(No Model.) 3 Sheets—Sheet 1.

J. J. BECKER.

CIGAR MACHINE.

No. 494,619. Patented Apr. 4, 1893.

Fig. 1.

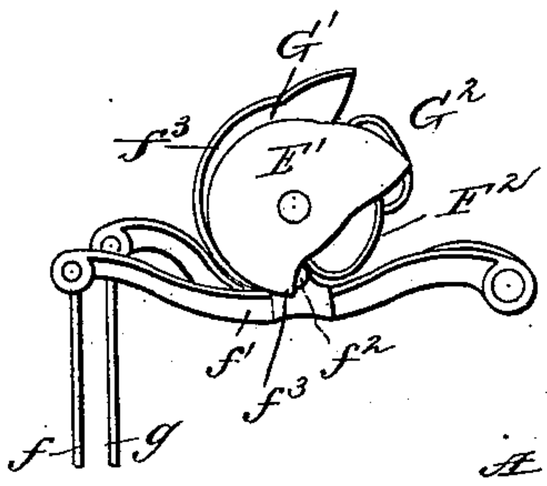
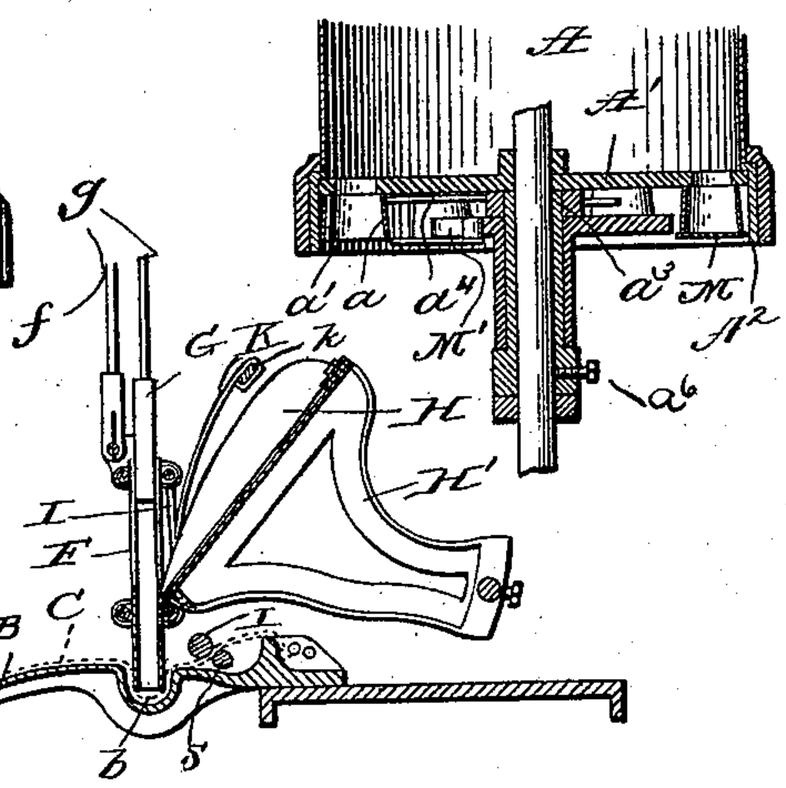


Fig. 2.



