

No. 817,154.

PATENTED APR. 10, 1906.

J. BRENZINGER.
MACHINE FOR LINING CAN COVERS.

APPLICATION FILED JULY 18, 1903.

8 SHEETS—SHEET 1.

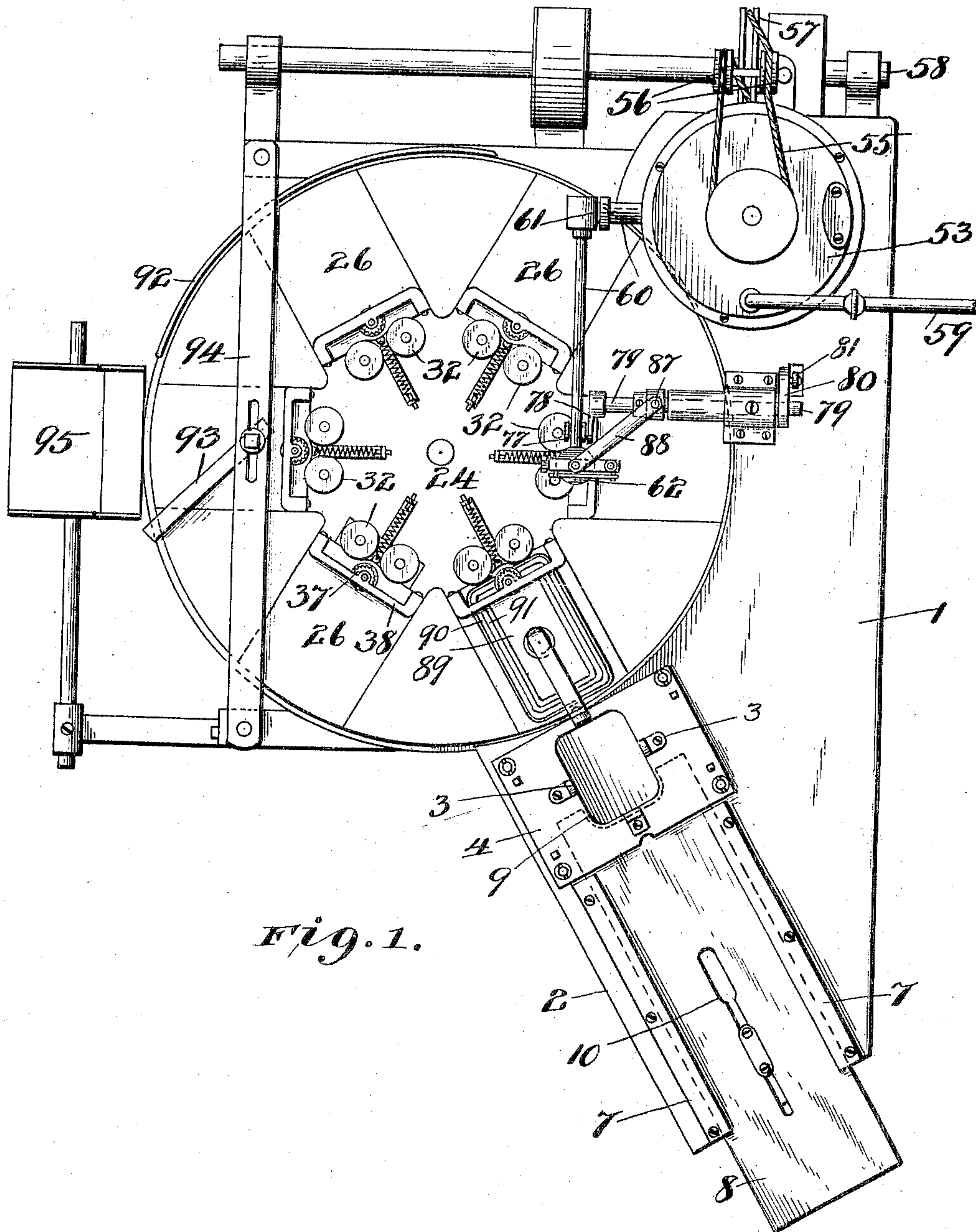


Fig. 1.

Witnesses

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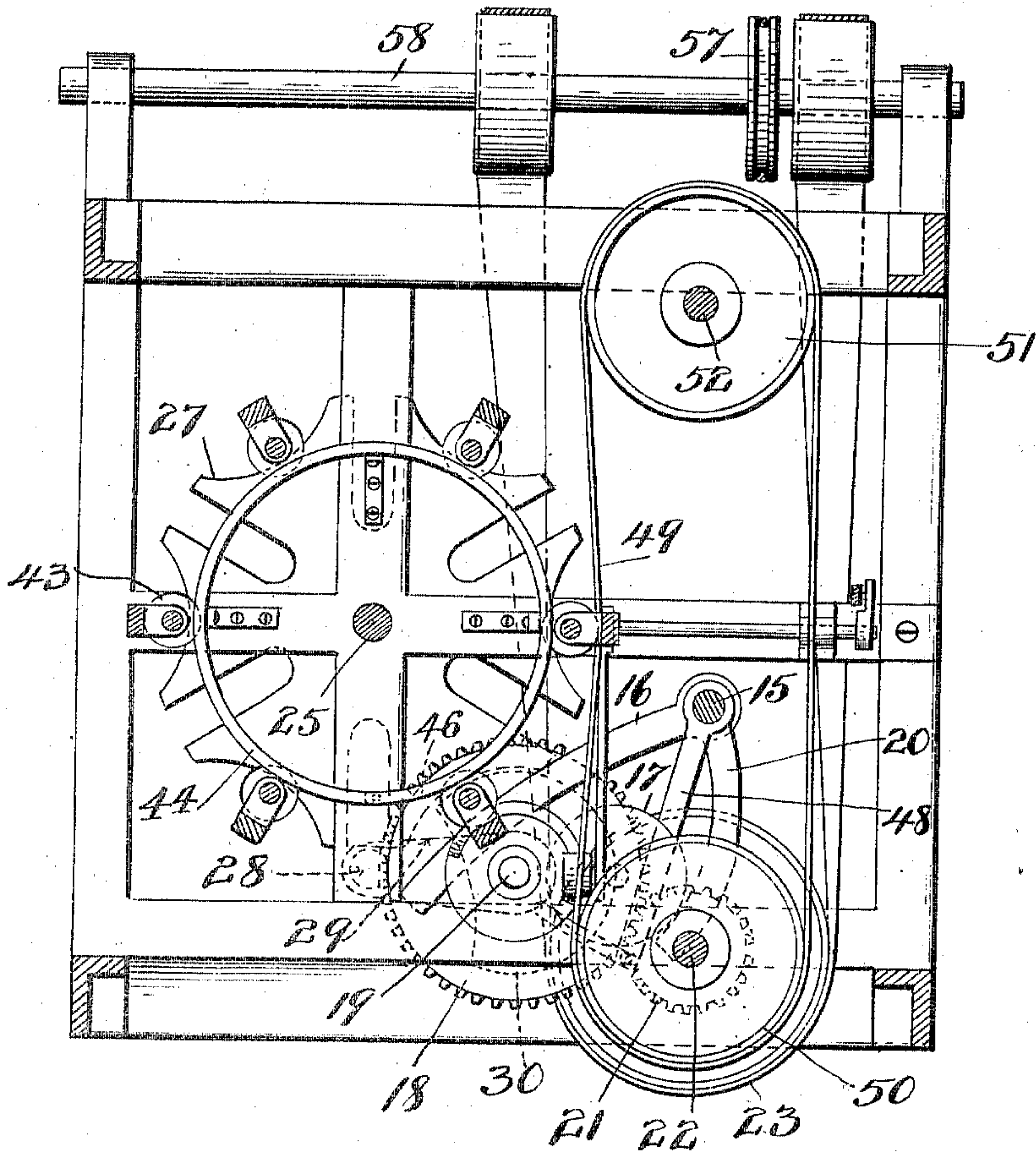
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8 SHEETS—SHEET 2.

