

J. F. ZAPF.
GLUING MACHINE.
APPLICATION FILED AUG. 30, 1909.

959,986.

Patented May 31, 1910.

4 SHEETS—SHEET 1.

Fig. 1

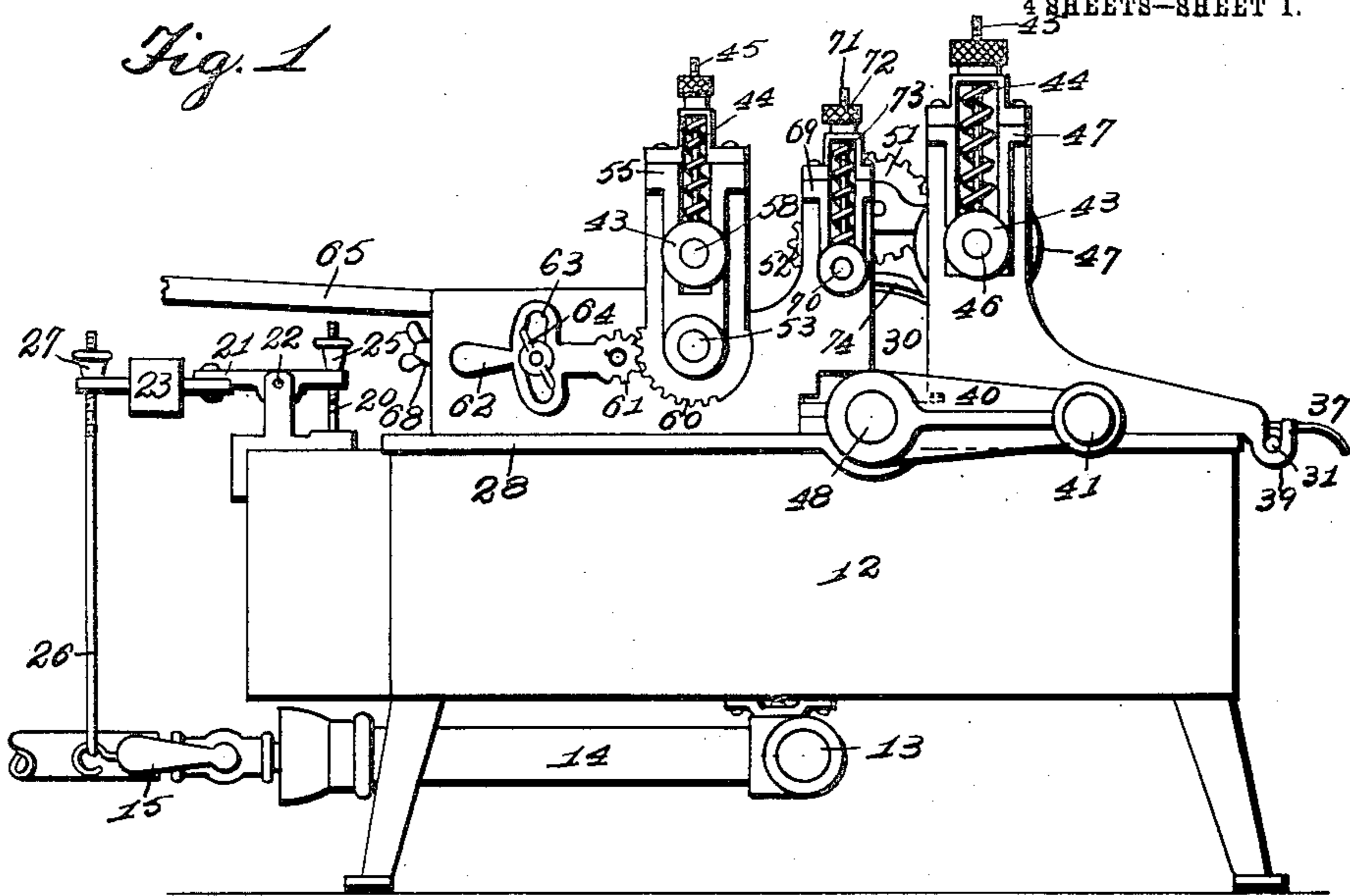
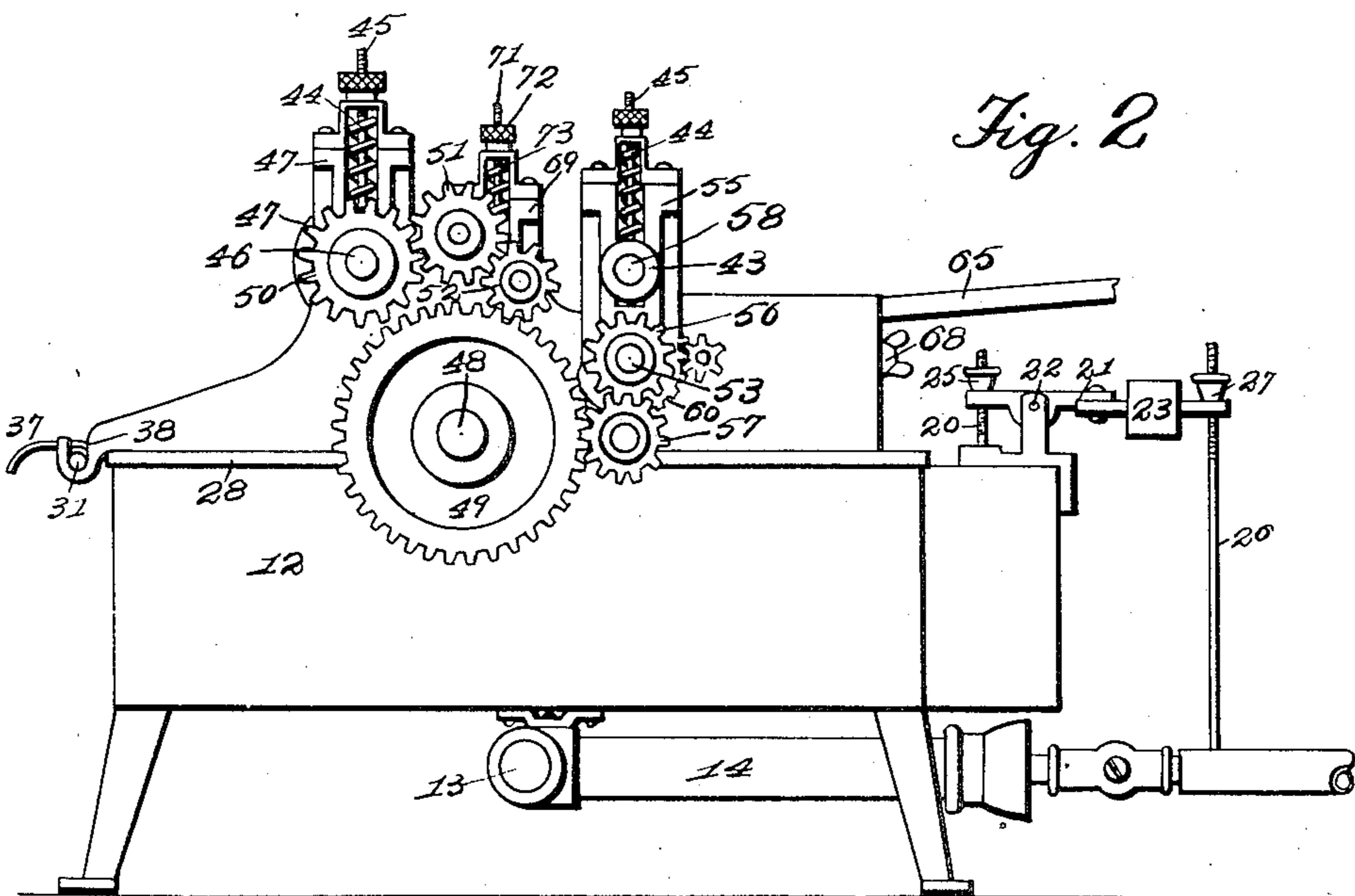


