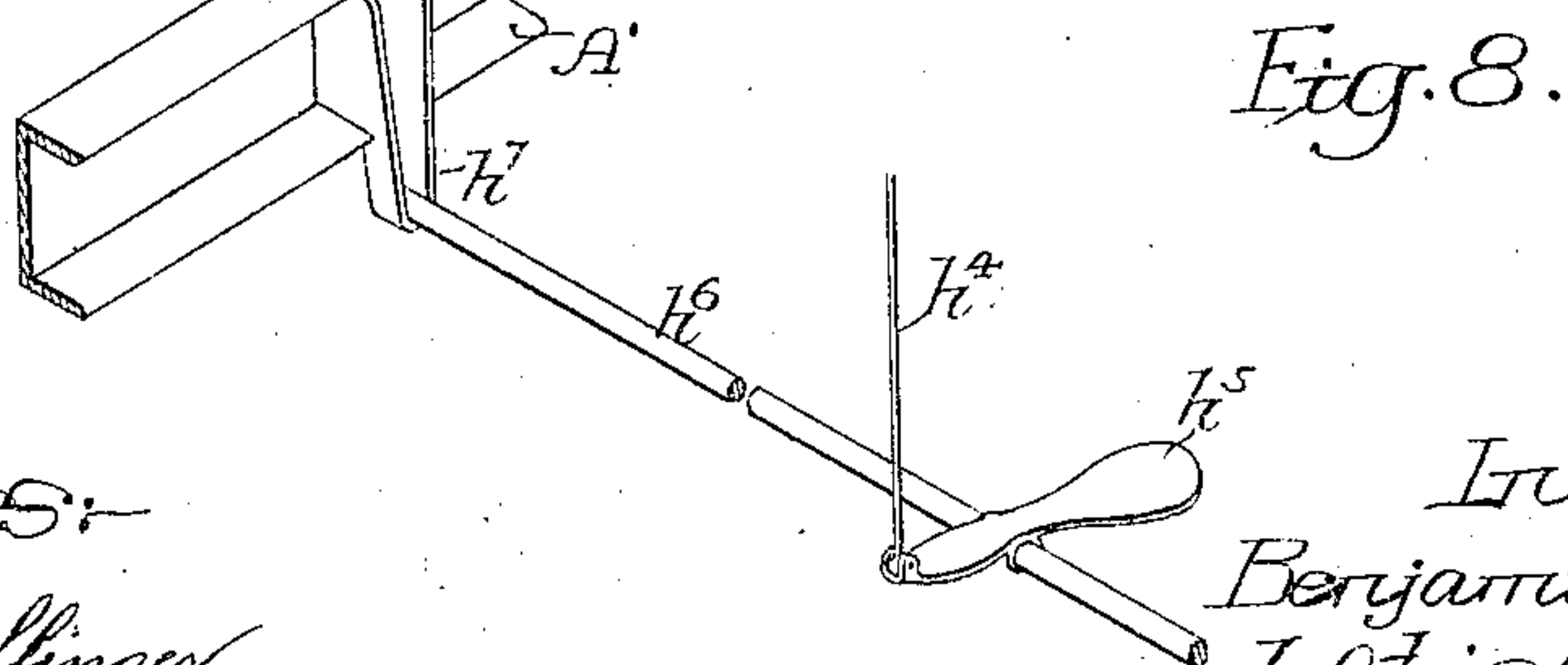