Fig. 2.



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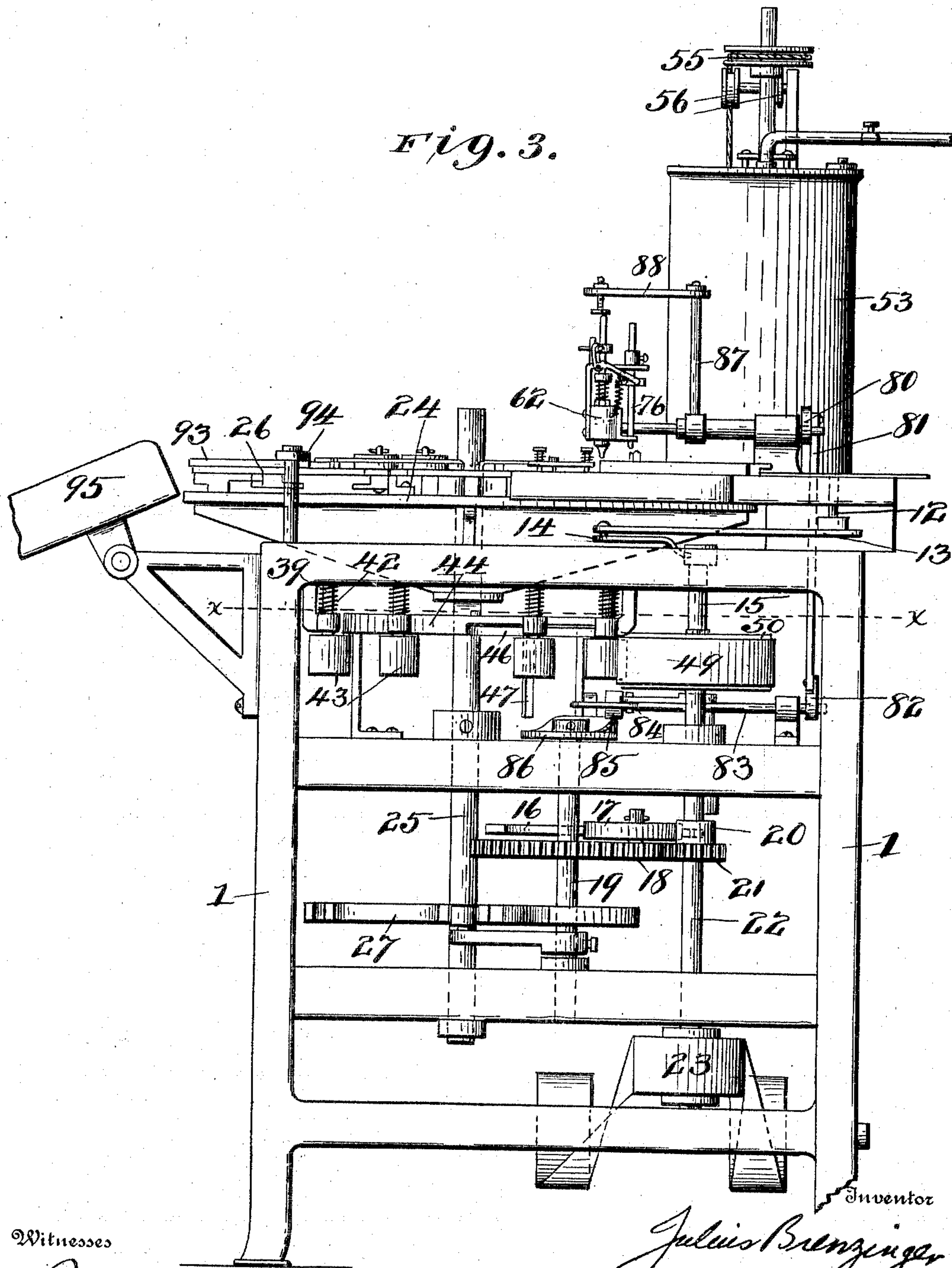
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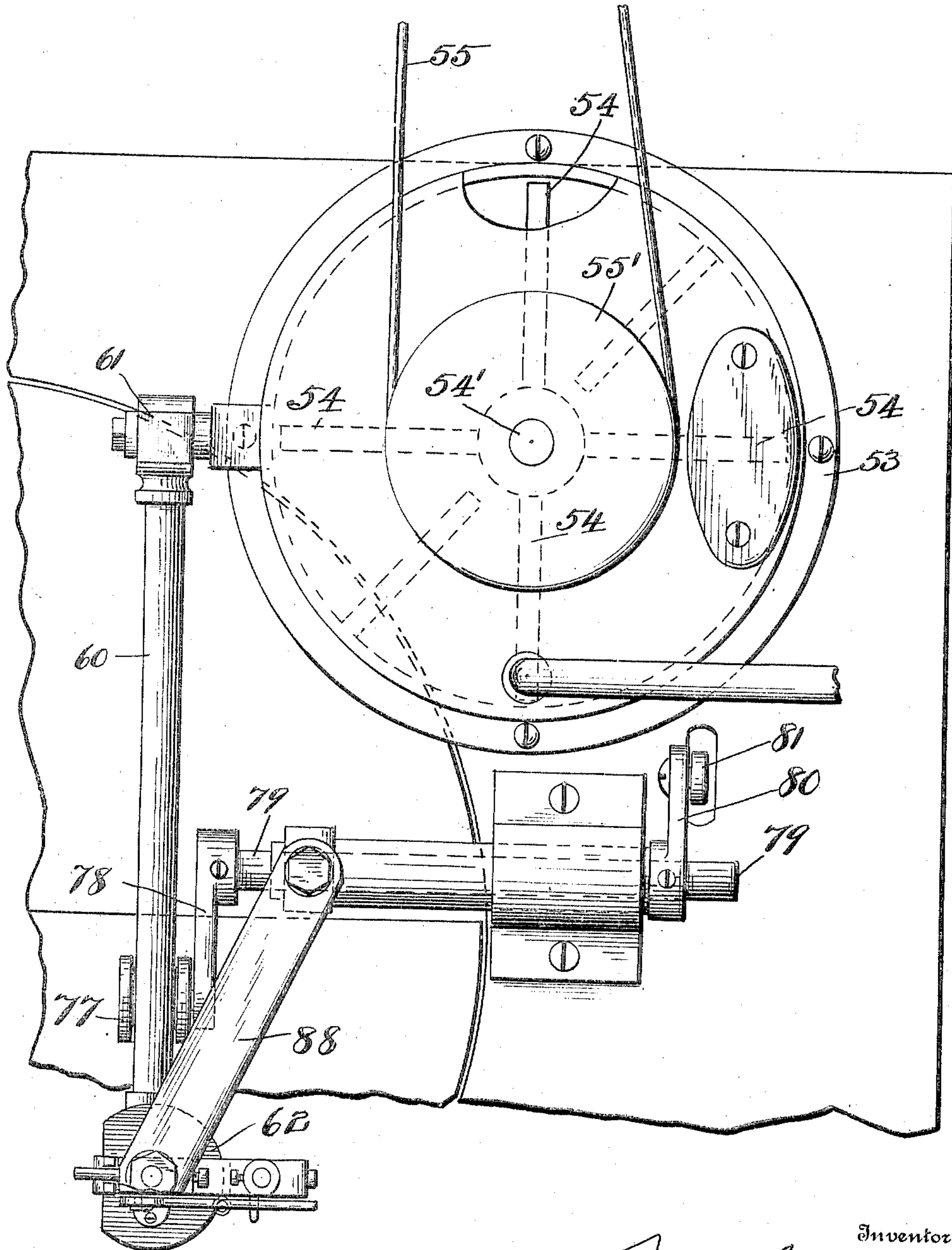
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8 SHEETS—SHEET 4.

