No. 608,913. Patented Aug. 9, 1898.

J. REUSE.

CIGAR MAKING MACHINE.

(Application filed July 9, 1897.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.

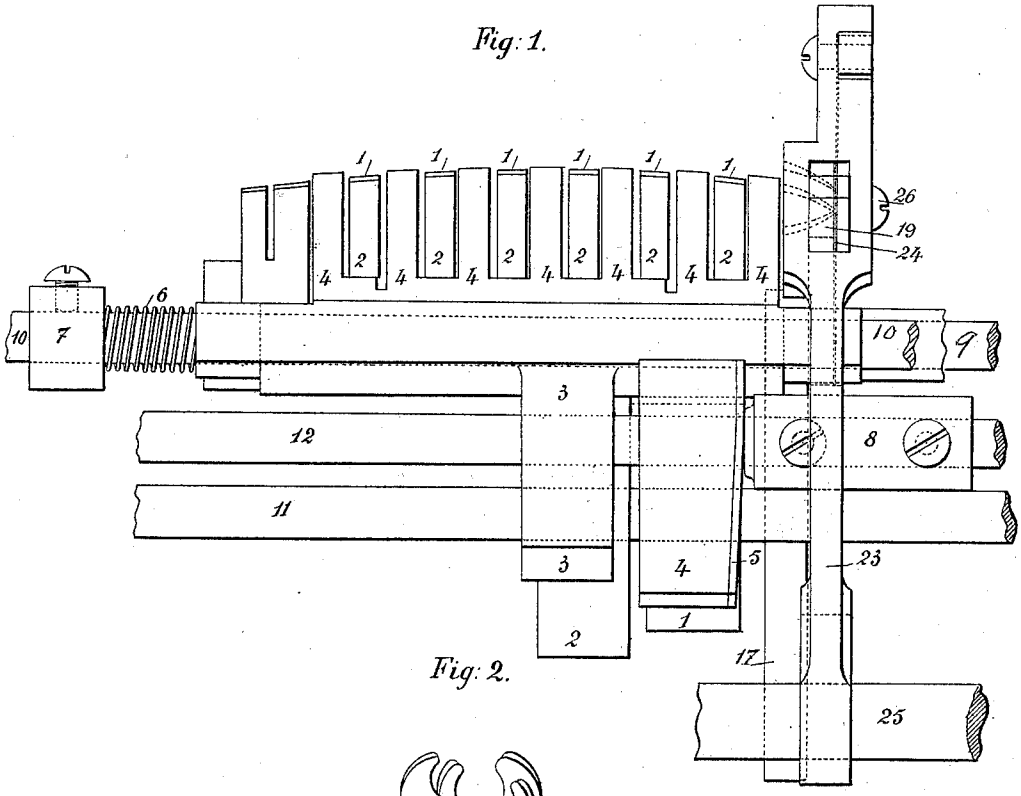
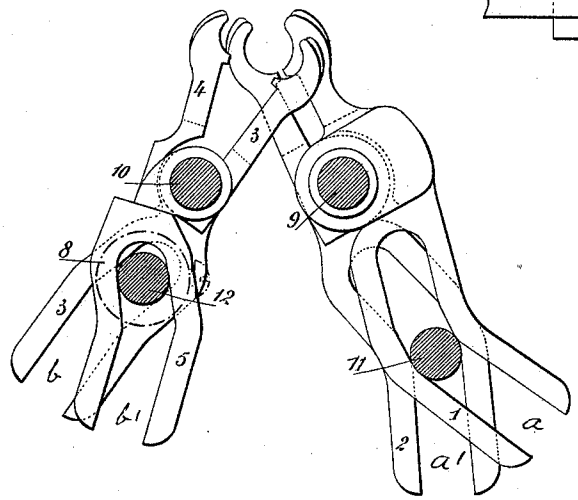


Fig. 2.



Witnesses:
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Inventor:
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(No Model.) 3 Sheets—Sheet 2.

Fig: 3.