Fig. 2



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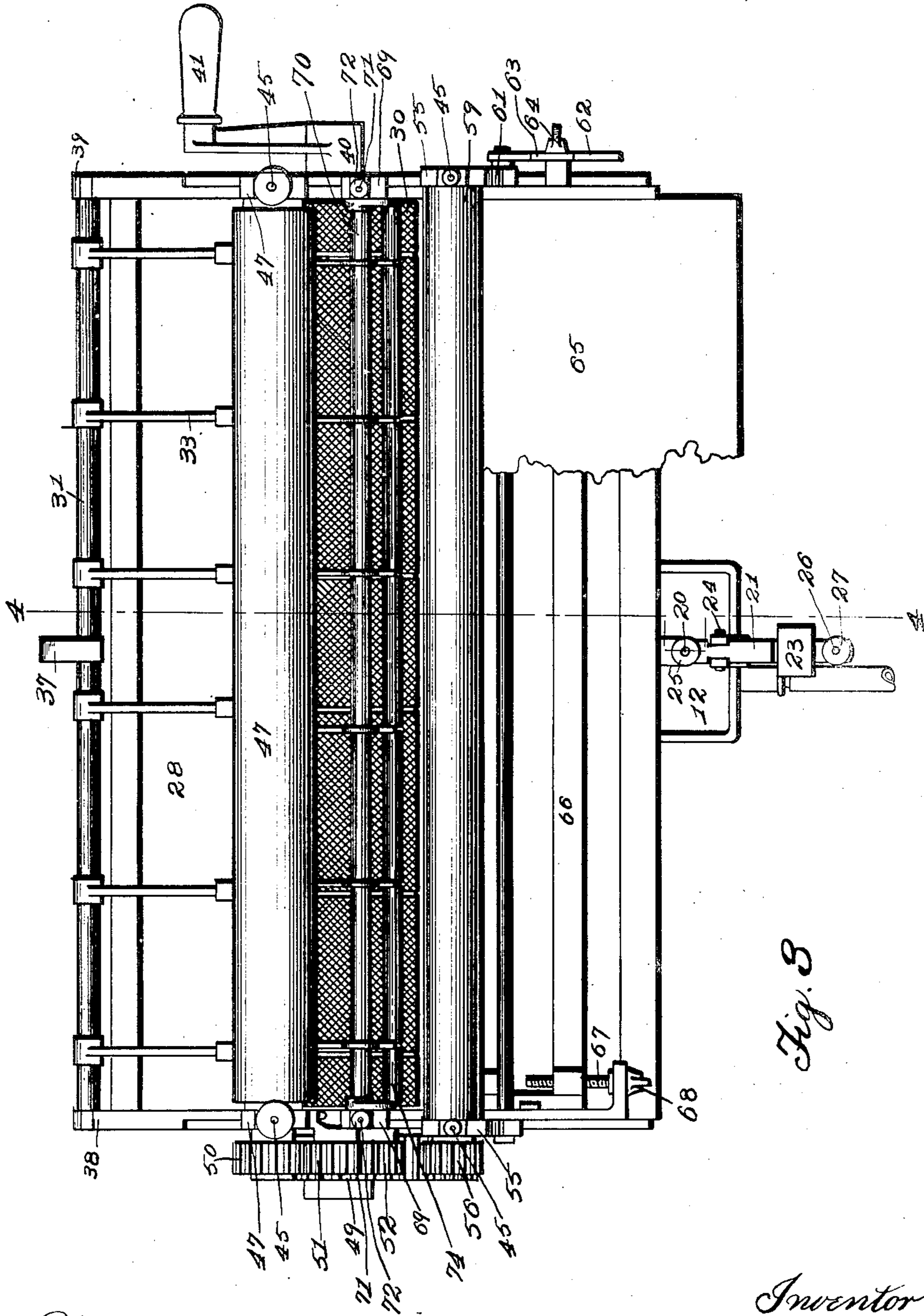