Fig. 4.



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8 SHEETS—SHEET 5.

Fig. 5.

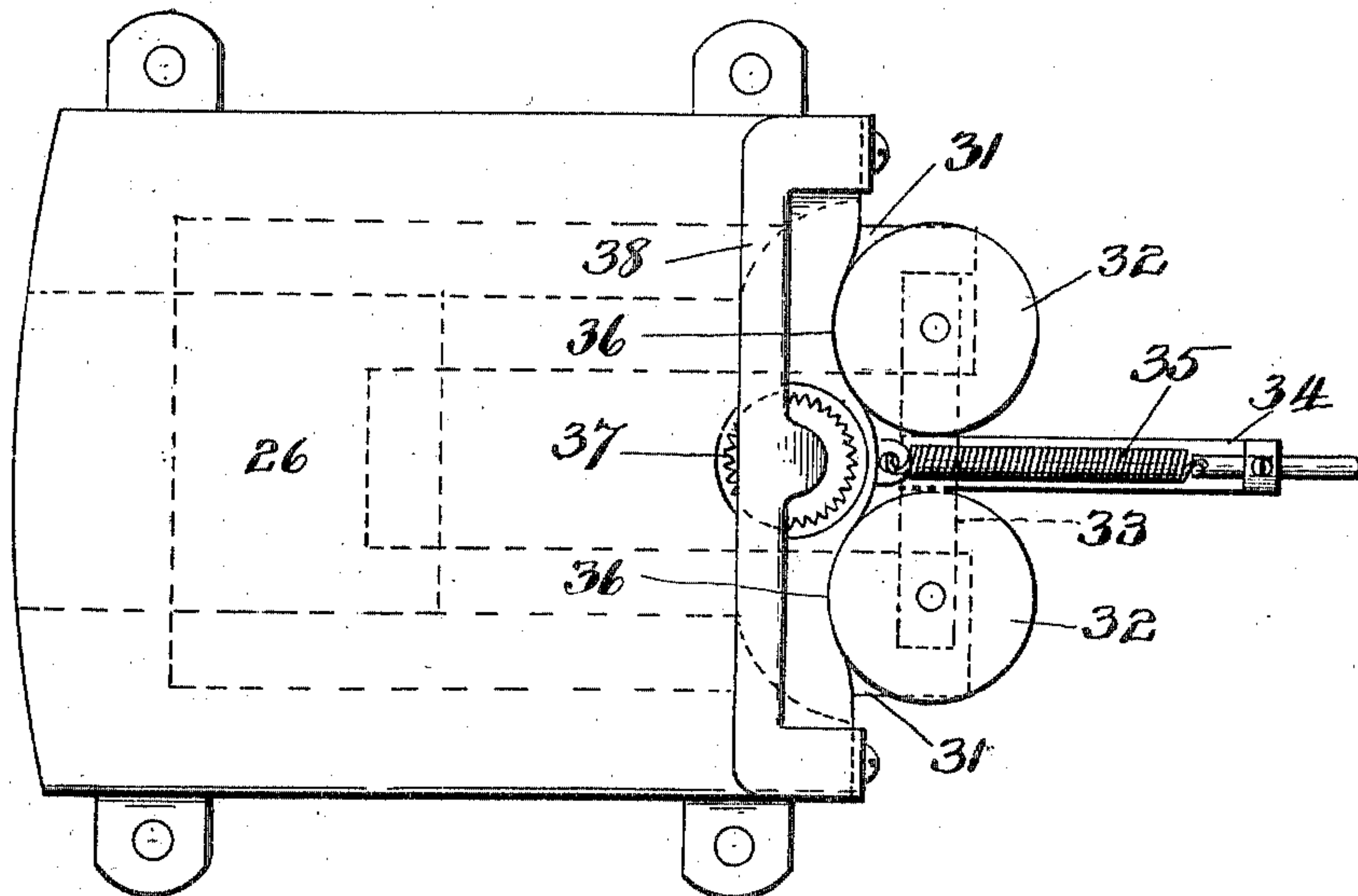
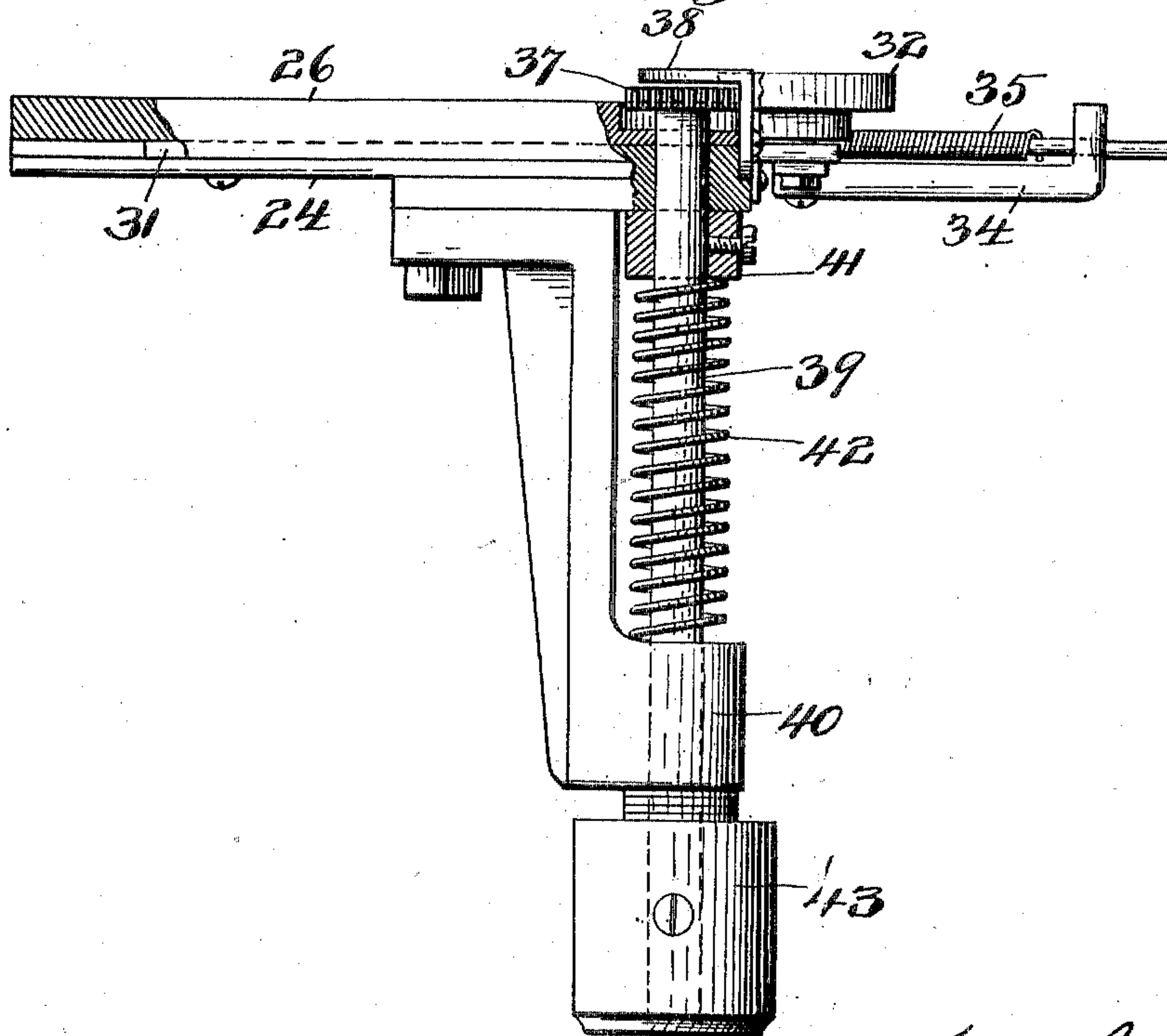


