

No. 662,775.

Patented Nov. 27, 1900.

L. DAVIS & H. HENDRIKS.  
CIGARETTE MAKING MACHINE.

(Application filed Nov. 21, 1899.)

4 Sheets—Sheet 1.

(No Model.)

Fig. 1.

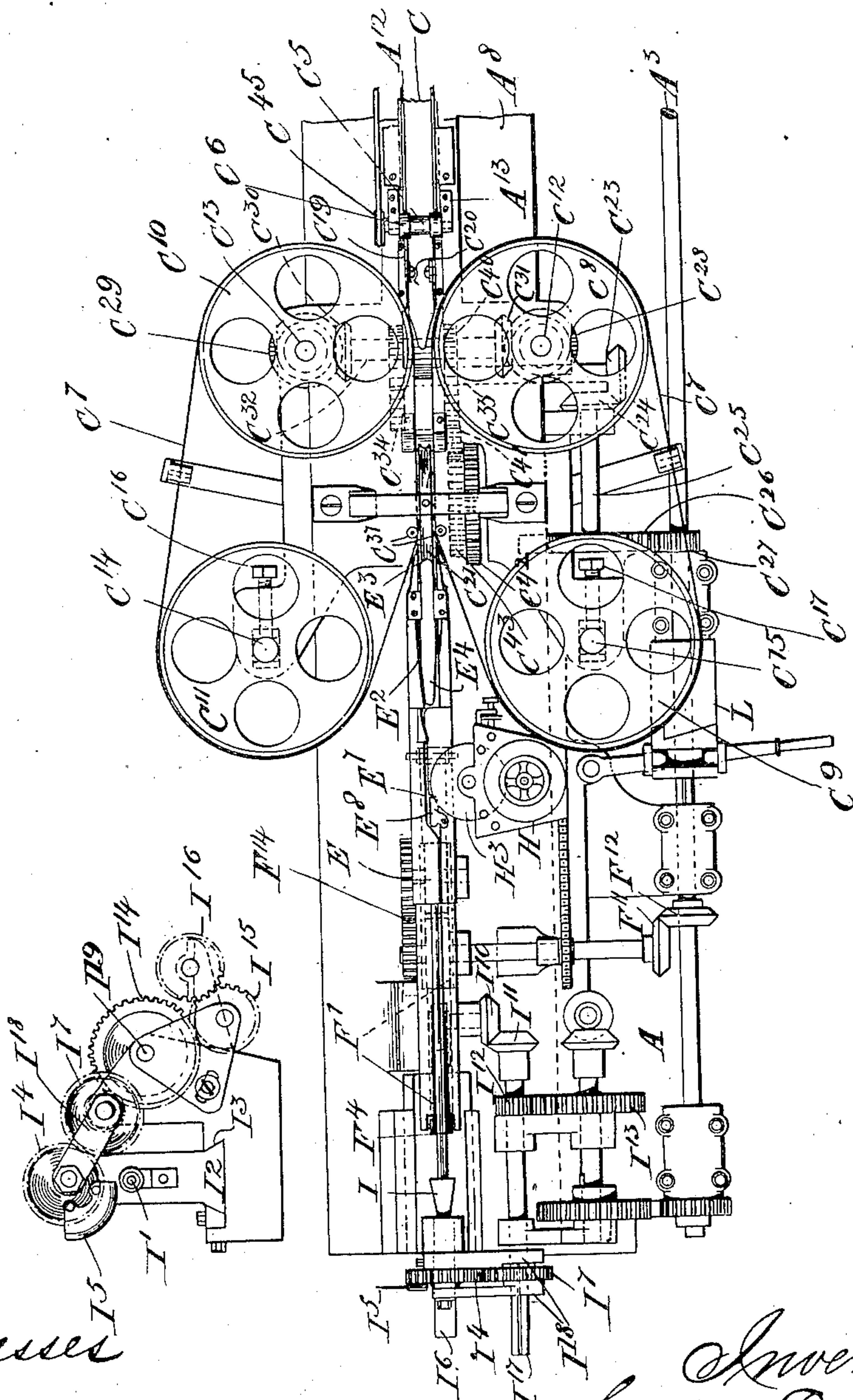
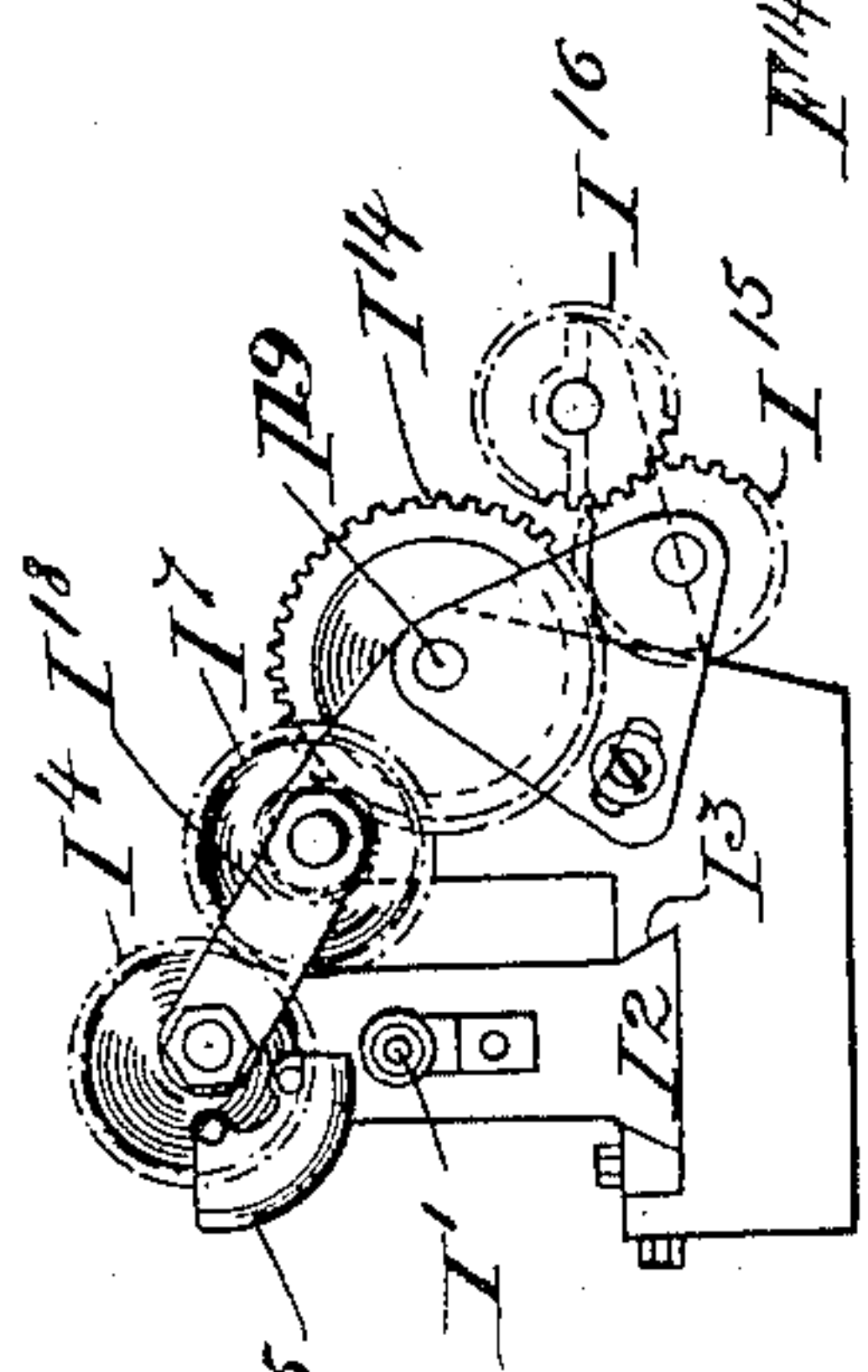


Fig. 4.



