

(No Model.)

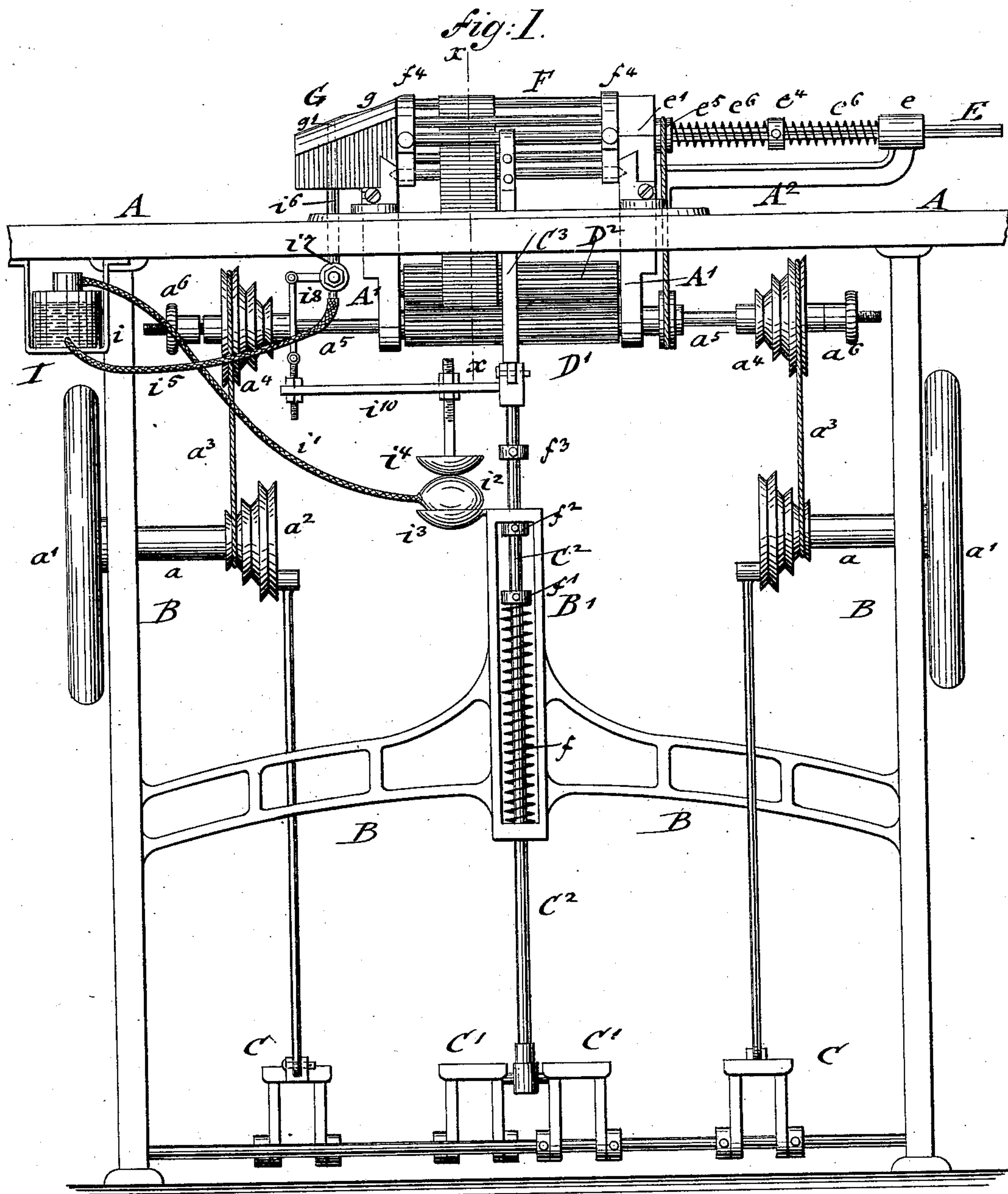
3 Sheets—Sheet 1.

J. E. SCHMALZ.

MACHINE FOR WRAPPING CIGAR BUNCHES.

No. 364,773.

Patented June 14, 1887.



WITNESSES:

