

No. 662,389.

Patented Nov. 27, 1900.

J. S. BEEMAN.

CIGARETTE MOUTHPIECE APPLYING MACHINE.

(Application filed Feb. 19, 1900.)

(No Model.)

6 Sheets—Sheet 1.

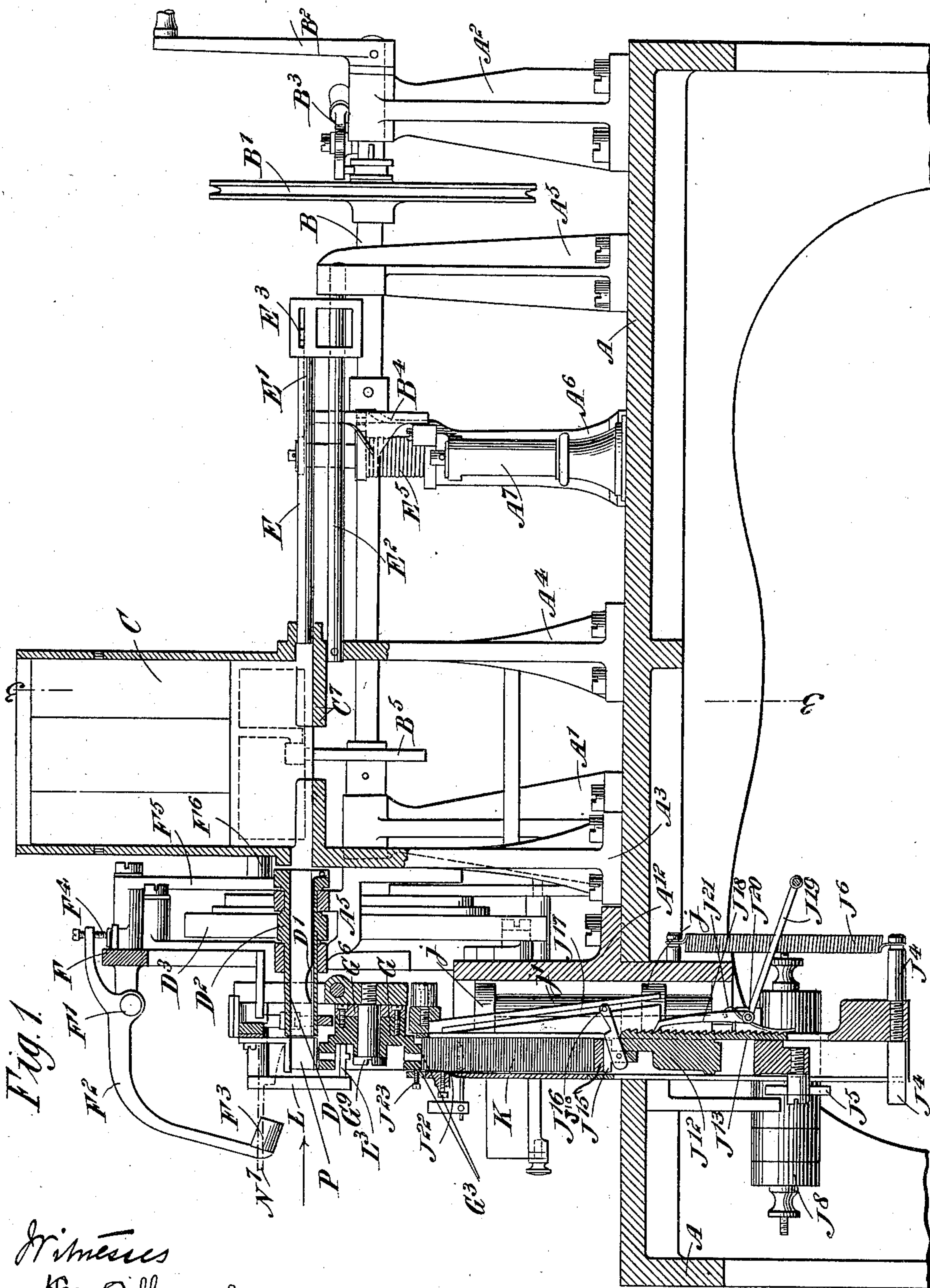


Fig. 1

Witnesses  
Am. Gillman, Jr.  
Paul W. Stevens

Inventor  
Joseph S. Beeman  
Foster, Beeman  
attorneys

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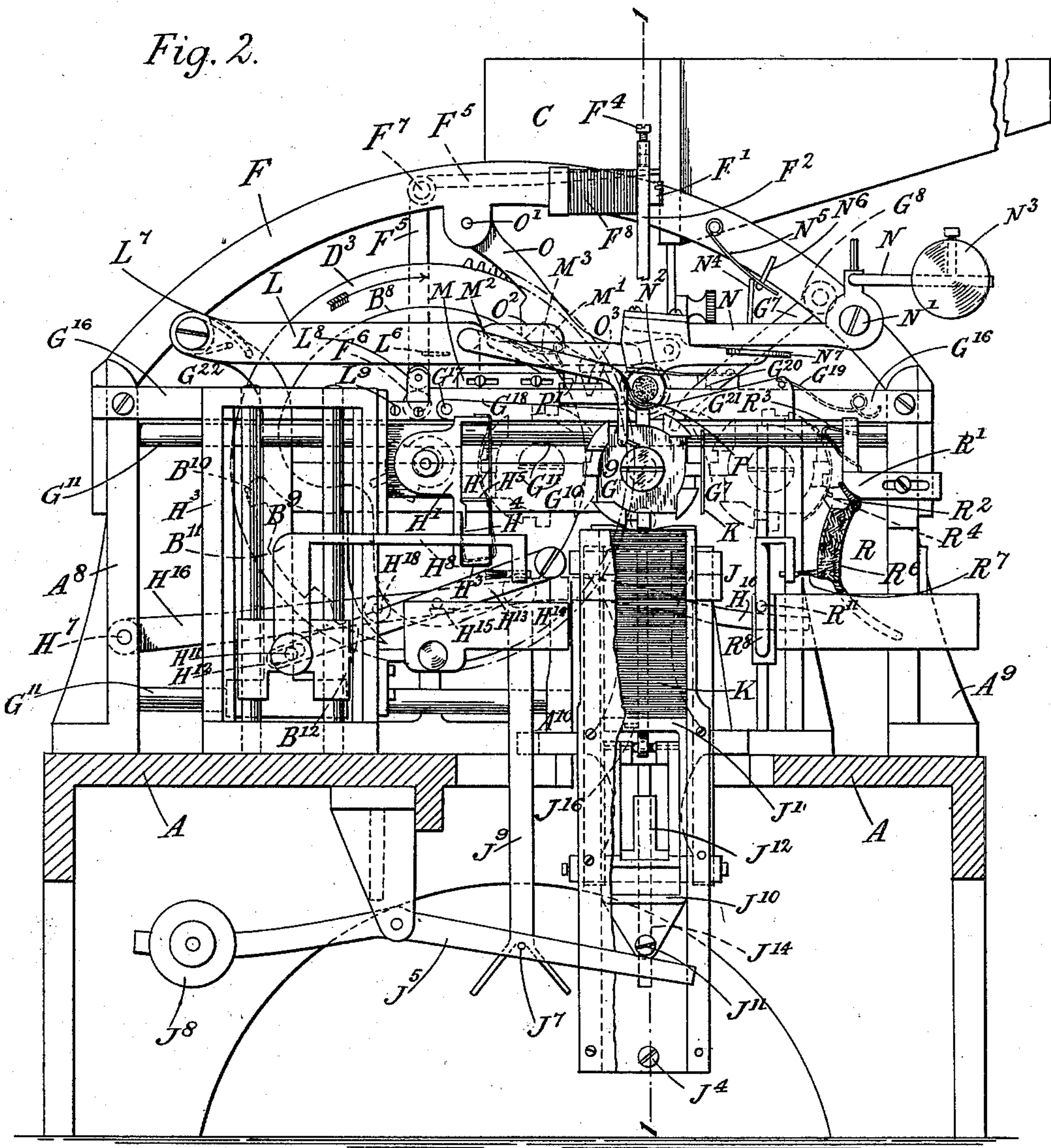
J. S. BEEMAN.