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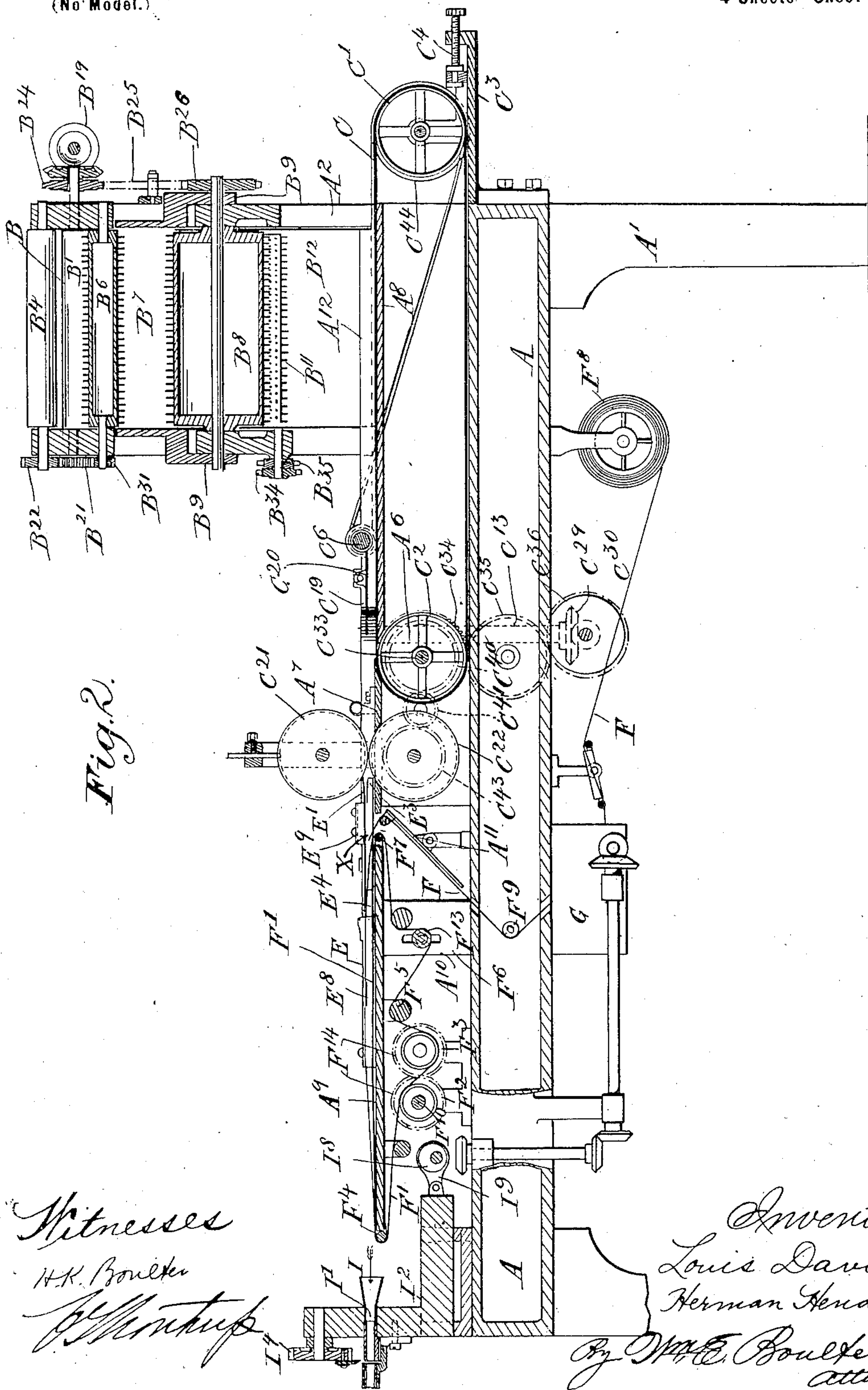