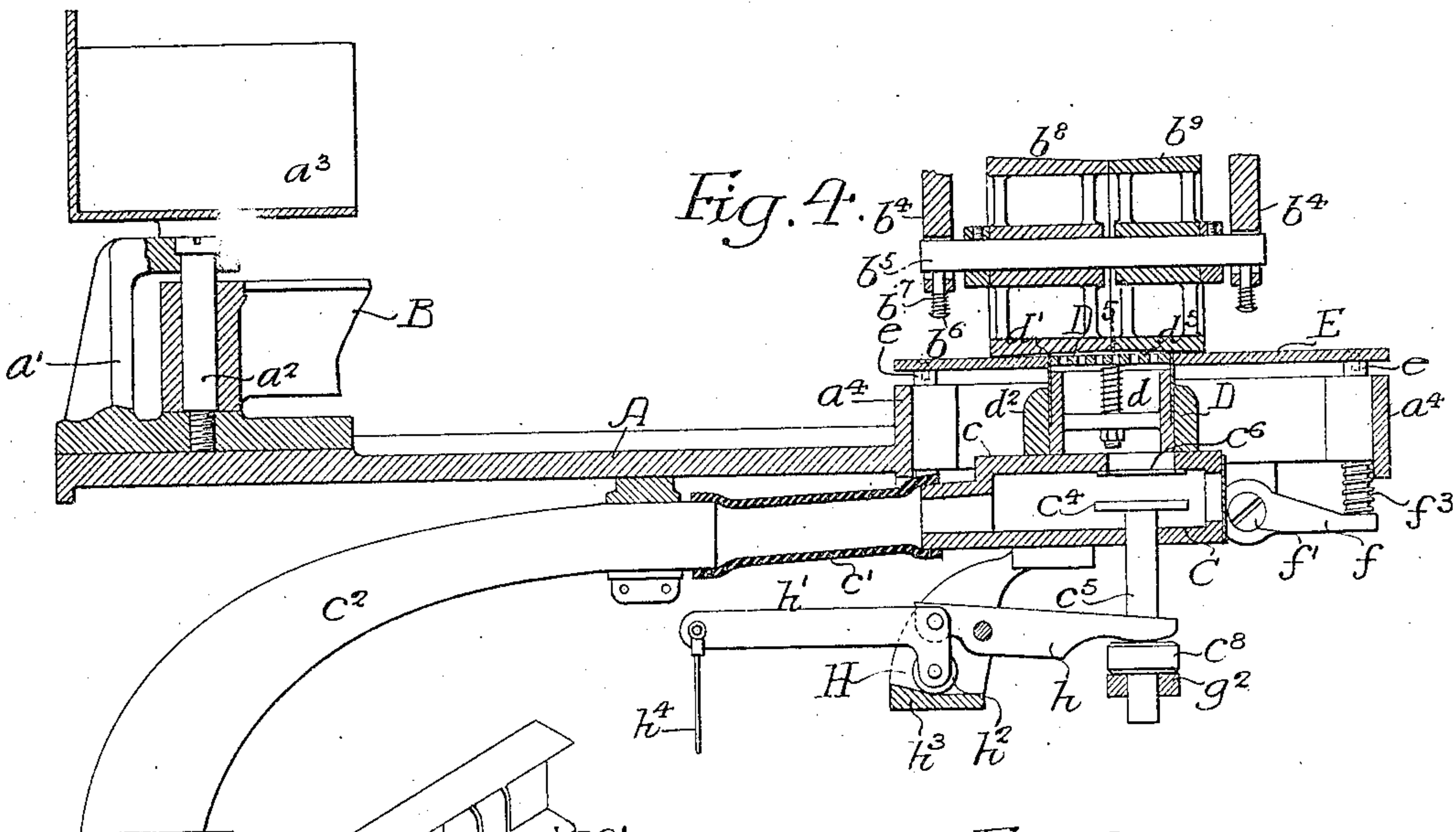
