(No Model.) 2 Sheets—Sheet 1.

O. HAMMERSTEIN.

Cigar Machine.

No. 238,500. Patented March 8, 1881.

Fig. 6.

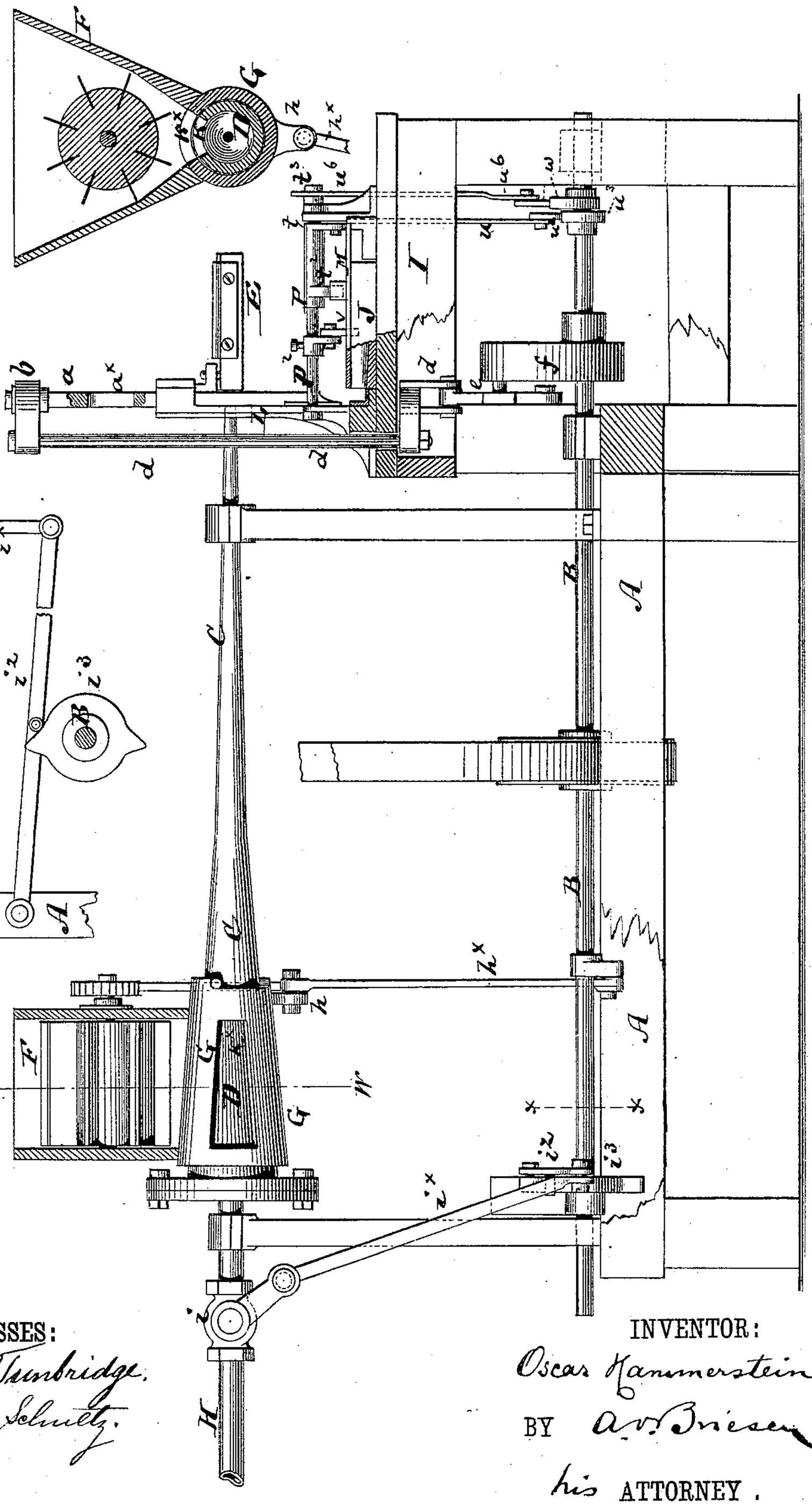

Fig. 7.

Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

O. HAMMERSTEIN.

Cigar Machine.

No. 238,500. Patented March 8, 1881.

Fig. 2.

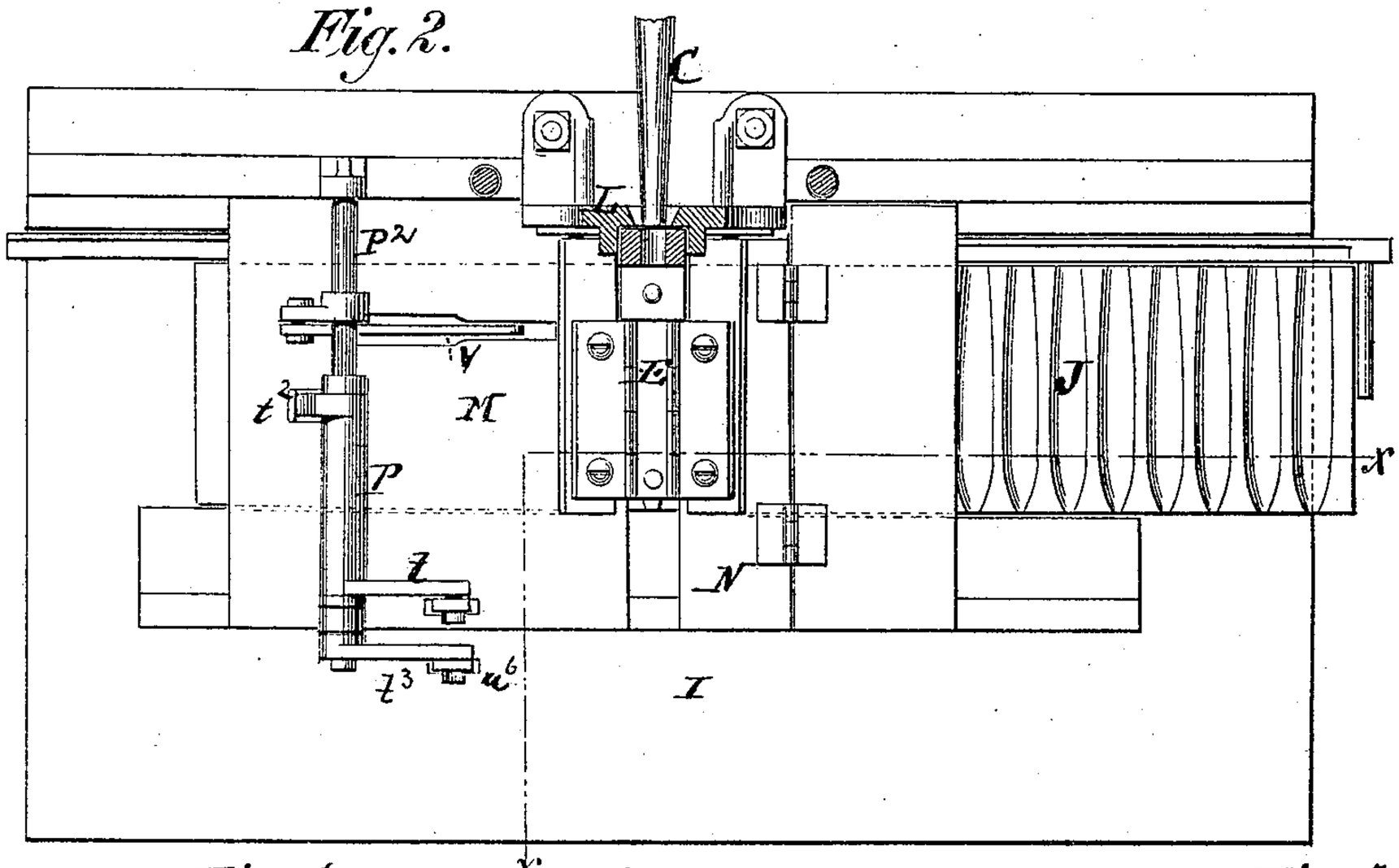
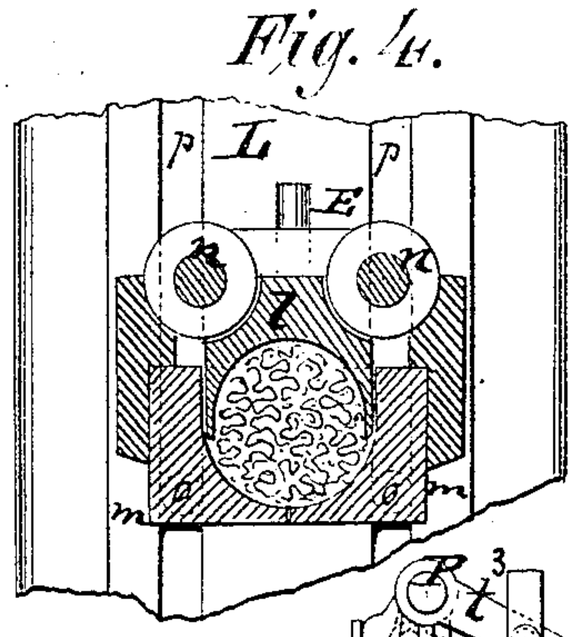