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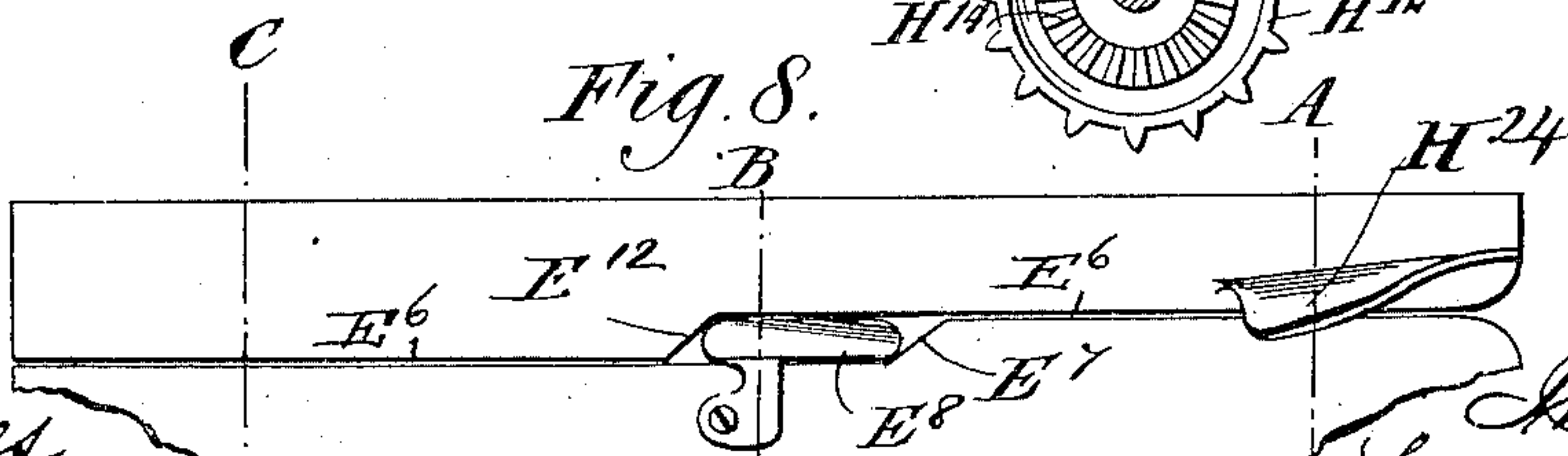
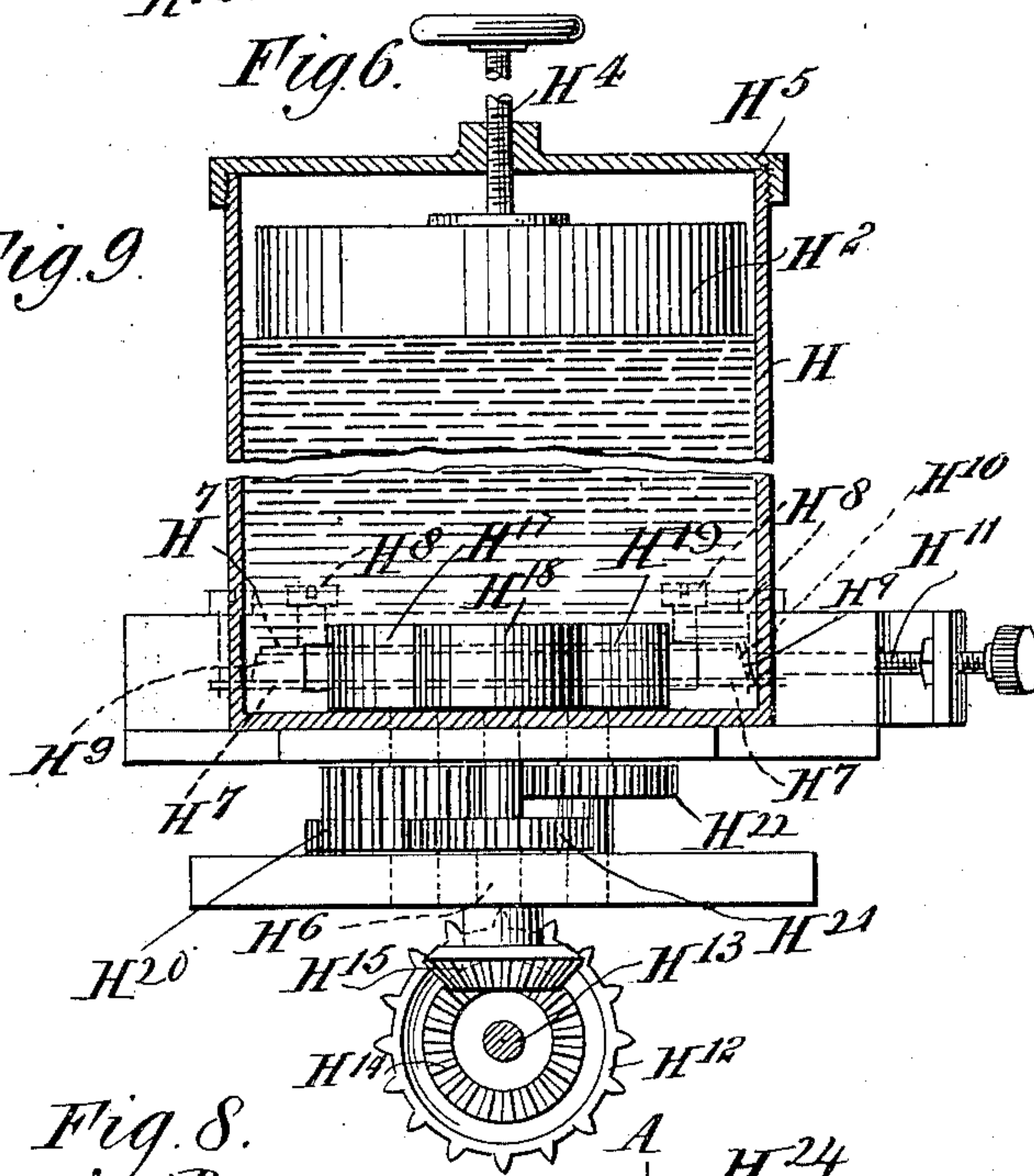
