengages the lower end of the arm a from contact with a movable pin, z, in the frame, at any required point in the motion, when the spring a'' at once acts on the lower end of the arm a, holding it close to the movable pin, thus causing the band-drum or roller a'' to revolve, so as to shorten the band N up to any required length or tightness of wrapping around or upon the cigar, which, by these combined movements, has been brought into the position back of, and partially under the forming-roller O, as seen at U', fig. 2, the band N, meanwhile, having, by these same movements, been brought up tightly around the cigar, and into the position shown by the dotted lines. All these movements and arrangements are effected by the time the left-hand end of K has reached the right-hand side of U'. The remainder of the movement of H to the left causes the cigar to roll between the band N, the roller O, and the upper surface of the bed or platform K.

The band and wrapper, having been laid on the band

N, as shown at P^{'''}, fig. 1, is wrapped around the filler, and as the right-hand end of K passes to the left of U, the band N no longer supporting U, it falls into the hopper V, when the return-movement carries H to the position shown in full lines in fig. 2 and in fig. 1. Its extreme left-hand movement, together with the position of the several parts, is shown in dotted lines in fig. 2.

The feed-movement of the band *b*'' is effected by the lifting of B'', carrying B''' with it. B''' impinges, during this upward movement, on the periphery of *b*', which is secured on the shaft of the band-roller, around which *b*'' is carried. The arm *b* revolves loosely on the shaft of *b*', so that when B''' is withdrawn from *b*', the spring *b*''' brings the arm *b* back, until it is stopped by the adjustable stud *b*'''.

The movements of the several gates or frames *i*', *i*'', *i*''', and *i*''', carrying, respectively, the press for the crude tobacco, the knife R, by which the tobacco is cut, the crib Q', and the cover *i* i', &c.

The movement to press and cut the tobacco is simply the descent and ascent of the press-bar and the knife.

The tobacco, being cut off, falls into the crib Q', which is a small cylinder, the length of the longest cigar, and of sufficient size to hold the fill for one cigar. About one-half of this cylinder is cut away, so that the filling may fall into it, the open side being upward. This cylinder is the axis with which the small pinion Q revolves.

As soon as the tobacco has fallen into Q', the arm *i*''' begins to carry the sliding bar *i*''', to which *k*, *k*', *i* i', and *i* i'', as also *k*''', are attached, downward, and in this movement, by means of the cam *k*'' and the arm *k*''', the cover *i* i' is carried downward, and, at the same time, is thrown or turned over upon the top of the filling in Q', pressing it into the proper form, ready to be delivered upon the band and covering for the cigar.

When it has been thus prepared, the arm *i*'' causes the rack Q'' to descend, and this rack, acting on the pinion Q, causes the crib Q' to turn over and deposit the filling on the wrapper and band N.

As soon as this has been accomplished, the cam passes the lifter I'', and the spring attached to it immediately brings the lever *i*'', the gate, and the crib Q', back to their original position.

z z is the frame of the machine.

P, the frame of the feed-roller for the band and wrapper.

Motion may be given to the whole machine by a winch on A, or by power through band-pulleys.

Fig. 4 is a section (full size) of the forming-roller O O' O'', (spindle,) and o o o o, &c., small rings, cut in the figure. The journals O O, the spindle O' O', and the middle portion of the roller, are all one piece, while the end portions are made up of a series of rings of varying sizes, which revolve freely on the spindle O' O', by which means the tapering portions of the cigars are formed and wrapped, without requiring any slipping of the surfaces in contact. The upper surface of the bed K has a form corresponding with the form desired to be given to the cigar, which may be varied by the form of this bed and of the rings o o o o, &c. This may serve as a description of my cigar-machine proper.

Fig. 5 is a separate machine, used for cutting the bands and wrappers for the cigars, from the leaf. In this figure, A is the frame; B B and B' B' are the two steel knives, of the proper forms, respectively, to cut the bands and wrappers for the cigars; O is one spring, of which there are two, the other being omitted in the figure, as are also the movable strut D, roller F, &c., but these are similar to that shown; D is a strut or bar, hinged to C, so as to allow a free movement from *a* to *a*' of the roller F; E and E' are the wrapper and

band of the cigar, after being cut, and before being removed from the knife.

Fig. 6 is another separate machine, used for cutting the filling for the cigars into the required lengths for the cigars, in which M M, &c., are the frame; A, the feed-bearing, on which the crude tobacco is placed; B, a gate or frame, which carries a bar at its lower end, which is made to press upon and hold the tobacco, while it is being cut, by means of the hand-lever C; B' is a similar gate, to which the knife F is attached, and which is operated by means of the lever E, and a foot-treadle (not shown) attached to the rod G; H, the shaft of the feed-roller, which is operated by the hand-winch I; J is a small platform, hinged to the frame, immediately under the knife F, so as to allow it to be turned down from the position L (where it is held by the arm K, being turned under it when desired,) to the position L', or any point between. The object of this is to allow the filling to be cut at any angle required, in order to the proper formation of the point or end of the cigar.

Having now described the construction, and partly the operation of my machine proper, and the two machines used in connection with it, I now proceed to describe the operation thereof.