Fig. 3

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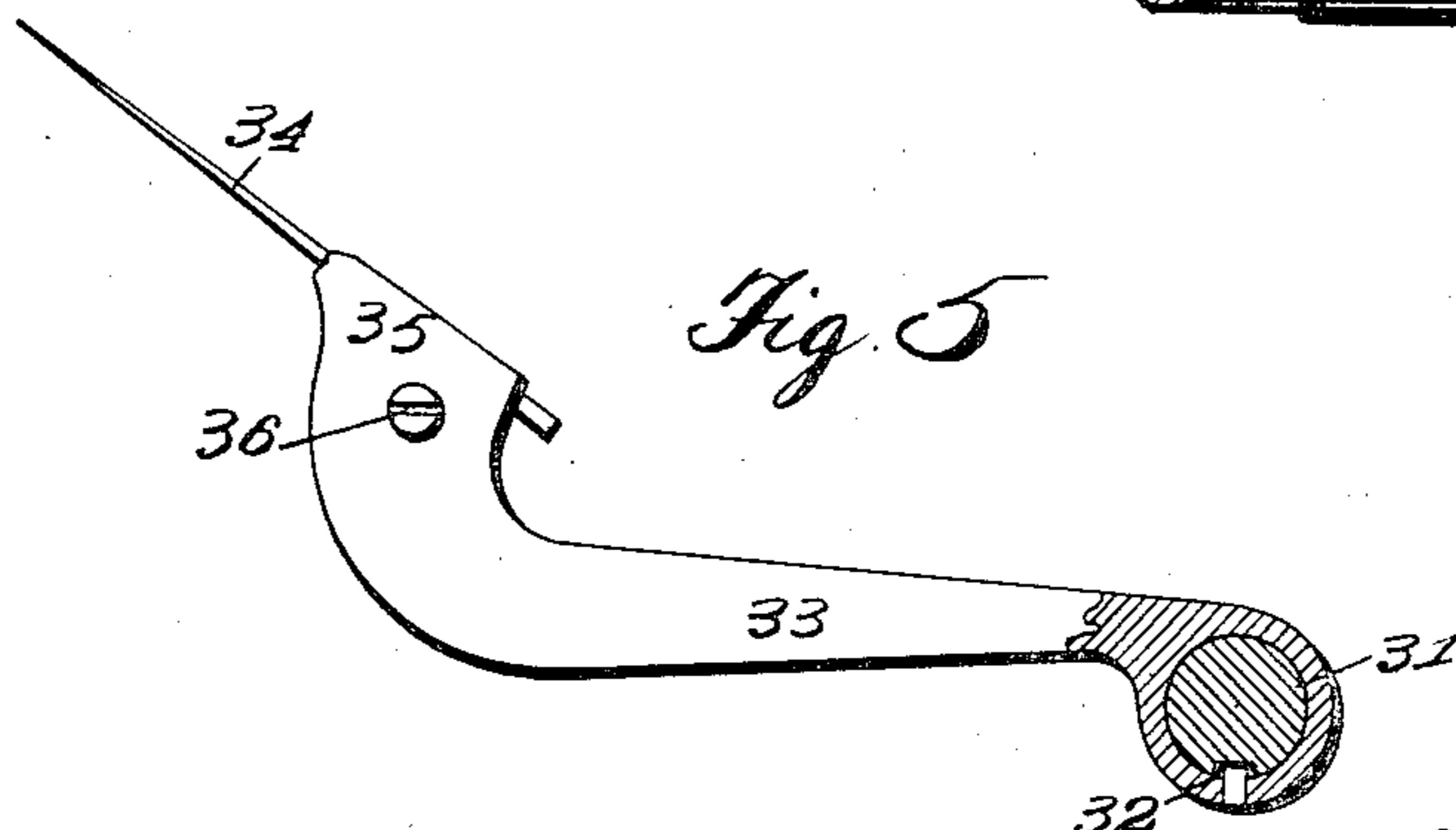