A. Schehl.  
Carl Kay

INVENTOR

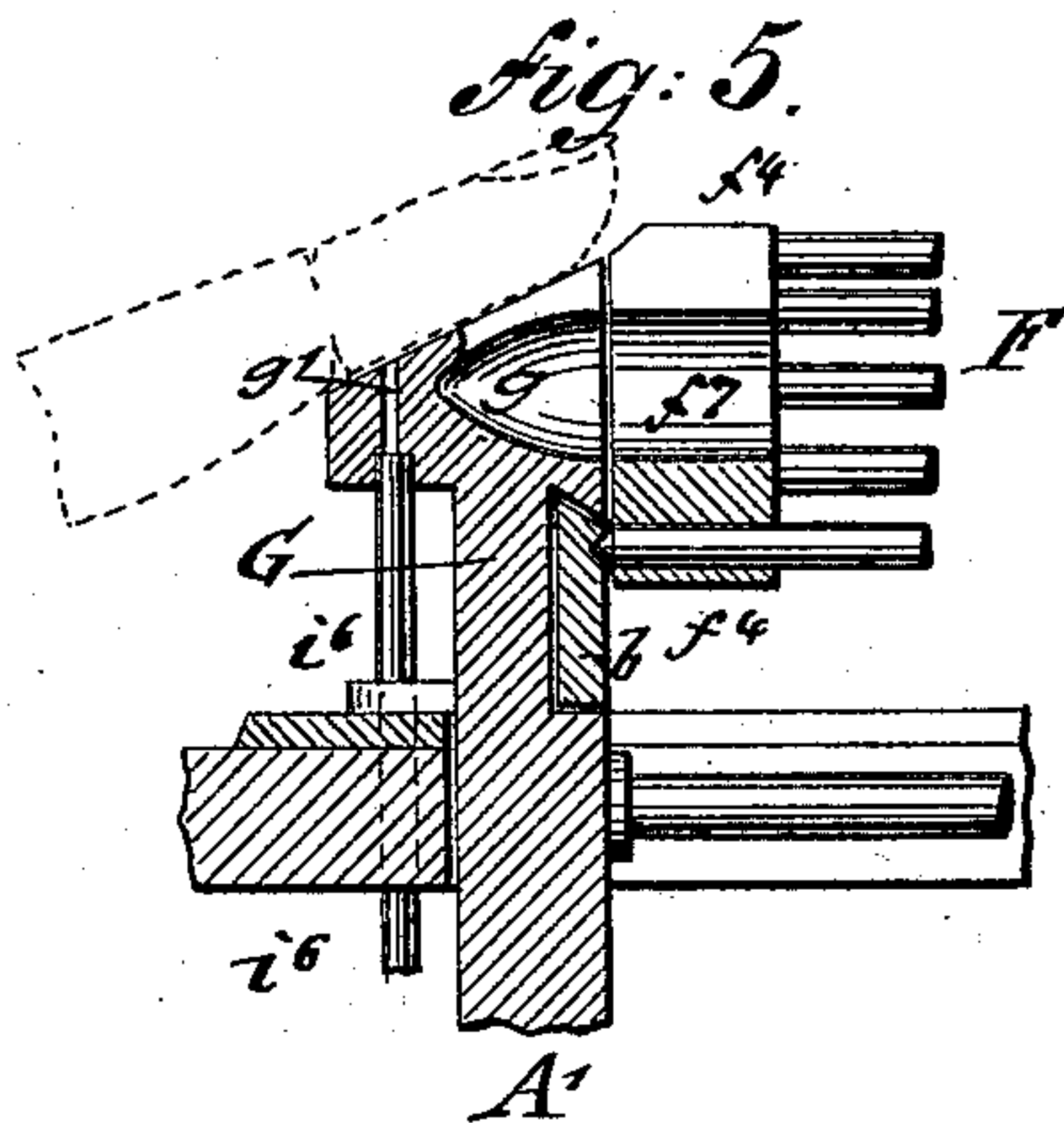
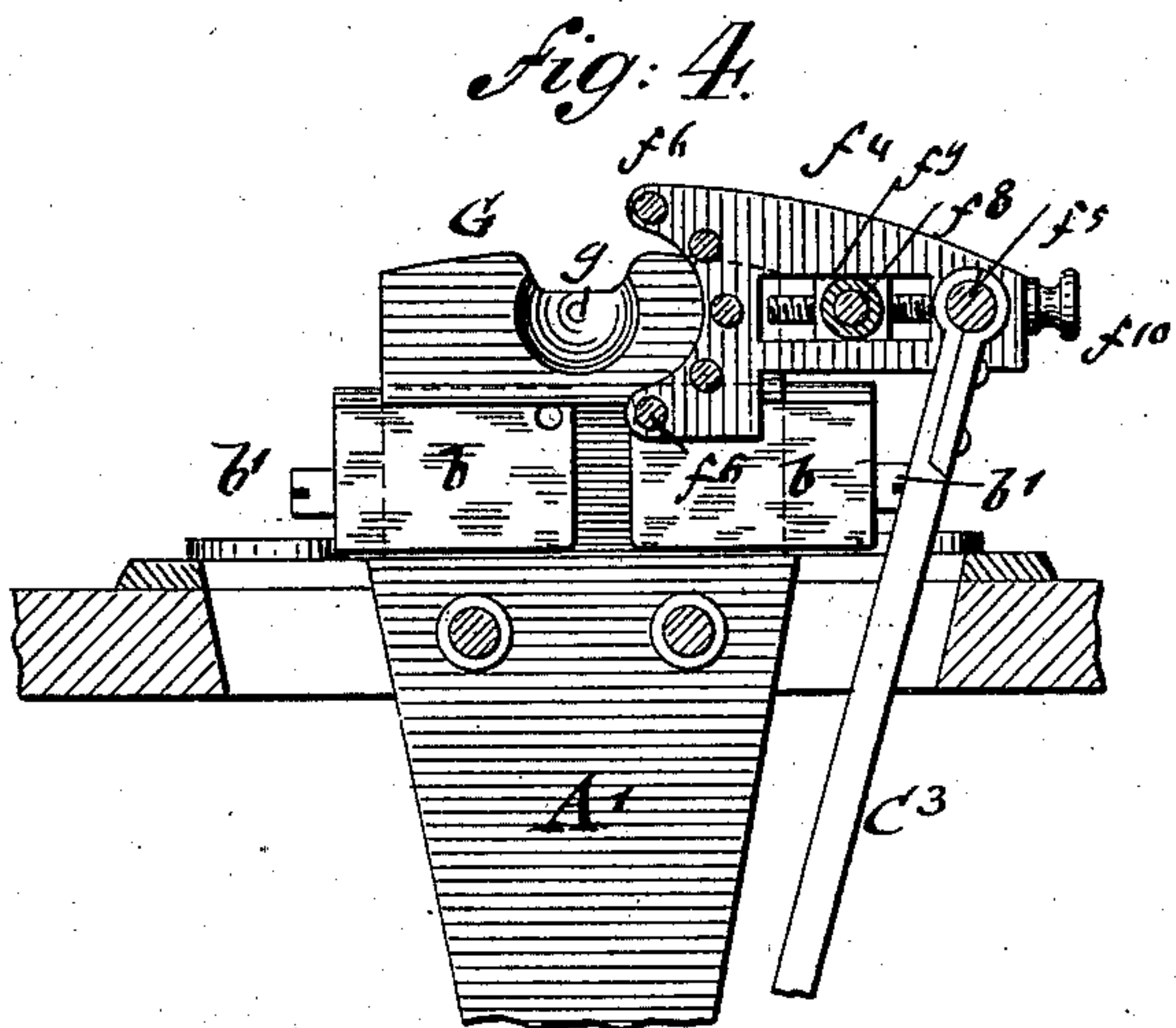
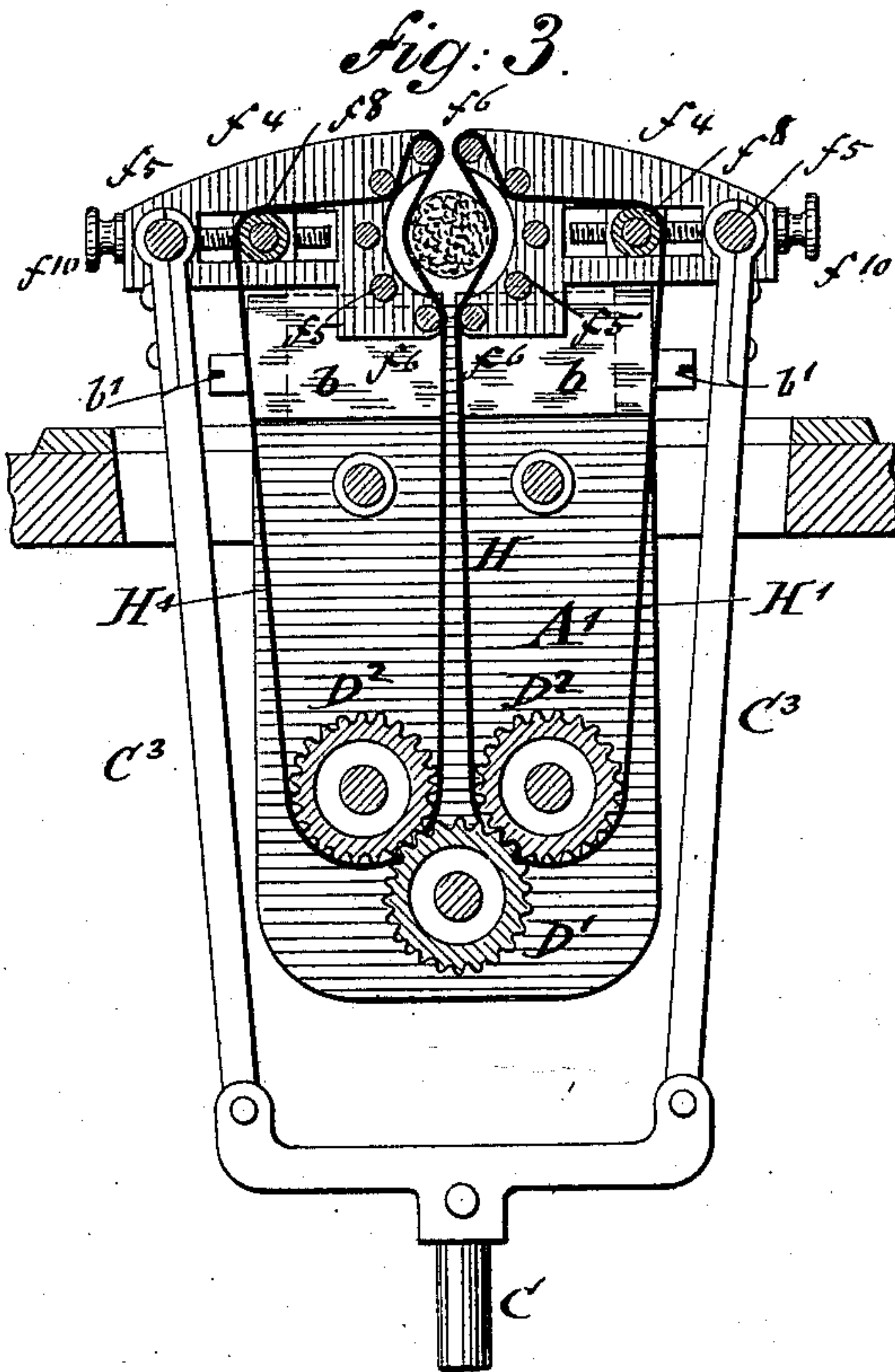