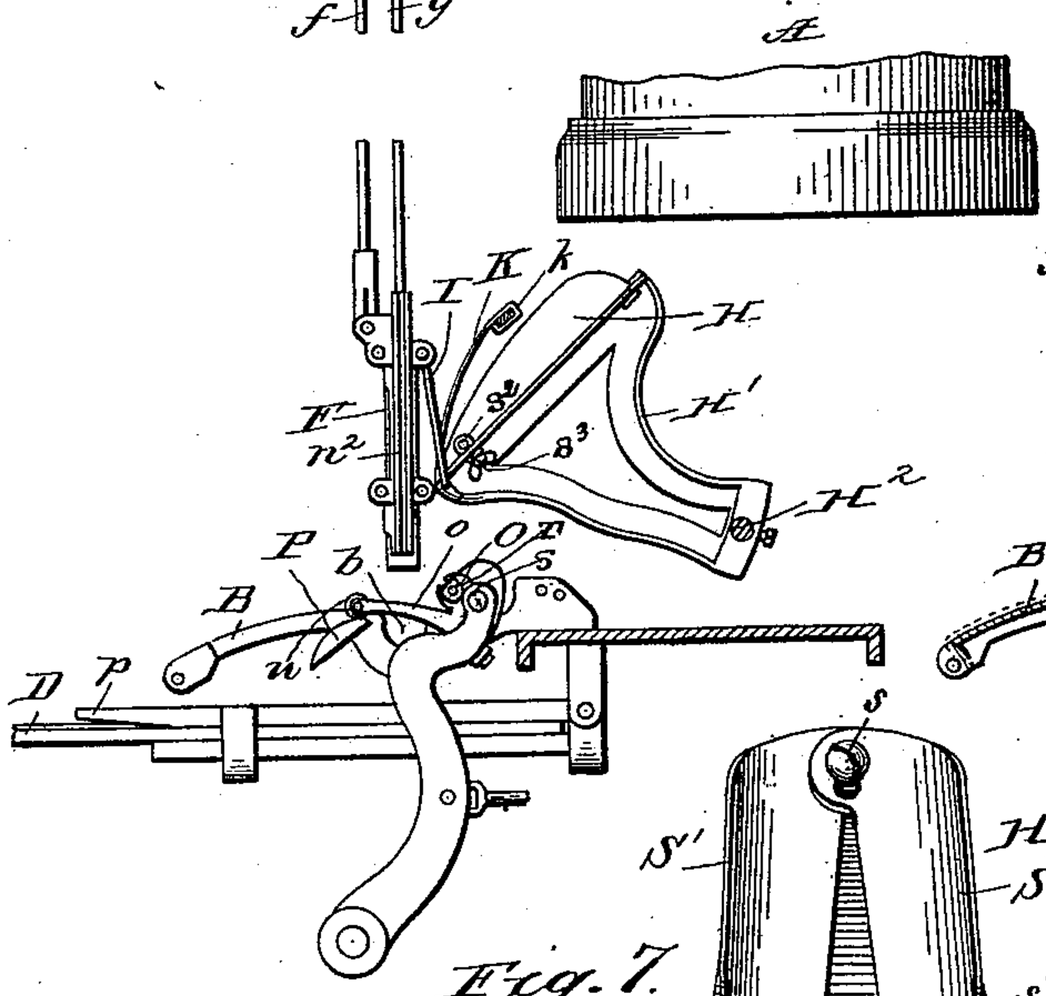


Fig. 5.

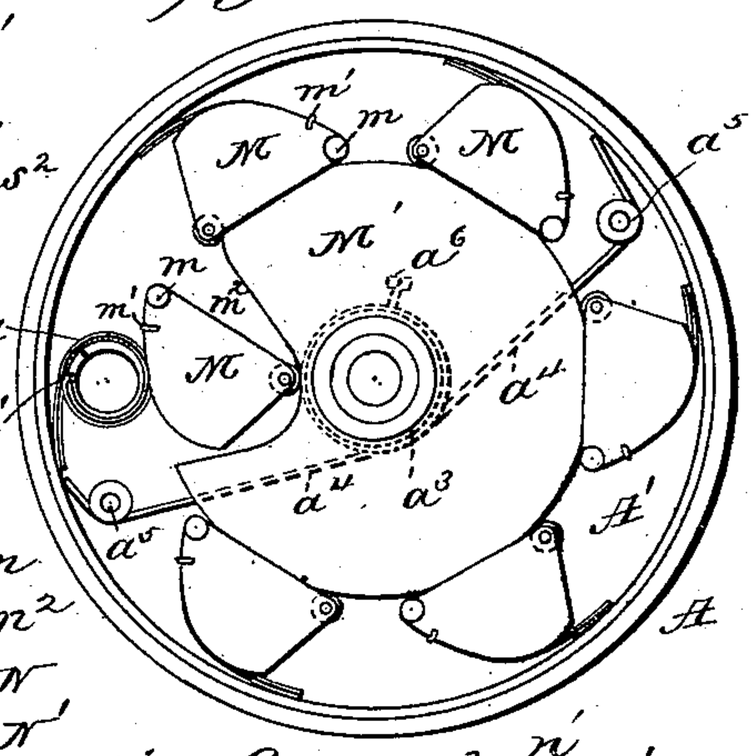
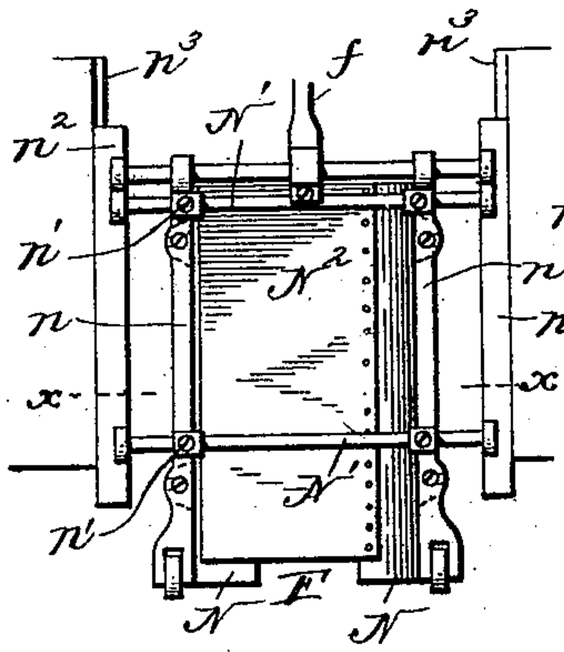


Fig. 7.

Fig. 3.