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(No Model.)

6 Sheets—Sheet 2.



Witnesses  
H. J. Gillman, Jr.  
Paul H. Thomas

Inventor  
Joseph Samuel Beeman  
by  
Loren Freeman



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Patented Nov. 27, 1900.

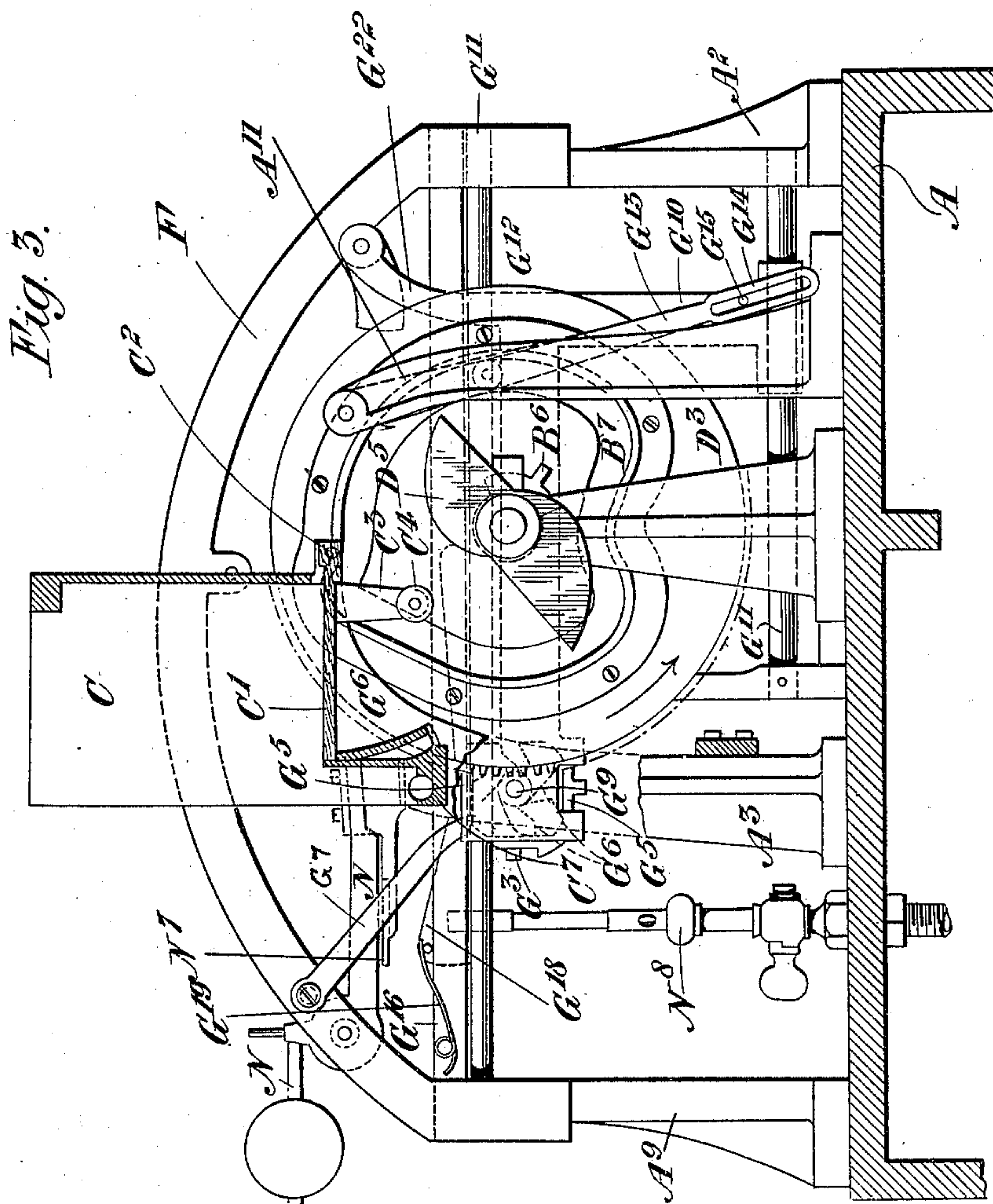
J. S. BEEMAN.

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(No Model.)

6 Sheets—Sheet 3.



Witnesses

Attest  
James H. Stevens

Inventor  
Joseph Samuel Beeman  
by Louise Freeman  
attorney



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J. S. BEEMAN.

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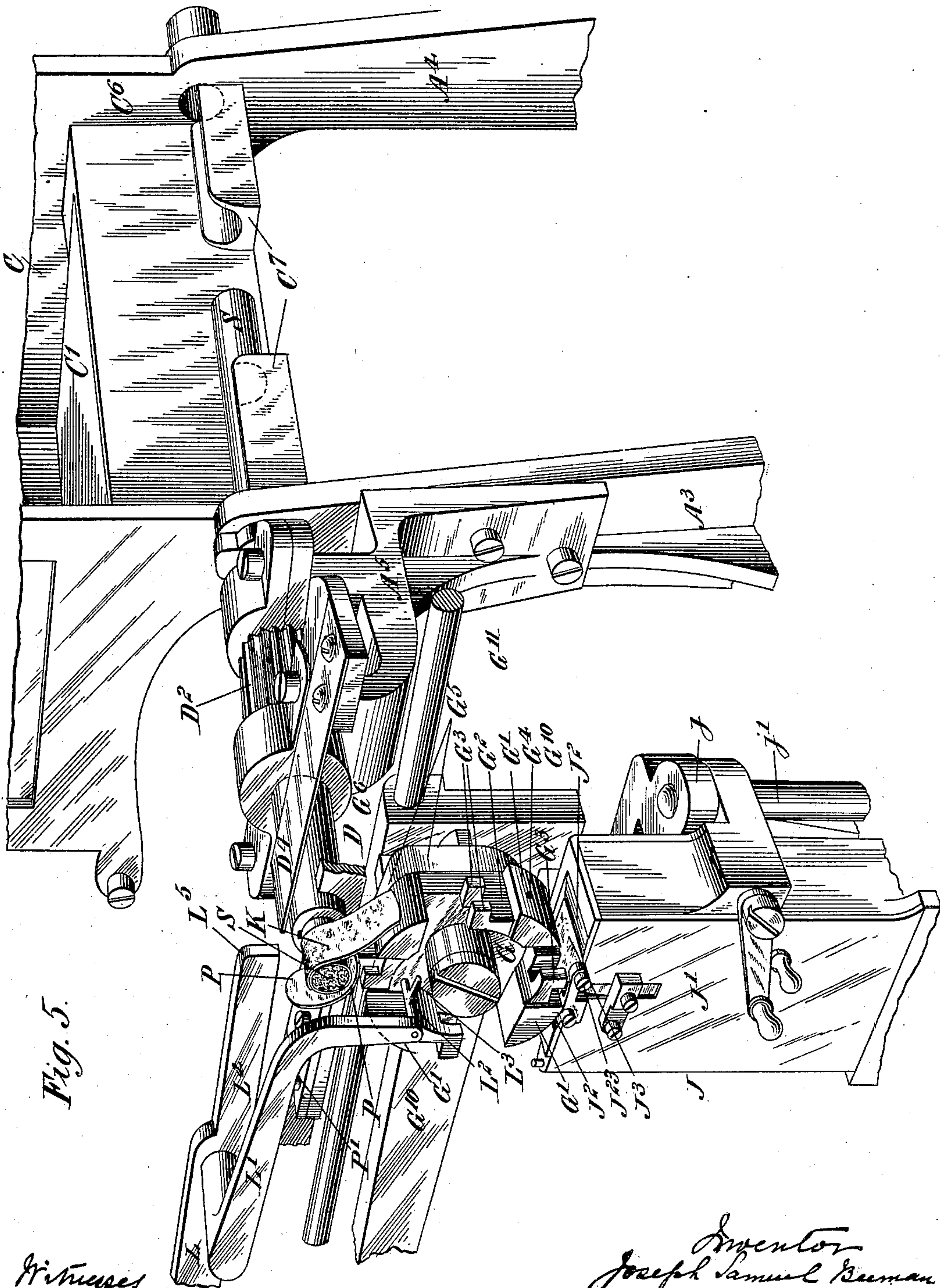