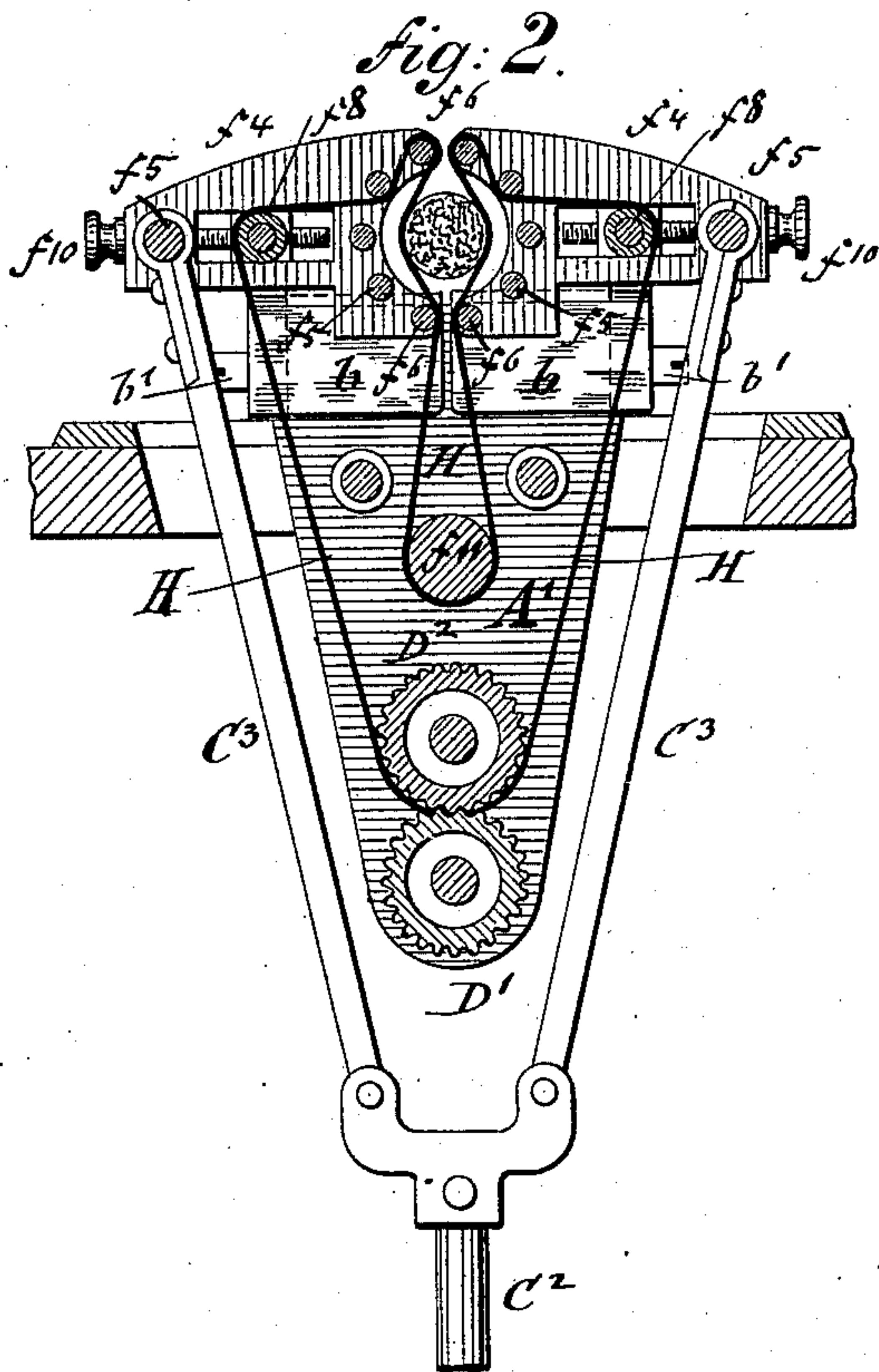
John E. Schmalz  
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(No Model.)