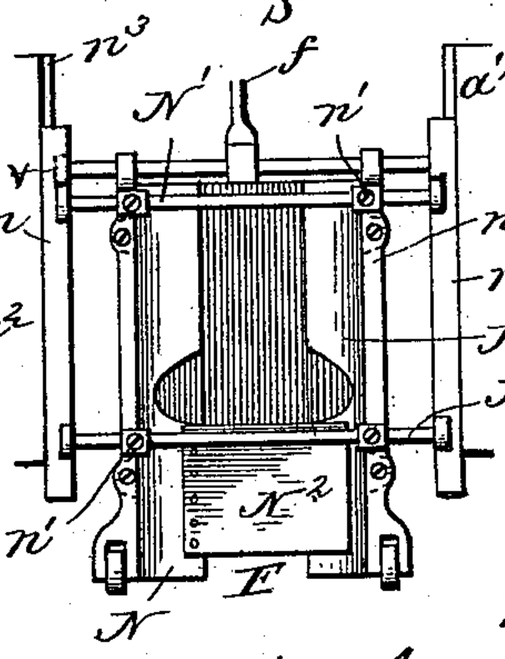
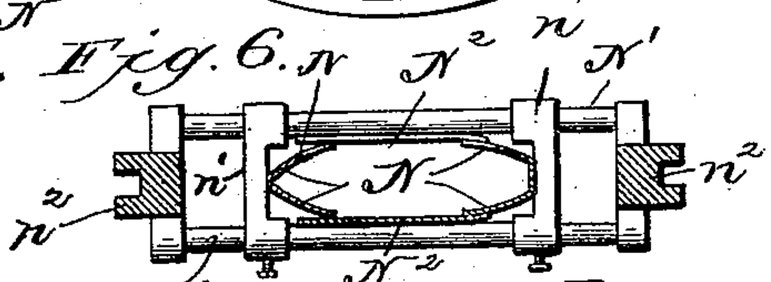


Fig. 4

Fig. 6.



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(No Model.) 3 Sheets—Sheet 2.

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CIGAR MACHINE.

No. 494,619. Patented Apr. 4, 1893.

Fig. 8.