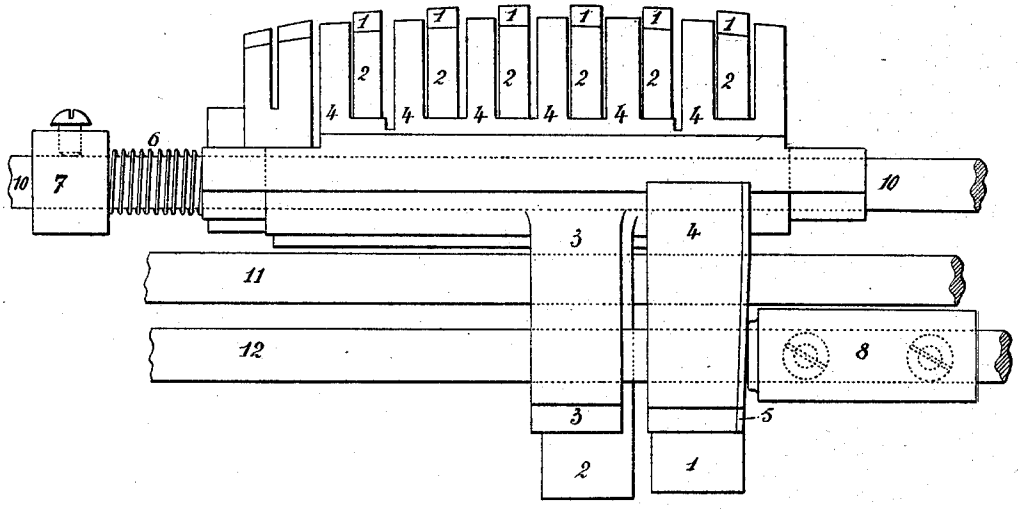

Fig: 4.

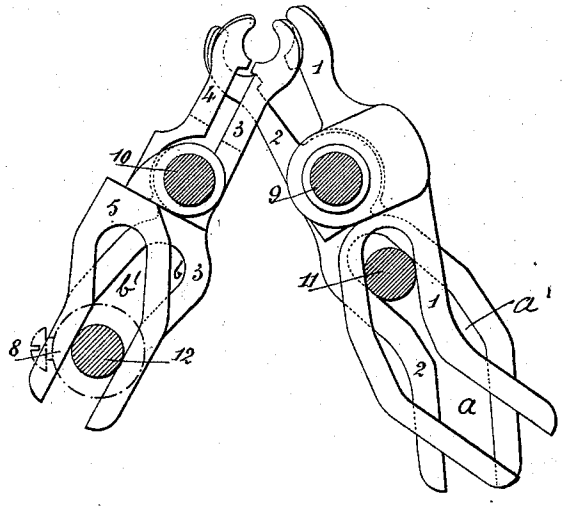

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Fig: 5.

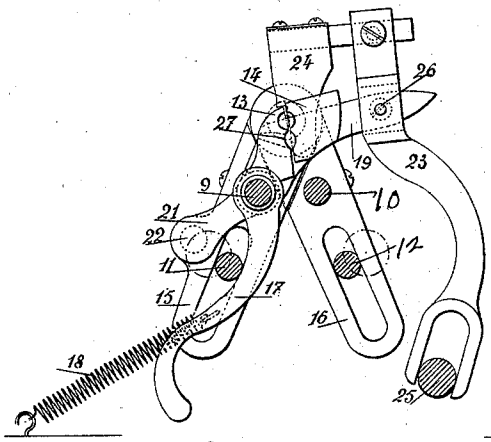


Fig: 7.

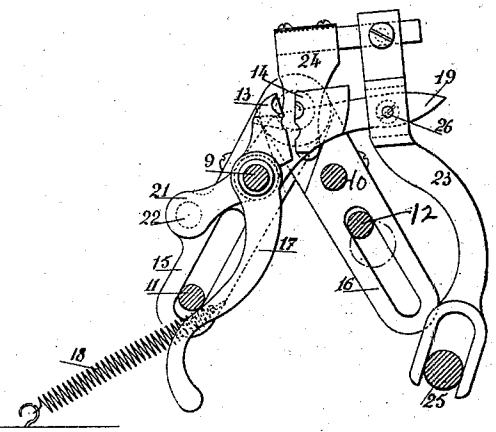


Fig: 6.