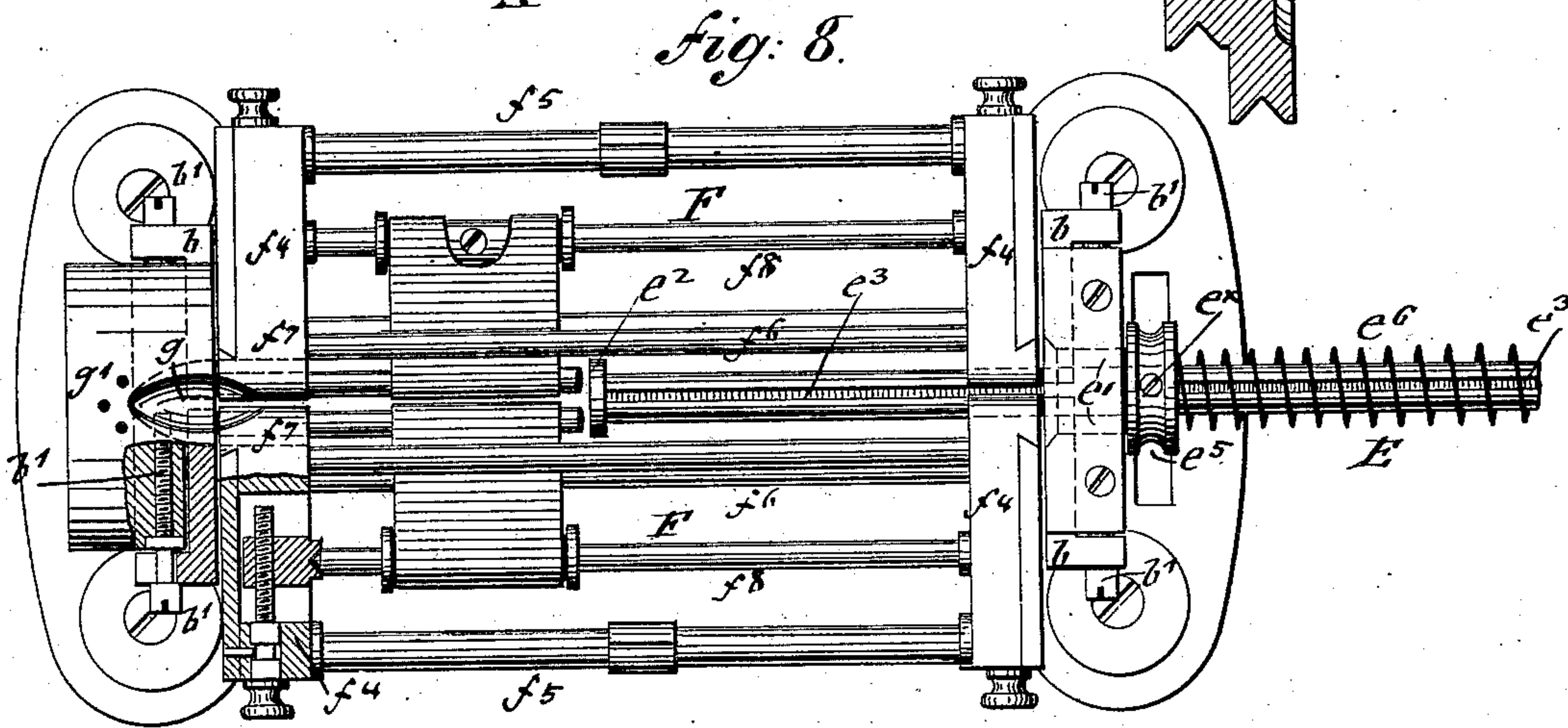
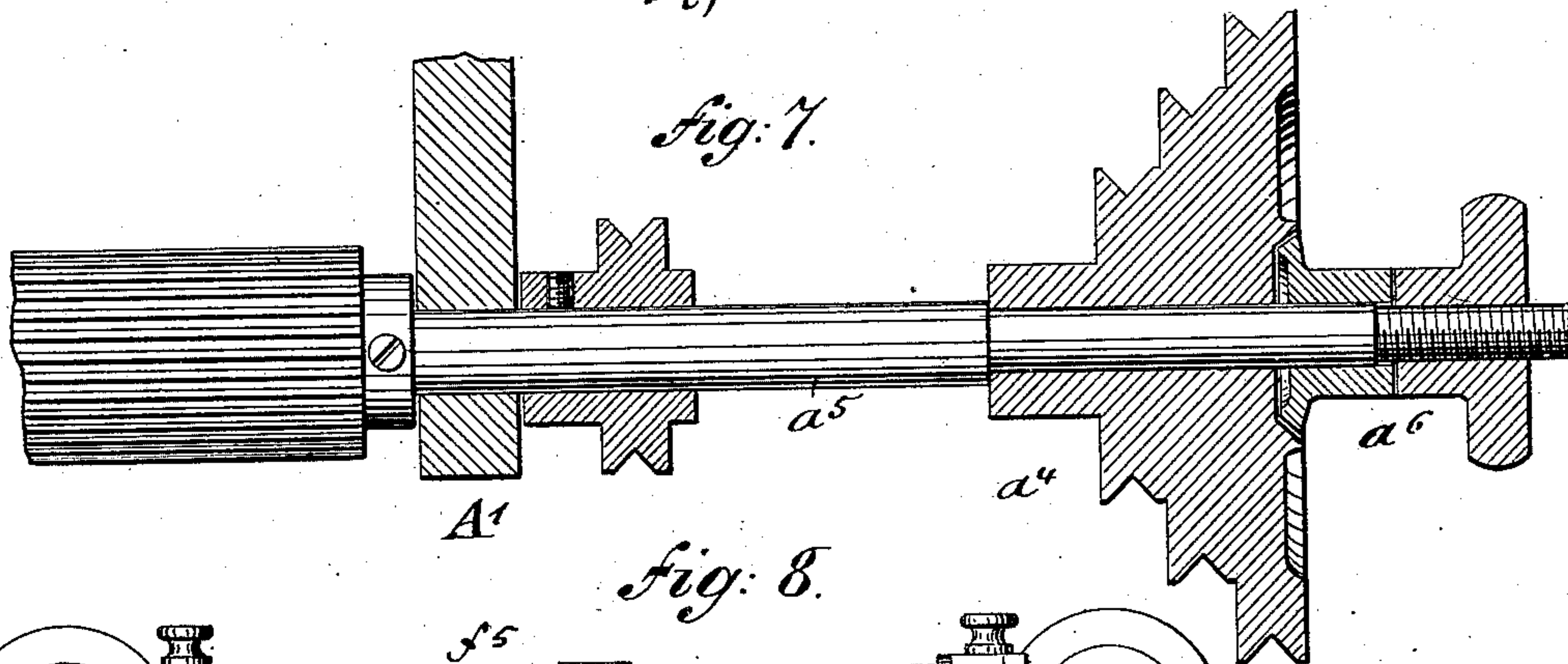