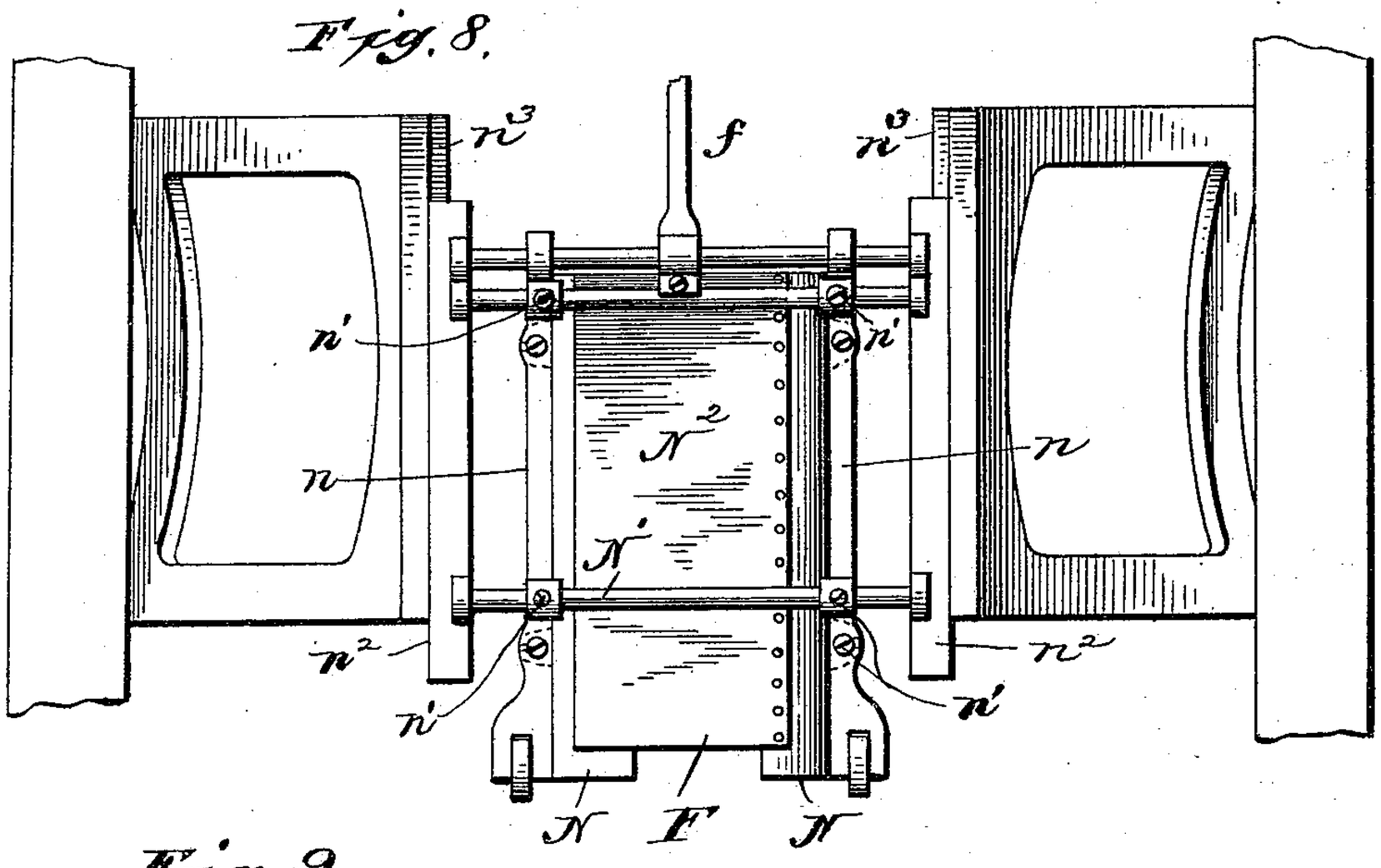


Fig. 9

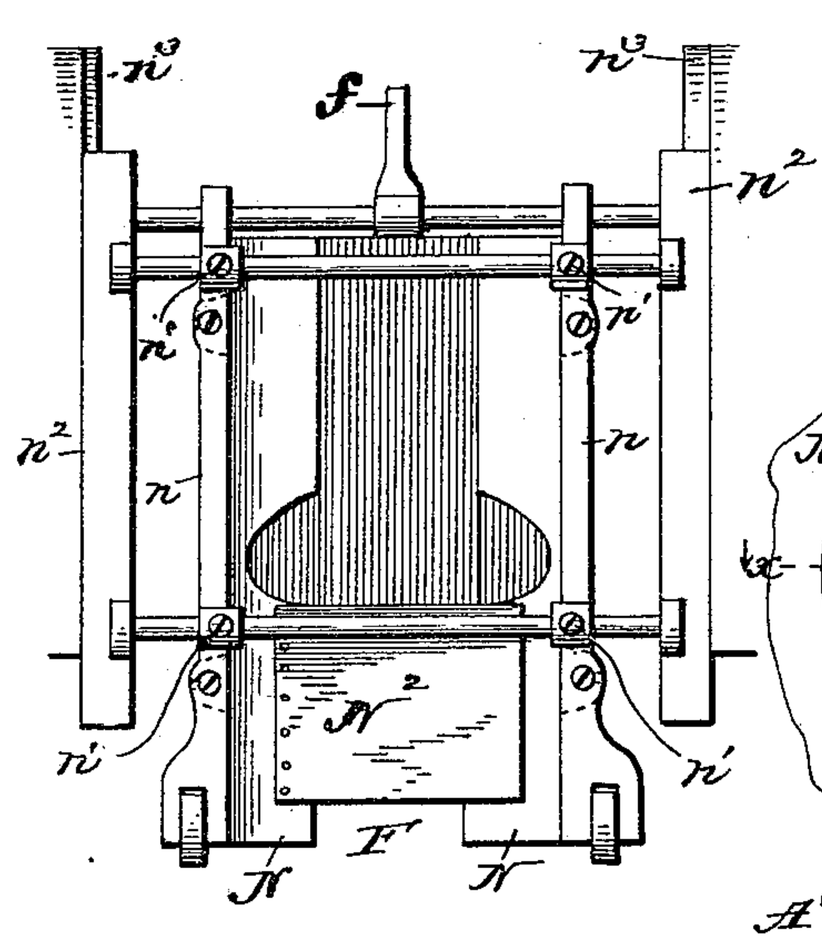


Fig. 10.