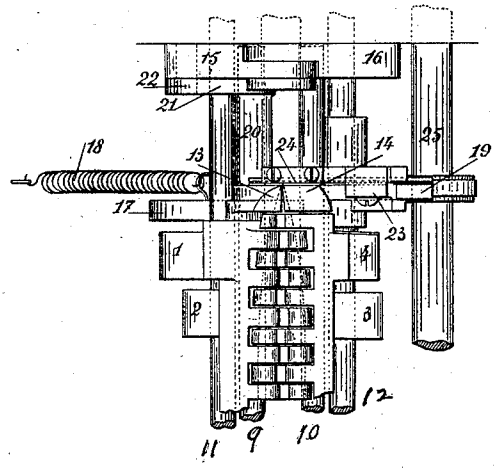


Fig: 8.

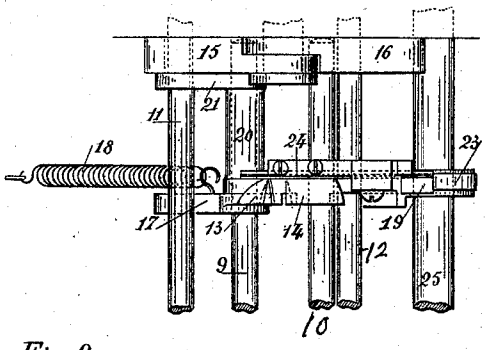
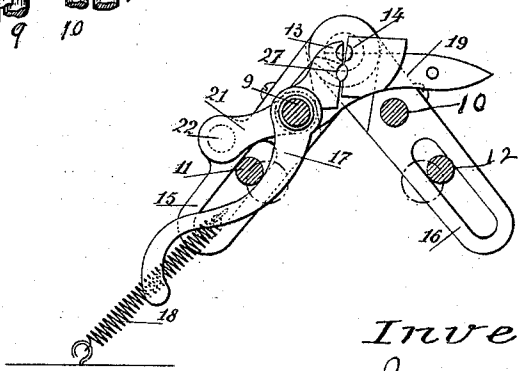


Fig: 9.



Witnesses:

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UNITED STATES PATENT OFFICE.

JEAN REUSE, OF ENGHIEN, BELGIUM, ASSIGNOR TO THE SOCIÉTÉ ANONYME D'ÉXPLOITATION DES BREVETS REUSE AUX ETATS-UNIS D'AMERIQUE, OF BRUSSELS, BELGIUM.

CIGAR-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 608,913, dated August 9, 1898.

Application filed July 9, 1897. Serial No. 643,987. (No model.)

To all whom it may concern:

Be it known that I, JEAN REUSE, a Belgian subject, residing at Enghien, Belgium, have invented new and useful Improvements in Cigar-Making Machines, of which the following is a specification.

This invention relates to cigar-making machines wherein the tobacco core or filling is rolled between oscillating jaws or manipulators which alternately open and close like those described in the specification of Letters Patent granted to me in the United States and respectively dated and numbered December 31, 1895, No. 552,447, and February 11, 1896, No. 554,606.

The said invention consists in improvements in those parts of the machine which cooperate to form the tip or point of the cigar—that is to say, the tip former or mold, the knife which removes the excess of tobacco at the tip end, and the arrangement by which the fillings are pushed into the tip-mold during rotation within the jaws.

Cigars heretofore manufactured by means of machines of the kind above referred to often had the defect that the tobacco was too tight and twisted at the point or tip, which interfered with the draft and compelled the smoker to cut off a long piece from the tip. This defect was due to the following causes: The fillings were too forcibly pushed into the tip-former, which always remained fixed relatively to the rotating fillings, the first teeth of one of the pairs of jaws being forcibly separated from the orifice of the tip-former to such distance as to allow free passage to the first teeth of the second pair of jaws when during the rolling up of the fillings the latter were gripped by the first pair of jaws and turned thereby, a portion of the fillings remaining free between the part which the first teeth gripped and carried around by their rotation and the end of the fillings, the rotation of which was to some extent impeded by pressure against the sides of the fixed tip-former. From this a tendency to twisting of the free part of the fillings resulted.