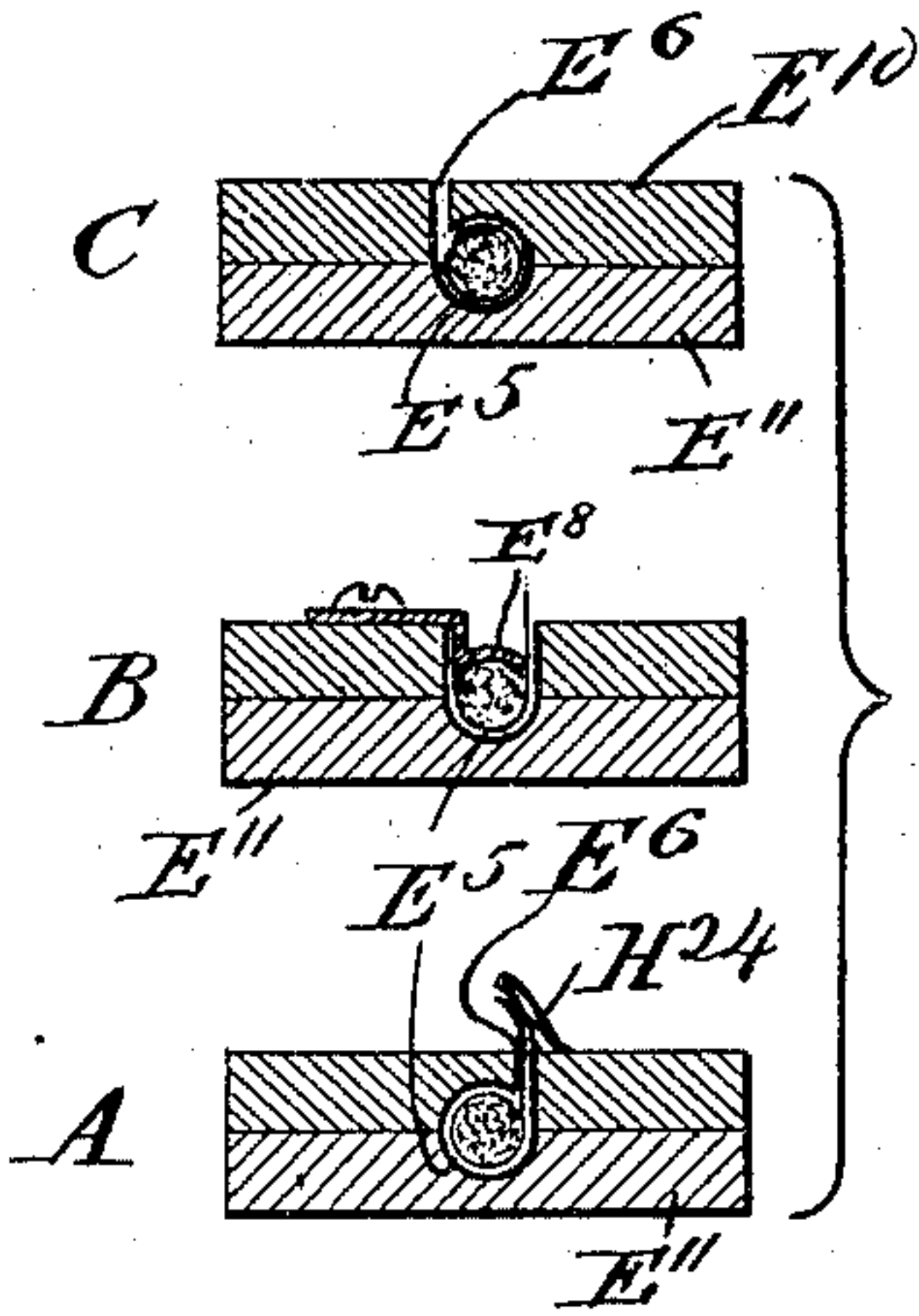
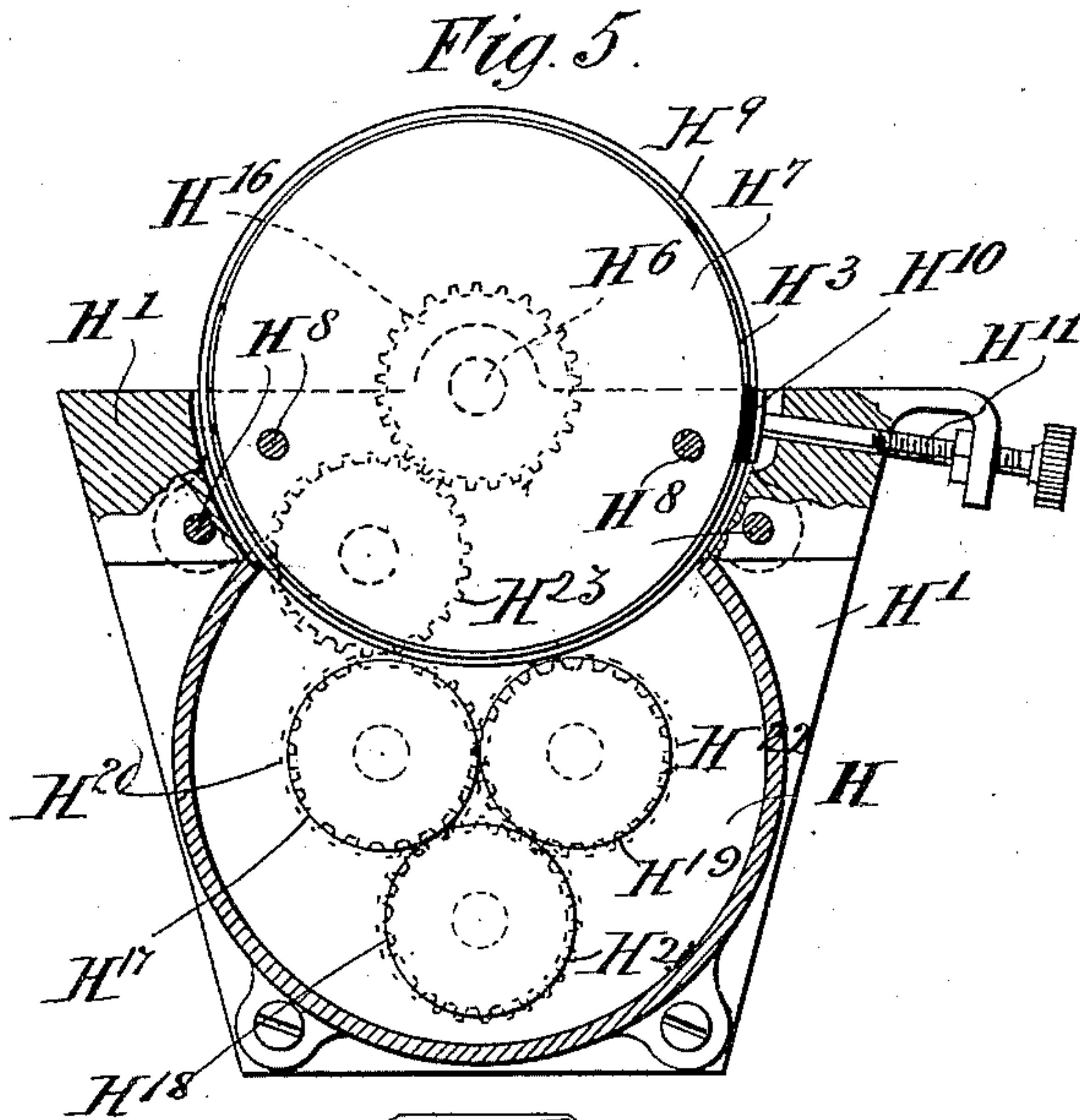
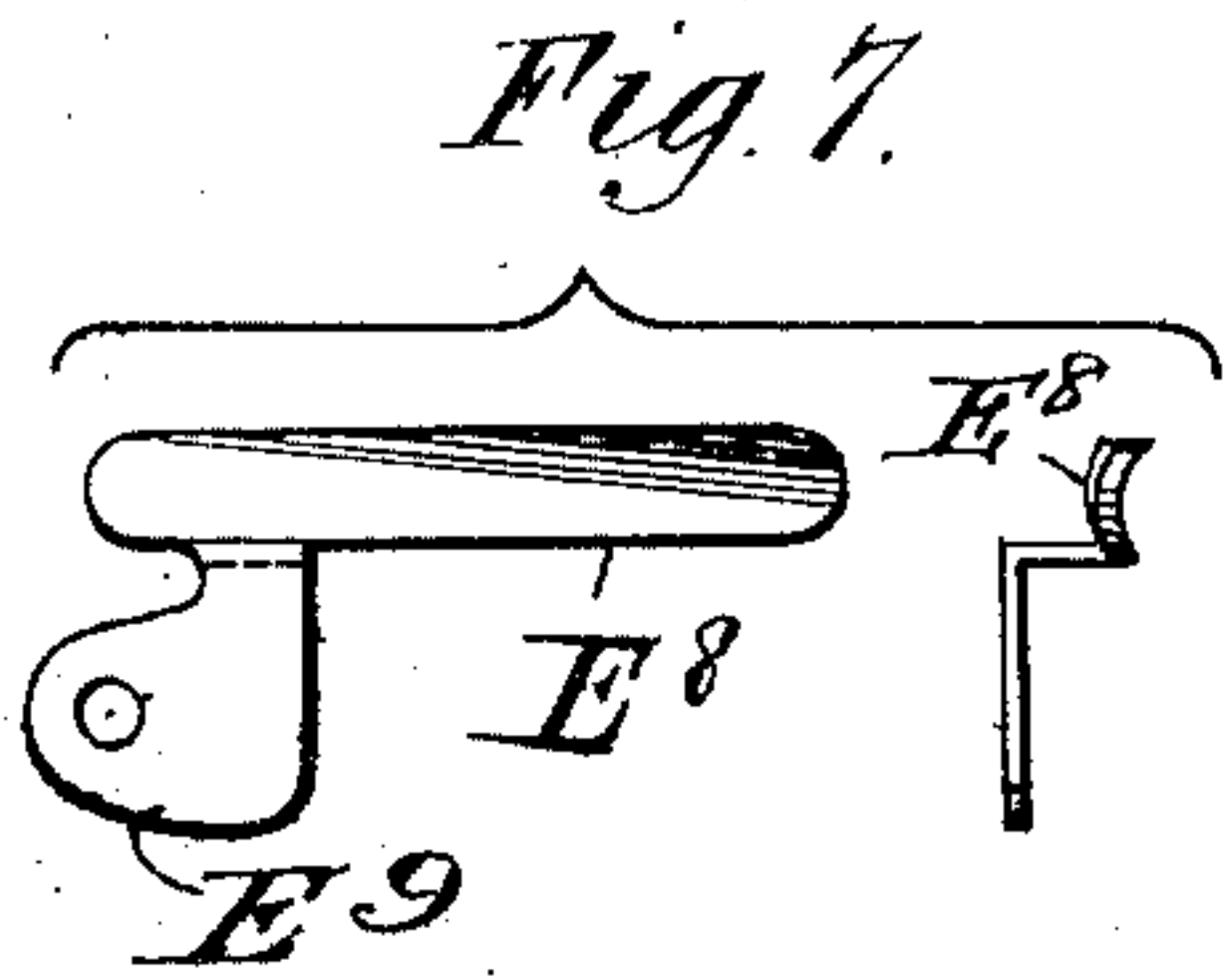