Fig. 4.



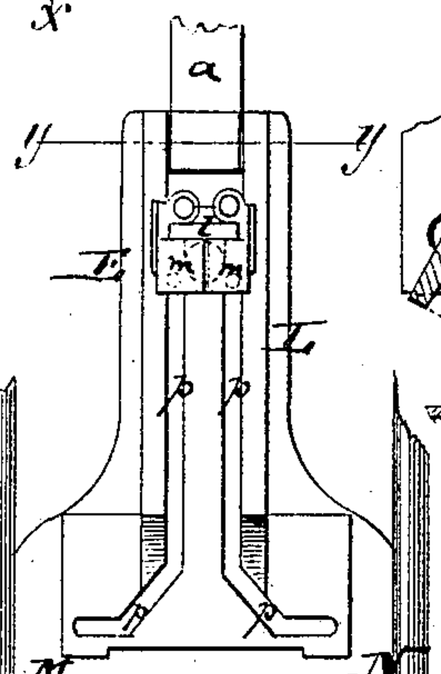


Fig. 5.

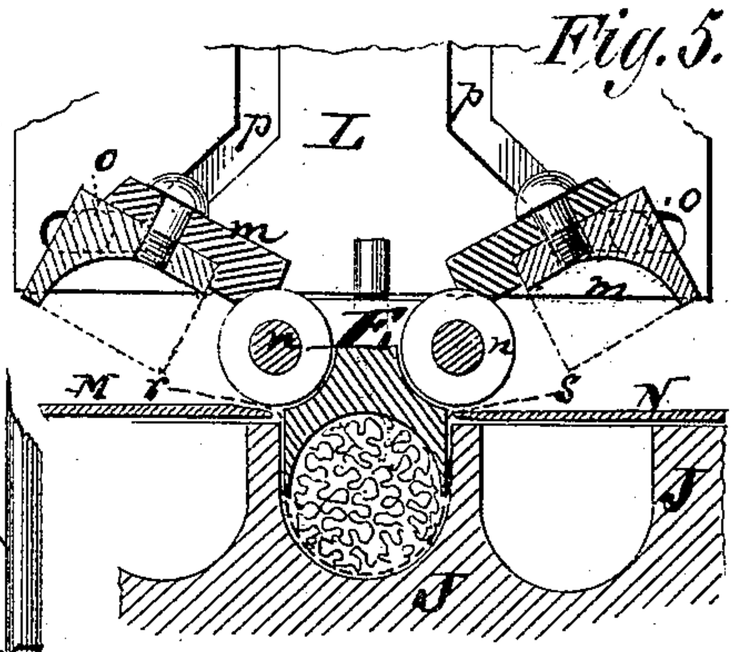
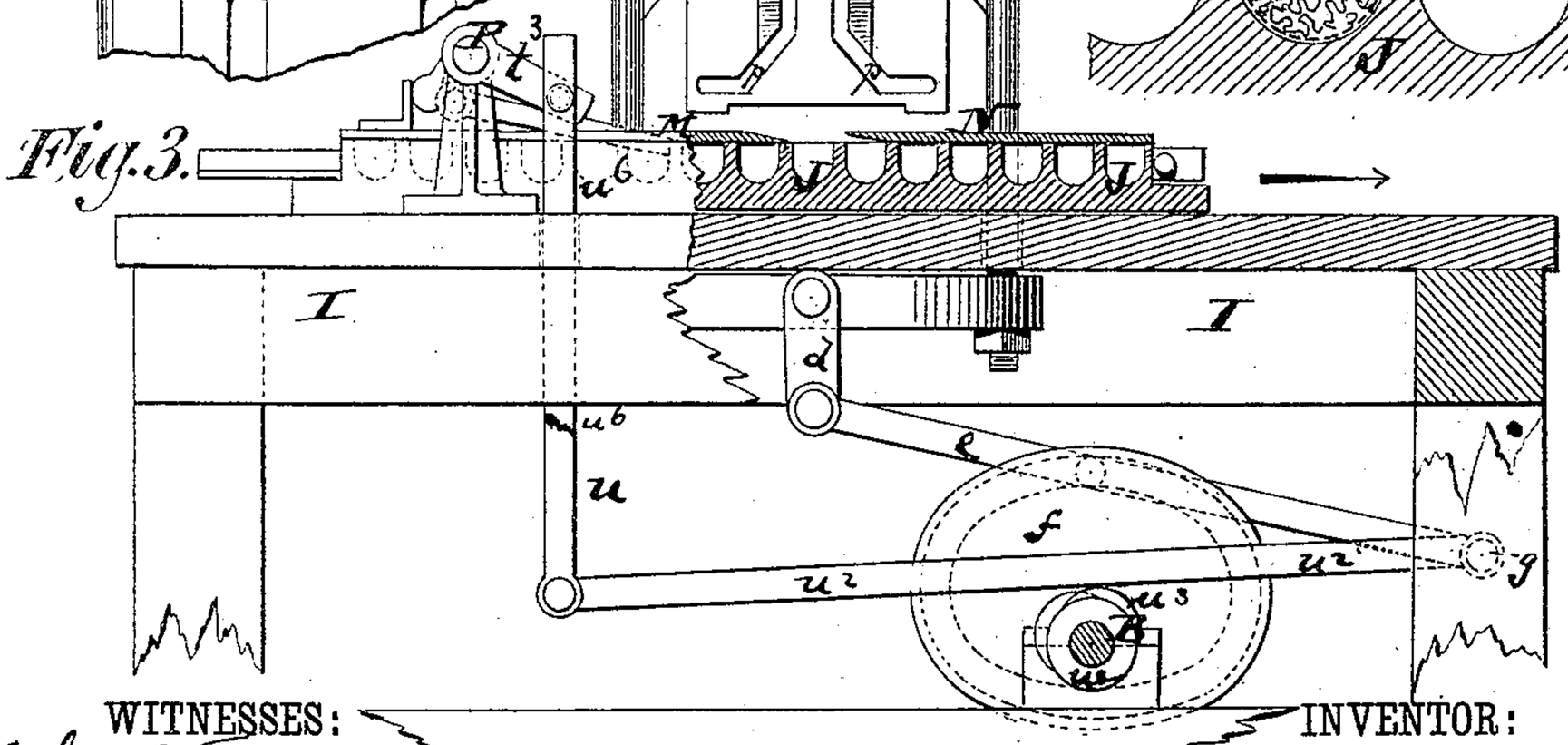


Fig. 3.



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UNITED STATES PATENT OFFICE.

OSCAR HAMMERSTEIN, OF NEW YORK, N. Y., ASSIGNOR TO MALVINE HAMMERSTEIN, OF SAME PLACE.