Fig. 5.

Witnesses  
H. J. Gillman, Jr.  
Paul W. Stearns

Inventor  
Joseph Samuel Beeman  
by  
Lucas Foreman  
Attorneys.



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J. S. BEEMAN.

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Fig. 6.

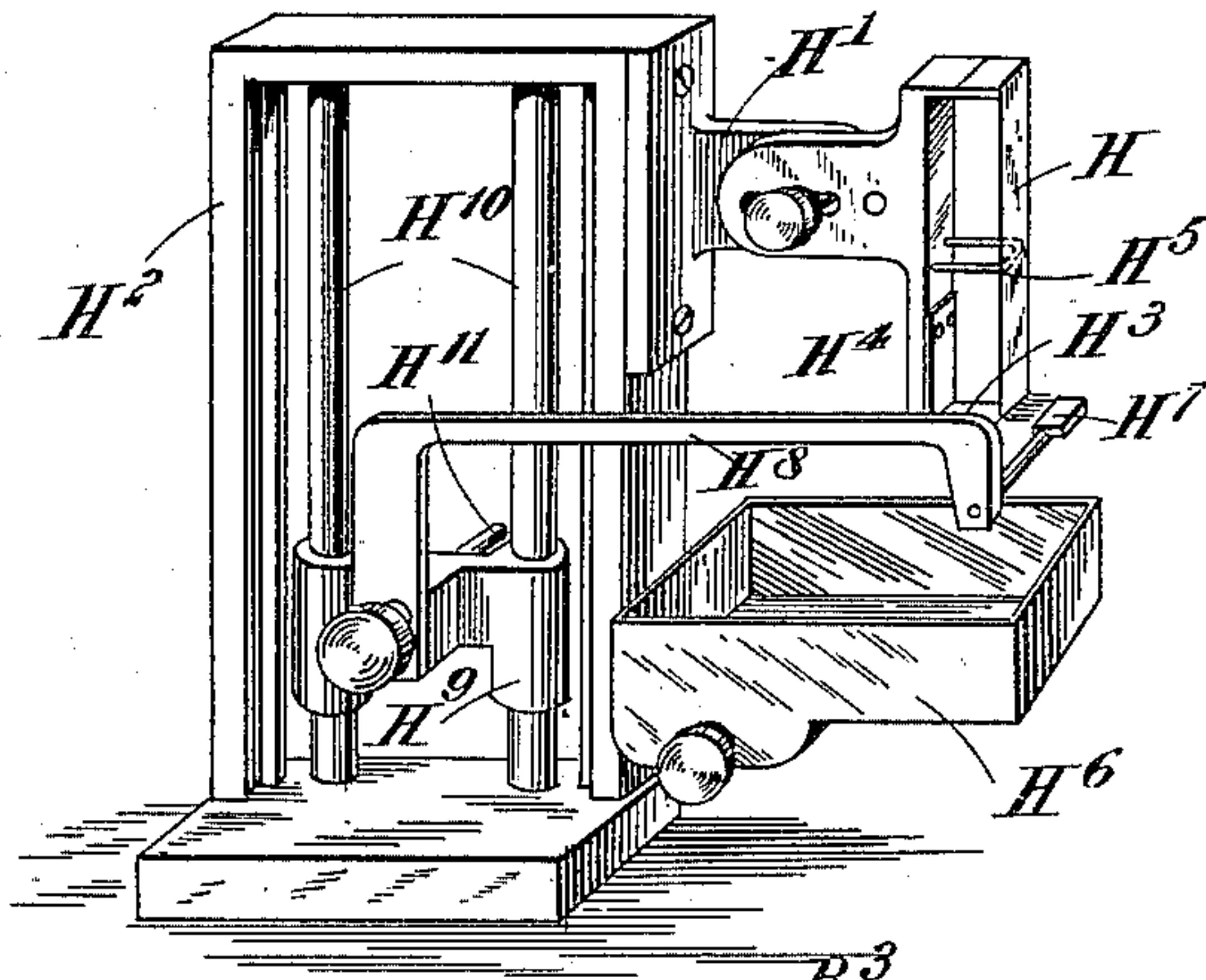
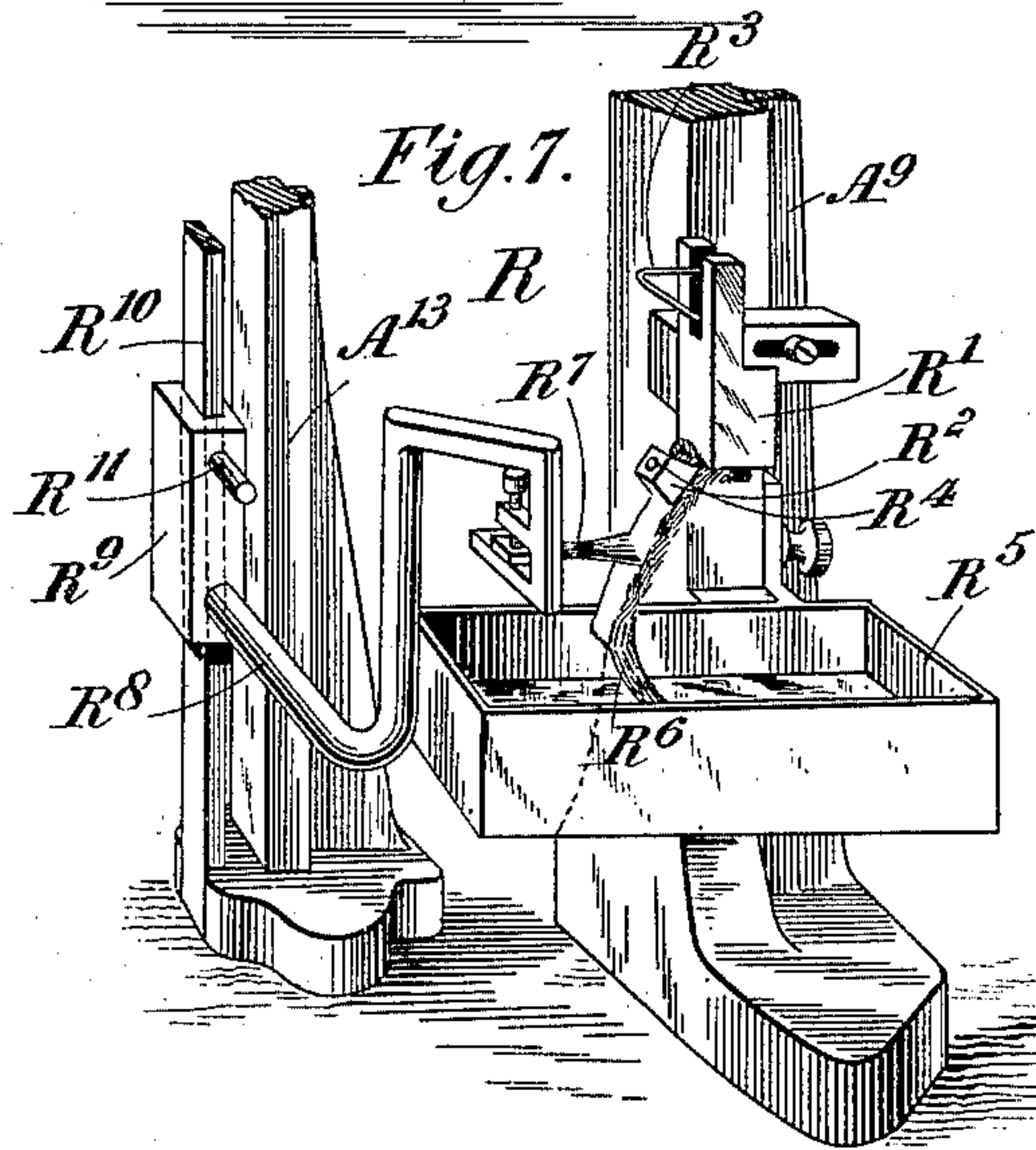