The present improvements have for their object to remedy this defect, and in order that they may be fully understood I will describe them with reference to the accompanying drawings, of which Figures 1, 2, 3, and 4 are drawn the full size and the other figures half-size.

Fig. 1 is a broken rear elevation of a part of the machine, showing the jaws or manipulators, tip-former, and the spindles by which the manipulators are actuated. Fig. 2 is a detail section showing the jaws or manipulators and connections, one pair of jaws in open position and one pair nearly closed. Fig. 3 is a broken rear elevation of manipulator-jaws and connections, omitting tip-former. Fig. 4 is a detail cross-section of manipulator-jaws and connections in different position from that shown in Fig. 2. Fig. 5 is a detail cross-section showing tip-former and operating connections, tip-former closed. Fig. 6 is a broken plan showing part of the manipulator-jaws, the tip-former, and connections. Fig. 7 is a detail cross-section showing tip-former in open position and operative connections thereof. Fig. 8 is a broken plan of the tip-former and operative connections. Fig. 9 is a detail elevation of tip-former and connections in a position different from that shown in Fig. 5.

As the general arrangement of the entire machine is shown in the patents referred to and the present invention is confined to improvements in parts of the machine, it is thought an illustration of the entire machine is not needed.

The same letters and numerals indicate like parts in all the figures of the drawings.

1 and 2 are the jaws or manipulators of the front pair, and 3 and 4 are the jaws or manipulators of the rear pair, pivoted, respectively, on spindles 9 and 10, and the opening and closing of the jaws is effected by the travel of rods or spindles 11 and 12 in an annular path, said rods or spindles in their movement traveling in the slots *a a'* and *b b'*, respectively, these slots being in the tails of the jaws 1, 2, 3, and 4, as indicated in the drawings. This movement of the rods or spindles in the slots in the tails of the jaws causes also the oscillation of slotted guide-

levers 15 and 16 and of the spindles 10 and 9, on which said levers are mounted. Guide-levers 15 and 16 are pivoted in line with the position of the cigar in the jaws.

The spaces between the teeth or fingers of the jaws and their width are so calculated that the rear pair of jaws 3 and 4 are capable of displacement longitudinally in either direction between the teeth of the front pair 1 and 2, the longitudinal position of which is fixed. The part of the spindle 10, which is at the side where the thick end of the fillings is supported, carries a light spring 6, which pushes the tubular part of the jaw 4 toward the tip-former. A ring or collar 7, secured by a set-screw on the spindle 10, admits of regulation of the tension of this spring.

On the other hand, the outer side of the tail of the jaw 4 on the tip-former side is cut slightly obliquely from top to bottom and forms an inclined face, which may be covered with a plate of steel or hard metal 5. Upon the rear rotating rod 12 a sleeve or collar 8 is keyed by means of set-screws, so that its inner end comes into contact with the inclined covering 5 when the rod 12 is at the lowest point of its stroke, as shown in Figs. 3 and 4, which position corresponds to the complete closing of the jaws 3 and 4 upon the fillings.

When the rod 12 travels in its annular path toward its upper position to open these jaws, the sleeve 8 in rising in contact with the inclined face-piece or covering 5, as shown in Figs. 1 and 2, pushes back the jaw 4, and with it the jaw 3, which jaws are again pushed toward the tip-former by the spring 6 when the rod 12 turns downward to close them on the fillings. The jaws 3 and 4 thus approach the tip-former each time they close on the fillings and recede therefrom when opening, while the other pair of jaws closes on the fillings, thus causing advance of the latter toward the tip-former.

The tension of the spring 6 should be so regulated that the pressure of the tip of the fillings against the sides of the tip-former will not offer appreciable resistance to rotation of the fillings.