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CIGARETTE MAKING MACHINE.

(Application filed Nov. 21, 1899.)

(No Model.)

4 Sheets—Sheet 4.



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# UNITED STATES PATENT OFFICE.

LOUIS DAVIS AND HERMAN HENDRIKS, OF LONDON, ENGLAND.

## CIGARETTE-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 662,775, dated November 27, 1900.

Application filed November 21, 1899. Serial No. 737,727. (No model.)

*To all whom it may concern:*

Be it known that we, LOUIS DAVIS and HERMAN HENDRIKS, subjects of the Queen of England, residing at London, England, have invented certain new and useful Improvements in or Relating to Cigarette-Making Machines, (for which we have made application for Letters Patent in Great Britain, No. 8,636, dated April 25, 1899, and No. 22,152, dated November 6, 1899,) of which the following is a specification.

This invention relates to improvements in cigarette-making machines, and is especially applicable to that type of machine known as a "continuous-cigarette" machine.

The invention consists in the novel construction, arrangement, and combination of parts, as hereinafter fully described, illustrated in the drawings, and pointed out in the appended claims.

The invention will be best understood by reference to the accompanying drawings, in which—

Figure 1 is a plan of one construction of a complete cigarette-machine according to this invention. Fig. 2 is a central vertical section of the same. Fig. 3 is an end elevation of the machine looking toward the left in Fig. 1. Fig. 4 is an end view of the cutting mechanism. Fig. 5 is a separate plan view of the pasting device; Fig. 6, a central vertical section of the same. Fig. 7 includes a plan and an end view of the blade employed in the folder. Fig. 8 is a plan of the folder; and Fig. 9, a series of sections through the folder along lines A A, B B, C C of Fig. 7.

Like letters indicate like parts throughout the drawings.

The various mechanisms are disposed along the bed-plate A of the machine, supported upon standards A', which may be secured to the floor. The tobacco disintegrating and feeding mechanism is mounted in a framework A<sup>2</sup>, bolted to the bed-plate A. The tobacco is first placed upon a conveyer-band B, which travels over pulleys B' B<sup>2</sup>, the pulley B<sup>2</sup> being mounted between the standards B<sup>3</sup>. A plain roller B<sup>4</sup> is mounted in the framework A<sup>2</sup> in close proximity to the pulley B' and serves to roll the tobacco evenly as it passes over the end of the conveyer-band B. A second plain roller B<sup>5</sup> revolves in an oppo-

site direction to the pulley B' and draws the tobacco from between the plain roller B<sup>4</sup> and conveyer-band B, delivering it to a combing or picking roller B<sup>6</sup>, which revolves in the same direction as the pulley B', but at a much higher rate of speed. By the action of the picking-roller B<sup>6</sup> the tobacco is torn into fine shreds. It then falls into an oscillating hopper B<sup>7</sup> in a finely divided or disintegrated condition. The oscillating hopper B<sup>7</sup> is pivotally supported upon the extremities of the axle of a large pin-roller B<sup>8</sup>, mounted in the framing A<sup>2</sup>, by means of segment-pieces B<sup>9</sup>, the bottom of the hopper being virtually constituted by the pin-roller B<sup>8</sup>, which revolves slowly in the same direction as the combing-roller B<sup>6</sup>. A plain roller B<sup>10</sup> is mounted between the ends of the hopper B<sup>7</sup>, just out of contact with the pins of the roller B<sup>8</sup>, so that the tobacco falling onto the roller B<sup>8</sup> will be uniformly distributed and packed between the pins thereof by the combined oscillating action of the hopper B<sup>7</sup> and roller B<sup>10</sup>.

B<sup>11</sup> is a second high-speed picking or combing roller, the pins of which, intercalating with the pins of the roller B<sup>8</sup>, tear the tobacco from between the pins of the large roller B<sup>8</sup>, thereby effecting the final and complete disintegration of the tobacco, which then falls into a hopper B<sup>12</sup> and is delivered onto a traveling band C, by which it is conveyed to the next mechanism.

The means for operating the feeding and disintegrating mechanism are as follows: A spur-pinion A<sup>14</sup> upon the main driving-shaft A<sup>3</sup> drives, through the medium of a spur-wheel A<sup>15</sup>, sprocket-wheel B<sup>13</sup>, and chain B<sup>14</sup>, a sprocket-wheel B<sup>15</sup>, the latter being keyed to one end of a small counter-shaft B<sup>16</sup>. Upon the opposite end of the counter-shaft B<sup>16</sup> is keyed a bevel-pinion B<sup>17</sup>, which drives the pulley B' through the medium of bevel-pinions B<sup>18</sup>, B<sup>19</sup>, and B<sup>20</sup>. Upon the opposite extremity of the axle of the pulley B' is keyed a spur-pinion B<sup>21</sup>, which communicates motion to the rollers B<sup>5</sup> and B<sup>4</sup> through the medium of other spur-pinions B<sup>22</sup> B<sup>23</sup>. The large pin-roller B<sup>8</sup> is driven from the pulley B' through the medium of the sprocket-wheel B<sup>24</sup>, keyed to the extremity of the axle thereof, chain B<sup>25</sup>, and sprocket-wheel B<sup>26</sup>, keyed to the extremity of the axle of the pin-roller



B<sup>8</sup>. The high-speed combing or picking roller receives motion from the main shaft A<sup>3</sup> through the medium of a sprocket-wheel B<sup>27</sup>, keyed upon the latter, sprocket-chain B<sup>28</sup>, sprocket-wheel B<sup>29</sup>, spur-wheel B<sup>30</sup>, and spur-pinion B<sup>31</sup>, Fig. 2, keyed upon the extremity of its axle. The lowermost high-speed picking-roller is driven in a similar manner through the medium of a sprocket-wheel B<sup>32</sup>, sprocket-chain B<sup>33</sup>, sprocket-wheel B<sup>34</sup>, spur-wheel B<sup>35</sup>, and spur-pinion B<sup>36</sup>. The oscillation of the hopper is effected by an eccentric B<sup>40</sup>, keyed to the main driving-shaft A<sup>3</sup>, which reciprocates an eccentric-rod B<sup>38</sup>, coupled to an arm B<sup>39</sup>, secured to the hopper.