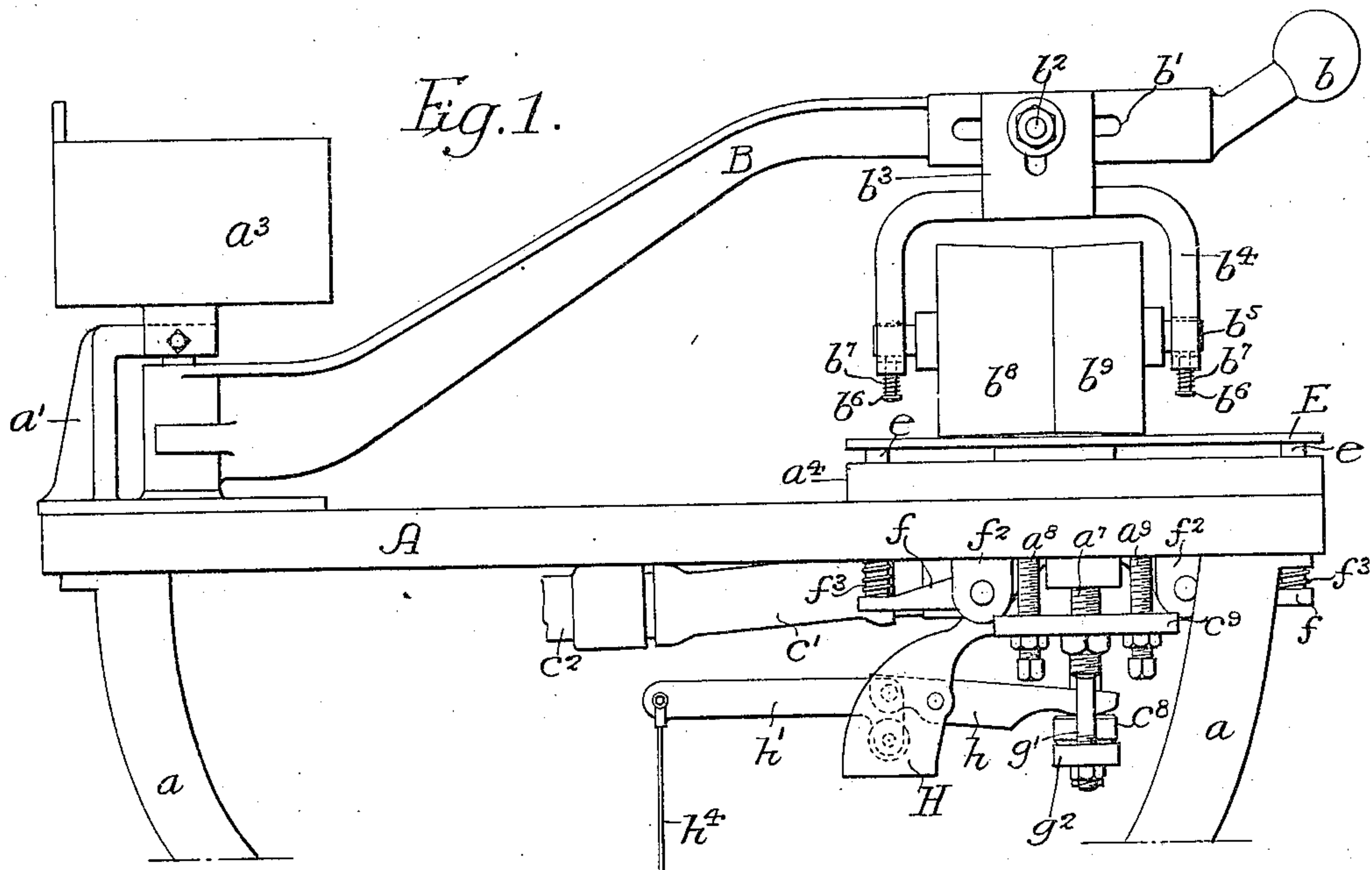