Fig. 7.



Witnesses  
J. M. Gillman, Jr.  
James Stevens

Inventor  
Joseph Samuel Beeman  
by Loren Freeman  
attorneys.



# UNITED STATES PATENT OFFICE.

JOSEPH SAMUEL BEEMAN, OF LONDON, ENGLAND.

## CIGARETTE-MOUTHPIECE-APPLYING MACHINE.

SPECIFICATION forming part of Letters Patent No. 662,389, dated November 27, 1900.

Application filed February 19, 1900. Serial No. 5,788. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH SAMUEL BEEMAN, a subject of the Queen of England, residing at 182 Earl's Court road, London, England, have invented certain new and useful Improvements in or Relating to Cigarette-Mouthpiece-Appling Machines, of which the following is a specification.

This invention relates to improvements in cigarette-mouthpiece-applying machines, and has particular reference to machines in which a strip of cork, paper, tobacco-leaf, or like material coated with an adhesive is applied as a "tip" to the end of the cigarette.

A machine according to this invention comprises the following chief elements: a holder for the cigarette, a "retainer" to which a strip is caused to temporarily adhere, means for supplying an adhesive or moistening agent to the retainer, means for presenting a strip to and contacting it with the retainer, and a lifting device which disengages the strip or a portion thereof from the retainer and brings its under surface into contact with the cigarette to which it is to be applied. Preferably means are also provided to bring the strip after it has been presented to the retainer into more intimate contact therewith, and a tapping and smoothing device is employed to insure the proper application of the strip to the cigarette end after it has been brought thereto through the action of the lifting device.

In order to secure the uniform tipping of the cigarettes, which vary somewhat in length, the mechanism which feeds them to the holder is conveniently arranged to protrude each cigarette too far through the holder, and a movable stop is then brought into action, which partially returns the cigarette, so that the protruded portion is of a definite length.

In the accompanying drawings, which illustrate one construction of machine according to this invention, Figure 1 is a longitudinal vertical section on the line 1 1 of Fig. 2. Fig. 2 is an end elevation, looking in the direction of the arrow in Fig. 1, partly in section and with portions removed for the sake of clearness. Fig. 3 is a cross-section on the line 3 3 of Fig. 1. Fig. 4 is a plan showing a portion of the operating mechanism, and Figs. 5, 6,

and 7 are perspective views illustrating portions of the machine.

Like letters indicate like parts throughout the drawings.

A is a base-plate upon which the stationary portions of the machine are rigidly mounted. Standards  $A^1$  and  $A^2$ , attached to the base-plate, carry in bearings a shaft B, from which the various mechanisms are driven. The shaft B may be rotated by power supplied to a pulley  $B^1$  or manually by means of a crank-handle  $B^2$ , keyed to the end of the shaft. The pulley  $B^1$  is arranged so that it may be engaged or disengaged with the shaft by means of a clutch. A handle for throwing the pulley  $B^1$  into or out of gear is shown at  $B^3$ . The shaft B carries cams  $B^4$ ,  $B^5$ ,  $B^6$ ,  $B^7$ ,  $B^8$ , and  $B^9$ , which are hereinafter more fully described. Standards  $A^3$  and  $A^4$ , attached to the base-plate A, support a chamber or hopper C, into which the cigarettes are placed. A portion  $C^1$  of the bottom of the chamber C is hinged, as at  $C^2$ , and is provided with a projection  $C^3$ , carrying a friction-roller  $C^4$ . This friction-roller  $C^4$  works in conjunction with the cam  $B^5$ , and thus the hinged portion  $C^1$  is oscillated and forms an agitator for preventing bridging or jamming of the cigarettes in the chamber C. The cigarettes pass from the chamber C through a conduit  $C^6$  to a trough  $C^7$ . In line with the trough  $C^7$  and supported in bearings in a bracket  $A^5$ , attached to the standard  $A^3$ , is a holder D, provided internally with a light spring  $D^1$ , which slightly grips the cigarette. The holder D carries a pinion  $D^2$ , which engages with the teeth upon a portion of the circumference of a disk  $D^3$ , carried upon the shaft B. The number of teeth upon the circumference of the disk  $D^3$  and the diameter of the pinion  $D^2$  are such that the holder D makes about five complete revolutions during one rotation of the shaft B. The holder is of course stationary during the time that the plain portion of the circumference of the disk  $D^3$  is adjacent to the pinion  $D^2$ . A spring  $D^4$ , Fig. 5, presses upon the holder D and acts as a brake to prevent undue rotation. In Fig. 5 the front wall of the chamber C is removed.

The cigarettes S, Fig. 5, are caused to pass from the trough  $C^7$  into the holder D by the



action of a plunger E, which is attached to a slide E', moving upon a guide E<sup>2</sup>, carried between the standard A<sup>4</sup> and another standard A<sup>5</sup>. One end of a lever E<sup>3</sup> engages loosely with the upper portion of the slide E', the other end of this lever being pivoted at the top of a standard A<sup>6</sup>. A forked arm E<sup>4</sup>, controlled by a spring E<sup>5</sup>, is carried by the standard A<sup>6</sup> and is rigidly attached to the arm. This forked arm E<sup>4</sup> engages with a pin E<sup>6</sup> upon an arm E<sup>7</sup>, pivoted to a standard A<sup>7</sup> and carrying a friction-roller E<sup>8</sup>. This friction-roller E<sup>8</sup> works in conjunction with the cam B<sup>4</sup>, and when the shaft B rotates the action of the cam B<sup>4</sup> upon the friction-roller E<sup>8</sup> causes the arm E<sup>7</sup> to turn, and thus through the pins E<sup>6</sup> and forked arm E<sup>4</sup> makes the lever E<sup>3</sup> turn against the action of the spring E<sup>5</sup>. The plunger E therefore moves forward and pushes a cigarette from the trough C<sup>7</sup> into the holder D, ejecting the cigarette previously in the holder. The return of the plunger E is brought about by the action of the spring E<sup>5</sup> when the position of the cam B<sup>4</sup> admits of such movement. The forward motion of the plunger E is such that the cigarette is caused to protrude too far through the holder D.