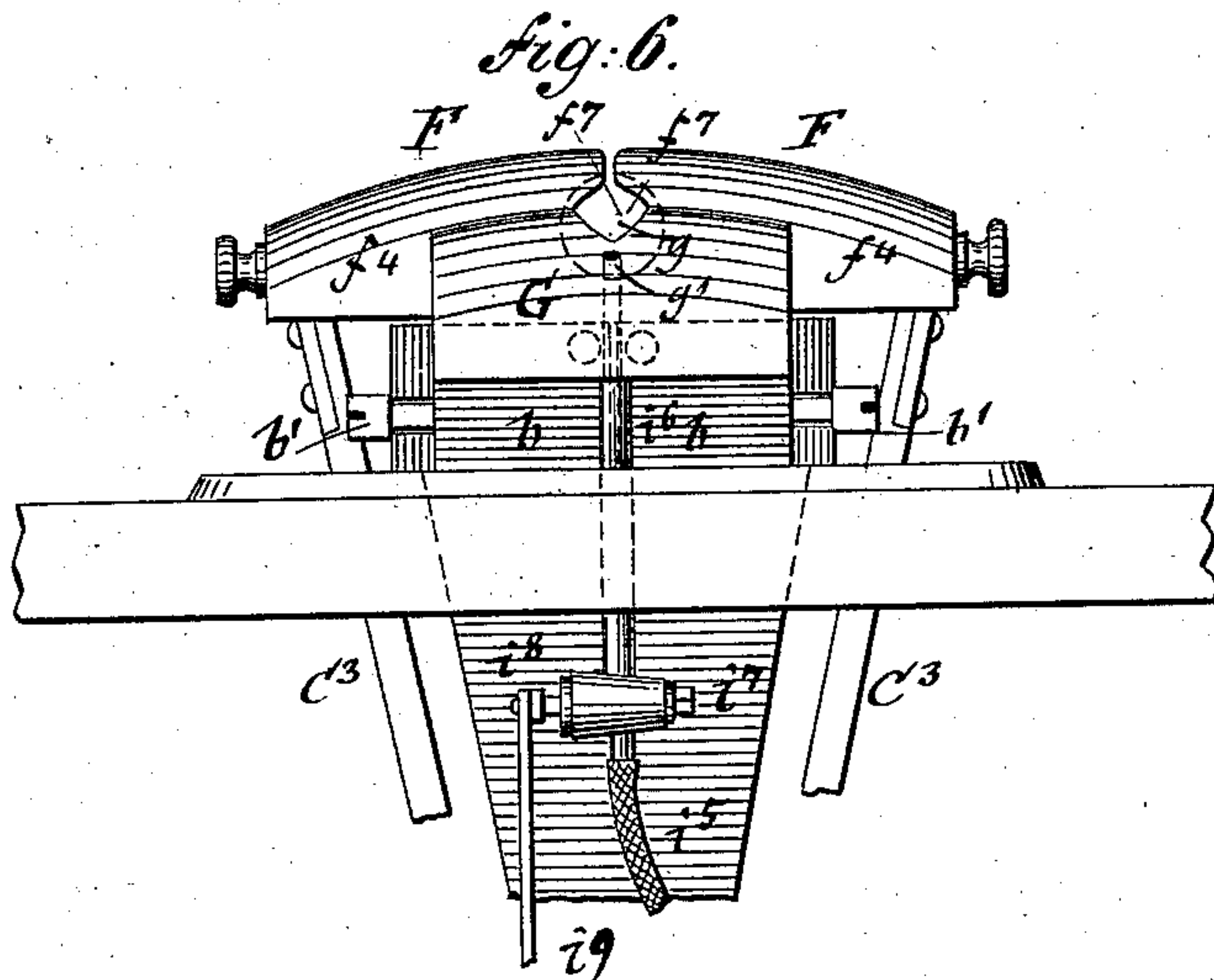
3 Sheets—Sheet 3.