B. A. WILLIAMS.  
CIGAR WRAPPER CUTTING MACHINE.  
APPLICATION FILED MAR. 29, 1907.

944,163.

Patented Dec. 21, 1909.

3 SHEETS—SHEET 1.



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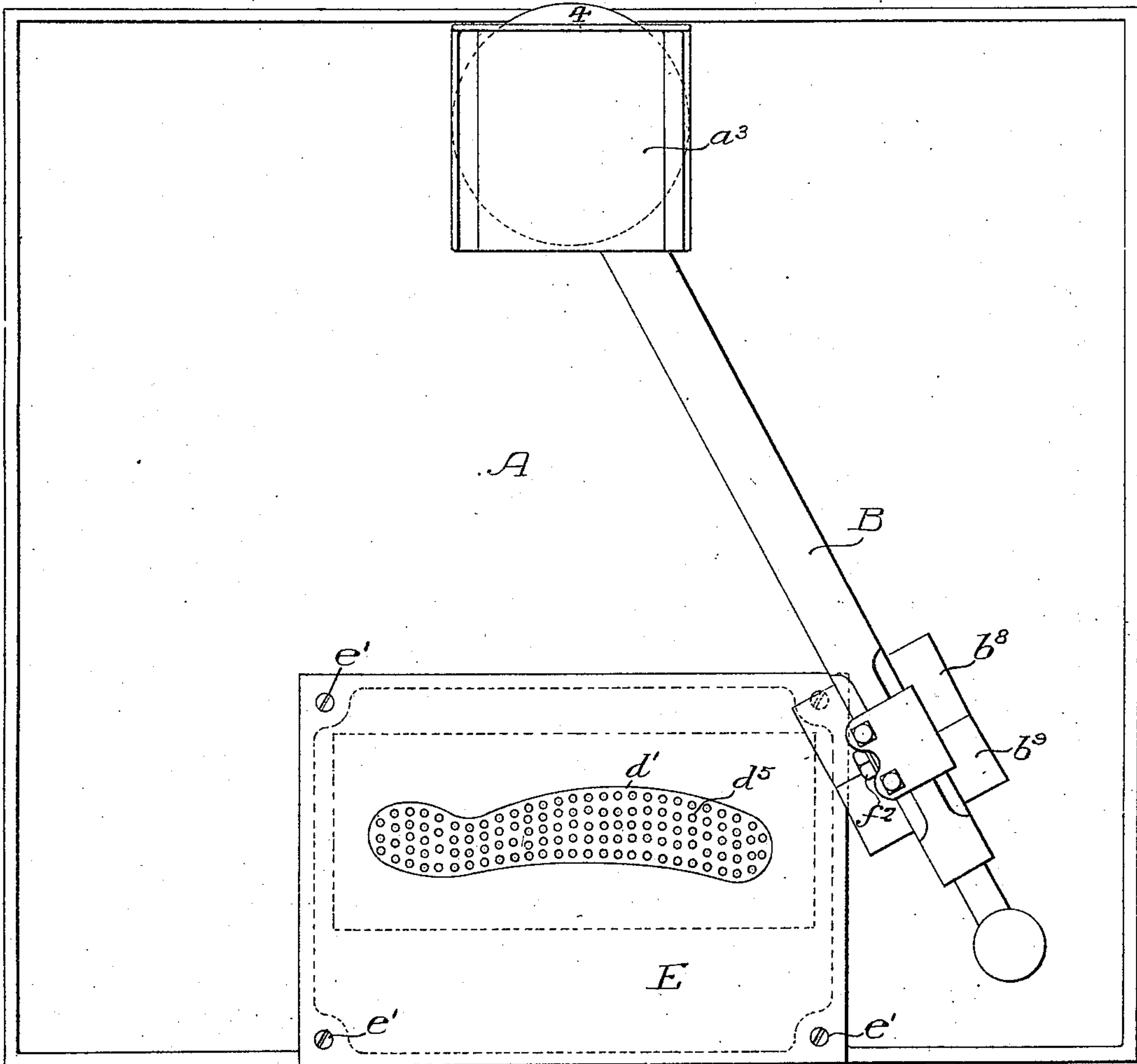


Fig. 2.