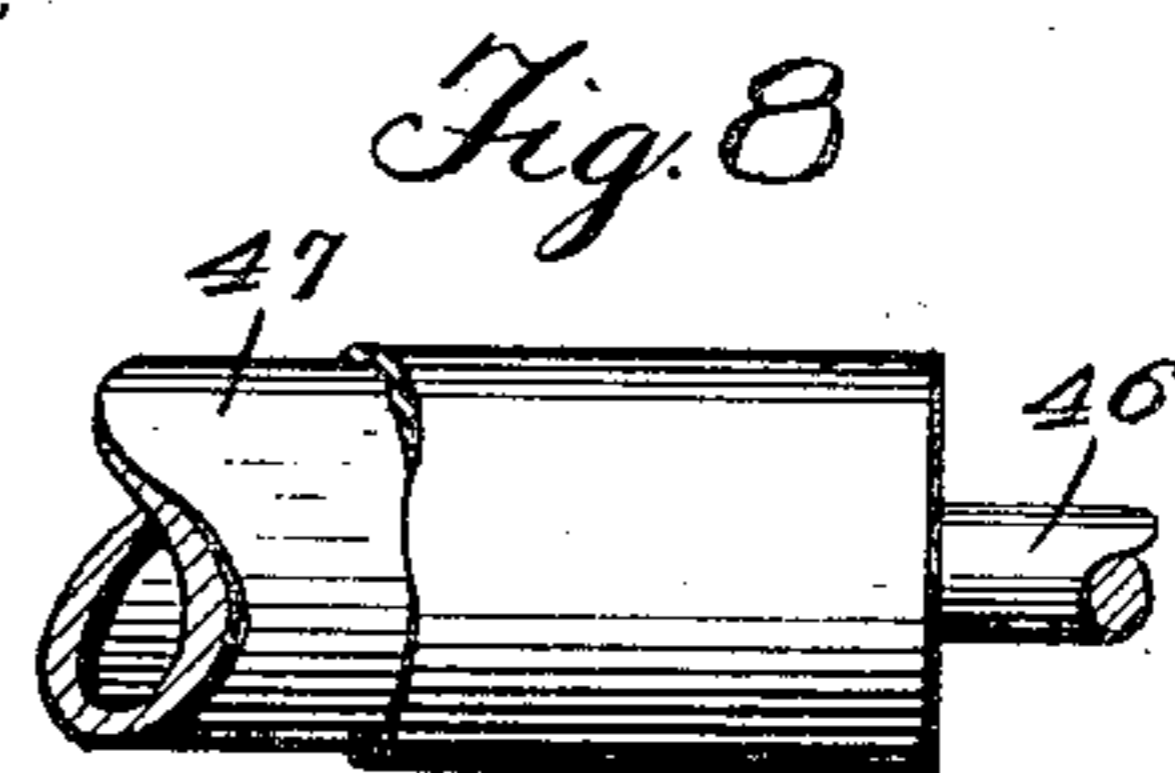
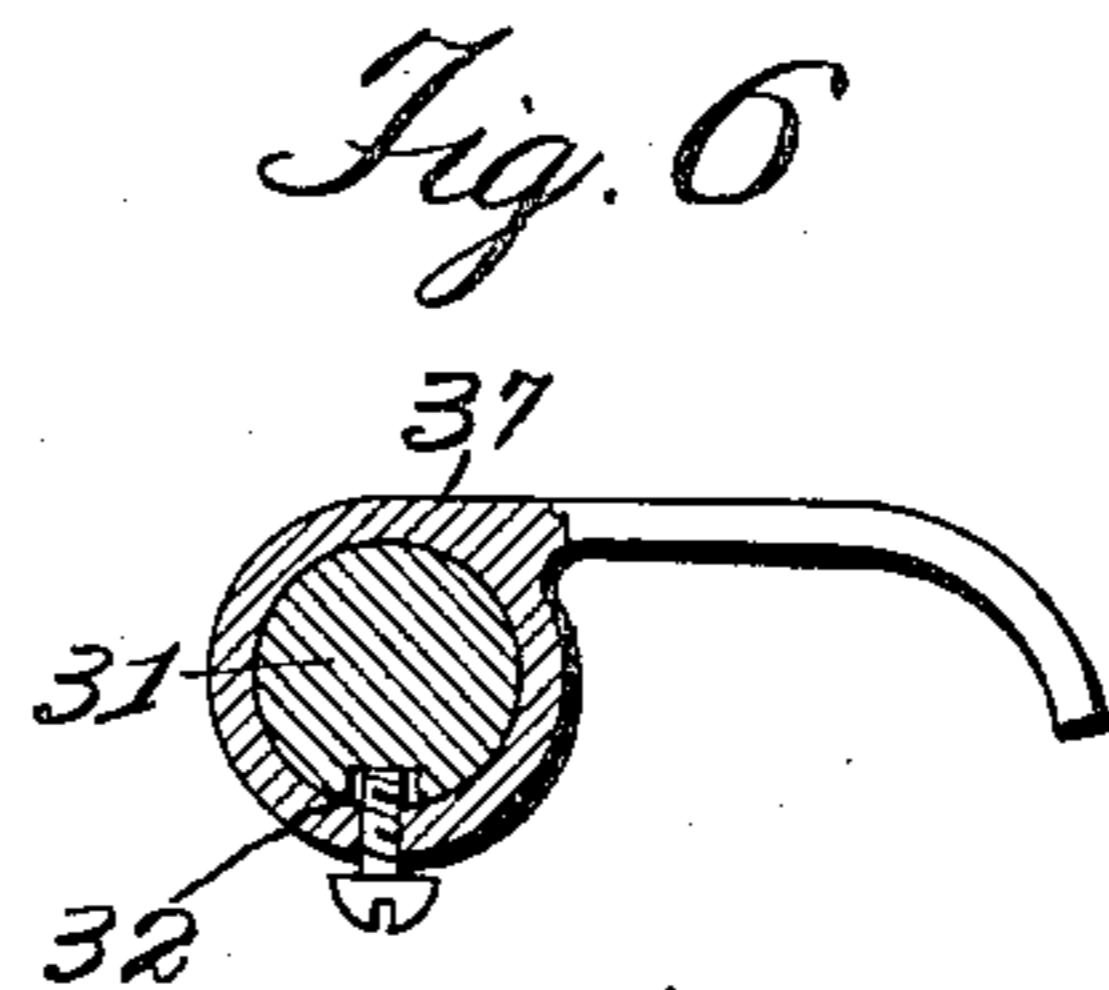
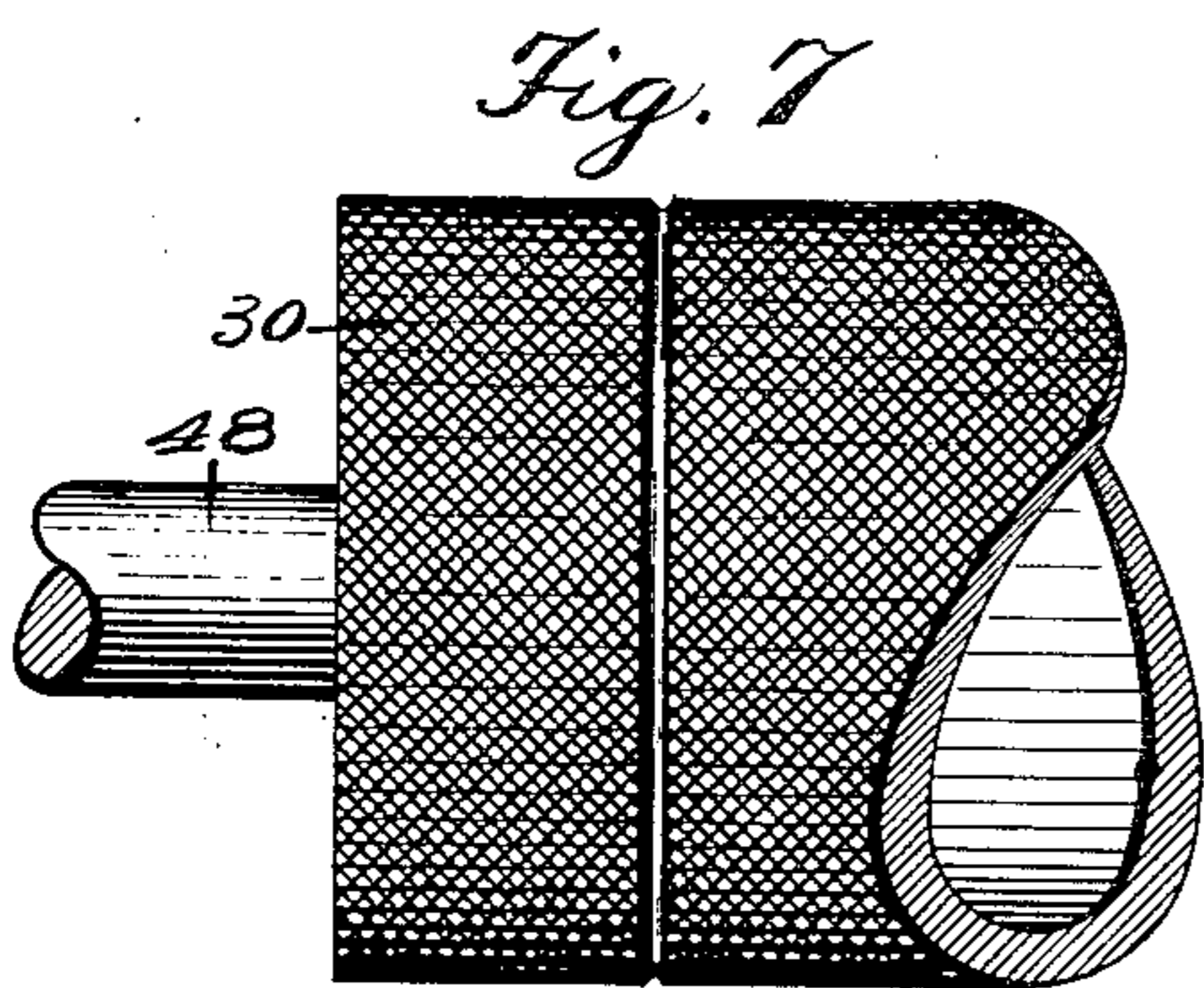