13 and 14 are the two halves of the tip former or mold, the half 14 being slightly cut away at top to form at the said part an opening sufficient for insertion of the outer leaf or wrapper.

The half 13 of the tip-former is carried by a lever 17, pivoted on the front spindle 9 and terminated at the lower part by a curved tail drawn against the rod 11 by a spring 18, secured to the frame of the machine, so that the spindle 11 in traveling in its annular path of movement causes the said tail part to oscillate in a direction parallel to the guide-lever 15.

The lever 19, which carries the part 14 of the tip-former, is cast in one piece with a sleeve 20, which loosely surrounds the spindle 9, and with a second lever 21, the end of which is pivoted on a spindle 22, fixed in an eyelet formed on one side of the guide 15. This lever 19 therefore oscillates with the guide 15, the spindle 9, and the lever 17, whereby the two parts of the tip-former are caused to participate in the oscillation of the jaws 1 and 2, pivoted on the same spindle 9. The first teeth of the jaws 1 and 2 are at a sufficient distance from the mouth of the tip-former to admit of the passage of the first teeth of the jaws 3 and 4, and, as explained in the foregoing, if the tip-former remained fixed while the fillings are being compressed and turned by the jaws 1 and 2 torsion of the tobacco would be produced in the part of the fillings between the tip-former and the first teeth of the said jaws; but as the tip-former oscillates in the same direction as the said jaws about the axis of the fillings the said fillings turn without any resistance.

It must be stated, however, that when the fillings are gripped and turned by the jaws 3 and 4 the tip-former oscillates in a direction contrary to that of the rotation of the fillings, and therefore produces double the resistance which would occur if the tip-former were fixed; but during this period of rotation of the fillings it is gripped by the first teeth of the jaws 3 and 4 close to the tip end and there is no free or loose part between the tip-former and the said teeth capable of being twisted. Moreover, the pressure of the fillings in the tip-former is very slight, and consequently the tip turns readily against the tip-former.

The lever 19 of the half 14 of the tip-former extends beyond the latter through a groove formed in the lever 23, carrying the knife 24, and is connected to this lever 23 by a pivot 26. The lever 23 is prolonged toward the base of the machine and has a forked end, between the branches of which a rod 25, fixed to the frame of the machine, passes. An alternate up-and-down motion is communicated to the lever 23 and to the knife 24, which slides against the back of the tip-former, by the oscillating lever 19. The said knife 24 removes the excess of tobacco at the end of the wrapper when the tip of the fillings is being covered, and the trimmings fall into the small cavity 27, formed under the tip-former.

Figs. 7 and 8 show the position of the parts of the tip-former when the latter is opened for removal of the finished cigar. The jaws 1 and 2, mounted on the same pivot 9 as the tip-former, are closed as soon as the machine stops and are opened by displacement of the rotary spindle 11 in the slots of their tails. As shown in Figs. 2 and 4, these slots are of such shape that to cause the said jaws to open the spindle 11 must descend into the lower part of the said slots, which, on account of the curvature of the lever 17, has the effect of causing the half 13 of the tip-former to swing on its pivot 9, and thus to withdraw it from the other half 14.

While I have illustrated a tip-former separate from the jaws or manipulators, it must not be supposed that the endwise movement of one pair of jaws relatively to the other has no function independently of a separate tip-former. The space or recess between the fingers of the jaws when all the jaws are closed approximates the form of a cigar. The longitudinally-moving jaws tend to force the cigar toward the small end of this space, and thus lightly compress the cigar. In addition the endwise movement of one pair of jaws relatively to the other pair tends to smooth the inequalities in the filler of the cigar much as does the lengthwise rubbing or smoothing of the cigar by the fingers of the operator when the cigar is rolled by hand on a table. The manipulators or jaws are intended to have, and in fact do have, very much the effect on the cigar on which they operate as do the fingers of the human hand in forming, covering, and manipulating a cigar.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a cigar-making machine, two pairs of jaws having intermeshing teeth or fingers with a cigar-shaped recess between said fingers, means for opening and closing said jaws, and means for moving one pair of the jaws slightly in lengthwise direction relatively to the other pair, all combined substantially as described.

