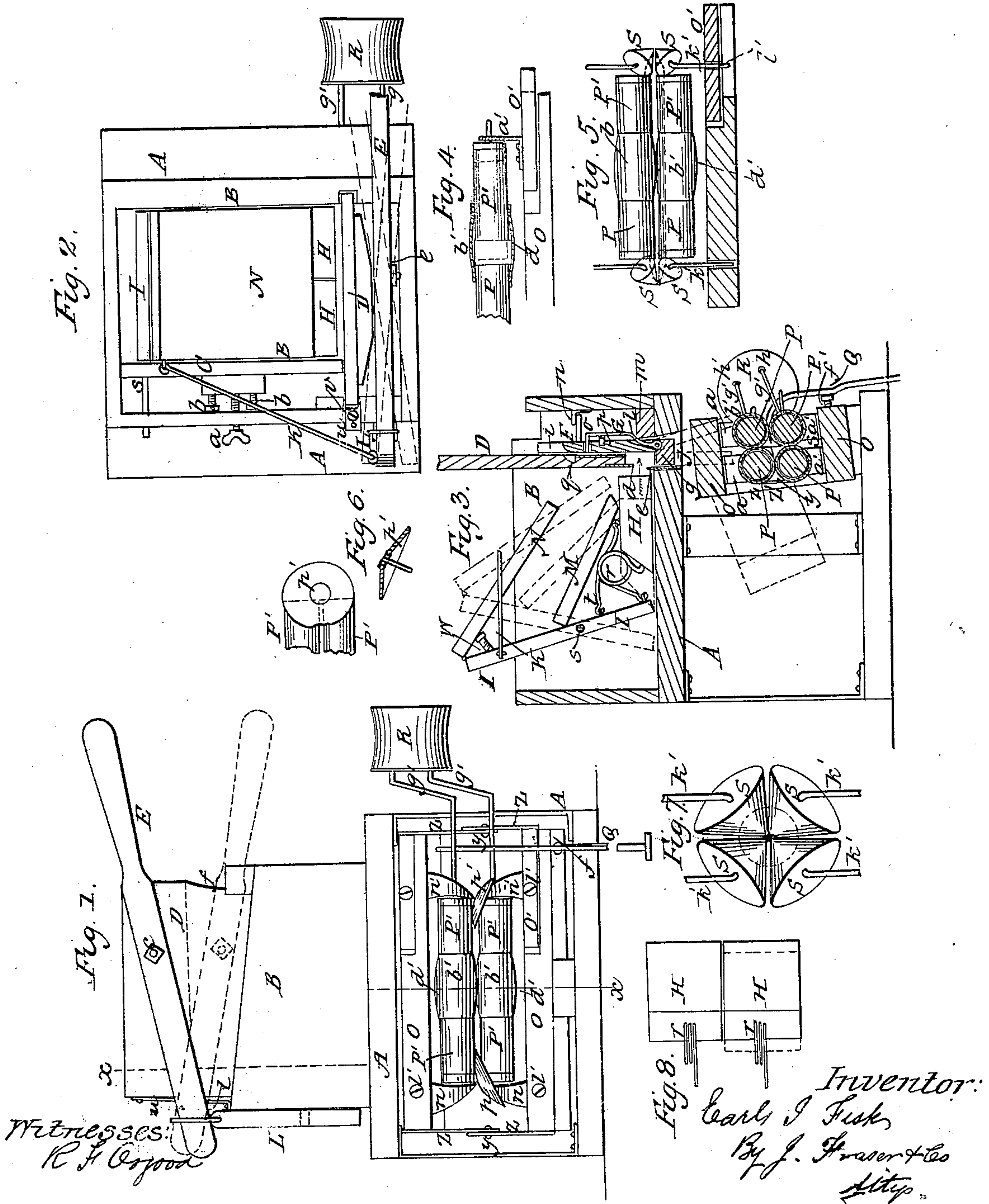


E. I. FISK.
Cigar Machine.

No. 51,578.