CIGAR-MACHINE.

SPECIFICATION forming part of Letters Patent No. 238,500, dated March 8, 1881.

Application filed June 30, 1880. (No model.)

To all whom it may concern:

Be it known that I, OSCAR HAMMERSTEIN, of New York, in the county and State of New York, have invented a new and Improved Machine for Making Cigars, of which the following is a specification.

Figure 1 is a side elevation, partly in section, of my improved machine for making cigars. Fig. 2 is a plan or top view, partly in section, of the same. Fig. 3 is a face elevation, partly in section, of the same. Figs. 4 and 5 are vertical cross-sections, on an enlarged scale, of the jointed reciprocating mold used in the machine, showing the parts of and also the said mold in different positions. Fig. 6 is a vertical cross-section of the hopper for supplying the charge of tobacco to the machine; and Fig. 7 is a detailed cross-section on the line *x x*, Fig. 1.

This invention relates to a new machine for giving proper form to the fillers of cigars for depositing the same in the proper molds and for inclosing them automatically with binders.

The principal feature of novelty of my machine consists in the new combination of machinery and of parts for propelling the filler by air-pressure through a suitable channel or pipe into a receiving-mold, which, under the pressure of the air or of an equivalent fluid, receives the tobacco and shapes it into the form of the cigars. This receiving-mold is made to reciprocate, and, when charged with tobacco, descends, opens, and discharges its contents into one of the chambers of an ordinary cigar-mold, into which, previous to the reception of the filler, a binder has been placed, so that the filler is placed upon and partly pressed into the binder. The jointed receiving-mold then ascends and closes and goes into position for another charge of tobacco. The binder around the first charge has one of its ends, by motion of a plate, first carried over the filler, and then the cigar-mold itself is moved, so as to bring another cavity under the receiving-mold, and by said motion the other end of the binder is lapped over and placed on the filler, so that when all the cavities of the cigar-mold are filled in the manner stated it may be taken and placed under the other part of the regular cigar-mold—namely, under the part having the male or pressing projections—and the cigars then treated in said mold without special handling, as they are always treated in such molds and then perfected as other cigars are perfected.

The principal advantage of this machine seems to me to consist in dispensing entirely with the handling of the filler and of the binder. The material for the filler is propelled by the column of air, or its equivalent, into the mold which receives it. It is thus shaped automatically into the exact form required, so that one cigar will be precisely like the other and have the weight of the other, and in being thus propelled by the action of the air the parallel position of the parts composing the filler will be insured, and a perfect construction of cigar the result.

Having thus set forth the general construction of the machine and its operation, I beg to state that my invention consists of the various elements and combinations of parts hereinafter more fully specified, and pointed out in the claims, and I will now describe the machine more fully with reference to the accompanying drawings.

In said drawings, the letter A represents a suitable frame for the machine, and B is the driving-shaft, receiving rotary motion by means of a belt or other suitable mechanism.

C is the air-tube leading from the receiving-chamber D, which may be part of the tube C to the receiving-mold E. The mold E, which I will hereinafter more specifically describe, is suspended by a vertical arm, *a*, from a cross-head, *b*, to which vertically-reciprocating motion is imparted by connecting rods *d d* with a lever, *e*, that is controlled in its movements by a cam, *f*, on the shaft B, so that as the shaft revolves, the lever *e* is oscillated on its pivot *g*, causing thereby the rods *d d*, with the cross-head *b* and arm *a* and mold E, to move up and down in the requisite manner. When the mold E is in its elevated position, as in Fig. 1, its receiving-cavity is directly in line with and close to the discharge end of the air-tube C, so that whatever is propelled or shot through the tube C will readily enter said mold E.

The tube C is preferably of tapering form, so that the tobacco passing through it will be gradually compressed.