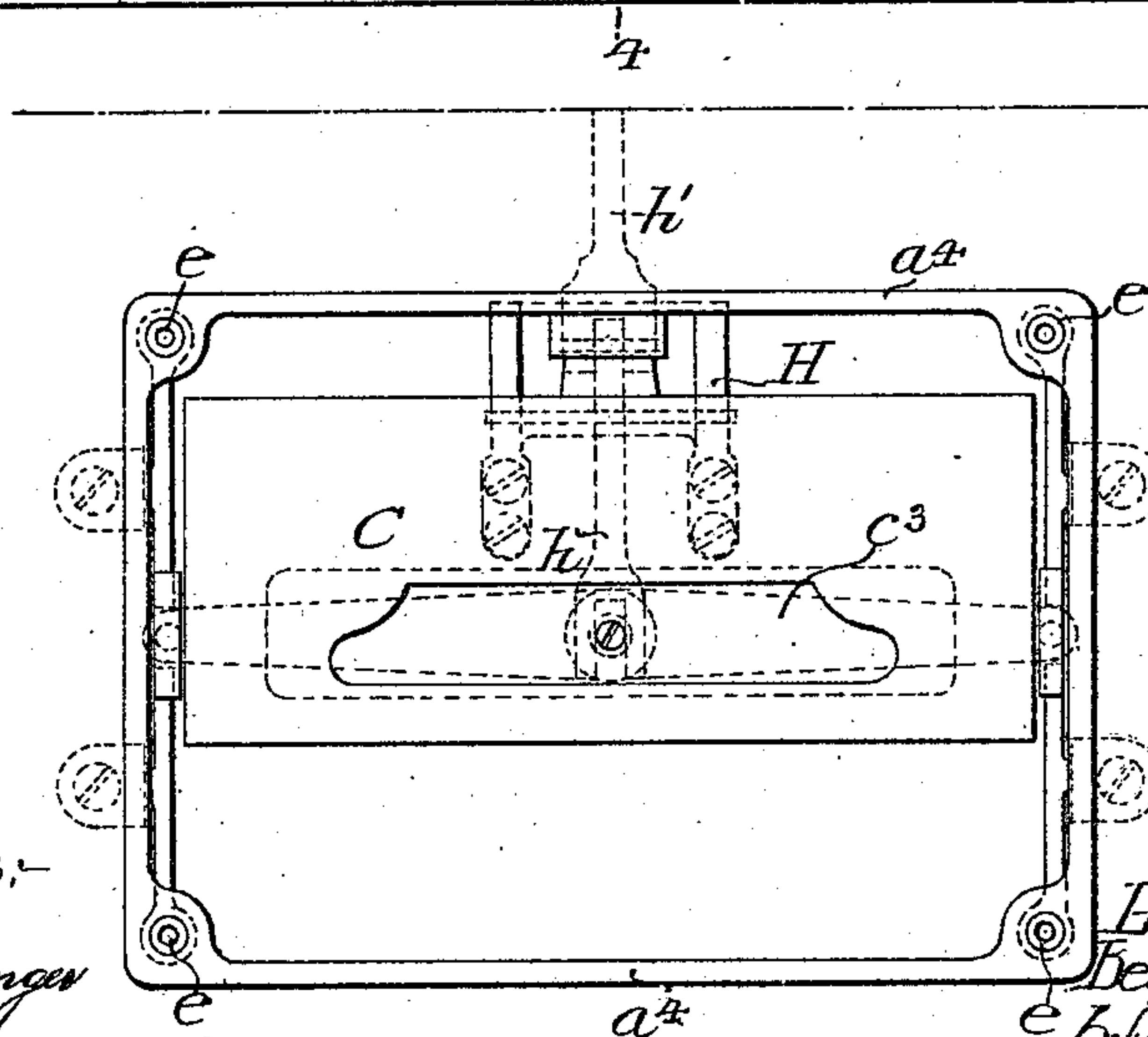


Fig. 3.

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# UNITED STATES PATENT OFFICE.

BENJAMIN A. WILLIAMS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO WILLIAM F. RUWELL, OF PHILADELPHIA, PENNSYLVANIA.

## CIGAR-WRAPPER-CUTTING MACHINE.

Specification of Letters Patent. Patented Dec. 21, 1909.

944,163.

Application filed March 29, 1907. Serial No. 365,417.

*To all whom it may concern:*

Be it known that I, BENJAMIN A. WILLIAMS, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Cigar-Wrapper-Cutting Machines, of which the following is a specification.

One object of my invention is to provide a machine by which the wrappers of cigars may be cut out, and which shall have but relatively few parts and these of a simple, substantial construction.

I further desire to provide a machine of the class noted and of the general type in which a stationary die is employed in connection with a solid or one piece movable table and a roller, the die being of relatively inexpensive construction, both from the standpoint of first cost, as well as from that of maintenance.

These objects and other advantageous ends I secure as hereinafter set forth, reference being had to the accompanying drawings, in which:—

Figure 1, is a side elevation of the upper portion of a wrapper cutting machine constructed according to my invention; Fig. 2, is a plan of the machine shown in Fig. 1; Fig. 3, is a plan of that portion of the machine for the support of the die; the table plate being removed; Fig. 4, is a vertical section taken on the line 4—4, Fig. 2; Fig. 5, is a vertical section taken on the line 5—5, Fig. 4; Fig. 6, is a partially sectional perspective view of the rolling table and part of the mechanism for operating the same; Fig. 7, is a perspective view of the cutting die and its associated structure, and Fig. 8, is a perspective view of treadle and its associated parts.