Patented Dec. 19, 1865.



UNITED STATES PATENT OFFICE.

EARLS I. FISK, OF SOUTH BYRON, NEW YORK.

IMPROVEMENT IN CIGAR-MACHINES.

Specification forming part of Letters Patent No. 51,578, dated December 19, 1865.

To all whom it may concern:

Be it known that I, EARLS I. FISK, of South Byron, in the county of Genesee and State of New York, have invented certain new and useful Improvements in Machines for Making Cigars; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

Figure 1 is a front elevation of my improved machine; Fig. 2, a plan; Fig. 3, a vertical section in line *x x*, Fig. 1; Fig. 4, a view of the device for extending the rollers; Fig. 5, a view showing the arrangement of the rollers and cones; Fig. 6, a view of one of the flexible disks resting over the ends of the rollers and the cones, for forming the conical end of the cigar; Fig. 7, an enlarged view representing the relative position of the four cones that form the conical end of the cigar; Fig. 8, a plan of the sections forming the follower detached.

Like letters of reference indicate corresponding parts in all the figures.

My improved machine is intended for cutting the tobacco from the mass, carrying it downward between rollers, where it is rolled into form and wrapped, all by one operation.

As represented in the drawings, A is a frame of any desirable construction, on which is situated a hopper, B, for holding the mass of tobacco from which the cigars are formed. This hopper is enlarged or contracted laterally by means of an adjustable side, C, operated preferably by a screw, *a*, passing through the side of the frame, and the side is held in place at any position by means of gage-screws *b b*.

In the front end of the hopper is situated a vertically-acting gate, D, operated up and down by a lever, E, pivoted on one side of the center, as shown at *c*, the limit to which said gate rises being governed by a strap, *u*, having adjusting-holes, through any of which passes a screw, *v*. To the bottom of this gate is secured a knife, *d*, which cuts against a similar knife, *e*, at the base of the hopper, Fig. 3; and in order to produce a shearing cut I make that edge of the gate next the pivot *c* concave or hollowing for a distance, as shown at *f*, Fig. 1, which allows that side of the gate to be depressed as it is forced down. Before or at the moment the cut is completed, however, the gate assumes its horizontal position again, so

as to hold the tobacco that is cut off evenly in place, as will presently be described.

Outside the gate D is situated a slide, F, Fig. 3, which has at its bottom a projection, *g*, projecting under the gate in such a manner as to form a depression or cavity, *h*, between it and the end of the gate, of sufficient size to receive the necessary amount of tobacco to form a cigar. The ends of the slide rest in grooves *i i*, or equivalent, in the sides of the hopper, to keep it in place in rising and falling.

On the back of the slide, at suitable distances apart, are two or more spring wires or rods, G G, substantially of the form represented—that is, bent so as to form ends *k k*, projecting inward through holes in the slide and resting against the back of the gate, and provided with inclosed shoulders *l l*, which, in the downward movement of the slide, strike a ledge, *m*, of the bed and force the wires or rods inward. The upward movement of the slide is limited by a stop, *n*, against which a pin or pins, *o*, or equivalent, from the slide strike. The elasticity of the wires or rods G G may be produced by means of springs *p p* throwing such wires or rods outward, or by any desirable arrangement. The back of the gate D is provided, at positions corresponding with the wires or rods G, with holes *q q*, into which, when the parts assume the proper position, the ends *k* of the wires drop, as will be presently described.

In the bottom of the hopper is situated a follower, made up of two or more sections, H H, Figs. 2, 3, and 8, running longitudinally, each one being provided with a suitable spring, *r*, in the rear, that connects it with an upright rock-frame, I, jointed or hinged at *s* and connected at its top, by means of a connecting-rod, K, with the lever E, which has a lateral as well as a vertical action, by being jointed to a swing-fulcrum, L, or other suitable connection.