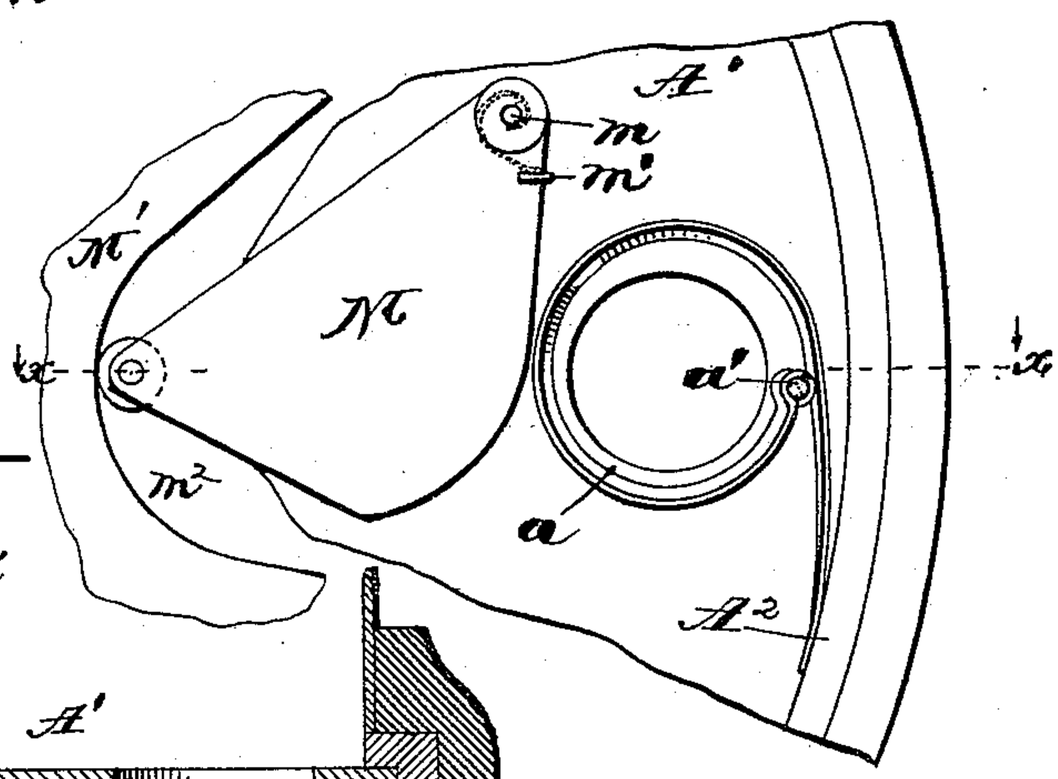
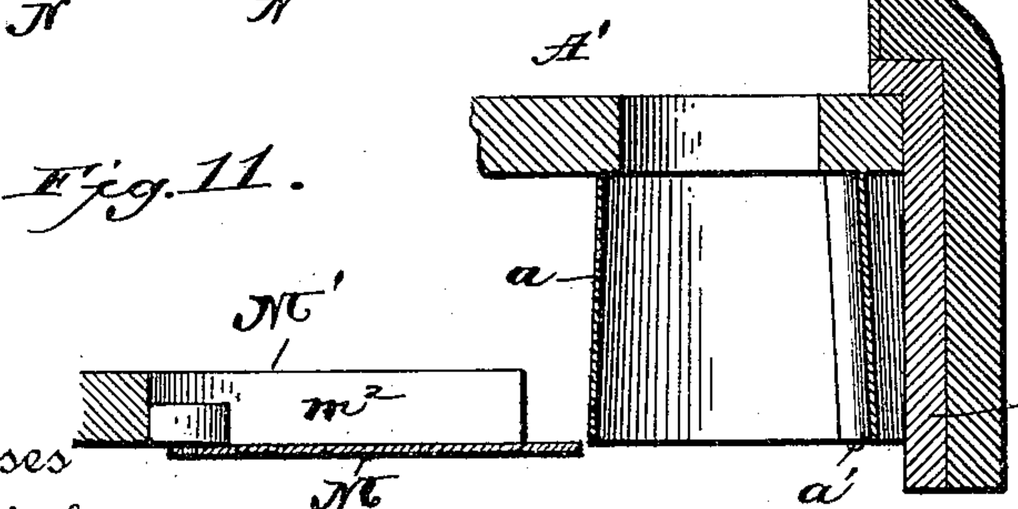


Fig. 11.



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(No Model.) 3 Sheets—Sheet 3.

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CIGAR MACHINE.

No. 494,619. Patented Apr. 4, 1893.

Fig. 12.

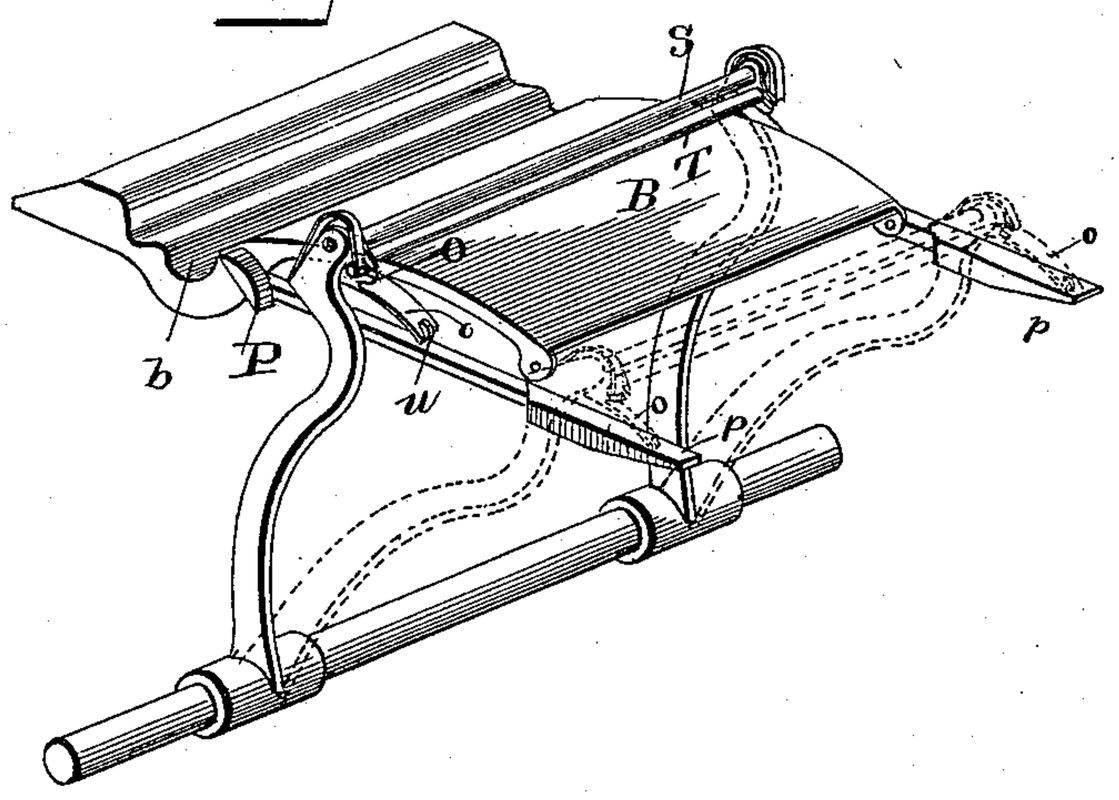


Fig. 13.