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No. 364,773.

Patented June 14, 1887.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

JOHN E. SCHMALZ, OF NEW YORK, N. Y.

## MACHINE FOR WRAPPING CIGAR-BUNCHES.

SPECIFICATION forming part of Letters Patent No. 364,773, dated June 14, 1887.

Application filed February 8, 1887. Serial No. 226,897. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN E. SCHMALZ, of the city, county, and State of New York, have invented certain new and useful Improvements in Machines for Wrapping Cigar-Bunches, of which the following is a specification.

This invention relates to a machine of that class in which the wrapper is placed on the cigar-bunch by means of an endless apron that travels through a mold or form; and the invention consists of certain improvements in the cigar-wrapping machine for which Letters Patent were granted to me heretofore, and numbered 246,219, dated August 23, 1881, said improvements being more especially designed to simplify the construction of the wrapping-machine, facilitate the tension of the endless apron by which the wrapper is placed around the bunch, and wrap the tip end of the wrapper in a more perfect manner around the tip of the bunch.

Like the machine described in my former patent, this improved machine is intended to be worked by two operators, sitting at opposite sides of the machine, who supply the same alternately with right and left hand wrappers, whereby the operation of the machine is accelerated and the output of the same greatly increased.

In the accompanying drawings, Figure 1 represents a side elevation of my improved cigar-wrapping machine. Fig. 2 is a vertical transverse section of the wrapping mechanism, taken on line *x x*, Fig. 1, and drawn on a larger scale. Fig. 3 is a vertical transverse section, also on a larger scale, of the wrapping mechanism, showing a modified construction of the same. Fig. 4 is a vertical transverse section of a part of the wrapping mechanism and an end view of the tip-finishing block, also drawn on a larger scale. Fig. 5 is a vertical longitudinal section of the tip-finishing block. Fig. 6 is an end view of the tip-finishing block. Fig. 7 is a detail vertical section of part of the motion-transmitting mechanism, and Fig. 8 is a plan of the wrapping mechanism.

Similar letters of reference indicate corresponding parts.

In the drawings, A represents the table of my improved cigar-wrapping machine, and B

the stand or frame-work of the same, which supports at the lower part four treadles, C C', two of which are arranged in opposite direction to each other, for alternately operating the wrapping mechanism from opposite sides of the machine, while the remaining two are located near the center of the frame, immediately between the other treadles, and are also arranged in opposite direction to each other, for the purpose of opening the mold or bunch-holder when inserting the bunch or removing the cigar, and operating the paste-supplying mechanism at proper periods. The driving-treadles C are connected by pitmen with crank-shafts *a*, turning in bearings of the frame A, said crank-shafts having fly-wheels *a'* and step-pulleys *a''*, which latter transmit rotary motion by belts *a'''* to loose step-pulleys *a''''* on a driving-shaft, *a'''''*, that is supported in bearings at the lower ends of fixed hanger-plates A' of the table A, as shown clearly in Fig. 1.

At each end of the driving-shaft *a'''''* is arranged a friction-clutch, *a''''''*, by which the driving-shaft *a'''''* is thrown into mesh with the loose step-pulley *a''''*, so as to rotate the driving-shaft *a'''''* by the treadle mechanism next adjacent to the friction-clutch *a''''''*. (Shown in Fig. 7.) The treadles C' are connected to a vertically-guided and spring-actuated rod, C'', and pivot-links C''' with the bunch-holder, so as to open or close the same. The bunch-holder is supported in adjustable blocks *b b*, guided transversely in dovetailed grooves of the upper parts of the hanger-plates A'. Between the hanger-plates A' the table A is arranged with an opening for the bunch-holder. The hanger-plates A' are supported by horizontal flanges to the table A, and attached thereto by means of fastening-screws. One of the hanger-plates A' is provided with a bracket-arm, A'', which supports in suitable bearings, *e*, a revoluble and longitudinally-reciprocating mandrel, E, that is guided in line with the longitudinal axis of the wrapping mechanism by a sleeve-shaped bearing, *e'*, of the hanger-plate and the bearing of the bracket-arm, as shown in Figs. 1 and 8. The mandrel E is provided with an enlarged head, *e''*, at the inner end and guided by a longitudinal groove, *e'''*, along a spline or pin, *e''''*, of the sleeve-bearings *e'*. An adjustable collar, *e'''''*, is located on the mandrel be-



tween the hanger-plate and the bearing  $e$  of the bracket-arm  $A^2$ , and serves to adjust the position of the mandrel and its pusher-head with relation to the bunch-holder and tip-forming block. The mandrel  $E$  is rotated by a belt that passes over a pulley on the driving-shaft  $D$  and a pulley,  $e^5$ , at one end of the sleeve-bearing  $e^7$ , as shown in Fig. 8.