F is a rigid frame supported upon standards A<sup>8</sup> and A<sup>9</sup>, attached to the base-plate A. Pivotaly mounted, as at F', upon the frame F is a lever F<sup>2</sup>, the lower end of which carries a stop F<sup>3</sup>. The other end of this lever carries an adjusting-screw F<sup>4</sup>, which works in conjunction with one end of a bell-crank lever F<sup>5</sup>, pivotaly mounted on the frame F, as at F<sup>7</sup>, the other end of which carries a friction-roller F<sup>6</sup>, which works in conjunction with the cam B<sup>6</sup>. The adjusting-screw F<sup>4</sup> is kept in contact with the upper end of the bell-crank lever F<sup>5</sup> through the action of a spring F<sup>8</sup>, and this spring thus tends to keep the stop-lever F<sup>2</sup> in the position shown in Fig. 1. The function of this stop-lever is to partially return the protruded end of the cigarette into the holder, so that a definite length shall remain protruded for treatment. The forward motion of the stop-lever F<sup>2</sup> is limited by the stop F<sup>3</sup> coming into contact with another portion of the machine, hereinafter mentioned.

G is a retainer for strips which are to be applied as tips to the cigarettes. It comprises four segmental portions G', having gaps between them. Each of the portions G' is cut away, as at G<sup>2</sup>, leaving two projections G<sup>3</sup>, whose surfaces are part of the circumference of the retainer G. Each segmental portion G' is provided with a pin G<sup>4</sup>, which assists, as hereinafter described, to keep the strip in place upon the retainer. Upon the back of the retainer are formed four flat surfaces G<sup>5</sup>, which are arranged in the form of a square with the corners cut off, and at the back of this again are four projections G<sup>6</sup>, which act as teeth and work in conjunction with a pawl G<sup>7</sup>, pivoted to the frame F and controlled by a spring G<sup>8</sup>. The retainer G is pivoted, as by a screw G<sup>9</sup>, to a frame G<sup>10</sup>, which can re-

ciprocate on guides G<sup>11</sup>, carried between the standards A<sup>8</sup> A<sup>9</sup> and A<sup>8</sup> A<sup>10</sup>, respectively. The reciprocation of the frame G<sup>10</sup> is brought about by the action of the cam B<sup>7</sup>, which acts upon a friction-roller G<sup>12</sup>, carried by a lever G<sup>13</sup>, which is pivotaly mounted upon a standard A<sup>11</sup>, Fig. 3. As a portion of the cam B<sup>7</sup> is circular, the reciprocation of the frame G<sup>10</sup> is intermittent. The lower end of the lever G<sup>13</sup> is slotted, as at G<sup>14</sup>, and a pin G<sup>15</sup> works in this slot, said pin being rigidly connected to the sliding frame G<sup>10</sup>. A bar G<sup>16</sup> extends across the machine and is rigidly fixed to the upper portions of the standards A<sup>8</sup> and A<sup>9</sup>. The lower edge of the bar G<sup>16</sup> though not in actual contact with the flats G<sup>5</sup> upon the retainer G serves to keep the upper of such flats approximately horizontal during the reciprocation of the retainer. A portion of the bar is cut away, as at G<sup>21</sup>, to allow for the rotation of the retainer when at that spot. Upon the bar G<sup>16</sup> is pivoted, as at G<sup>17</sup>, a lever G<sup>18</sup>, the other end of which is controlled by a spring G<sup>19</sup>, mounted upon the bar G<sup>16</sup>, Fig. 3. The downward motion of the spring-controlled pawl G<sup>7</sup> is limited by a pin G<sup>20</sup>, which comes into contact with the bar G<sup>16</sup>. The under side of the pivoted lever G<sup>18</sup> is approximately flat and acts upon the flats G<sup>5</sup> at the back of the retainer G, thus serving to keep the retainer in a definite position. When during its reciprocation the retainer is brought into contact with the pivoted pawl G<sup>7</sup>, the nose of that pawl engages with one of the inclined surfaces or teeth G<sup>6</sup> upon the retainer, and the latter is consequently partly rotated, the spring-controlled lever G<sup>18</sup> being forced up and then coming down upon the succeeding flat G<sup>5</sup> and securing the retainer in its new position.

H is a flexible band, preferably of tape or similar material, carried upon a bracket H', attached to a frame H<sup>2</sup>, which is rigidly secured to the base-plate A. The lower end of the band H is secured to a block H<sup>3</sup>, which is mounted upon a spring H<sup>4</sup>, attached to the bracket H'. This arrangement tends to keep the band normally straight, but at the same time allows it to assume a curved shape when required. The band H is supported about midway of its length by a bridge-piece H<sup>5</sup>. Beneath the band H is a stationary receptacle H<sup>6</sup> for holding an adhesive, and a brush H<sup>7</sup>, carried by an arm H<sup>8</sup>, attached to a sliding piece H<sup>9</sup>, which moves on guides H<sup>10</sup> in the frame H<sup>2</sup>, travels over the band H and keeps it supplied with adhesive from the receptacle H<sup>6</sup>. The sliding piece H<sup>9</sup> is provided with a pin H<sup>11</sup>, which engages with a slot H<sup>12</sup> in a lever H<sup>13</sup>, mounted upon the standard A<sup>10</sup> and controlled by a spring H<sup>14</sup>. This pivoted lever H<sup>13</sup> carries a pin H<sup>15</sup>, which comes into contact with a portion of a lever H<sup>16</sup>, pivoted to the standard A<sup>8</sup>, as at H<sup>17</sup>. A friction-roller H<sup>18</sup> is carried upon the lever H<sup>16</sup> and engages with the cam B<sup>8</sup>. During a portion of the operation the friction-roller H<sup>18</sup> is engaged be-



tween a portion of the surface of the cam B<sup>8</sup> and the adjacent portion of another cam B<sup>9</sup>, which is, like the cam B<sup>8</sup>, carried upon one side of the disk D<sup>3</sup>.

5 The mechanism for presenting the strips to the retainer and contacting them therewith comprises a container J, the upper portion of which is furnished with a hinged door J', Fig. 5. The top of the container J is in the form of two plates J<sup>2</sup>, having a gap J<sup>3</sup> between them. Attached to the bottom of the container J is a pin J<sup>4</sup>, Figs. 1 and 2, one end of which is operated upon by a pivoted lever J<sup>5</sup>, while the other is attached through a spring J<sup>6</sup>, Fig. 1, to a support A<sup>12</sup> on the base-plate A. The container J is furnished with lugs j, which engage with guides j', carried on the support A<sup>12</sup>. The pivoted lever J<sup>5</sup> carries a pin J<sup>7</sup> and is weighted, as at J<sup>8</sup>. The Y-shaped end of a vertical rod J<sup>9</sup> engages with the pin J<sup>7</sup>, the other end of the rod J<sup>9</sup> being pivotally suspended from the lever H<sup>16</sup>. Within the container J is a relieving-piston, hereinafter described as a frame J<sup>10</sup>, which is furnished at its lower end with a pin J<sup>11</sup> and is caused to rise within the container J when the pivoted lever J<sup>5</sup> comes into contact with that pin. Free to slide within the frame J<sup>10</sup> is an inner plunger J<sup>12</sup>, which carries a rack J<sup>13</sup>, which extends through a slot J<sup>14</sup> in the back of the container J, Fig. 1. Pivoted to the top of the inner plunger J<sup>12</sup> is an arm J<sup>15</sup>, one end of which passes through the slot J<sup>14</sup> and is furnished with a small pin J<sup>16</sup>, which travels in a slot J<sup>17</sup>, formed in an extension of the back wall of the container J. A pawl J<sup>18</sup>, Fig. 1, provided with a handle J<sup>19</sup>, is pivoted, as at J<sup>20</sup>, to the lower portion of the container J and is controlled by a spring J<sup>21</sup>, so that normally it engages with the teeth of the rack J<sup>13</sup> upon the inner plunger J<sup>12</sup>. The downward travel of the frame J<sup>10</sup> is limited by the position of the inner plunger J<sup>12</sup>, for, as shown in Fig. 1, the frame J<sup>10</sup> falls until it touches the pivoted arm J<sup>15</sup>. The amount of inclination of this arm J<sup>15</sup> depends upon the position of the inner plunger J<sup>12</sup> relatively to the container J, the arm J<sup>15</sup> being forced by the slot J<sup>17</sup> to assume a more vertical position when the plunger J<sup>12</sup> is near the top of the container. By depressing the handle J<sup>19</sup> the pawl J<sup>18</sup> is disengaged from the rack J<sup>13</sup>, and the plunger J<sup>12</sup> then falls, providing, of course, that the pivoted lever J<sup>5</sup> is not at the moment exerting an upward pressure upon the frame J<sup>10</sup>. Strips K are placed in a pile within the container J, the top and bottom ends of the pile being between the under surfaces of the plates J<sup>2</sup> and the top surface of the frame J<sup>10</sup>, respectively. The number of strips K placed in the container is never so great that there is no play for the lever J<sup>5</sup> between the pins J<sup>4</sup> and J<sup>11</sup>. Once in every revolution of the shaft B the cams B<sup>8</sup> and B<sup>9</sup>, acting upon the friction-roller H<sup>18</sup>, causes the lever H<sup>16</sup> to rise, carrying with it the suspended rod J<sup>9</sup>. This allows one end of the lever J<sup>5</sup> to rise un-