At a little distance below the joint *s* a connecting-rod, *t*, is secured to the rock-frame I, its opposite extremity connecting in like manner with the end of a board, M, resting in an inclined position on the follower H H and against the rock-frame.

To the rock-frame is hinged a leaf, N, projecting inward and downward in an inclined

position, its angle being gaged by means of a gage-screw, *w*, screwing into the rock-frame, and against which it rests.

The action of this portion of my machine above described is as follows: The mass of tobacco is placed in the hopper, in front of the follower *H H* and board *M* and beneath the end of the leaf *N*. Then the lateral action of the lever *E*, as indicated by the dotted lines, Fig. 2, throws the rock-frame *I* backward, the leaf upward, and the follower forward, as shown by black lines, Fig. 3. This, of course, will force a quantity of the tobacco into the cavity *h* sufficient to fill it. Then the downward action of the lever (red lines, Fig. 1) will cut this tobacco from the main mass, securely retaining it in the cavity. As soon as the holes *q q* of the back of the gate come opposite the ends *k k* of the wires *G* said ends are forced into them by means of the shoulders *l l* striking against the ledge *m* and yielding sufficiently to pass. The slide *F* is then forced down with the gate through the opening *j* in the bed, till finally the pin or pins *o* strike on top the ledge *m* and (the ends *k* still holding in the holes *q*) open the slide, as indicated by red lines, Fig. 3, so as to discharge the tobacco between the rollers, which will presently be described. On the raising of the gate again the slide is drawn up with it till the shoulders *l* rise above the ledge *m*, when the slide is freed from the gate, and the latter rises still higher to allow the tobacco to fill again. The opposite lateral motion of the lever *E* from that before described (red lines, Fig. 2) throws the operating parts of the hopper into the position indicated by red lines, the follower being drawn back so as to allow the tobacco to fall down in front of it, the board *M* being raised and thrown forward to force the mass forward and the end of the leaf *N* thrown downward so as to force it downward. The tobacco is thus placed in the best position to be carried into the cavity *h*. The action of the parts *H M N I* is of the greatest importance, and their combination an essential feature of my invention.

By making the follower in sections *H H*, held by springs, as before described, not only is the necessary elasticity produced, but each section acts independently of the other, thus insuring a better pressing action on the tobacco.

In the lower part of the frame, beneath the gate and slide, is situated the apparatus for rolling and wrapping the cigars. A suitable frame is provided, made in two parts, *O* and *O*, hinged together at *y* by suitable straps *z z*, or in any equivalent manner, so that the upper part may be turned back, as indicated by red lines, Fig. 3. The frame rests on an incline backward, as indicated, so that when the upper portion is released it will fall back of its own weight. In each half *O* of the frame are mounted two rollers for forming the cigar, resting in bearings *a' a'*, or equivalent. These rollers are made of the length of two cigars,

being formed of two sections, *P P'*, divided in the center, and these sections are made to expand or separate horizontally by means of a circular coupling, *b'*, fastened at one end to one of the sections, while the opposite end slides freely but closely over the other section. In this manner it will be perceived that the rollers can at any time be lengthened or shortened to adapt them to forming cigars of varying lengths. In order to allow this horizontal adjustment of the rollers, the bearings *a' a'* of the moving sections *P'* rest on slides *O'* of the frame *O*, as clearly represented in Figs. 4 and 5. The couplings *b'* are made swelling or convex, as shown at *d'*, so as to be of the largest diameter in the center, for a double purpose—viz., to form the outer or lighting end of the cigar (two being formed at once, as will be presently described) of smaller diameter than the body thereof, and to bring the peripheries of the rollers in contact with the middle, so as to prevent the wrapper from clinging to the rollers and running through when the same is started. In order still further to make the cigars small at the outer or lighting end, a band, *z'*, may pass around the centers of the two vertical back rollers, as shown in Fig. 3. This accomplishes the desired effect by cutting off the angle between said rollers, so that the tobacco cannot enter there. The band also prevents the wrapper from passing through when started. In order to separate the upper and lower rollers to a greater or less degree, to form cigars of different diameters, a gage, *f'*, or equivalent, rests in the lower frame, *O*, Fig. 3, against which strikes a tread-lever, *Q*, by which the rollers are closed together. It will be seen that the desired effect will be produced by adjusting the screw out or in.