In the above drawings, A represents the body or main portion of the table forming part of my machine, which is supported upon legs *a* and has projecting near its rear edge a standard *a'*. On this latter is mounted a vertical spindle *a*<sup>2</sup> supporting an oscillatory arm B; there being also carried on said standard a box or receptacle *a*<sup>3</sup> for finished cigars.

The outer end of the arm B is provided with a handle *b* and has a longitudinally extended slot *b'* for the reception of a bolt *b*<sup>2</sup>, holding the plate *b*<sup>3</sup>. A U-shaped yoke piece *b*<sup>4</sup> carried by this plate *b*<sup>3</sup>, has journaled in its ends a spindle or short shaft *b*<sup>5</sup>;

the bearings for the spindle being so arranged that its ends are respectively connected to downwardly extending, headed bolts *b*<sup>6</sup> projecting beyond the ends of the yoke piece and provided with springs *b*<sup>7</sup> between their heads and said ends. From Fig. 4, it will be seen that the spindle *b*<sup>5</sup> is free to move vertically relatively to the yoke piece *b*<sup>4</sup>, but is continually drawn down by means of the springs *b*<sup>7</sup>. Two independently rotatable conical frustums *b*<sup>8</sup> and *b*<sup>9</sup> forming a roller are mounted on the spindle *b*<sup>5</sup>, being so placed that their small ends are in engagement or are adjacent to each other;—being designed to coact with a die hereafter described.

The front portion of the table A, as shown in Figs. 3 and 4, is provided with an opening surrounded by an upwardly projecting edge or flange *a*<sup>4</sup> and within this opening I mount an exhaust box C, having a substantially flat upper face *c*. Said box is connected by a flexible pipe *c'* to a pipe *c*<sup>2</sup> communicating with any suction device, such as a fan or pump, and its upper surface *c* has in it an elongated opening *c*<sup>3</sup>, which may be closed by a valve *c*<sup>4</sup> vertically movable within the exhaust box by means of a valve rod *c*<sup>5</sup>; there being, if desired, a rubber gasket *c*<sup>6</sup>, or other similar device, extending around the inner edge of the opening *c*<sup>3</sup> in order to prevent leakage of air through the same when the valve is in its closed position. Removably mounted upon the upper surface *c* of the exhaust box is a cutting die D, which will be seen to consist of a hollow frame or body *d* having the general external configuration which it is desired shall be given to the cigar wrappers to be cut, and provided with an encircling length of steel ribbon *d'* forming the knife edge of the die.

As shown in Figs. 4 and 5, the body or frame *d* has its outer surface offset to the extent of the thickness of the knife *d'*, so that when this is in place, its outer surface is substantially flush with the lower portion of the outer surface of said frame. I preferably make this knife of a length of spring material such as is commonly used in the manufacture of clock springs; it being understood that the edges of this spring ribbon, as manufactured, are sufficiently thin and sharp to serve the purposes of my machine. In order to hold this spring knife in place