Fig. 6.



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8 SHEETS—SHEET 6.

Fig. 7.

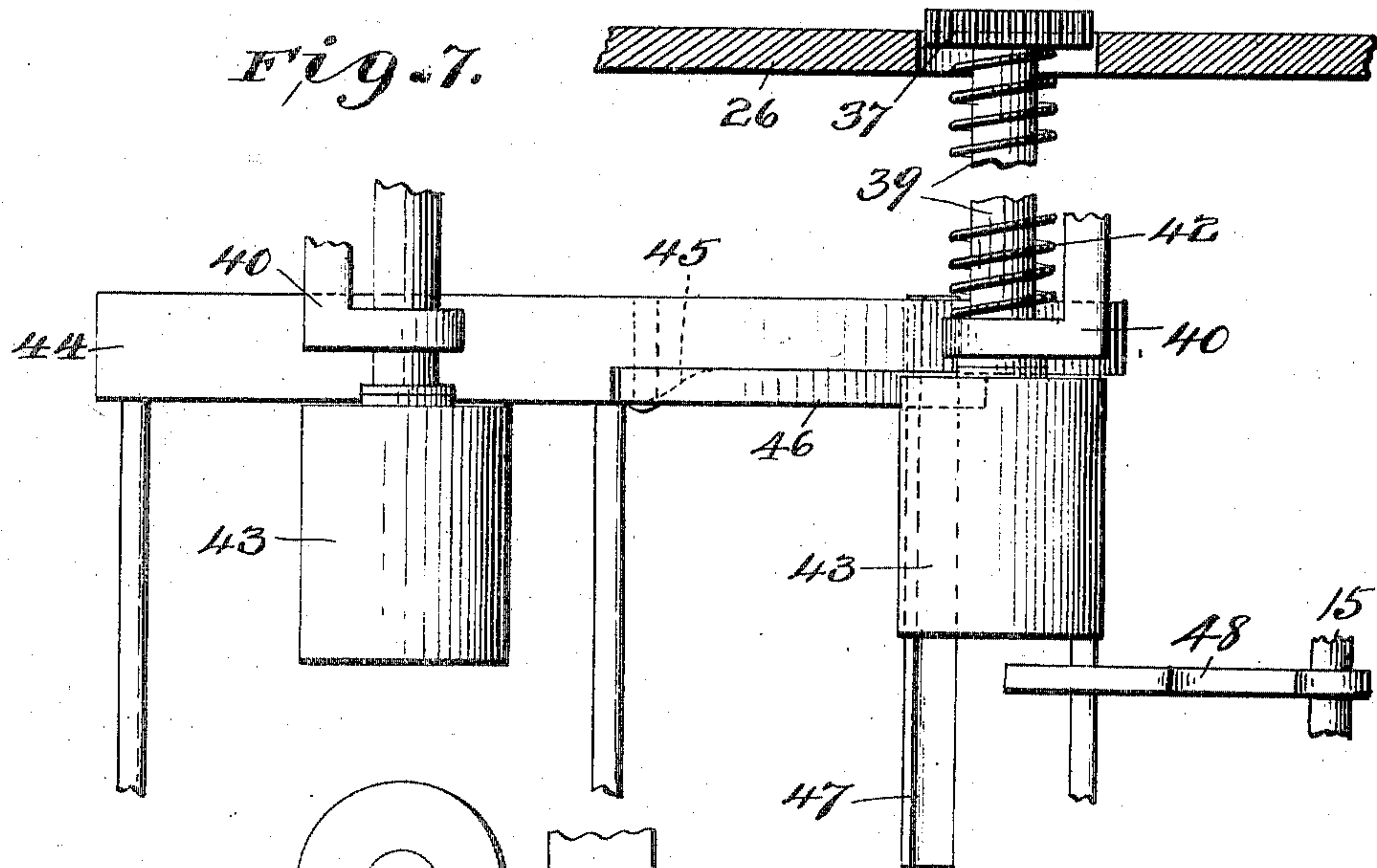
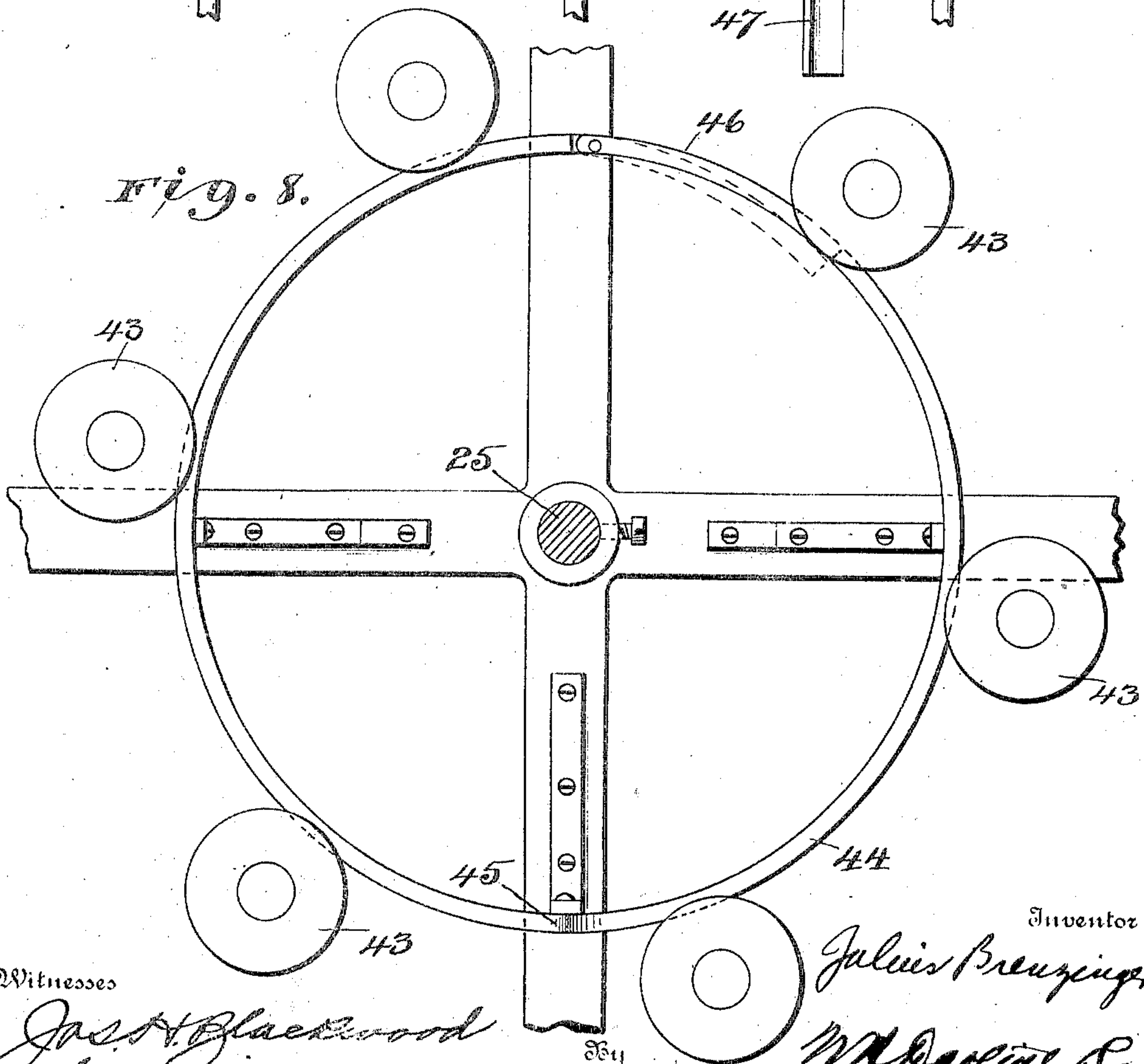