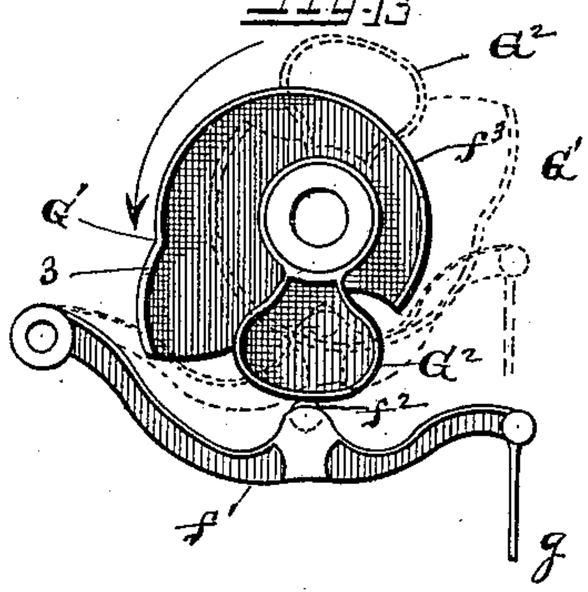
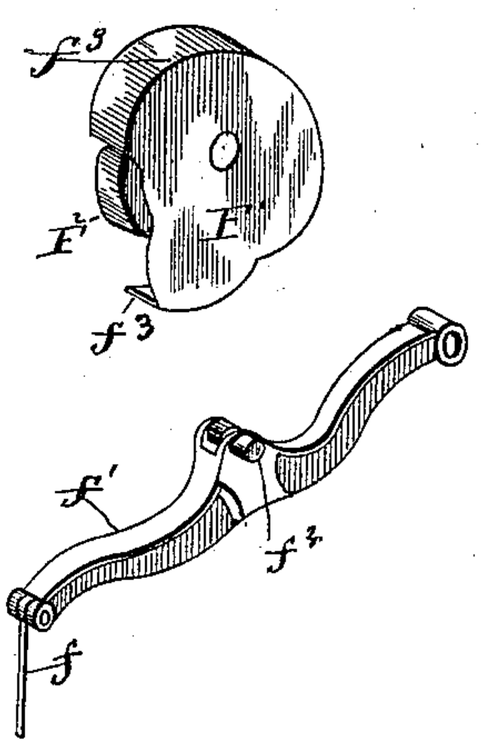


Fig. 14.



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UNITED STATES PATENT OFFICE.

JOHN J. BECKER, OF SCRANTON, PENNSYLVANIA.

CIGAR-MACHINE.

SPECIFICATION forming part of Letters Patent No. 494,619, dated April 4, 1893.

Application filed October 17, 1890. Renewed February 23, 1993. Serial No. 463,322. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. BECKER, of Scranton, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Cigar-Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

This invention relates generally to improvements in that class of cigar machines known as short filler machines such for instance as that shown in my prior patent No. 425,120, dated April 8, 1890, the object of the invention being to improve certain details of the mechanism, whereby the operation is improved, the filler measured to a nicety and the shape and size of the cigar varied as may be desired.

The invention consists in certain novel details of construction and combinations and arrangement of parts to be hereinafter described and pointed out particularly in the claims at the end of this specification.

In the accompanying drawings:—Figure 1 is a side elevation of a section of a cigar machine showing the application of my invention. Fig. 2 is a vertical section of the same. Fig. 3 is a front elevation of the funnel showing the adjustable sides. Fig. 4 is a rear elevation of the same. Fig. 5 is a bottom plan view of the hopper showing the adjustable pockets. Fig. 6 is a section on the line *x*—*x* Fig. 3. Fig. 7 is a front elevation of the chute. Fig. 8 is an enlarged front elevation of the hopper, showing the brackets carrying the side guides. Fig. 9 is a rear elevation with the brackets removed. Fig. 10 is an enlarged view of a section of the bottom of the hopper showing one of the pockets and its cover. Fig. 11 is a section taken on the line *x*—*x*, Fig. 10. Fig. 12 is a detail perspective of the table and forming rollers, omitting the belt. Fig. 13 is a detail elevation of the cams for working the plunger and Fig. 14, is a detail perspective of the cams for working the funnel.

Similar letters of reference in the several figures indicate the same parts.

The machine to which the present invention is applied is shown and fully described in my before mentioned patent, to which reference is hereby made, and hence in the present case I have shown only so much of the machine as has been deemed necessary to illustrate the present invention, the side framing being entirely omitted.