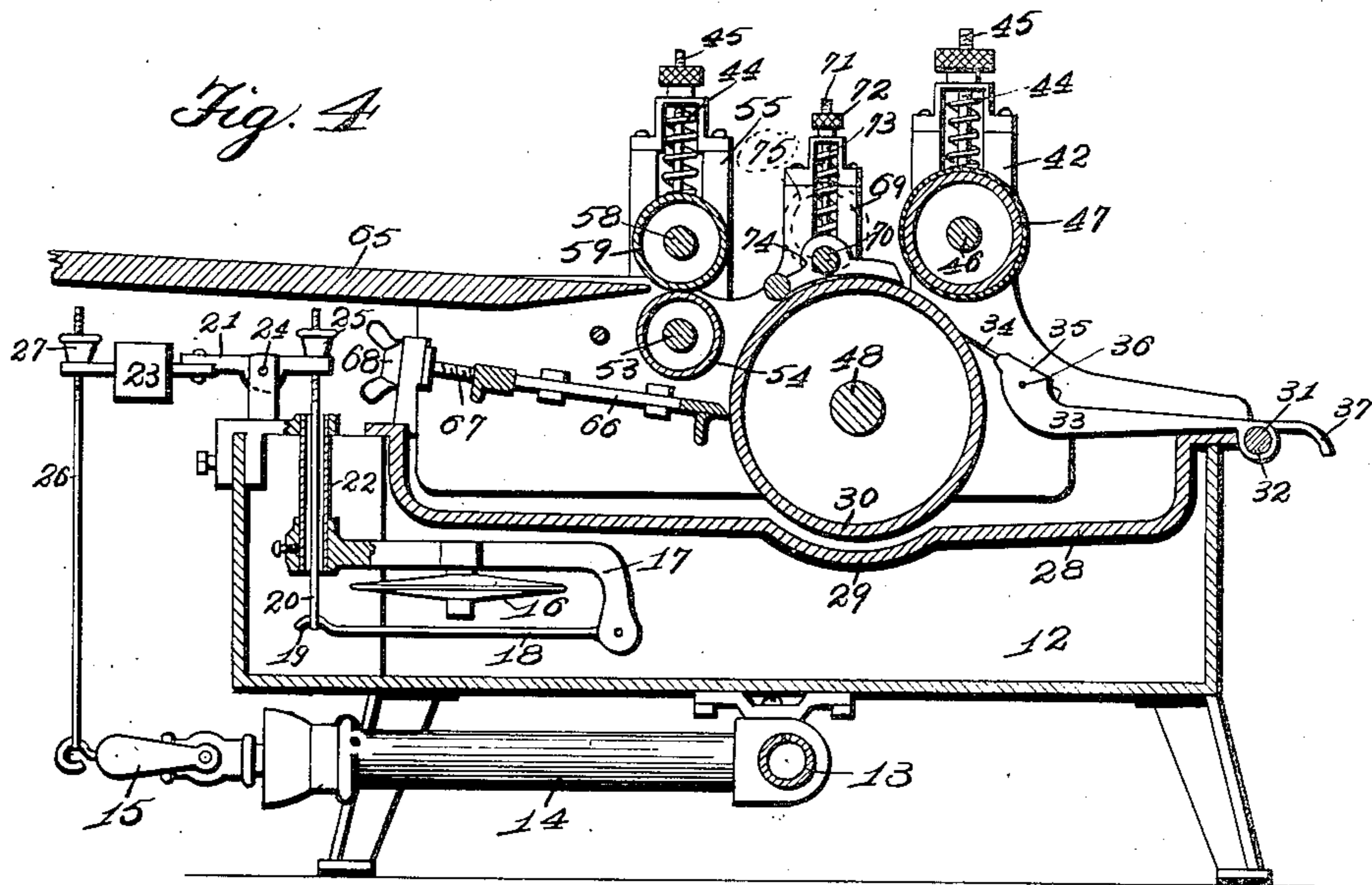
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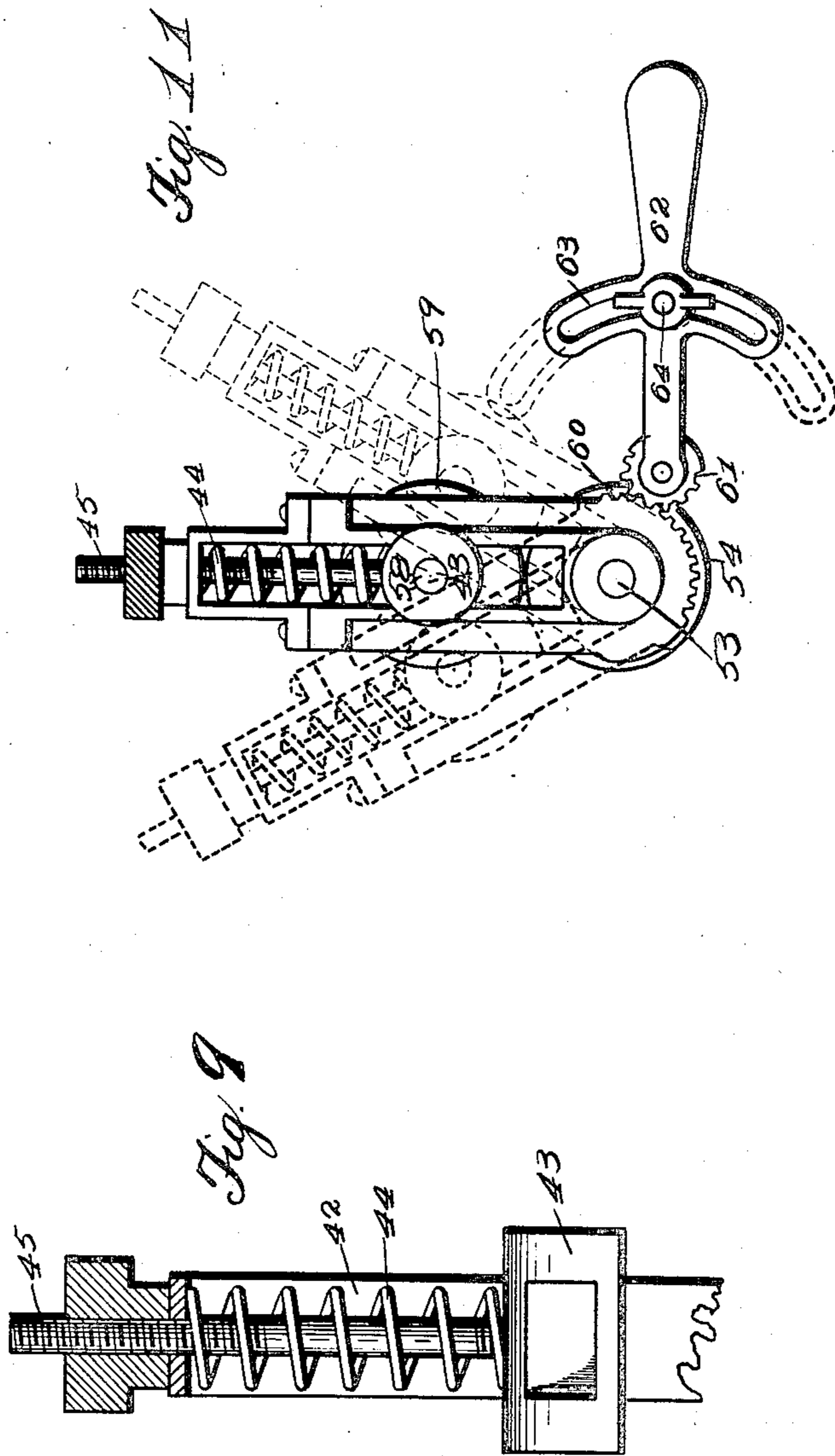