Fig. 8.



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8 SHEETS—SHEET 7.

Fig. 9.

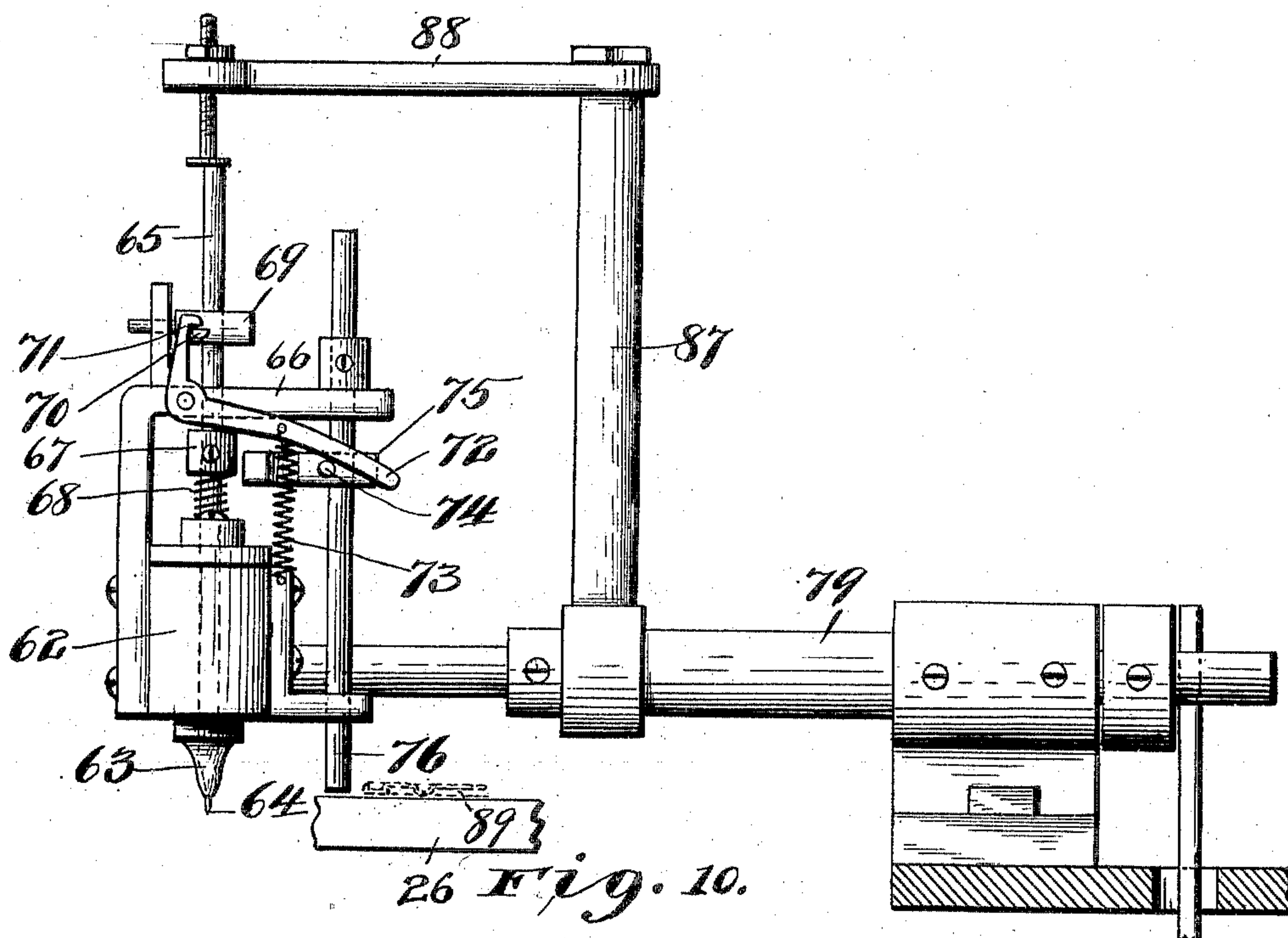
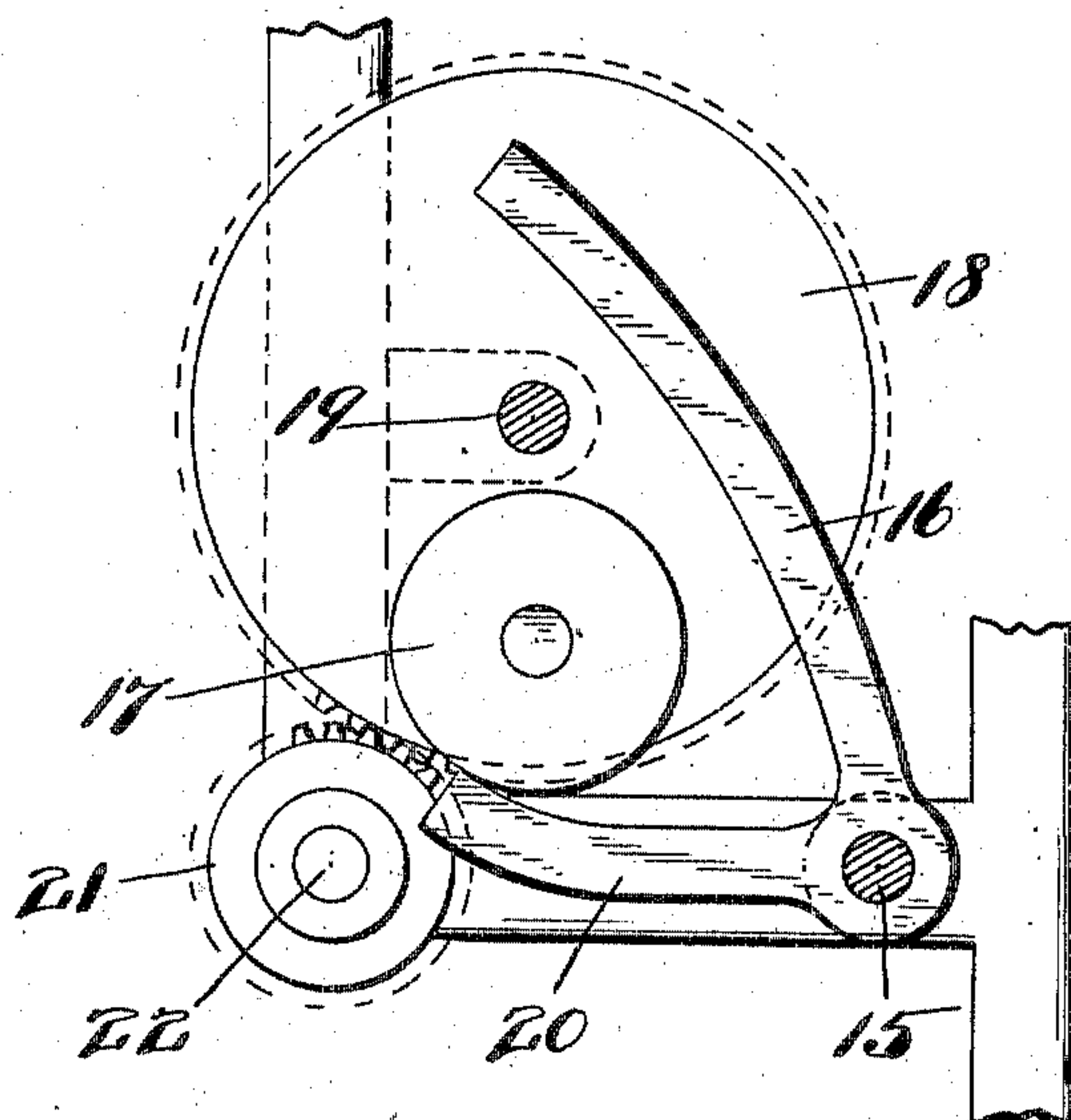