The letter A indicates the hopper; B the table for the forming belt, C the belt and D the table for the cigar molds adapted to be moved forward intermittingly to advance the molds for the cigars as they are formed in succession, by suitable pawl mechanism operated from the main shaft. The rolling or forming belt C overlies the table B and is held rigidly at each end, its upper end being adapted to be depressed into the hollow or depression *b* at the upper end of the table by the funnel F working in suitable guides and operated by the rods *f* and cams F′, F² on the main operating shaft. A plunger G works within the funnel as in the prior patented machine and is operated by the rod *g* and cams G′, G². The cams F′ and G′ and the cams F² and G² are practically duplicates, the cams F′ and F² being employed to depress and elevate the funnel and the cams G′ and G² to depress and elevate the plunger. The cams F′ F² are mounted on the main shaft to operate slightly in advance of the others causing the funnel to be operated first. The depressing cams F² G² are each adapted to engage with their exterior surface, projections or anti-friction rollers on the upper surface of one of the arms *f′*, one connected to the rod *g* for operating the plunger and the other with the rod *f* for operating the funnel. They depress the arms and through them the funnel and plunger respectively and to elevate the same, the arms *f′* are each provided with small lateral projections or anti-friction rollers *f²* and the cams F′ G′ are provided with laterally projecting rims or flanges *f³* which pass in beneath the laterally projecting rollers *f²* on the arms and as the cams continue to revolve elevate said arms. To cause a quick descent,

the rims or flanges f^3 just mentioned, end a short distance from the cams F^2, G^2 and when the anti-friction rollers pass off the flanges the funnel and plunger are permitted to make a quick descent by reason of their own weight. By arranging the cams in this manner not only are the plunger and funnel operated more satisfactorily but the noise incident to the operation of the arms and cams previously employed is entirely done away with.

In rear of the funnel a chute H is held by a suitable frame H′ pivoted at H^2 which chute extends from beneath the point where the pockets discharge to the opening in the back of the funnel, to convey the tobacco to the desired point, and to insure the discharge of the tobacco into the funnel at the proper moment as well as to permit the same to assume somewhat the proper shape the front end of the chute is connected to a link I pivoted to the funnel and hence moves therewith so as to discharge into the funnel under all conditions and a cut-off or gate K, is provided which when the chute is up prevents the passage of the tobacco through the chute, but which opens as the chute descends and discharges the tobacco into the funnel. In the preferred construction, the gate or cut off is stationary in that it has no vertical movement, being held by a support k and is so located that the end of the chute presses against the same when elevated as shown in Fig. 1, but as the chute descends the gate bridges the side flanges of the chute permitting the contents to pass out below. The chute itself is formed of a bottom plate S and two independently movably side plates or flanges S′ pivoted on a stud s at the top and held in adjusted position by the rods s^2 and thumb bolts s^3 through which the rods pass. This arrangement of chute permits the shape the tobacco shall assume before it enters the funnel to be regulated and its importance will be appreciated when it is remembered that the cigars require more tobacco at one end than at the other and more at the center than at either end. The opening in the side pieces for the pivot is somewhat elongated to permit the lower ends to remain at the same level, said ends being caused to travel in the proper lines by the rods s^2 before mentioned. The pockets for measuring the quantity of tobacco for each cigar in the present instance, are made adjustable by increasing or diminishing the diameter instead of by employing telescoping sections as heretofore. The bottom plate A′ of the hopper is provided with the desired number of openings for the pockets and surrounding the openings below the plate are spring sheet metal pockets a one end of each of the same being connected by a small stud a' to the plate A′ and the other by a loop or otherwise to a ring A^2 surrounding and having a limited independent movement on the plate A′, thus when the ring is moved it will be seen that the whole series of pockets are contracted or expanded according to the direction of movement. The pockets are preferably in the form of a frustum of a cone, or larger at the bottom than at the top as shown in Fig. 2 to cause the contents to clear freely and quickly. The bottom plate A′ and ring are revolved with the central shaft and in order to adjust the ring on the plate to vary the size of the pockets, at will, a central hub a^3 is mounted on the shaft and to which are secured the opposite ends of flexible connections a^4 reversely wound thereon, and having their opposite ends connected to the ring, after passing over pulleys a^5 on the plate. Now, obviously, if the hub be turned one way or the other the ring is moved correspondingly, and after the desired adjustment is reached, the hub is locked to the shaft by a set screw a^6.

Covers M for the bottom of the pockets are pivoted on studs m on the plate A′ and are held in closed position against the tension of springs m' coiled around the studs by a cam M′ mounted on a bearing on the hub a^3 and held from rotation by an arm as in the previous patent. One side of the cam has a depression m^2 therein and as the doors in succession pass said depression the springs throw them open and permit the contents to drop into the funnel as indicated in Fig. 5.

Returning now to the funnel Figs. 3, 4 and 6 it will be seen that it is composed of end or edge sections N conforming on the inside to the shape of the ends of the cigar, which sections are independently and adjustably mounted on cross rods N′ by means of frames n and set screws n', the rods in turn being held by vertical grooved hangers n^2 mounted to slide vertically on guides n^3 on the frame. The front of the funnel is formed by a sheet N^2 secured to one end section N and overlapping the other side and the rear is similarly formed, save that instead of running to the top the back piece terminates below the opening through which the tobacco enters the funnel (see Fig. 4).