der the action of the weight J<sup>8</sup>, and the container J, acting under the influence of the spring J<sup>6</sup>, at once follows the motion of the end of the lever J<sup>5</sup> and rises until stopped by the upper surface of the top lugs j coming into contact with the top of the support A<sup>12</sup>. In this position, which is illustrated in Fig. 5, two of the projections G<sup>3</sup> of the retainer G extend downward, so that their lower surfaces approximately coincide with the under surfaces of the plates J<sup>2</sup>. As the end of the lever J<sup>5</sup> rises it comes into contact with the pin J<sup>11</sup> at the bottom of the frame J<sup>10</sup>. Consequently that frame rises, carrying with it the pile of strips K, which is compressed, through the action of the weighted lever J<sup>5</sup>, between the frame J<sup>10</sup> and the plates J<sup>2</sup>. The downwardly-extending projections G<sup>3</sup> have been, as will be hereinafter explained, supplied with adhesive, and consequently the top strip adheres to them when it is raised into contact with them by the frame J<sup>10</sup>. Continued rotation of the shaft B causes the downward motion of the suspended rod J<sup>9</sup>. Consequently the end of the lever J<sup>5</sup> is depressed against the action of the weight J<sup>8</sup>, and the frame J<sup>10</sup> falls as far as the position of the inner plunger J<sup>12</sup> will allow it to do so, thus relieving the upward pressure upon the top strip. The pile of strips follows the frame J<sup>10</sup> downward, leaving the top strip attached by the adhesive to the retainer G. As the pile of strips K diminishes, owing to successive top strips being removed, the upward motion of the frame J<sup>10</sup> causes the inner plunger J<sup>12</sup> to advance upward tooth by tooth of the rack J<sup>13</sup>. This advance increases the inclination of the arm J<sup>15</sup>, and consequently the stroke of the frame J<sup>10</sup> is gradually shortened as the pile of strips K diminishes. This adjustment is found to be useful as tending to compensate for the "spring" which a pile of strips—say of cork—necessarily possesses.

In order that the strips may take a uniform position relatively to the end of the cigarette, a light spring J<sup>22</sup>, Fig. 1, is provided, which tends to press them to the back of the container J. Two small screws J<sup>23</sup>, having pointed ends, are provided at the top of the container, their function being to separate the strips if by chance more than one adheres to the retainer.

Pivoted to a lug G<sup>22</sup>, which forms an extension of the reciprocating frame G<sup>10</sup>, is a lever L, carrying rigidly attached to it an arm L', the end of which is shaped, as at L<sup>2</sup>, Fig. 5, so that it can pass through the space between two adjacent segmental portions G' of the retainer G. A finger L<sup>3</sup>, projecting from the portion L<sup>2</sup>, is arranged to move through the space between the projecting portions G<sup>3</sup> of the retainer. The lever L, the arm L', and their appurtenances constitute a lifting device which lifts a portion of the strip from the retainer and brings its under surface into contact with the cigarette. The lever L is provided with an extension L<sup>4</sup>, having a rounded



nose  $L^5$ , which serves a purpose hereinafter mentioned. A projection  $L^6$ , Fig. 2, is provided upon the back of the lever  $L$ . Adjustably secured to a plate  $M$ , fixed to the bar  $G^{16}$ , is a plate  $M'$ , to which is pivoted a pawl  $M^2$ , controlled by a spring  $M^3$ , which is fixed upon the back of the plate and operates upon a pin attached to the pawl and passing through a slot in the plate. The lever  $L$  is controlled by a spring  $L^7$ , which tends to keep it down—that is, so that its lower edge is in contact with a friction-roller  $L^8$ , carried on a bracket  $L^9$ , attached to the bar  $G^{16}$ . When the frame  $G^{10}$  is reciprocated, the lever  $L$  moves with it and the projection  $L^6$  passes under the spring-controlled pawl  $M^2$ , which rises against its spring to allow it to pass; but when the lever  $L$ , carried by the frame  $G^{10}$ , returns the projection rides up the inclined plane formed by the top surface of the pawl  $M^2$ , and the lifting device is consequently raised.

Pivoted to the frame  $F$ , as at  $N'$ , is a lever  $N$ , carrying at one end a plate  $N^2$  and counterbalanced at the other end by an adjustable weight  $N^3$ . Upon the top of the lever  $N$  is an arm  $N^4$ , which when the lever is raised comes under the influence of a spring  $N^5$ , attached to the frame  $F$ . This spring  $N^5$  only operates upon the lever for the first portion of its downward stroke, for a stop  $N^6$  upon the frame  $F$  intercepts the spring before the lever  $N$  has reached its lowest position. The function of the lever  $N$  is to act as an intermittent tapping and smoothing device to insure the proper application of the strip after it has been brought into contact with the end of the cigarette under treatment. The plate  $N^2$  is the part which actually comes into contact with the strip, and as it is sometimes desirable that this plate should be heated in order to quickly dry the adhesive upon the strip an extension  $N^7$  is provided in metallic connection with the plate  $N^2$ , and this extension  $N^7$  is heated by means of a small Bunsen burner  $N^8$ , Fig. 3. The lever  $N$  is operated by the end of a lever  $O$ , pivoted, as at  $O'$ , to the frame  $F$  and furnished with projections  $O^2$   $O^3$ , which work in conjunction with the cams  $B^8$  and  $B^9$ . When the portions  $B^{10}$ ,  $B^{11}$ , and  $B^{12}$  of the cam  $B^9$ , Fig. 2, pass beneath the projection  $O^2$ , the lever  $N$  is raised against the action of the spring  $N^5$ , and, as will be seen by reference to Fig. 2, immediately following these portions are gaps, so that as the shaft  $B$  rotates the lever  $L$  gives three sharp downward movements, causing the plate  $N^2$  to tap the cigarette. The projection  $O^3$  then contacts with the portion  $B^{12}$ , and consequently the lever  $N$  is slightly raised again. After the portion  $B^{12}$  has passed from under the projection  $O^3$  the lever  $N$  descends and the plate  $N^2$  rests upon the end of the cigarette under treatment, which has started rotating since the conclusion of the tapping operation and smooths the tip. Continued rotation of the shaft  $B$  causes the frame  $G^{10}$  to reciprocate, and the rounded nose  $L^5$  of the extension  $L^4$

of the lever  $L$  lifts the lever  $N$  away from the cigarette while the latter is ejected from the holder  $D$ .