Fig. 10.



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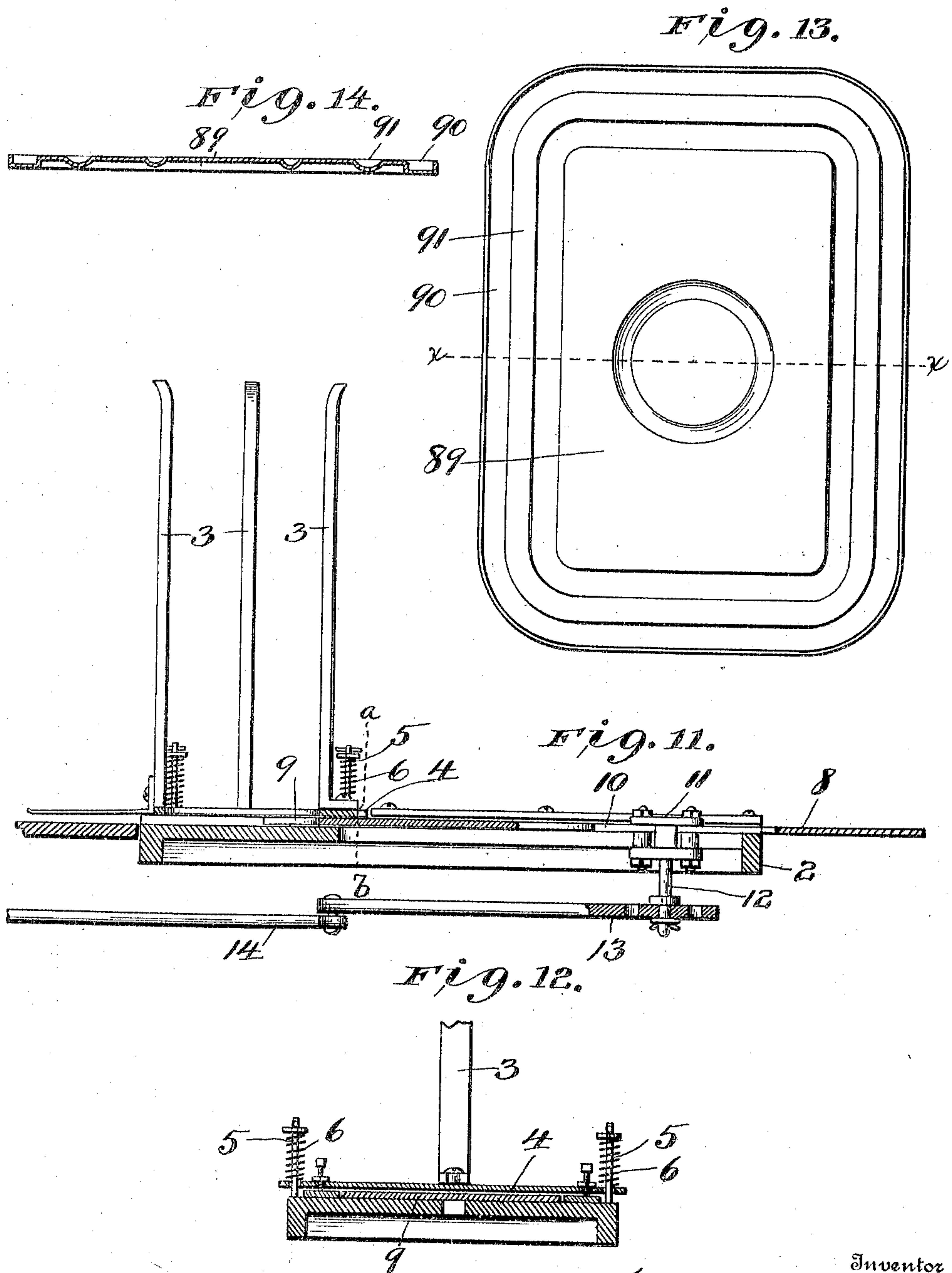
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8 SHEETS—SHEET 8.



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UNITED STATES PATENT OFFICE.

JULIUS BRENZINGER, OF NEW YORK, N. Y., ASSIGNOR TO THE MAX AMS MACHINE COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

MACHINE FOR LINING CAN-COVERS.

No. 817,154.

Specification of Letters Patent.

Patented April 10, 1906.

Application filed July 18, 1903. Serial No. 166,180.

To all whom it may concern:

Be it known that I, JULIUS BRENZINGER, a subject of the German Emperor, residing at New York, in the county of New York and State of New York, have invented new and useful Improvements in Machines for Lining Can-Covers, of which the following is a specification.

My invention relates to improvements in machines for lining covers of cans with a composition designed to form an air-tight sealing and packing coating when the cover is secured to the can. Its object is to provide a machine by which the covers may be rapidly and automatically fed to the machine, the composition rapidly but thoroughly applied, and the lined covers immediately discharged.

This invention relates to improvements of the same class as that of the machine shown and described in my pending application, Serial No. 142,897.