The operation of this mechanism is as follows: The tobacco being placed upon the conveyor B will be evenly rolled and fed to the combing-roller B<sup>6</sup> by means of the plain rollers B<sup>4</sup> and B<sup>5</sup>. The high speed of the combing-roller B<sup>6</sup> effects a very fine disintegration of the tobacco, which falls into the oscillating hopper B<sup>7</sup> and is uniformly distributed and evenly packed over the pin-surface of the roller B<sup>8</sup>, owing to the action of the hopper and its roller B<sup>10</sup>. The tobacco is finally and completely disintegrated by the second high-speed picking-roller B<sup>11</sup>, the pins of which intercalate with those of the roller B<sup>8</sup>. The tobacco in a thoroughly-disintegrated condition falls into the hopper B<sup>12</sup> and is delivered to the traveling band C. The endless traveling band C conveys the tobacco from beneath the hopper B<sup>12</sup> to the compressing and filler-forming mechanism. The band C travels upon two pulleys C<sup>1</sup> C<sup>2</sup>, one of which, C<sup>1</sup>, is mounted in a carriage arranged to slide upon a bracket C<sup>3</sup>, bolted to the end of the bed A, a hand-wheel and screw C<sup>4</sup> being employed to shift the carriage to adjust the tension of the band. The other pulley C<sup>2</sup> is mounted between supports A<sup>6</sup> of a table A<sup>7</sup>, the supports A<sup>6</sup> being bolted to the bed-plate A. The band C travels over a grooved platform A<sup>8</sup> from the hopper B<sup>12</sup> to the pulley C<sup>2</sup>, the cross-sectional dimensions of the band being slightly smaller than those of the groove. Flange-pieces A<sup>12</sup> are secured upon either side of the groove, so as to form a trough from the hopper B<sup>12</sup> to a compressing-roller C<sup>6</sup>, the bottom of the trough being constituted by the band C. As will be seen, the width of the trough is much less than the width of the band C and is very slightly greater than the width of the reduced portion C<sup>5</sup> of the compressing-roller C<sup>6</sup>. The tobacco is carried by the band C beneath the roller C<sup>6</sup> and is compressed vertically upon the band between the roller and the rigid platform A<sup>8</sup>. The roller C<sup>6</sup> is mounted between brackets A<sup>13</sup>, screwed to the platform A<sup>8</sup>. The tobacco is next compressed by a pair of endless metallic traveling bands C<sup>7</sup> C<sup>7</sup>, which are caused to pass around horizontal pulley-wheels C<sup>8</sup> C<sup>9</sup> C<sup>10</sup> C<sup>11</sup>. Two of these pulley-wheels—viz., C<sup>8</sup> C<sup>10</sup>—are keyed to vertical spindles C<sup>12</sup> C<sup>13</sup>, journaled in bosses formed upon the bed A of the machine, and are driven, while the other

two wheels C<sup>9</sup> C<sup>11</sup> are free to rotate about pins C<sup>14</sup> C<sup>15</sup>, adjustably secured in the table A<sup>7</sup>. The adjusting-screws C<sup>16</sup> C<sup>17</sup> enable the wheels to be shifted when it is desired to increase or decrease the tension of the bands C<sup>7</sup> C<sup>7</sup>. The wheels C<sup>8</sup> C<sup>10</sup> are mounted with but a slight space intervening between their peripheries. The wheels C<sup>9</sup> C<sup>11</sup>, however, are situated much farther apart. The tobacco is conveyed by the band C into a gradually-converging channel between the metallic bands C<sup>7</sup> C<sup>7</sup>, which compress it laterally and carry it forward. The bottom of the channel is constituted by the table A<sup>7</sup>, one end of which is in close proximity to the point at which the tobacco leaves the traveling band C, the bands C<sup>7</sup> C<sup>7</sup> commencing their compressing action upon the tobacco approximately at the same spot. The space between the bands C<sup>7</sup> C<sup>7</sup> and the compressing-roller C<sup>6</sup> is entirely inclosed by means of flange-pieces C<sup>19</sup>, secured to the platform A<sup>8</sup> and supporting between them a top cover-plate or apron C<sup>20</sup>, shaped so as to fit between the wheels C<sup>8</sup> C<sup>10</sup>. The flanges C<sup>19</sup> and cover-plate C<sup>20</sup> keep the tobacco from expanding after having been rolled by the roller C<sup>6</sup>. The tobacco is conveyed by the compressing-bands C<sup>7</sup> C<sup>7</sup> to grooved filler-forming rollers C<sup>21</sup> C<sup>22</sup>, arranged one over the other, with their grooved peripheries in close proximity, so as to form a circular or similarly-shaped passage or opening between them. The tobacco passing through such passage or opening is finally formed into a filler or rod of the required shape and dimensions and is ready to receive its paper wrapping.

The pulley C<sup>2</sup>, over which the belt C runs, is keyed to a shaft C<sup>33</sup>, set at right angles to the main shaft A<sup>3</sup>. This shaft C<sup>33</sup> receives its motion from the main shaft through the medium of bevel-wheels C<sup>23</sup> C<sup>24</sup>, spindle C<sup>25</sup>, spur-wheel C<sup>26</sup>, and spur-pinion C<sup>27</sup>, the latter being keyed to the main shaft A<sup>3</sup>. The compression-roller C<sup>6</sup> is driven from a grooved wheel C<sup>44</sup>, keyed to the spindle of the driven pulley C<sup>1</sup>, by means of a crossed belt which runs over a grooved wheel C<sup>45</sup>, secured upon the axle of the roller C<sup>6</sup>. To the lower extremities of the vertical spindles C<sup>12</sup> C<sup>13</sup> of the wheels C<sup>8</sup> C<sup>10</sup> are keyed bevel-wheels C<sup>28</sup> C<sup>29</sup>, which gear with other bevel-wheels C<sup>30</sup> C<sup>31</sup>, keyed to the extremities of a shaft C<sup>32</sup>, which is driven from the shaft C<sup>33</sup> through the medium of spur-wheels C<sup>34</sup> C<sup>35</sup> C<sup>36</sup>. The bands C<sup>7</sup> C<sup>7</sup> are caused to run parallel up to the grooved rollers C<sup>21</sup> C<sup>22</sup> by means of the friction-rollers C<sup>37</sup>, after passing which the bands diverge, owing to the distance between the peripheries of the wheels C<sup>9</sup> C<sup>11</sup>. The grooved rollers C<sup>21</sup> C<sup>22</sup> are driven from the shaft C<sup>33</sup> through the medium of spur-wheels C<sup>40</sup>, C<sup>41</sup>, C<sup>42</sup>, and C<sup>43</sup>.

The operation of the compressing and filler-forming mechanism is as follows: The tobacco is carried by the band C beneath the roller C<sup>6</sup>, as hereinbefore described. The roller C<sup>6</sup> compresses the tobacco in a vertical



direction, and it then proceeds to the compressing-bands  $C^7$   $C^7$ , passing from off the band  $C$  onto the table  $A^7$ . The bands  $C^7$   $C^7$  compress the tobacco laterally and deliver it to the grooved filler-forming rollers  $C^{21}$   $C^{22}$ , which finally form the tobacco into a filler or rod of the required shape and size and deliver it to the mouthpiece of a folding device.

The folding device  $E$  and its mouthpiece  $E'$  are secured to a long narrow platform  $A^9$ , supported upon uprights  $A^{10}$ , bolted to the bed  $A$ . The mouthpiece  $E'$  is constituted by a plate formed with a tapering groove  $E^2$ , the width of the groove at the entrance being almost equal to the width of the paper wrapper  $F$  and narrowing down to a semicircle in cross-section. Spring-blades  $E^3$  are situated within the groove  $E^2$  and serve to guide the tobacco rod and to cause the paper  $F$  and a canvas tape  $F'$ , supporting it, to conform to the shape of the groove  $E^2$ . The spring-blades  $E^3$  also prevent the paper from buckling. A convex presser-blade  $E^4$  is situated within the groove  $E^2$  and serves to press upon the tobacco filler or rod and prevent it from expanding. This blade is secured to the top of the plate  $E'$  by means of its shank  $E^9$ .