The tobacco is discharged from the pockets into the chute prior to the descent of the funnel and has time to assume a somewhat elongated shape before being emptied into the funnel, and as the funnel descends, it pushes the belt down into the recess and discharges the tobacco therein, the plunger then descending and pressing it into proper shape. As in the former patented device, the forming or bunching roller S then advances and catching the tobacco in a bight of the belt rolls the same down over the table, but difficulty was experienced with the roller T traveling in front of the forming roll S or bight in the belt by reason of its liability to catch in the recess in the table or in the molds below the table and I have in the present instance overcome these difficulties by providing in the end pieces O carrying said roller T with forwardly extending arms o having anti-friction rollers u thereon which, when the rollers are

retracted or moved to the back of the table extend across the ends of the recess and rest on cam surfaces P on the side of the table and support the said roller T in its passage over the recess permitting it to drop onto the table as soon as it has passed the recess and when the rollers are at the front of the table the arms ride out the guides *p* and keep the front roller T referred to just above the level of the molds permitting the cigar to be deposited there without interference.

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

1. In a cigar machine, the combination with the hopper and rolling mechanism, of the vertically reciprocating funnel and a pivoted chute connected to the funnel, oscillated thereby and working between the hopper and funnel for conveying the tobacco to the funnel; substantially as described.

2. In a cigar machine, the combination with the hopper and rolling mechanism, as described, of the vertically reciprocating funnel, a pivoted chute connected to the funnel and oscillated thereby and a stationary cut-off above the chute adapted to close the end of the chute when elevated; substantially as described.

3. In a cigar machine, the combination with the hopper and rolling mechanism, of the movable funnel, a pivoted chute, a link connecting said chute and funnel and a stationary cut off for retaining the tobacco within the chute; substantially as described.

4. In a cigar machine, the combination with the hopper, rolling mechanism, drive shaft, funnel and plunger with their operating rods extending into proximity to the drive shaft, of the cams on the drive shaft cooperating with the plunger and funnel rods to depress the same and the cams on said shaft having the laterally projecting rims cooperating with the said rods to elevate the same and terminating in advance of the operative portion of the depressing cams, whereby the funnel and plunger are permitted to drop by reason of their own weight; substantially as described.

5. The combination with the hopper, of the pocket adapted to communicate with the hopper, and formed by the sheet metal convolute, with means for adjusting the distance the edges of the convolute overlap and a closure for the lower end of the convolute; substantially as described.

6. The combination with the hopper, of the pocket adapted to communicate with the hopper and formed by the sheet metal convolute with means for adjusting the distance the edges of the convolute overlap, and a bottom plate movable with relation to the convolute whereby the bottom of the convolute may be closed to form a complete pocket and opened to discharge the contents of the pocket; substantially as described.

7. The combination with the hopper having the perforated bottom plate, of the adjustable pockets below the openings therein having their side walls formed of convolutes of sheet metal with an end of each convolute secured to the plate and an adjustable retainer for the opposite ends and means for closing the lower ends of the convolutes to form pockets; substantially as described.

8. The combination with the hopper having the perforated bottom plate, of the adjustable pockets below the openings therein having the side walls formed of convolutes of sheet metal one end of each of which is connected to the plate, and an adjustable ring to which the opposite ends are connected, whereby the whole series of pockets may be adjusted by moving the ring; and means for closing the lower ends of the convolutes substantially as described.

9. The combination with the hopper having the perforated bottom plate, the pockets below the openings therein having their side walls formed of convolutes of sheet metal one end of each of which is connected to the plate and an adjustable ring to which the opposite ends are connected, of a central shaft, a hub on said shaft and flexible connections reversely wound on the hub and connected to the ring, whereby the ring may be adjusted in either direction; and means for closing the lower ends of the convolutes substantially as described.

10. The combination with the hopper and perforated bottom plate carrying the measuring pockets, of the bottom covers of said pockets pivoted on stud axles to swing horizontally, a cam for holding said covers closed and springs for opening the same; substantially as described.

11. The combination with the hopper and perforated bottom plate having the measuring pockets with the bottom covers of said pockets pivoted on stud axles on the bottom plate to swing horizontally, of the central shaft with which the bottom plate rotates, a stationary cam surrounding the shaft for holding the covers closed and springs for opening the same; substantially as described.

12. In a cigar machine, the combination with the funnel frame working in vertical guides, of the funnel, formed by the independent edge sections adjustably secured to the funnel frame and its substantially straight front and back portions connected to one of the edge sections and bridging the spaces between said edge sections; substantially as described.

13. In a forming or bunching mechanism for cigar machines such as described, the combination with the forming or bunching roller, table and the roller T journaled in movable bearings and traveling on the table in advance of the forming or bunching roller, of the forwardly extending arms for elevating said roller T and the tracks at the front of the table upon which said arms rest when at the forward end of their movement; substantially as described.

14. In a forming or bunching mechanism for cigar machines such as described, the combination with the forming or bunching roller, table having a recess therein and the roller T journaled in movable bearings and traveling on the table in advance of the forming or bunching roller, of the forwardly extending arms for elevating said roller T and the cam surfaces in proximity to the recess in the table with which the forwardly extending arms cooperate to hold the roller T out of said recess; substantially as described.

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