Above the receiving-chamber D is a hopper, F, which contains the tobacco for the cigar-filler, and discharges it, through a revolving jacket or valve, G, into said chamber D. The jacket G, as shown, embraces the chamber D, and connects, by a crank, h, and rod $h^{\times}$, with a crank of the shaft B, so that it is turned to bring an opening, $k^{\times}$, in its side, either above the receiving-opening k of the chamber D or tube C, as in Fig. 6, or to bring said opening $k^{\times}$ to the side of the chamber D or tube C, as in Fig. 1. In the position shown in Fig. 6 the receiving-chamber D is open to receive a charge of tobacco from the hopper, said hopper containing, by preference, a spur-wheel or bladed shaft, to which intermittent rotary motion is imparted by a suitable pawl-and-ratchet connection with the shaft B, for properly disturbing the tobacco, and allowing it properly to drop into the receiving-chamber D. When a charge has been given to the receiving-chamber, the jacket or valve G is turned to close the aperture k of said chamber, as in Fig. 1, and the machine is now in position to permit the charge of tobacco to be shot through the tube C into the mold E. To this end an air-pump or other air or steam propelling apparatus connects by a pipe, H, with the larger or outer end of the chamber D, and at the proper moment a valve, i, in said pipe H is opened automatically, and the air admitted to the chamber D with such force as to violently and suddenly shoot the charge of tobacco from said chamber through the tube C into the mold E. The movements of the valve i in the pipe H are controlled by a rod, $i^{\times}$, and lever i^2, and by a cam, i^3, on the shaft B, (see Figs. 1 and 7,) the preferred construction being such that when a toe on the cam i^3 strikes the lever i^2, or a pin projecting therefrom, said lever will be raised to open the valve, and immediately after the toe has passed the lever will drop down of its own weight, or under the assistance of a suitable spring or weight, to close the valve, so that of the valuable air-pressure no more will be consumed than is absolutely needed for propelling the tobacco. As soon as the mold E has been filled in the manner stated the shaft B causes it to descend by means of the lever e and parts d b a, hereinbefore specified, and when the mold has reached its lowermost position an aperture, $a^{\times}$, in the arm a is brought opposite to the discharge end of the tube C, and at the same moment the valve i is again opened, so as to shoot out of the tube C any tobacco or remnants of tobacco that may have failed to enter the mold E, and may have remained in the tube C, thus leaving the machine always free and clean when a new charge of tobacco is supplied to it from the hopper.

The mold E, of which cross-sections on a large scale are shown in Figs. 4 and 5, is, as these figures clearly show, composed of three principal parts—the central upper part, l, and the two side wings, m m. The two wings m m are hinged to the upper part or central portion, l, so that on their hinges they may either fold together, as in Fig. 4, to partly underlap the portion l and form the complete mold, or swing aside away from the central portion, l, as in Fig. 5, to open the mold and allow the discharge of its contents. As the mold E descends it moves toward the table I of the machine, on which table the female or hollow part of an ordinary cigar-mold, J, is placed, said mold J being at the time of action so placed that one of its cavities or receptacles will be directly beneath the mold E. As the mold E approaches the mold J, pins o o, that project from the wings m m into grooves p p of an upright stationary post, L, of the machine, will, in entering the lower outwardly-extending parts of said grooves, open the mold E—that is to say, cause the wings m m to be moved and swung aside, as in Fig. 5—so as to permit the filler from within the mold E to drop into the cavity of the mold J below the portion l of the mold E, which is hollowed out underneath to part of the shape of a cigar, entering the mold J, as in Fig. 5, sufficiently to insure the proper location of the filler within said mold J. It is essential for this operation that the part l should be hollow on the under side, to enable it to deposit the filler in the mold J, as shown in Fig. 5. Thus the filler has been properly formed and deposited in the cigar-mold, and after this has been done the mold E is re-elevated, whereby its wings m m are necessarily brought back into the position shown in Fig. 4, and finally the closed mold E is brought back into line with the pipe C to receive a new charge, &c., *ad infinitum*. The cavity of the mold J has placed in it, by the hand of the operator, just before the mold E discharges the filler into it, a binder, which is a leaf of tobacco, (or paper,) for binding and inclosing the filler, said binder being shown by a dotted line in Fig. 5, said line being contained between the letters r and s in said figure. Two plates, M and N, overlap the mold J on opposite sides of the cavity to be filled, and the binder is so placed into said cavity that one of its ends, r, will rest on the plate M, and the other, s, will rest on the plate N, so that when the mold E deposits and presses its charge home into the mold J it will partly fill said binder. After the mold E has begun its ascent the plate M is moved horizontally over the filled cavity of the mold J, so as to fold the end r of the binder upon the filler within said cavity. This motion is imparted to the plate M by a suitable crank, t, on a rock-shaft, P, which rock-shaft receives its motion, by a rod, u, lever u^2, and eccentric w^3, from the shaft B. Upon the return-stroke of the rock-shaft another crank, t^2, or a weight or spring, carries the plate M back to its normal position. After the plate M has thus lapped the end r of the binder over the filler, a pawl, v, on the rock-shaft P^2, operated by crank t^3, rod u^6, and eccentric w, takes into one of the