The folder  $E$  comprises two plates  $E^{10}$   $E^{11}$ , Figs. 8 and 9, each provided with a longitudinal groove. When the plates  $E^{10}$   $E^{11}$  are placed together, the grooves register with each other and form a circular passage  $E^5$ , through which the tobacco rod and its wrapper travel. The top plate  $E^{10}$  is divided longitudinally into two portions, such portions being situated slightly apart, so that a longitudinal slit  $E^6$  is formed for a purpose hereinafter described. The slit  $E^6$ , as will be seen in Fig. 8, is along one side of the circular passage  $E^5$  for a part of its length and along the opposite side for the remainder of its length. A loop-shaped aperture  $E^7$  is formed at or near the center of the plate, said aperture being the junction for the two portions of the slit. Within the aperture  $E^7$  a curved blade  $E^8$ , Figs. 8 and 9, is placed. This blade  $E^8$  is attached to the top plate  $E^{10}$  of the folder  $E$ . The endless canvas tape  $F'$ , which supports the paper throughout the folding operation, is driven by the rollers  $F^2$   $F^3$ . The tape  $F'$  after leaving the mouthpiece  $E'$  and folder  $E$  opens out flat and travels along the narrow platform  $A^9$  to the end thereof, where it passes around a friction-roller  $F^4$  and arrives at the rollers  $F^2$   $F^3$ , being lapped over the first roller  $F^2$  and underneath the second roller  $F^3$ . The tape passes from these driving-rollers over an idle roller  $F^5$  and then beneath a tension-roller  $F^{13}$ , which is mounted in vertical slots in the brackets  $F^6$ , so that such tension-roller  $F^{13}$  may be adjusted to take up any slackness of the tape  $F'$ . The tape passes around a second friction-roller  $F^7$  at the opposite end of the platform and arrives again at the mouthpiece of the folder. A small space  $A^{11}$  separates the end of the platform  $A^9$  from the edge of the table-plate  $A^7$ , and through such space the

paper strip  $F$  and canvas tape  $F'$  are passed. The paper is supplied by a roll  $F^8$  beneath the machine and is led through printing mechanism  $G$ , if desired, around a friction-roller  $F^9$  and upward over the roller  $F^7$ , where it meets with the canvas tape  $F'$  and passes with the tape into the mouthpiece  $E'$ . The roller  $F^2$  is keyed to a spindle  $F^{10}$  at right angles to the main shaft and driven therefrom by the bevel-pinions  $F^{11}$   $F^{12}$ . The motion received by the roller  $F^2$  is transmitted to the roller  $F^3$  through the spur-wheels  $F^{13}$   $F^{14}$ , keyed to the axes of the rollers. In Fig. 2 the paper is shown broken off at  $X$ , it not being shown in the mouthpiece and folder for sake of clearness.

The operation of the mouthpiece  $E'$  and folder  $E$  is as follows: The paper and canvas tape enter the mouthpiece  $E'$ , and as the narrow end of the groove  $E^2$  is approached they are formed into a channel, in the bottom of which lies the tobacco filler. Upon entering the circular passage in the folder  $E$  corresponding edges of the paper and tape are folded over, as shown in Fig. 9, section A, the opposite edges of the paper and tape remaining upright and passing along the slit  $E^6$  between the two portions of the top plate. The paper projects through the slit above the surface of the plate and is pasted by a pasting device hereinafter described. The curved or convex blade  $E^8$  serves both to separate the folded edge of the canvas tape from the folded edge of the paper and also to press upon the tobacco and keep it from expanding as it passes beneath the opening  $E^7$ . After having been lifted by the blade the edge of the canvas tape passes along the portion of the slit upon its side of the passage  $E^5$ , the opposite and pasted edge of the paper, together with the corresponding edge of the canvas band, being folded down over the under lap or edge by contact with the inclined edge  $E^{12}$  of the aperture  $E^7$ . The pressure to which the pasted edge is subjected during the passage of the cigarette through the remainder of the folder serves to effectually seal the freshly-made joint. After emerging from the folder the continuous length of cigarette is carried toward the cutting mechanism upon the endless tape  $F'$ .

Referring to Figs. 5 and 6, the paste-pot  $H$  is carried upon a base-plate  $H'$  and is provided with a weighted piston  $H^2$  to force the paste onto a pasting-wheel  $H^3$ . A screw  $H^4$ , passing through the lid  $H^5$ , may be turned by a hand-wheel if it is desired to increase the pressure of the piston upon the paste. The paste-wheel  $H^3$  is rotatably mounted upon a vertical spindle  $H^6$  and is situated partly within the paste-reservoir  $H$ . Scrapers  $H^7$  for the top and bottom surfaces of the paste-wheel are adjusted by means of the screws  $H^8$  to such a pressure as to prevent any paste from leaving the roller upon either of such surfaces. The pasting edge  $H^9$  of the wheel is slightly beveled, and the amount



of paste thereupon may be varied by means of the scraper H<sup>10</sup>, operated by means of a screw H<sup>11</sup>. The spindle of the paste-wheel receives its motion from the spindle F<sup>10</sup>, which drives a sprocket-wheel H<sup>12</sup>, keyed upon a spindle H<sup>13</sup>, which gears with the paste-wheel spindle H<sup>6</sup> through the bevel-pinions H<sup>14</sup> H<sup>15</sup>. Within the paste-pot H are three vertical grinding-rollers H<sup>17</sup> H<sup>18</sup> H<sup>19</sup>, the axes of which project through the base of the paste-reservoir and have keyed upon their extremities spur-pinions H<sup>20</sup> H<sup>21</sup> H<sup>22</sup>. The spur-wheel H<sup>20</sup> is of such a depth as to permit of the pinions H<sup>21</sup> H<sup>22</sup> gearing with it in different planes, as shown. The pinion H<sup>20</sup> is driven from the spindle H<sup>6</sup> of the paste-wheel through the medium of the spur-pinions H<sup>16</sup> H<sup>23</sup>.

The action of the pasting device is as follows: The paste-wheel projects over the folder, its edge carrying the paste being in the line of movement of the edge of the paper to be pasted, such edge protruding through the slit E<sup>6</sup> above the surface of the folder E. Before the paper edge reaches the blade E<sup>8</sup> it comes into contact with the edge H<sup>9</sup> of the rotating paste-wheel H<sup>3</sup>, a flange H<sup>24</sup>, secured to the folder E, serving to incline the edge of the paper over, so that it comes into intimate contact with the edge H<sup>9</sup> of the paste-wheel and is completely pasted. As has been shown, the rotation of the paste-wheel H<sup>3</sup> causes the rotation of the grinding-rollers H<sup>16</sup> H<sup>17</sup> H<sup>18</sup>, and these rollers serve to crush any lumps or small particles in the paste and insure that the paste is fed to the wheel H<sup>3</sup> in a uniform condition.