The present improvements particularly relate to means for lining covers for square or irregularly shaped cans.

The preferable embodiment of my invention is set forth in the following description and accompanying drawings.

In the drawings, Figure 1 is a top plan view; Fig. 2, a horizontal section on line $x x$ of Fig. 3. Fig. 3 is an end elevation. Fig. 4 is a horizontal detail plan of the composition-applying mechanism, showing the tank and stirrer in dotted lines; Fig. 5, a top plan detail view of a set of clamping-rollers; Fig. 6, a side detail view, partly in section, of a set of clamping-rollers and an actuating-pulley for said rollers. Fig. 7 is a detail view in elevation, partly broken away, of one of the clamping-rollers, a pulley, and other details. Fig. 8 is a detail bottom plan view of the rollers controlling the clamping-rollers and the cam-rail on which they move; Fig. 9, a detail side view in elevation of the composition-applying mechanism; Fig. 10, a detail plan of part of the actuating mechanism; Fig. 11, a vertical section of the feed mechanism; Fig. 12, a vertical section on the line $a b$ of Fig. 11; Fig. 13, a plan view of the cover, and Fig. 14 a section of the cover on line $x x$ of Fig. 13.

Referring to the drawings, 1 is the main frame of the machine; and 2 an extension thereof, on which is mounted the cover-receptacle and feed mechanism leading therefrom.

At the inner end of the extension 2 is mounted a cover-receptacle formed by upright fingers 3, secured on a plate 4, having a central aperture of a suitable size and shape to permit a cover to pass through the same. The plate is mounted on studs 5, secured to the frame and having springs 6, which bear against the upper surface of the plate and hold it to the frame with a yielding pressure whereby the plate will yield to permit the flange of the cover to pass thereunder. Extending back from the plate 4 of the receptacle are two rails 7, between which works a slide plate or plunger 8, having an angular cut-away inner edge 9 and having a slot 10, in which is adjustably fixed a block 11, carrying a pin 12, to which is pivoted one end of an arm 13, having its other end pivoted to a lever 14. The lever 14 at its opposite end is fixed to a vertical shaft 15, journaled in the framework. To shaft 15 is fixed a curved lever 16, having its free end extending into the line of travel of a roller 17, loosely and eccentrically mounted on large gear-wheel 18, mounted on a shaft 19, journaled in the frame. Adapted to also make contact with roller 17 for the purpose of returning shaft 15 after actuation through lever 16 is a short lever 20, fixed to shaft 15. The large gear-wheel 18 is in mesh with a gear-wheel 21, fixed on a main driving-shaft 22, which is provided with a main driving-pulley 23, whereby the machine is driven from any suitable source of driving power.

The extension 2 leads to a central rotating table 24, fixed on a central vertical shaft 25. The table is provided with an upper deck 26, forming a cover-carrier, which may be of continuous or solid construction or may be divided into separate carrier-sections, each adapted to receive and support a cover. The shaft 25 is adapted to be intermittently rotated by a Geneva stop-movement comprising a slotted star-wheel 27, fixed on shaft 25, the pin 28 on an arm 29, carried by shaft 19, and mutilated guide-disk 30, also carried by shaft 19 and adapted to engage the arc-shaped portions of the star-wheel between the slotted extensions thereof.

Mounted in the deck 26, so as to slide radially therein above the table 24, is a series of pairs of slide-bars 31, each bar of each pair carrying a loosely-mounted roller 32. The

slides 31 of each pair are joined by a cross-arm 33, and an arm 34 extends from said cross-arm at right angles thereto and is connected to the deck 26 by a coiled return-spring 35, which tends to keep the rollers 32 in against the deck, the edge of which has cut-out curved recesses 36 to receive the rollers. Opposite the midway point between the rollers 32 and so as to cooperate with both is a smaller roller 37, having a milled vertical edge. Above said roller 37 and fixed to the deck 26 is a can-cover guide-plate 38. Each of the milled rollers 37 is fixed on the upper end of a vertically slidable and rotatable shaft 39, journaled in a bracket 40, depending from the under face of the table 24. The shaft is provided with a collar 41, and between this collar and the bracket 40 is confined a coiled spring 42, the force of which is exerted to thrust upward the shaft and the roller 37. On the lower end of shaft 39 is fixed a roller or pulley 43. The upper projecting face of each of the rollers 43 travels under a shaft raising and lowering member consisting of a cam-rail 44 in the form of a ring surrounding the central vertical shaft 25. This ring is provided with a cam part 45, whereby the roller 43 and shaft 39 are forced downward to carry down the milled roller 37 to withdraw it from clamping position. The ring is also provided with a spring-pressed hinged section 46, adapted to be swung in to break the continuity of the rail in order to permit the sudden and quick release of the roller 43 from the cam part and the quick upward thrust of roller 37. Adapted to actuate an arm 47, carried by the hinged section 46, so as to operate said section, is a short lever 48, fixed on the oscillating shaft 15. The rollers or pulleys 43 in their circular travel are adapted to be carried into driving contact with a belt 49, running horizontally across the machine and tangentially to the circle of travel of the rollers or pulleys, and carried on and driven by a pulley 50, fixed on main shaft 22, and on pulley 51, fixed on idle shaft 52, journaled in the frame.

Mounted on the framework 1 is a composition-applying mechanism. This mechanism comprises a tank 53, adapted to contain the lining compound and provided with a rotary stirrer or dasher 54, which may be of any ordinary construction, and is shown in Fig. 4 and is driven by belt 55, running over idle pulleys 56 and connected to and driven by pulley 57 on shaft 58, which is adapted to be driven by the main driving-belt. A pipe 59 leads to the tank from a suitable source of compressed air for the purpose of supplying such air to force the compound out of the tank. An exit-pipe 60 leads from the tank. It is mounted on the tank by a pivotal connection 61, whereby the pipe may be raised and lowered. The pipe leads to and supports a feed-controlling valve-box 62. The

box has a depending conical point 63, having an opening controlled by a needle-valve 64, carried by a vertical rod 65, movable in a frame 66, secured to the valve-box. Between a collar 67, fixed on the valve-rod, and the top of the valve-box, is confined a spring 68, which tends to force the valve-rod upwardly. A block 69 is secured to the valve-rod and has a pin 70 projecting therefrom. The pin is adapted to be engaged by a hook 71 of a lever 72, pivoted on the frame 66 and having connected thereto a coiled spring 73, which tends to pull the lever downward and to hold the hook of the latter over the pin 70. The lower arm of the lever 72 is adapted to bear against a pin 74, fixed on a block 75, secured to a vertically-sliding rod 76. The lower extremity of rod 76 is adapted to make contact with and be raised by the can-cover as the latter passes under the same. The pipe 60 rests upon a roller 77, carried by a crank-arm 78, fixed on the arm of a horizontal shaft 79, journaled in the frame and having at its opposite end another crank 80, pivoted to a link 81, which is pivotally connected at its opposite end to a crank-arm fixed on the end of a rocking shaft 83, provided with an arm 84, carrying on its end a roller 85, adapted to bear upon a cam 86, fixed on the shaft 19. Fixed on shaft 79 is an upright post 87, having a horizontal arm 88 extending therefrom, which arm has a screw or other projection above the vertical sliding rod 65.