Each roller is provided with a crank, *g'*, at one end, the whole four cranks connecting with a single cylindrical head, *R*, that forms the handle for operating the rollers. The bearings *h' h'* of these cranks, with the head, are about the same distance apart as the axes of the rollers, so that the whole will operate easily. This device for operating the rollers is very simple and effective, for it enables me to dispense with the gearing, which is not only expensive, but difficult to connect and operate where the rollers have constantly to be thrown apart to admit and remove the cigars.

At each end of the rollers are situated four cones, *S S S S*, of suitable size for forming the conical end of the cigar. Cones have before been employed in connection with rollers for this purpose, but so far as I am aware have always been used with their apexes next the end of the rollers.

An especial feature of my invention consists in reversing this arrangement by placing the cones with their apexes outward, or with their bases next the ends of the rollers. The advantages of this arrangement are as follows: First, in the old method but two cones can be employed—one above and one below—there being no space for any more. Therefore the to-

bacco forming the taper end of the cigar can escape laterally, and it is difficult to keep it in place. In my device four cones can be employed, thus perfectly inclosing the end of the cigar so that it cannot escape. Second, in the old arrangement the greatest motion of the cones is at the outer or base end. This gives the greatest action in wrapping the cigar at the tip, where it should be the least. By my device I obviate this difficulty by giving the least action at the tip and the greatest at the base of the conical part of the cigar, so that the wrapper is drawn over the taper gradually and uniformly. These advantages are manifest. The cones rest and turn on bearings *k' k'*, that adjust up and down in the frame *o o*, being retained at any position by set-screws *l' l'*. Thus the cones may be separated or adjusted together exactly as desired to bear upon the end of the cigar.

It is obvious that the cones may be employed, if desired, with the rollers of a proper length to form only a single instead a double lengthed cigar. I do not confine myself to the exact arrangement shown.

In order to keep the wrapper from catching between the ends of the main rollers and the cones, guards *n' n'* are employed, filling the angular space, as clearly represented.

Between the ends of the upper and lower rollers and cones I insert disks *p' p'*, of thin leather or equivalent, revolving easily on bearings *q' q'*, as shown most clearly in Figs. 1 and 6. The object of these is to cover the joint at the end of the rollers and between the cones, so that the tobacco will not catch, clog, nor escape.

The operation of the parts above described

is so obvious as hardly to require description. The tobacco from above falls between the rollers, where the action forms it into a roll (red lines, Fig. 5) of sufficient length to form two cigars by cutting it in the middle. The wrapper is inserted between the rollers, so as readily to wind, and is guided by hand.

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

1. The combination and arrangement of the gate D and slide F, the former provided with the holes *q q* and the latter with the wires G G and pins *o o*, and employed in connection with the ledge *m*, substantially as and for the purpose herein set forth.

2. The combination of the sectional spring-follower H H, rock-frame I, board M, and leaf N, arranged and operating substantially as and for the purpose herein set forth.

3. The rollers P P', having an enlargement or swell, *d*, in the center, and made to extend by means of the couplings *b*, the whole arranged, combined, and operating substantially as herein set forth.

4. Connecting the cranks *g' g' g' g'* with a single head or handle, R, when the same are used in combination with the rollers P P', substantially as set forth.

5. In combination with the cones S S, the bearings *k' k'* and set-screws *l' l'*, substantially as and for the purpose herein set forth.

6. The flexible disks *p' p'*, in combination with rollers P P', or equivalent, and the cones S S, substantially as described.

E. I. FISK.

Witnesses:

SYLVANUS W. FISK,
A. MURRAY FISK.