empty cavities of the mold J, or into a rack connected thereto, and moves said mold in the direction of the arrow (shown in Fig. 3) sufficiently far to bring a new cavity or chamber of the mold J into line with the mold E. While the mold J is thus moving beneath the fixed plate N, the end *s* of the binder, which may be gummed, if desired, is by such motion lapped over the filled cavity and filler to complete the inclosure of the filler by means of the binder.

Of course the means described in the machine for giving motion to the various parts may be modified and changed without departing from the spirit of my invention, and I desire it to be distinctly understood that I do not limit myself to such means, or any means which may be devised for that purpose; nor do I wish to limit myself to the particular form of shooting-tube C shown in the drawings, for I find, by experiment, that instead of shooting the filler in the direction of its length, it may, in many cases, be shot into a mold with substantially the same effect in the direction of its breadth—that is to say, the shooting-pipe C would be so wide that the length of the filler would have room within it laterally.

Instead of opening the mold E by means of the stationary grooved post L, said post may be caused to move with substantially the same result.

The invention is equally applicable to all kinds of cigars, and to all sizes thereof, be they known as "cigars," "cigarettes," "cheroots," "conchas," or the like.

By attaching the pipe H to the outer end of the mold E the operation can be performed by suction to the same effect as by the air-pressure described.

I claim—

1. In a cigar-machine, the combination of the movable receiving-mold E, with the shooting-tube C, having supply-opening *k*, and air-supply pipe H, substantially as herein shown and described.

2. The combination of the hopper F with the receiving-chamber D, having opening *k*, and movable jacket G, and aperture $k^{\times}$ therein, and with the shooting-tube C, attached to chamber D, for operation substantially as described.

3. In a machine for making cigars, the combination of the receiving-mold E and shooting-pipe C, having aperture *k*, with the arm *a*, having aperture $a^{\times}$, and with the pipe H, for permitting the discharge of remnants of tobacco from the tube C, substantially as specified.

4. The receiving-mold E, constructed of the parts *l m m*, jointed together, the part *l* being hollow on its lower face, to partly receive the filler and serve as a plunger for depositing it in another mold, J, substantially as specified.

5. The reciprocating mold E, having pivoted wings *m m*, in combination with the standard L, having grooves or guides *p p*, for operation substantially as described.

6. The combination, in a cigar-machine, of the receiving-mold E, with mechanism for reciprocating it, with the main cigar-mold J, and with mechanism for imparting rectilinear motion to said mold J, substantially as specified.

7. The combination of the movable mold J with the movable plate M and immovable plate N, for laying the binder automatically, substantially as specified.

8. The process herein described of manufacturing fillers for cigars by propelling the tobacco, by air-pressure, into a receiving-mold, substantially as specified.

9. The combination of the shooting-tube C, having receiving-opening *k*, with the air-tube H, reciprocating receiving-mold E, and rectilinearly-moving cigar-mold J, for operation substantially as herein shown and described.

OSCAR HAMMERSTEIN.

Witnesses:
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JAMES TURK.