The finished continuous length of cigarette passes from the traveling tape F' into the severing or "cut-off" mechanism. A flared tubular entrance I guides the cigarette into an aperture I', formed in a reciprocating carriage I<sup>2</sup>, which moves in an undercut guideway I<sup>3</sup>. Upon the end of the carriage I<sup>2</sup> is mounted a spur-wheel I<sup>4</sup>, to which is bolted a knife-blade I<sup>5</sup>, the curved cutting edge of which is eccentric to the periphery of the wheel. The wheel I<sup>4</sup> itself is mounted eccentrically upon its spindle for a purpose hereinafter described. The knife-blade operates between the aperture I' in the carriage I<sup>2</sup> and a tubular support I<sup>6</sup>, carried upon the carriage in alinement with said aperture I'. The parts are so set that the carriage I<sup>2</sup> commences a forward movement in the same direction and at the same speed as the continuous cigarette at the moment the knife-blade I<sup>5</sup> commences its cut by being brought just above the cigarette-aperture I'. The eccentric mounting of both the spur-wheel I<sup>4</sup> and the spur-wheel I<sup>7</sup>, which drives it, produces a much faster cut-off than could be obtained with spur-wheels of the same dimensions mounted concentrically. The arrangement of the eccentric spur-wheels is such that at the moment the knife I<sup>5</sup> is about to make its cut that point upon the periphery of the spur-wheel I<sup>4</sup> which is near-

est to its spindle is in gear with the driving spur-wheel I<sup>7</sup>, which will necessarily be in gear at that point of its periphery farthest from its spindle, and an accelerated movement of the knife thus takes place, insuring a cleaner cut and reducing to a minimum the danger of buckling the cigarette. The knife-blade being situated above the cigarette-aperture I' comes first into contact with the freshly-pasted joint of the cigarette. The tendency therefore is to press the joint instead of to open it, as would be the case were the blade to operate from beneath the aperture I'.

The mechanism for reciprocating the carriage comprises an eccentric I<sup>8</sup>, an eccentric-rod I<sup>9</sup>, coupled to the carriage, and the following gear for turning the spindle upon which the eccentric is keyed: bevel-pinions I<sup>10</sup> I<sup>11</sup>, spur-pinions I<sup>12</sup> I<sup>13</sup>, spur-wheel I<sup>14</sup>, intermediate wheel I<sup>15</sup>, and driving-wheel I<sup>16</sup>, the latter being keyed to the main shaft A<sup>3</sup>. The eccentric spur-wheel I<sup>4</sup> receives its motion from the eccentric-wheel I<sup>7</sup>, which is feathered upon its spindle I<sup>17</sup> and is moved to and fro thereon by means of arms I<sup>18</sup>, fixed at one end to the spindle of the spur-wheel I<sup>4</sup>, the opposite ends sliding over the spindle I<sup>17</sup>, one upon each side of the wheel I<sup>7</sup>, which is thus moved to and fro in gear with the wheel I<sup>4</sup>. The spindle I<sup>17</sup> is driven by the aforesaid spur-pinions I<sup>12</sup> I<sup>13</sup>, spur-wheel I<sup>14</sup>, intermediate wheel I<sup>15</sup>, and driving-wheel I<sup>16</sup>. The cigarettes after having been severed fall onto a delivery-band or into any convenient receptacle. If it is desired to alter the length of cigarette, it is only necessary to change the driving spur-wheel I<sup>16</sup> for a larger or smaller one, as the case may be. The intermediate wheel I<sup>15</sup>, being mounted in a quadrant I<sup>19</sup>, which is movable about the point I<sup>19</sup>, can be brought into gear with various sizes of driving-wheel. The main driving-shaft A<sup>3</sup>, which is driven by means of the pulley K, may be in two portions, operatively connected by the clutch L, which may be disengaged, if desired, to allow the picking and compressing mechanisms to run while the other mechanisms are at rest.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. In a cigarette-making machine the combination of a picking-roller, a hopper pivotally mounted upon the axle of such roller so that a portion of the periphery of the roller forms a bottom to the hopper, a support in which the roller is mounted and means for oscillating the hopper and rotating the roller, substantially as set forth.

2. In a cigarette-making machine the combination of a picking-roller, a hopper pivotally mounted upon the axle of such roller so that a portion of the periphery of the roller forms a bottom to the hopper, pins or teeth on the periphery of the roller, a roller journaled at the base of the hopper so that its pe-



riphery is just clear of the teeth on the picking-roller, a support in which the several parts are mounted, and means for oscillating the hopper and rotating the picking-roller, substantially as set forth.

3. In a cigarette-making machine the combination of a slow-speed picking-roller, a hopper pivotally mounted upon the axle of such roller so that a portion of the periphery of the roller forms a bottom to the hopper, pins or teeth on the periphery of the roller, a roller journaled at the base of the hopper so that its periphery is just clear of the teeth on the picking-roller, a high-speed picking-roller the teeth of which intercalate with those on the slow-speed picking-roller, a support in which the several parts are mounted and means for oscillating the hopper and rotating the picking-rollers, substantially as set forth.

4. In a cigarette-making machine feeding and disintegrating mechanism comprising a conveyer-band, feed-rollers situated in proximity to the band so that they receive tobacco therefrom, a high-speed picking-roller having pins upon its periphery situated beneath the feeding-rollers, a hopper beneath the picking-roller, means for oscillating the hopper, a slow-speed picking-roller situated so that a portion of its periphery forms a bottom to the hopper, a roller journaled at the base of the hopper and operating to pack the tobacco upon the teeth of the slow-speed picking-roller, a high-speed picking-roller the teeth of which intercalate with those on the slow-speed picking-roller, a support in which the several parts are mounted, and means for driving the conveyer-band and the rollers, substantially as set forth.

5. In a cigarette-making machine the combination of a traveling band, a presser-roller above the band with its lower surface adjacent thereto so that it compresses tobacco carried by the band in a vertical plane, endless compressing-bands with approximately vertical sides operating to compress the tobacco laterally, a cover-plate between the presser-roller and the compressing-bands, grooved filler-forming rollers situated between the compressing-bands and means for driving the pressing-bands, the presser-roll,

the filler-forming rollers, and the compressing bands, substantially as set forth.

6. In a cigarette-making machine, the combination of a paste-reservoir, a weighted float within the reservoir, grinding-rollers within the reservoir, means for operating the rollers, a slot in the wall of the reservoir near the base thereof, a pasting-wheel in the reservoir, part of said wheel protruding through the slot, scrapers attached to the reservoir and arranged to operate on the top and bottom surfaces of the pasting-wheel, a scraper arranged to operate upon the pasting edge of said wheel and means for driving the pasting-wheel, substantially as set forth.

7. In a cigarette-making machine a "cut-off" device comprising a carriage, a spindle mounted in the carriage, a spur-wheel eccentrically mounted on the spindle, a knife-blade secured to the spur-wheel, a second spindle mounted upon the frame of the machine, a spur-wheel eccentrically mounted upon the second spindle and gearing with the spur-wheel on the first spindle and means for driving the spindles and for reciprocating the carriage, substantially as set forth.

8. In a cigarette-making machine a "cut-off" device comprising a carriage, a spindle mounted on the carriage, a spur-wheel eccentrically mounted on the spindle, a knife-blade secured to the spur-wheel at a point remote from the spindle, a second spindle mounted upon the frame of the machine, a spur-wheel eccentrically mounted upon the second spindle and capable of lateral motion thereon, said spur-wheel gearing with the spur-wheel on the first spindle, arms upon the carriage operating to effect the lateral movement of the spur-wheel on the second spindle, means for reciprocating the carriage, and means for driving the second spindle, substantially as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

LOUIS DAVIS.

HERMAN HENDRIKS.

Witnesses:

JOSEPH ARTHUR MORGAN,

WALTER J. SKERTEN.