Beneath the plate  $N^2$  and arranged so as to be just clear of the protruded cigarette end is a curved plate  $P$ . This plate is adjustably supported, as by screws  $P'$ , from the bar  $G^{16}$  or an extension thereof. The function of this curved plate  $P$  is to serve as a support for the end of the cigarette when it is being tapped by the plate  $N^2$ . There is preferably such a clearance between the plate  $P$  and the cigarette end that the latter is only likely to touch the plate when it is struck by the tapper. The curved plate  $P$  or its support conveniently serves as a stop to limit the motion of the stop-lever  $F^2$ .

In order to bring the strips into more complete contact with the retainer  $G$ , a device  $R$  is provided. (Illustrated in perspective in Fig. 7.) This device comprises a block  $R'$ , carried on the standard  $A^9$ , having two projections  $R^2$  and  $R^3$ . The lower projection  $R^2$  is provided with a hole  $R^4$ , which accommodates the pin  $G^4$  upon the segmental blocks  $G'$  of the retainer  $G$ , while the upper projection  $R^3$  is in the form of a spring. When the strip carried by its adhesion to the projections  $G^3$  of the retainer  $G$ , is brought by the reciprocation of that retainer against the block  $R'$ , the hole  $R^4$  in the lower projection  $R^2$  forces the pin  $G^4$  through the strip, while the spring projection  $R^3$  presses against the upper end of the strip and brings that end into intimate contact with the adhesive matter upon the adjacent portion of the retainer. When cork or like material is used for the strips, there is some risk of adhesive matter finding its way through the strip and onto the projections  $R^2$  and  $R^3$ , and this might result in the succeeding strip being pulled off by adhesion to these projections. To obviate this difficulty, means are provided for cleansing the projections  $R^2$  and  $R^3$  automatically. A vessel  $R^5$ , containing water, is attached to the standard  $A^9$ , and a pad of felt or like material  $R^6$ , attached to the block  $R'$ , dips into the water. A brush  $R^7$ , carried by an arm  $R^8$ , attached to a block  $R^9$ , free to reciprocate upon a guide  $R^{10}$ , supported by a standard  $A^{13}$ , moves over the pad  $R^6$  and the projections  $R^2$  and  $R^3$ , thus cleansing the projections from any adhesive which may be upon them. The movement of the brush  $R^7$  is brought about by the end of the lever  $H^{16}$ , which operates between the arm  $R^8$  and a pin  $R^{11}$ .

The action of the machine is as follows: The cigarettes are placed in the chamber  $C$  and pass successively, as hereinbefore described, to the holder  $D$ . Suppose now that through the action of the cam  $B^7$  upon the friction-roller  $G^{12}$  the frame  $G^{10}$  is reciprocated toward the flexible gumming-band  $H$ . At the end of its stroke, as indicated in chain lines in Fig. 2, the retainer  $G$  comes into contact with that band and pressing against it



causes its upper portion to assume a curved form and to coat the adjacent surface of the retainer with adhesive, which has been previously applied to the band H by the brush H<sup>7</sup>. The frame G<sup>10</sup> then returns and when above the container J remains stationary while a strip is presented to the lower portion of the retainer. This portion is not the one to which adhesive has just been applied, but the one in front of it, which has, of course, been gummed during a previous operation of the machine. The retainer then continues its motion and is rotated through an angle of approximately ninety degrees by the action of the pawl G<sup>7</sup>. The strip which has just been applied to the retainer is now in an approximately vertical position, (see Fig. 2,) adhering to the projections G<sup>3</sup> upon the right-hand side of the retainer G. The retainer continues its motion and brings this strip into contact with the projections R<sup>2</sup> and R<sup>3</sup> upon the block R', as shown in chain lines in Fig. 2. Continued rotation of the shaft B now results in the retainer again commencing to travel toward the band H, and as it approaches the holder D the lifting device L L', &c., is raised and the front end of the strip on the top portion of the retainer G is lifted, and upon the lifting device L L', &c., being released by the pawl M<sup>2</sup> comes into contact with the end of the cigarette. As the lifting device drops it passes down the gap between the segmental portions G' of the retainer G, and immediately afterward the lever N descends and taps the newly-applied strip with the plate N<sup>2</sup>. It should be mentioned that during the time the retainer travels from the container to the device R and back to the holder and during the tapping operation the holder D is stationary, the plain part of the circumference of the disk D<sup>3</sup> being adjacent to the teeth of the pinion D<sup>2</sup>. After the plate N<sup>2</sup>, carried by the lever N, has tapped the cigarette it rises and the holder D starts rotating, carrying with it the cigarette. The plate N<sup>2</sup> then descends and remains in contact with the strip, which is consequently wrapped around the end of the cigarette smoothly. The retainer G then continues its motion toward the band H without further rotation, and another face of the retainer is coated with adhesive. It will be seen that for every complete revolution of the shaft B the retainer G rotates for a quarter of a revolution; but during this period a distinct operation is performed upon each of the segmental portions G' of the retainer G—namely, one is coated with adhesive, another (previously coated) has a strip presented to it, the next has the strip more intimately applied to it, while the fourth gives up its strip to the cigarette. The finished cigarette is ejected by the plunger E during the time that the retainer G is moving from the container J to the device R and back to the holder D. The stop F<sup>3</sup> is moved downward and pushes the

cigarette slightly back in the holder D just after the plunger E has started on its backward stroke.

Although it is preferred to apply an adhesive to the retainer and to use strips of material previously uncoated, yet, if desired, strips previously coated on one side with adhesive material may be employed, in which case they would be placed in the container with the coated side uppermost and water or a similar moistening agent applied to the retainer.

I do not herein claim the delivery apparatus shown, which forms the subject-matter of my pending application, Serial No. 4,986, filed February 12, 1900, nor do I herein claim the feed apparatus which forms the subject-matter of my pending application, Serial No. 4,985, filed February 12, 1900.

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

1. In a cigarette-mouthpiece-applying machine the combination of a holder for the cigarette, a retainer for a strip, means for moistening the retainer, means for presenting a strip to and contacting it with the retainer, means for moving the retainer with the strip into proximity with the cigarette, and a lifting device to disengage the strip from the retainer and bring its under surface into contact with the cigarette.

2. In a cigarette-mouthpiece-applying machine the combination of a holder for the cigarette, a retainer for a strip, means for supplying adhesive to the retainer, means for presenting a strip to and contacting it with the retainer, means for moving the retainer with the strip into proximity with the cigarette, and a lifting device to disengage a portion of the strip from the retainer and bring its under surface into contact with the cigarette.

3. In a cigarette-mouthpiece-applying machine the combination of a holder for the cigarette, a retainer for a strip, means for supplying adhesive to the retainer, means for automatically presenting a strip to and contacting it with the retainer, means for bringing the strip into more complete contact with the adhesive-coated surface of the retainer, means for moving the retainer with the strip into proximity with the cigarette, and a lifting device to disengage a portion of the strip from the retainer and bring its under surface into contact with the cigarette.

4. In a cigarette-mouthpiece-applying machine the combination of a holder for the cigarette, a retainer for a strip, means for supplying adhesive to the retainer, means for automatically presenting the strip to and contacting it with the retainer, means for bringing the strip into more complete contact with the adhesive-coated surface of the retainer, means for moving the retainer with the strip into proximity with the cigarette, a lifting device to disengage a portion of the strip from the retainer and bring its under surface into



contact with the cigarette, a tapping and smoothing device and means for operating such device.