The cover to be lined is designated by 89, Fig. 13, and it has on its under surface a groove 90, formed by an upturned flange on the edge of which the lining composition is applied, and a groove 91, forming a bead on the upper face of the cover, as indicated in Figs. 13 and 14, the cover in said figures being shown with the under surface uppermost. Extending along a portion of the table on the frame is a guard-rail 92. An inclined stop-bar 93 extends across the carrier and is fixed to an arm 94. Opposite the stop-bar is a chute 95, into which the lined covers are thrown by the stop-bar as they are carried against the same.

The operation of the machine is as follows: The machine is driven through pulley 23 on main shaft 22, which in turn by gear 21 drives wheel 18 and shaft 19. The central shaft 25 will be intermittently rotated by the Geneva stop-movement and at each actuation will rotate the table 24 and carry a cover-receiving section of the deck or carrier 26 and a set of clamping-rollers 32 32 37 opposite the feed-receptacle 3 4, where the carrier will stop until a cover has been fed thereon by the feed-plunger. As the carrier is stopped opposite the feed mechanism the roller 17, eccentrically mounted on gear-wheel 18, will strike against lever 16, fixed on shaft 15, and turn said shaft, so as to carry inwardly the lever 14 and arm 13 and slide the plunger or feed-

slide 8 inwardly, whereby a single cover will be fed from the receptacle 3 under plate 4 and out upon the carrier. The plate 4 is held above the extension 2 a height just sufficient to permit a single cover at a time to pass down through the aperture in the plate 4 and rest upon the extension. As the cover is forced under the plate 4 the latter will yield upwardly on the spring-carrying studs 5, so as to permit the beads of the cover to pass thereunder. The cover 89, which is shown with the under side uppermost in Figs. 13 and 14, is carried to the carrier under a guiding spring-tongue 94, extending from plate 4 over the carrier. The plunger forces the cover against the roller 32, and thus slides said rollers inward against the pull of spring 35 until the bead or groove 91 of the cover 89 has passed beyond the periphery of the milled roller 37, whereupon in the continued action of the driving means said milled roller 31 will be automatically thrust upward by the vertical upward movement of its shaft 39, whose fixed roller or pulley 43 will be released from the cam-ring 44 by the pivotal swing of the hinged section 46 away from said roller or pulley by the actuation of lever 48 contacting with cam 47 when rocked by shaft 15. When the roller 37 is in its upward position, the cam-cover bead will be firmly clamped between the milled edge of said roller and the spring-pressed clamping-rollers 32. At the next rotation of the table and cover-carrier by the intermittently-acting Geneva movement the cover will be carried to the composition-applying mechanism, while another carrier-receiving section will be positioned in front of the feed mechanism and another cover fed to the carrier. As the first cover is carried under the composition-applying mechanism the controlling-valve box 62 is lowered by the action of cam 86 on shaft 19 through cranks 84 82 and shaft 83, so that the conical open point 63 will enter the groove 90 of cover 89, whereupon the surface of the body of the cover will ride under and bear against the vertically-sliding rod 76, so as to raise said rod and the pin 74. This movement will rock the lever 72 on its pivot and release the hook 71 from the pin 70 of the valve-rod 65, whereby the valve-rod is permitted to be forced upwardly by spring 68. When the rod moves up, it carries the valve 64 away from the opening in the conical point 63 and permits the composition to flow out into the groove of the cover. The composition is agitated in the tank 53 by the dasher and is forced out freely through the exit-pipe and valve-box by the admission of compressed air. Simultaneously with the positioning of the cover under the composition mechanism the cover is given a rotary movement under the conical end of the valve-box, so as to line the groove with the compo-

sition. This movement is effected by the contact of roller 43 on the lower end of the shafts 39 with the continuously-driven belt 49, whereby the covers tightly gripped between the rollers 32 and 37 are carried around under the valve-box several times, whereby the lining is thoroughly applied. As the cover leaves the composition-applying mechanism the latter is again raised above the clamping-rollers by the cam 86, and the upper end of valve-rod 65 will strike against the bar 88 and the valve-rod and valve will be forced down relatively to the valve-box until the pin 70 catches under the hook 71 of the spring-pressed lever 72, whereby the opening of the valve-box will be closed and the escape of the lining composition stopped. Should the carrier be driven past the composition-applying mechanism without carrying a cover thereon, the mechanism would not be operated, since the rod 76 will not contact with the carrier, but will be lifted only by the contact of the cover. After the cover passes the lining mechanism the roller 43 on the clamp-roll shaft will ride on cam 45 or rail 44, and the clamp-roll 37 will be pulled down out of engagement with the cover, and the rollers 32 will be thrown outward again. The guard-rail 92 prevents the cover from being thrown off the carrier until the cover strikes the inclined stop-arm 93, whereby it will be thrown off into the chute 95, from whence it may be carried by any suitable means, if desired, to a drying device.

In the machine herein set forth I have shown a gang of six clamping devices; but it is clear that a greater or less number may be employed and also that various other changes in the details of the machine may be made without departing from the principle of my invention.

Having thus described my invention, what I claim is—

1. A machine for lining can-covers having fixed means for applying a composition to a cover, clamping-rollers for engaging said cover, a movable cover-carrier, means for automatically presenting said carrier to said composition-applying means and means for automatically rotating said clamping-rollers, when the cover is presented thereto, substantially as described.

2. A machine for lining can-covers having an automatic feed mechanism, a cover-carrier, a fixed composition-applying mechanism, and a rotatable positively-gripping cover-holding device separate from said composition-applying mechanism, and means for rotating said device, substantially as described.

3. A machine for lining can-covers having an automatic feed mechanism, a cover-carrier, a plurality of sets of clamping-rollers, a composition-applying mechanism, means to rotate said rollers and means to successively

present said sets of rollers to said composition-applying mechanism, substantially as described.

4. A machine for lining can-covers having
5 clamping-rollers, one of said rollers being relatively movable, means to automatically move said roller into clamping relation, and means to automatically release said roller, and a separate means for applying a lining
10 composition to the covers substantially as described.

5. A machine for lining can-covers having clamping-rollers, yielding pressure means for said rollers, another roller coacting with said
15 first rollers, means to carry said last roller into coacting engagement with said first rollers to engage a cover, and means to release said roller from said engagement and lining mechanism independent of said rollers,
20 substantially as described.

6. A machine for lining can-covers having a cover-carrier, a vertically-movable clamping-roller, means to carry said cover over said roller, a shaft carrying said roller, means
25 to intermittently rotate said shaft, means to raise and lower the same and coöperating clamping means, substantially as described.

7. A machine for lining can-covers having clamping means consisting of a vertically-
30 movable milled roller, means to rotate the same, horizontally-slidable spring-pressed coöperating rollers, and means to raise and

lower said milled roller, substantially as described.

8. A machine for lining can-covers having
35 a traveling carrier, a composition-applying mechanism, horizontally-slidable spring-pressed clamping-rollers, a coöperating milled roller, a shaft on which said roller is mounted, a pulley on said shaft, a belt tangential to
40 the line of travel of the pulley, a cam, and a spring engaging said shaft, substantially as described.

9. A machine for lining can-covers having
45 a clamping-roller, a cam for moving said roller out of clamping engagement, said cam provided with a hinged section and means for swinging said section to release the roller, substantially as described.

10. A machine for lining can-covers having
50 a composition-applying mechanism comprising a source of supply, a valve-box, a valve therein, a spring for forcing said valve upward, a hooked lever for holding said valve
55 downward and means actuated by the cover to release said lever, substantially as described.

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

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