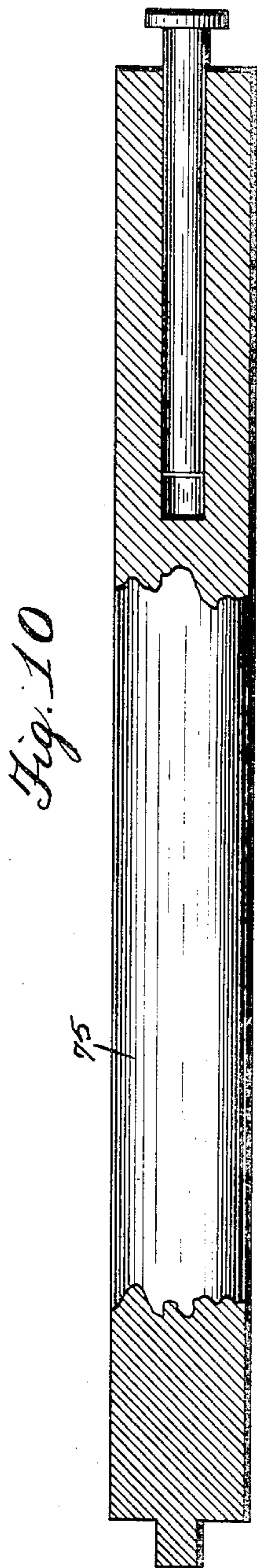
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UNITED STATES PATENT OFFICE.