5. In a cigarette-mouthpiece-applying machine the combination of a holder for the cigarette, a retainer for a strip, means for supplying adhesive to the retainer, means for automatically presenting the strip to and contacting it with the retainer, means for bringing the strip into more complete contact with the adhesive-coated surface of the retainer, means for moving the retainer with the strip into proximity with the cigarette, a lifting device to disengage a portion of the strip from the retainer and bring its under surface into contact with the cigarette, a tapping and smoothing device, means for operating such device and a stationary support for the end of the cigarette under treatment.

6. In a cigarette-mouthpiece-applying machine the combination of a holder for the cigarette, means for protruding the cigarette too far through the holder, means for partially returning the cigarette into the holder, a retainer for a strip, means for supplying adhesive to the retainer, means for automatically presenting the strip to and contacting it with the retainer, means for bringing the strip into more complete contact with the adhesive-coated surface of the retainer, means for moving the retainer with the strip into proximity with the cigarette, and a lifting device to disengage a portion of the strip from the retainer and bring its under surface into contact with the cigarette, substantially as set forth.

7. In a cigarette-mouthpiece-applying machine a holder for the cigarette, means for intermittently rotating the holder, a retainer having accommodation for a strip, means for intermittently reciprocating and rotating the retainer, a spring-controlled band, means for intermittently supplying the band with adhesive, a container for the strips, means for intermittently reciprocating the container, a relieving-piston within the container, means for intermittently reciprocating the piston, a lifting device to disengage a portion of the strip from the retainer and bring its under surface into contact with the cigarette and an inclined plane operating to raise the lifting device, substantially as set forth.

8. In a cigarette-mouthpiece-applying machine a holder for the cigarette, means for intermittently rotating the holder, a retainer having accommodation for a strip, and a pin which engages with the strip, means for intermittently reciprocating and rotating the retainer, a spring-controlled band, means for intermittently supplying the band with adhesive, a container for the strips, means for intermittently reciprocating the container, a relieving-piston within the container, means for intermittently reciprocating the piston, a block having two projections for bringing the strip into intimate contact with the adhesive-coated surface of the retainer one projection

having accommodation for the pin upon the retainer and the other being a spring, a lifting device to disengage a portion of the strip from the retainer and bring its under surface into contact with the cigarette and an inclined plane operating to raise the lifting device, substantially as set forth.

9. In a cigarette-mouthpiece-applying machine a holder for the cigarette, means for intermittently rotating the holder, a retainer having accommodation for a strip and a pin which engages with the strip, means for intermittently reciprocating and rotating the retainer, a spring-controlled band, means for intermittently supplying the band with adhesive, a container for the strips, means for intermittently reciprocating the container, a relieving-piston within the container, means for intermittently reciprocating the piston, a block having two projections for bringing the strip into intimate contact with the adhesive-coated surface of the retainer one projection having accommodation for the pin upon the retainer and the other being a spring, a lifting device to disengage a portion of the strip from the retainer and bring its under surface into contact with the cigarette, an inclined plane operating to raise the lifting device, a tapping and smoothing device and means for causing it to give a series of taps and then to rest upon the strip in process of application, substantially as set forth.

10. In a cigarette-mouthpiece-applying machine a holder for the cigarette, means for intermittently rotating the holder, a retainer having accommodation for a strip and a pin which engages with the strip, means for intermittently reciprocating and rotating the retainer, a spring-controlled band, means for intermittently supplying the band with adhesive, a container for the strips, means for intermittently reciprocating the container, a relieving-piston within the container, means for intermittently reciprocating the piston, a block having two projections for bringing the strip into intimate contact with the adhesive-coated surface of the retainer one projection having accommodation for the pin upon the retainer and the other being a spring, a lifting device to disengage a portion of the strip from the retainer and bring its under surface into contact with the cigarette, an inclined plane operating to raise the lifting device, a tapping and smoothing device, means for causing it to give a series of taps and then to rest upon the strip in process of application, and a stationary curved support for the end of the cigarette under treatment arranged so that it is normally just clear of the tipped end and operates during the period in which the cigarette is tapped substantially as set forth.

11. In a cigarette-mouthpiece-applying machine a holder, a plunger for protruding the cigarette too far through the holder, means for operating the plunger, a pivoted stop-lever for partially returning the cigarette into the holder, means for bringing the



stop-lever into a definite position relatively to the holder, a retainer having accommodation for a strip and a pin which engages with the strip, means for intermittently reciprocating and rotating the retainer, a spring-controlled band, means for intermittently supplying the band with adhesive, a container for the strips, means for intermittently reciprocating the container, a relieving-piston within the container, means for intermittently reciprocating the piston, a block having two projections for bringing the strip into intimate contact with the adhesive-coated surface of the retainer one projection having accommodation for the pin upon the retainer and the other being a spring, a lifting device to disengage a portion of the strip from the retainer and bring its under surface into contact with the cigarette and an inclined plane operating to raise the lifting device, substantially as set forth.

12. In a cigarette - mouthpiece - applying machine a holder for the cigarette, means for intermittently rotating the holder, a retainer having accommodation for a strip and a pin which engages with the strip, means for intermittently reciprocating and rotating the retainer, a spring-controlled band, means for intermittently supplying the band with adhesive, a container for the strips, means for intermittently reciprocating the container, a relieving-piston within the container, means for intermittently reciprocating the piston, a block having two projections for bringing the strip into intimate contact with the adhesive-coated surface of the retainer one projection having accommodation for the pin upon the retainer and the other being a spring, a lifting device to disengage a portion of the strip from the retainer and bring its undersurface into contact with the cigarette, an inclined plane operating to raise the lifting device, a heated tapping and smoothing device, means for causing it to give a series of taps and then to rest upon the strip in process of application and a stationary curved support for the end of the cigarette under treatment arranged so that it is normally just clear of the tipped end and operates during the period in which the cigarette is tapped, substantially as set forth.

13. In a cigarette - mouthpiece - applying machine a holder for the cigarette, means for intermittently rotating the holder, a retainer

having accommodation for a plurality of strips and pins engaging with said strips, means for intermittently reciprocating and rotating the retainer, a spring-controlled band, means for intermittently supplying the band with adhesive, a container for the strips, means for intermittently reciprocating the container, a relieving-piston within the container, means for intermittently reciprocating the piston, a block having two projections for bringing the strip into intimate contact with the adhesive-coated surface of the retainer one projection having accommodation for the pin upon the retainer and the other being a spring, a lifting device to disengage a portion of the strip from the retainer and bring its under surface into contact with the cigarette, an inclined plane operating to raise the lifting device, a heated tapping and smoothing device, means for causing it to give a series of taps and then to rest upon the strip in process of application and a stationary curved support for the end of the cigarette under treatment arranged so that it is normally just clear of the tipped end and operates during the period in which the cigarette is tapped, substantially as set forth.

14. In a cigarette - mouthpiece - applying machine the combination of a flexible band a spring acting to keep said band normally straight, means for supplying the band with adhesive, a retainer having a circular surface to receive the adhesive, and means for intermittently reciprocating the retainer and bringing it into contact with the strip substantially as set forth.

15. In a cigarette - mouthpiece - applying machine, the combination of a counterbalanced tapping-lever, means for intermittently raising the lever, a spring to oppose the latter portion of the upward movement of the lever and to operate upon said lever for the first portion of its downward stroke, and a stop to intercept the spring after a portion of the stroke has been made, substantially as set forth.

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

JOSEPH SAMUEL BEEMAN.

Witnesses:

HARRY B. BRIDGE,  
A. J. FRENCH.