Between the pulley  $e^5$  of the sleeve bearing  $e^7$  and the collar  $e^4$ , and between the collar  $e^4$  and the bearing  $e$ , are interposed spiral springs  $e^6$   $e^6$ , by which the mandrel is pressed against the butt-end of the bunch, so that its tip is forced with gentle pressure into the cavity of the tip-forming block. The mandrel  $E$  rotates in the same direction as the wrapping mechanism and the bunch that is to be wrapped in the bunch-holder, so that no injurious action is exerted on the butt-end of the bunch by the mandrel. By the adjustable collar  $e^4$  the length to which the mandrel extends into the mold or bunch-holder is regulated, and the position of the mandrel thereby readily adjusted to the length of the bunch to be wrapped in the holder. The spiral springs  $e^6$   $e^6$  at both sides of the collar  $e^4$  keep the mandrel  $E$  nicely balanced, so that it yields readily to the bunch when rotating with the same, and the mandrel holds the bunch gently in position in the tip-block, but without exerting any pressure thereon, so that the wrapper can be wound readily around the tip and the mandrel "give" sufficiently without injurious friction on the butt of the bunch.

The mold or bunch-holder consists of two oscillating mold-sections,  $F$   $F$ , which are pivoted at their lower parts to the transverse guide-blocks  $b$   $b$  of the hanger-plates  $A'$ , and connected at their upper parts to the pivot-links  $C^3$ , and by the same with a cross-head at the upper end of the treadle-rod  $C^2$ , so that the depression of the latter opens the sections of the mold or bunch-holder. The rod  $C^2$  is guided in a central guide portion,  $B'$ , of the frame  $B$ , and acted upon by a spiral spring,  $f$ , interposed between the same and a collar,  $f'$ , as shown in Fig. 1. The extent of oscillating motion of the sections  $F$   $F$  of the bunch-holder is regulated by collars  $f^2$   $f^3$ , which are clamped to the rod  $C^2$ , one above and the other below the guide portion of the frame  $B$ . Each section  $F$  of the mold or bunch-holder  $F$  is composed of two curved end frames,  $f^4$ , and connecting-rods  $f^5$ , and a number of guide-rollers,  $f^6$ , some of which are arranged concentrically to the axis of the bunch-holder, as shown clearly in Figs. 2 and 3. The curved end frames,  $f^4$ , at one end of the mold or bunch-holder  $F$  are chambered out, so as to form semicircular cavities  $f^7$ , which form a connecting-space between the rollers and the tip-forming block  $G$ , which block is attached to the hanger-plate  $A'$  next adjoining the chambered end frames of the mold, as shown in Fig. 5. Each section of the bunch-holder is formed of five rollers, of which the two upper ones and the lowermost ones are arranged to turn on their axes, while

the intermediate ones are rigidly attached to the end frames,  $f^4$ . An additional roller,  $f^8$ , in each mold-section  $F$  turns in adjustable bearings  $f^9$ , which are guided in slots of the end frames,  $f^4$ , intermediately between the inner series of concentric rollers and the outer connecting-rod,  $f^5$ , said bearings being adjusted by the screws  $f^{10}$ , as shown in Figs. 2 and 3.

At the lower part of the hanger-plates  $A'$  are arranged fluted rollers  $D'$   $D^2$ , of which the lower one is located on the driving-shaft  $a^5$ , while the upper one is supported in bearings of the hanger-plates, as shown in Figs. 1 and 2. An endless apron,  $H$ , passes between the fluted rollers  $D'$   $D^2$ , then upward and over the adjustable roller  $f^8$  of one mold-section, then over the two upper rollers of the same mold-section, then down through the space inclosed by said rollers to the lowermost roller of the same section, and over a fixed center rod,  $f^{11}$ , supported by said hanger-plates, then in upward direction over the lowermost roller of the second mold-section, and over the upper rollers and the adjustable roller of the same back to the fluted rollers, as shown in Fig. 2. The adjustable rollers  $f^8$  serve as tension-rollers, and permit the exact adjustment of the apron from time to time to the proper degree of tension.

In place of one endless apron that passes over the fluted guide and tension rollers of both sections of the bunch-holder, two endless aprons,  $H'$ , may be used, which are arranged symmetrically to each other, one passing over the guide and tension rollers of one mold-section, the other passing over the corresponding rollers of the other section, as shown in Fig. 3. In this case both aprons pass through the center of the bunch-holder in the same manner as the single apron, (shown in Fig. 2,) but are driven by two independent fluted rollers,  $D^2$ , which receive both rotary motion, but in opposite direction to each other, from the fluted roller  $D'$  on the driving-shaft  $a^5$ , as shown in Fig. 3.

The arrangement of two aprons,  $H'$ , accomplishes in every respect the same work as the single apron, but has the advantage that aprons of less length are required, which can be more easily replaced from time to time when they are worn out. The two aprons form the equivalent of the single apron, and can be used in place of the same, according to the preference of the cigar-manufacturer using the machine.