JOHN FREDERICK ZAPF, OF ST. LOUIS, MISSOURI.

GLUING-MACHINE.

959,986.

Specification of Letters Patent.

Patented May 31, 1910.

Application filed August 30, 1909. Serial No. 515,360.

To all whom it may concern:

Be it known that I, JOHN FREDERICK ZAPF, citizen of the United States, and resident of St. Louis, Missouri, have invented certain new and useful Improvements in Gluing-Machines, of which the following is a specification.

My invention relates to an improved gluing machine and has for its object to provide a machine in which glue or like adhesive substances is applied to cloth, paper or other sheet fabric.

In the drawings—Figure 1 is an end plan view of a machine embodying my invention. Fig. 2 is a similar view of the opposite end of the same. Fig. 3 is a top plan view of the same with a portion broken away. Fig. 4 is a transverse sectional view of the same, taken on the line 4—4 of Fig. 3. Fig. 5 is a detail perspective view of one of the adjustable fingers by which the sheet of fabric to which glue has been applied is removed from the gluing roller. Fig. 6 is a side plan view of the lever controlling the bar on which the adjustable fingers are mounted. Fig. 7 is a fragmental view of the gluing roller. Fig. 8 is a fragmental view of the pressure roller 47. Fig. 9 is a detail view of the adjustable bearings by which the upper series of rollers, and the upper guide fingers are carried. Fig. 10 is a detail view of the roller which is substituted for the upper guide fingers when heavy and comparatively inflexible material is to be operated on. Fig. 11 is a detail view of the tilting mechanism by which the first upper feed roll is controlled.

The invention which is the subject-matter of this application is an improvement upon my former invention patented to me in United States Letters Patent No. 905,269, issued December 1, 1908.

As shown in the drawings, I employ a tank 12 heated by a burner 13, to which burner 13 the illuminant is supplied through the supply pipe 14 controlled by the valve-arm 15. Within the tank 12 I provide a thermostat 16 mounted upon the bracket 17. A bar 18 is pivotally mounted on the bracket 17 so as to contact with the thermostat 16 when the same is expanded by heat. At its end, the bar 18 is provided with the hook 19 and is connected by the rod 20 to the balancing arm 21; the rod 20 passing through the tube 22 upon which the bracket 17 is

mounted. The balancing arm 21 is provided with a counter-balancing weight 23, the arm being pivoted at the point indicated by the numeral 24. The upper end of the rod 20 is screw-threaded to receive the nut 25. At its outer end, the balancing arm 21 is perforated to receive the rod 26 connected at its lower end to the valve-arm 15, and at its upper end is screw-threaded to receive the thumb-nut 27.

The thermostat 16 and its immediate connections (see Fig. 4) are mounted in the lower portion of the tank 12, which is adapted to contain water. Said water may be heated by any desired heating means other than those shown without departing from the spirit of my invention. Within the tank 12 the glue-vat 28 is provided, within which the glue or other adhesive is kept at the desired degree of viscosity by the heat of the water in the tank 12; the vat 28 being provided with a concaved, transverse depression 29 to accommodate the knurled gluing roller 30.