2. In a cigar-machine, the combination of two pairs of jaws having intermeshing teeth or fingers with a cigar-shaped recess therein, means for opening and closing said jaws alternately, a positively-actuated mechanism whereby one pair of jaws is moved slightly lengthwise, and a spring acting to move the jaws in reverse direction, substantially as described.

3. In a cigar-machine, two pairs of jaws having intermeshing fingers recessed as described, the spaces between fingers of one pair of jaws being greater than the width of the fingers of the other pair, means for opening and closing the jaws, and means for moving one pair of jaws lengthwise relatively to the other while the fingers are so intermeshing, all combined substantially as described.

4. In a cigar-machine, two pairs of recessed manipulator-jaws and means for opening and closing them substantially as described, there being an inclined bearing on the edge of one of the jaws and a traveling piece moving against said incline to press the jaw lengthwise in one direction, and a spring bearing against said jaw to press it in the other direction, all combined substantially as described.

5. In a cigar-machine, a cigar-tip former fixed against longitudinal movement, a pair of manipulator-jaws pivoted together and means for opening and closing them, and means for imparting a longitudinal movement to the said manipulator-jaws relatively to the tip-former, all combined substantially as described.

6. In a cigar-machine, a pair of manipulator-jaws and means for opening and closing them, and a tip-former having two parts pivoted to each other and which open and close toward each other, the tip-former having its parts pivoted in line with the pivot of said manipulator-jaws, all combined.

7. In a cigar-machine, two pairs of manipulator-jaws having intermeshing fingers, one of said pairs of jaws having a longitudinal movement relatively to the other pair, and a tip-former in alinement with the cigar-holding space between the jaws, all combined substantially as described.

8. In a cigar-machine, two pairs of manipulator-jaws having intermeshing fingers, a sectional tip-former having its sections pivoted in line with the pivot of one pair of jaws, means for opening and closing the jaws and the tip-former, and means for imparting a longitudinal movement to one pair of the jaws, all combined substantially as described.

9. In a cigar-machine, two pairs of manipulator-jaws having intermeshing fingers, means for opening and closing said jaws, means for oscillating the pairs of jaws slightly about the axis toward which the fingers close, and a tip-former having an oscillation about the same axis of closure and means for oscillating said tip-former, all combined substantially as described.

10. In a cigar-machine, two pairs of jaws having intermeshing fingers, means for opening and closing the said jaws and means for rocking the pairs slightly and successively about their axis of closure, a separable tip-former having its pivot in line with one pair of jaws and oscillating therewith, means for oscillating the tip-former and means for oscillating the other pair of jaws in reverse direction, all combined substantially as described.

11. In a cigar-machine, means for grasping and rotating the cigar, the tip-former having separable sections, means for opening and closing said sections, and a tip-cutter operatively connected to one of the sections of the tip-former, all combined.

12. In a cigar-machine, the combination with means for grasping and rotating a cigar, of the tip-former of separable sections and means for opening and closing said sections, a rigid lever connected to one of the tip-sections, a second lever pivoted to said lever and having its fulcrum on a suitable support, and a tip-cutter carried by said second lever, all substantially as described.

13. In a cigar-machine, the combination of two pairs of manipulator-jaws, two traveling spindles operating to open and close said jaws, a tip-former in sections pivoted in line with the pivot of one of the pairs of jaws, and a lever rigid with one of the tip-former sections, and in operative engagement with one

of the traveling spindles to open and close said tip-former, all substantially as described.

14. In a cigar-machine, the combination of manipulator-jaws, a separable tip-former closing in alinement with the axis of closure of the jaws, a traveling spindle acting on a pair of the jaws and on the tip-former to close the same, and a spring acting on the tip-former in reverse direction to open the same, all combined substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

JEAN REUSE.

Witnesses:
H. T. E. KIRKPATRICK,
J. S. KIRKPATRICK.