The relative position of the mold-sections toward each other is regulated by means of the dovetailed guide-blocks  $b$   $b$ , which are guided in corresponding ways of the hanger-plates  $A'$  by set-screws  $b'$ , so as to be laterally adjusted toward or away from each other. The set-screws  $b'$   $b'$  turn in threaded sockets of the hanger-plates, and engage by their heads the forked outer ends of the guide-blocks, as shown clearly in Figs. 6 and 8. By this means the bunch-holder may be arranged for wrapping different sizes of cigar-bunches. The endless apron  $H$  is retained in position on the



guide-rollers by flanged sleeves on the tension-rollers, said flanged sleeves being capable of adjustment relatively to the tip-forming block. The endless apron H forms at the point where it passes through the space inclosed by the guide-rollers of the bunch-holder a bight for the bunch, by means of which the wrapper is drawn in and wound around the bunch. The tip-forming block G is made convex at its upper part for the convenient guiding of the finger, and provided with a tapering cavity, *g*, axially in line with the cavity formed by the chambered end frames of the bunch-holder. The cavity in the tip-block corresponds in shape to the tip to be produced, and is left open for about one-third (more or less) of the circumference of the tip, so that the forefinger of one hand can be readily placed over said opening, and assist in supplying the paste to the tip end of the wrapper and apply in connection with the tip-forming block the tip end of the wrapper to the tip of the bunch, in close imitation of wrapping the tip in hand-made cigars. The edges formed by the tapering cavity and opening with the convex surface of the block are rounded off, as shown in Fig. 4, so that the tip end of the wrapper is drawn over one edge or the other into the cavity, according as a right or left wrapper is wrapped around the tip of the bunch, without being torn or otherwise injured at the tip end, whereby the uniform drawing in and winding of said tip end around the tip of the bunch is produced. In my former patent the edges of the cavity were not rounded off, and consequently the tip end was liable to be stretched or torn in its passage over said edge, and consequently not wrapped so smoothly and uniformly on the tip of the bunch as with my present tip-forming block. When the cigar is wrapped, the bunch-holder is opened by a pressure on one of the treadles C' and the cigar removed. Simultaneously therewith the paste-supplying attachment, which communicates with one or more openings, *g'*, in the tip-block G, is operated and a small quantity of paste delivered through the opening *g* to the surface of the tip-forming block G. The paste-supplying mechanism is shown in Fig. 1, and consists of a closed paste holder or reservoir, I, that is supported on a fixed bracket, *i*, below the table A, its top part being connected by a flexible tube, *i'*, with an elastic air-bulb, *i''*, that is supported on a fixed concave bracket, *i'''*, of the central guide portion, B', of the frame B, and compressed by a convex cheek, *i''''*. A second flexible tube, *i'''''*, leads from the bottom of the paste-holder I to a pipe, *i''''''*, which passes through the table A and communicates with the opening *g'* in the tip-block G. The pipe *i''''''* is provided with a stop-cock, *i'''''''*, that is connected, by a crank-arm, *i''''''''*, and an intermediate pivot-link, *i'''''''''*, with a fixed horizontal arm, *i''''''''''*, that extends sidewise from the cross-head of the treadle-rod C<sup>2</sup>. The convex presser-cheek *i'''''''''''* is attached to the horizontal arm *i''''''''''*, and presses on the top of the bulb *i''* whenever one

of the treadles C' is depressed and the bunch-holder opened, so as to force air into the paste-holder I. Simultaneously with the compression of the bulb the stop-cock *i'''''''* of the paste-supply pipe *i''''''* is opened and a small quantity of paste expelled through the top of the block G, which paste is taken up by the finger and supplied to the tip end of the wrapper as said tip end is wound around the tip of the bunch. The cigar is then removed and a new bunch and wrapper placed in the bunch-holder for being wrapped.

As compared to my prior patent referred to, the novel features of the present machine consist in the construction of the bunch-holder with its adjustable tension-rollers and adjustable guide-blocks for regulating the tension of the endless apron, by which the wrapper is placed around the bunch and the bunch-holder adjusted for different sizes of bunches, and in the specific constructions of the tip-forming block, the paste-supplying mechanism, and the connection of the same with the air-forcing mechanism, by which the paste is delivered for use at the surface of the tip-forming block.

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

1. In a cigar-bunch-wrapping machine, the combination of supporting hanger-plates having transverse ways, blocks guided in said ways, a bunch-holder or mold formed of two sections pivoted to said guide-blocks, each block comprising a series of guide-rollers and a tension-roller, an endless apron passing around the rollers of said sections and through the center of the bunch-holder, a stationary tip-forming block at one end of the bunch-holder, and a rotary longitudinally-guided and spring-balanced mandrel at the other end of the bunch-holder, substantially as set forth.

2. The combination of a bunch-holder or mold composed of two pivoted sections, each comprising a series of guide and tension rollers, an endless apron passing through the center of the bunch-holder and around the rollers of the sections, a tip-forming block at one end and a positively-rotating mandrel at the opposite end of the bunch-holder, said mandrel being longitudinally guided in suitable bearings and provided with an adjustable collar and spiral balancing-springs interposed between the collar and bearings, substantially as set forth.

3. In a cigar-wrapping machine, the combination of supporting hanger-plates having transverse guideways, blocks guided in said ways, a bunch-holder or mold formed of two sections pivoted to said guide-blocks, and set-screws for laterally adjusting said blocks, so as to adjust the bunch-holder for different sizes of bunches, substantially as set forth.

4. In a cigar-wrapping machine, a tip-forming block having a convex surface, a tapering cavity in line with the axis of the bunch-holder, a tapering opening at the upper part of the block, rounded-off edges at both sides of said



opening, and one or more paste-supplying holes near the point of said tapering opening, substantially as set forth.

5 5. The combination of a bunch-holder or mold having pivoted sections, mechanism, substantially as described, for opening and closing said sections, a tip-forming block having a paste-supply opening or openings, and a paste-supplying mechanism operated by the  
10 mechanism for opening the bunch-holder, an air-bulb, a supply-tube connecting the holder to the tip-forming block, a stop-cock in said supply-pipe, a tube connecting the air-bulb

with the paste-holder, cheeks for compressing the air-bulb, and a pivot-link connected to 15 the stop-cock for opening the same simultaneously with the opening of the mold-sections, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in pres- 20  
ence of two subscribing witnesses.

JOHN E. SCHMALZ.

Witnesses:

PAUL GOEPEL,  
SIDNEY MANN.