upon the die frame, I provide a number of removable clamping pieces  $d^2$ ,  $d^3$ ,  $d^4$ , etc., which are held by screws to the outer surface of the frame  $d$ ; it being understood that their inner surfaces are preferably so shaped as to conform to the general curvature of the frame  $d$ , as well as to that of the spring knife. Conforming to the shape of the space inclosed by the said knife and vertically movable therein is a suction plate  $d^5$ , having a number of perforations, as shown, and held in place by means of bolts  $d^6$  and springs  $d^7$  so that its upper surface is substantially flush with the upper edge of the knife  $d'$ . Said bolts  $d^6$  pass through transverse braces  $d^8$  extending from side to side of the body or frame  $d$  and are normally maintained in their uppermost position by means of the springs  $d^7$  which are placed between said braces and the under side of said suction plate. At each of the four corners of the opening in the front of the table body A there are provided in the flanged portions  $a^4$  vertical openings or guideways in which are placed vertically movable rods  $e$ , upon the upper ends of which is mounted a plate E forming a table for rolling the wrappers around the material forming the fillers of the cigars. Said plate is removably attached to the rods  $e$  by screws  $e'$  and has an opening shaped to very closely conform to or fit around the knife  $d'$  of the die. The lower end of each of the rods  $e$  is engaged by one arm of a lever  $f$  suitably pivoted on a screw or pin  $f'$  to a lug  $f^2$  projecting downwardly from the under side of the body A. Confined upon each rod  $e$ , between the under side of said body and the end of the lever arm  $f$  is a spring  $f^3$ , continually tending to draw down the rod and with it the table E; it being understood that the four levers  $f$  are normally held by mechanism hereafter described, in such position as to compress the springs  $f^3$  and maintain the rolling table E with its top surface flush with or above, the upper edge of the knife  $d'$ , and, therefore, some distance above the upper edges of the flange  $a^4$ . The second arms of the two levers  $f$  at each end of the exhaust box C, are extended so as to be engaged by the head  $g$  by a vertically movable rod  $g'$ , and it will be seen from Fig. 5 that these two rods  $g'$  are rigidly attached to and extend upwardly from the ends of a horizontal bar  $g^2$ . This same bar carries at its middle point the valve rod  $c^5$  and with it the valve  $c^4$  of the exhaust box; this rod extending upwardly through the bottom of said box and having on it a collar  $c^8$ , which, when the rod is in its lower position, rests upon the bar  $g^2$ . From Fig. 5, it will also be seen that the exhaust box C is mounted upon a pair of plates  $c^9$  held to the under side of the body A of the table by means of screws  $a^7$  set therein, each plate resting upon a nut

$a^8$  whose position upon its screw may be varied, as desired. Each plate has in addition an adjusting screw  $a^9$  on each side of its supporting screw  $a^7$  and resting upon the surface of the under side of the body A so as to permit either of the plates  $c^9$  and the exhaust box being held perfectly level or being given any desired inclination relatively to the body of the table A, in order to cause it to properly support the die D. 70 75

Fastened to the underside of the exhaust box C and projecting downwardly therefrom is a yoke piece H to which a lever  $h$  is held by a pivot  $h^{12}$ , one of whose arms is forked to engage the collar  $c^8$  on the valve rod  $c^5$ , while its other arm is pivoted to a second lever  $h'$  so as to serve as a fulcrum therefor. Said lever  $h'$  has a roller  $h^2$  mounted at the end of one of its arms and the transverse portion  $h^3$  of the yoke H has a cam surface with which said roller is capable of engaging so as to cause the lever  $h$  to turn upon its pivot. The second or long arm of the lever  $h'$  has connected to it one end of a rod or bar  $h^4$  attached to an operating treadle  $h^5$  mounted upon a transverse shaft  $h^6$  on the lower portion of the frame of the machine, as indicated at A'; each side of said lower frame being made with a pocket  $h^7$  in which one end of the shaft  $h^6$  is removably carried. Each of these pockets, as shown in Fig. 8, serves as a bearing for one end of the shaft and by reason of its construction effectually prevents longitudinal movement of said shaft, while being constructed so as to permit of its removal, as will be understood from said figure. 80 85 90 95 100

Under operating conditions, the pipe  $c^2$  is connected to an exhaust pump or fan, and the treadle  $h^5$ , having its forward end in the position indicated in dotted lines in Fig. 8, acts with the springs  $f^3$  to maintain the rolling table E lowered and the valve  $c^4$  closed. That is to say, the said springs are sufficiently strong to hold the table E down against the flange  $a^4$  and therefore so hold the levers  $f$  that they keep the rod  $g'$  in its elevated position. As a consequence, the cross bar  $g^2$  is also held in its upper position and since the treadle holds down the long arm of the lever  $h'$ , the valve  $c^4$  occupies its closed position. If now, the treadle be turned on its shaft  $h^6$  so as to push upwardly the rod  $h^4$ , it will be seen that the lever  $h'$  not only turns on its pivot, but also causes the lever  $h$  to move on its pivot in such a direction as to force downwardly the rod  $c^5$ . The first result of this action is that the valve  $c^4$  is opened to a slight extent so that a leaf of tobacco will be drawn down upon the perforated plate  $d^5$  and held in position over the die D. By means of the arm B the roller B' is now moved over the table, which is still depressed below the upper edge of the die knife  $d'$  and a wrapper is cut out of 130



the leaf. Further movement of the treadle now causes the roller  $h^2$  to move farther upon the cam  $h^3$  of the yoke H and not only still further opens the valve  $c^4$ , but com-  
 5 presses the springs  $f^4$  so as to bring up the rolling table E flush with or above the upper edge of the die knife  $d'$ . The waste portions of the tobacco leaf may now be removed and the wrapper rolled around the  
 10 filling material in the well known manner; said wrapper being still held to the suction plate  $d^5$  by reason of the fact that the valve  $c^4$  is open.