The tobacco to be used for the filling of the cigars is placed upon the feed-band A, fig. 6, spread to the proper thickness. A piece of tin, of the proper width and length, turned up at its outer end, so as to form a stop for the tobacco, is placed upon the platform or table J, and the band made to move forward, by means of the winch I, until the tobacco reaches the stop on the tin plate, (not shown,) when another plate of tin, of the proper size, is placed upon the top of the tobacco, the arm K is turned from beneath J, and J, with the tin plates underlying and covering the tobacco, is turned or bent down to any required angle, when, by the action of the arm or lever E, the knife F is brought down, cutting the tobacco off. The plates which now enclose the tobacco thus cut off are removed, and the tobacco placed in the feed-box M, on the band *b*'', figs. 1, 2, and 3. The bands and wrappers are cut from the leaf, by the machine shown in fig. 5. A number of leaves is laid together upon the surface of the knives or cutters E^x and E^x, (the interior of which cutters have blocks fitting snugly within them, and so arranged as to move up and down freely.) The roller F^x, and a similar one for B^x, are made to pass over the tobacco, the spring C^x giving the required pressure to cut through all the leaves, and force the blocks down, so that another layer may be laid upon it, and cut in the same manner. When this process has been continued a sufficient time, the blocks are lifted out of the cutters by a small lever acting on their bottom, (not shown,) and the wrappers or bands placed on a table, ready to be placed upon the feed-band P', fig. 1, as seen at P'''. This is done by hand. The band and wrapper P''' are now placed upon the feed-band N, fig. 1. The machine being in motion, the feed-band *b*'' is moved forward the required distance, by the action of B B' B'' B''', &c., above described. The press-gate descends and clamps the tobacco, and the knife follows, cutting it off, when it falls into the crib Q'. The slide-bar *i*''' descends, carrying the cover *i* i' with it, and the inclined arm *k*, impinging upon the anti-friction roller *k*'', which is attached to the frame *i*''', causing the lower end of the arm *k* to press against the back of the cover *i* i', at *k*'', fig. 2, causes the cover *i* i' to turn over, so as to bring its concave under surface to press upon the mass of tobacco (filler) already in the crib Q'. The carriage or gate *i*'' now descends, carrying the rack Q'' down, and causing the pinion Q to revolve about one-half revolution, turning the crib Q' upside down, depositing the filler upon the band N, as seen at U, fig. 2, when both the lifters I'' and I''' are disengaged, and the spiral springs on the

two lifters at once restore the gates, crib, cover, &c., to their original positions. While these movements have been going on, the bed or carriage H has moved to the left sufficiently to take up a portion of the slack of the band N, while, by the action of J^{'''}, through J^{''}, the bed k has been forced back to its original position, (from which, at the commencement of the revolution, it was forced to the left, by the action of J', &c., described above,) thereby taking up a portion of the slack of N, bringing N into the position shown at N^{''}. This movement of the bed or carriage H to the left, as soon as it commences, carries the upper end of the arm a toward the left, while, by the action of the spring a^{''}, which is attached to its lower end, the lower end is kept in the same position it originally occupied, until it comes in contact with an adjustable stop in H, when it will have about the position shown in dotted lines at a^{''} a^{'''}, fig. 2. This motion causes the band-drum a^{'''}, fig. 2, to revolve to the left, which, with the movements previously described, brings the band N into the position shown in dotted lines in fig. 2, the cigar having been carried to the position shown at U', fig. 2, where it is made to revolve or roll, by the combined action of the band N and the bed k, thus wrapping the band and wrapper P^{'''} around it, after which it is allowed to fall into the hopper V, finished, while, by the return of H to its original position, all the parts of the machine, which have not already been restored to their original position, are brought to that position, ready for the repetition of the same movements above described.

Claims.

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

1. The combination of the forming-roller O, O', O'', with band N and the platform K, all constructed and operating as shown and described, for the purpose set forth.

2. Operating the feeding-belt b^{''}, by means of the friction-lever B^{'''}, hinged to the swinging arm b, in combination with the pulley b', spring b^{'''} and b^{''}, all arranged as shown and described.

3. Alternately loosening and tightening the band N, by the combined operation of the crank-arm a, roller a^{'''}, spring a^{''}, and pin x, as and for the purposes specified.

4. Reciprocating the platform K, by means of the cam O, lever J', arms J^{''} and J^{'''}, and stop j, all combined as and for the purposes set forth.

5. The combination of the presser i' with the knife R, when operating as set forth, for the purposes described.

6. The combination of the gate i^{'''}, carrying the crib Q', with the slide i^{'''}, carrying the cover i' i'', when operated as and for the purposes set forth.

7. The arrangement of the several gates or frames carrying the presser-bar, knife, crib, and its cover, with their operating-cams, levers, and springs, as shown, for the purposes described.

8. The crib Q', operating by means of the pinion Q and the rack Q^{''}, as and for the purposes set forth.

9. The crib Q', in combination with the detached cover i' i'', constructed as described, for the purposes stated.

10. Operating the hinged cover i' i'', by means of the slide i^{'''}, cam-shaped lever k, pin k'', and spring k', as and for the purposes described.

11. The sliding bed H L L', constructed as shown, in combination with the cam O, platform K, band N, crib Q', and forming-roller O, when operated as described, for the purposes specified.

12. The feeding-device P, when constructed, arranged, and operated as shown and described, for the purpose set forth.

13. The apparatus for cutting wrappers, consisting, essentially, of frame A^x, knife B^x, block E^x, roller F^x, bar D^x, and spring C^x, all combined, arranged, and operating as shown and described.

14. The cigar-machine above described, as a whole, when its parts are all combined, arranged, and operated as shown and described.

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Witnesses:

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