Along the side of the machine at which the material is discharged, after glue has been applied to it, I provide the transverse rod 31 which is provided with the longitudinal groove 32; and upon the rod 31 I provide a series of adjustable fingers 33 (see Fig. 5) which carry needles 34 in their spring-jaws 35, the position of the needles 34 being consequently rendered adjustable, and the needles 34, when adjusted, being held in place by the screws 36. Mid-way its length the rod 31 is provided with the lever 37, the rod 31 being journaled at its ends in the brackets 38 and 39. The gluing roller 30 is operated by the crank 40 provided with a handle 41.

At each side of the machine I provide an upright 42 (see Fig. 9) carrying the bearing blocks 43 whose position is controlled by the spring 44 and screw 45. In the bearing blocks 43 is journaled the axle 46 carrying the pressure roller 47 which is adapted to contact with the gluing roller 30 at the point where the needles 34 impact upon the surface of said gluing roller 30. The gluing roller 30 is mounted upon the shaft 48, carrying at its outer end the sprocket 49. The shaft 46 carries at its outer end the sprocket 50. Movement is imparted to the pressure roller 47 through the shaft 46 and sprocket 50, by means of the sprockets 51 and 52 (see

Fig. 2), the sprocket 52 intermeshing with the sprocket 49 and imparting movement to the sprocket 50 through the sprocket 51.

The shaft 53 carries the lower feed roller 54 above which is provided the upright 55 carrying a bearing block 43 by means of a screw 45 and spring 44. The shaft 53 is provided at its outer end with the sprocket 56 (see Fig. 2) and a sprocket 57 intermeshing with said sprocket 56 and the sprocket 49 to impart movement to the feed roller 54. By that block 43 which is carried in the upright 55, the axle 58 is supported, carrying the upper feed roller 59. The upright 55 is journaled at its lower end upon the shaft 53, the lower face of the upright 55 being provided with the segmental gear 60, intermeshing with the semi-circular gear 61, whose operation is controlled by the hand lever 62, provided with the segmental slotted bearing 63 whose adjustment is effected by means of the thumb-nut 64; by means of this construction the feed rolls 54 and 59 may be tilted, in order to accommodate the feeding of materials of varying degrees of flexibility (see Fig. 11). The feed-table 65 is so located (see Fig. 4) as to feed fabric to and between the said feed rolls 54 and 59.

Within the vat 28 I provide a transverse guard 66 (see Fig. 4) whose front end is adapted to be thrown into and out of contact with the knurled surface of the gluing roller 30 by means of the adjusting screws 67 mounted through the wall of the vat 28 and controlled by the thumb-screws 68. Above the gluing roller 30 I provide the upright 69 carrying the shaft 70 which is held in place by means of the screw-threaded rod 71, thumb-nuts 72 and springs 73. Upon the rods 70 I provide a series of guide-fingers 74 adapted to hold the fabric closely to the upper surface of the gluing roller 30, whose revolution causes its knurled surface to be constantly replenished with liquid glue from the bottom of the vat 28. When the material to be operated upon is so inflexible that the said guide-fingers 74 cannot be employed, I substitute therefor the guide-roll 75 (see Fig. 10).

The mode of operation of the device of my invention is obvious from the foregoing description. The glue or other adhesive contained in the vat 28 is kept in the desired degree of viscosity by means of the heat created in the tank 12. The constant revolution of the gluing roller 30 causes its knurled surface to be supplied with a thin layer of such adhesive, and the fabric, after passing through the feed rolls 54 and 59, is carried between the upper surface of the gluing roller 30 and the guide-fingers 74 (or guide-rolls 75) and beneath the pressure roller 47, the fabric then being lifted from the surface of the gluing roller 30 by the needles 34 and discharged with its under

surface covered with a layer of adhesive of uniform thickness.

Having fully described my invention, what I claim as new and desire to have secured to me by the grant of Letters Patent, is:

1. A gluing machine comprising a tank; a means for heating said tank; a vat mounted in said tank and heated thereby; a gluing roller seated in said vat; a receiving table mounted above said tank; receiving rolls mounted in front of said receiving table; guide-fingers mounted above said gluing roller; a pressure roller mounted above said gluing roller; a series of adjustable fingers contacting with the periphery of said gluing roller; and a mechanism whereby the feeding rolls may be tilted, substantially as described.

2. A gluing machine comprising a tank; a means for heating said tank; a vat mounted in said tank and heated thereby; a gluing roller seated in said vat; a receiving table mounted above said tank; receiving rolls mounted in front of said receiving table; guide-fingers mounted above said gluing roller; a pressure roller mounted above said gluing roller; a series of adjustable fingers contacting with the periphery of said gluing roller; and a guard mounted in said vat to contact with the surface of said gluing roller, substantially as described.

3. A gluing machine comprising a tank; a means for heating said tank; a vat mounted in said tank and heated thereby; a gluing roller seated in said vat; a receiving table mounted above said tank; receiving rolls mounted in front of said receiving table; guide-fingers mounted above said gluing roller; a pressure roller mounted above said gluing roller; a series of adjustable fingers contacting with the periphery of said gluing roller; and a guard adjustably mounted in said vat to contact with the surface of said gluing roller, substantially as described.

4. A gluing machine comprising a tank; a means for heating said tank; a vat mounted in said tank and heated thereby; a gluing roller seated in said vat; a receiving table mounted above said tank; receiving rolls mounted in front of said receiving table; guide-fingers mounted above said gluing roller; a pressure roller mounted above said gluing roller; a series of adjustable fingers contacting with the periphery of said gluing roller; and a thermostatic regulator whereby the temperature of said vat is controlled, substantially as described.

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

JOHN FREDERICK ZAPF.

Witnesses:

ALFRED A. EICKS,
WALTER C. STEIN.