After the completion of the cigar the front  
 15 end of the treadle is again depressed, thereby permitting the springs  $f^3$  to lower the rolling table E and close the valve  $c^4$ .

It will be seen that by the use of a die knife made of a length of spring ribbon of  
 20 the form described, I am enabled to employ a rolling table E made in one piece and vertically movable with reference to the stationary die. Moreover, owing to the use of the spring knife, it is possible to make the  
 25 rolling table E fit around said knife very closely without interfering with the action of the machine, while by using a stationary die I do away with the necessity for stuffing  
 30 boxes or sliding joints between the exhaust box and the exhaust fan or the pump.

I claim:

1. In a wrapper cutting machine, the combination of a frame, a stationary exhaust  
 35 box removably mounted thereon, a stationary die loosely carried on the exhaust box so as to be freely removable thereon, a vertically movable rolling table fitting around said die, means for actuating said table, and means capable of co-acting with the die to  
 40 cut out wrappers.

2. In a wrapper cutting machine, the combination of a frame, an exhaust box mounted thereon, a die loosely mounted upon the  
 45 box and communicating with the interior thereof through an opening therein, means capable of co-acting with the die to cut out wrappers, a valve placed to cooperate with the under side of the top part of the exhaust  
 50 box, a vertically movable rod connected to said valve, and means for moving the rod to cause the valve to close the opening in the exhaust box.

3. In a wrapper cutting machine, the combination of a supporting structure, a single  
 55 plate forming a rolling table vertically movable thereon and provided with an opening, a stationary die having its hollow interior connected to an exhaust device and fitting in said opening in the table, a valve controlling the connection between the hollow  
 60 die and the exhaust device, springs mounted to normally maintain the table depressed below the level of the cutting edge of the die, with means for raising said table and open-

ing the valve, said means being arranged to 65 transmit power from the springs to the valve so as to maintain the same closed.

4. The combination with a wrapper cutting machine having a cutting die, of means co-acting therewith to cut out a wrapper, a  
 70 connection between the die and an exhaust device, a valve controlling the flow of air through said connection, means for operating said valve, springs tending to maintain it closed, a pair of co-acting levers oper- 75 atively connected to the valve and pivotally connected to each other, with means for actuating said levers.

5. The combination with a wrapper cutting machine, of an exhaust box interposed 80 between the die of said machine and an exhaust device, a valve for controlling the flow of air through the exhaust box, a lever having one arm operative upon the valve and pivoted to the frame of the machine, a sec- 85 ond lever pivoted to said first lever, a cam on the frame of the machine placed to be engaged by an arm of said second lever, with means for actuating said second lever to control the operation of the valve, substantially 90 as described.

6. A wrapper cutting machine consisting of a supporting structure having a main table provided with a rolling table, a die  
 95 mounted in an opening in said rolling table, means co-acting with said die for cutting out wrappers, screws projecting from the under side of the main table, plates mounted upon  
 100 said screws, an exhaust box mounted upon said plates and communicating with the interior of the die, means for controlling the flow of air through the exhaust box, and means for raising and lowering the rolling table at will, substantially as described.

7. A wrapper cutting machine consisting 105 of a supporting structure having a main table provided with a rolling table, a die mounted in an opening in said rolling table, means connected to said die for cutting out wrappers, screws projecting from the under 110 side of the main table, plates mounted upon the said screws, means for adjusting the inclination of said plates relatively to the plane of the rolling table, an exhaust box mounted upon said plates communicating 115 with the interior of the die, means for controlling the flow of air through the exhaust box, and means for raising and lowering the rolling table at will, substantially as described. 120

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

BENJAMIN A. WILLIAMS.

Witnesses:

WILLIAM E. BRADLEY,  
 WM. A. BARR.