

No. 719,251.

PATENTED JAN. 27, 1903.

J. R. OKELL.

MACHINE FOR PACKAGING POWDERED OR GRANULAR MATERIALS.

APPLICATION FILED NOV. 5, 1900.

NO MODEL.

5 SHEETS—SHEET 1.

Fig. 1.

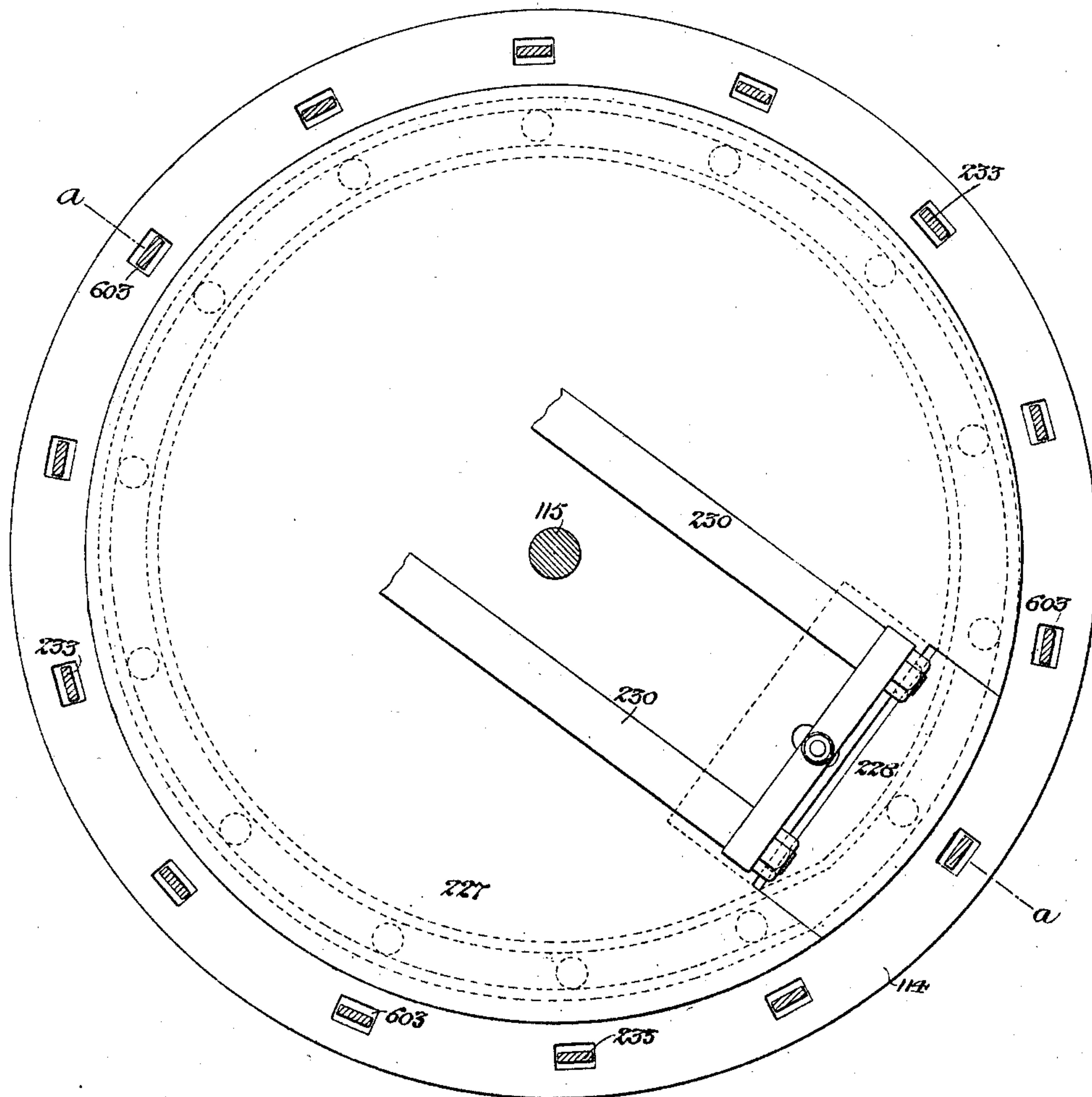
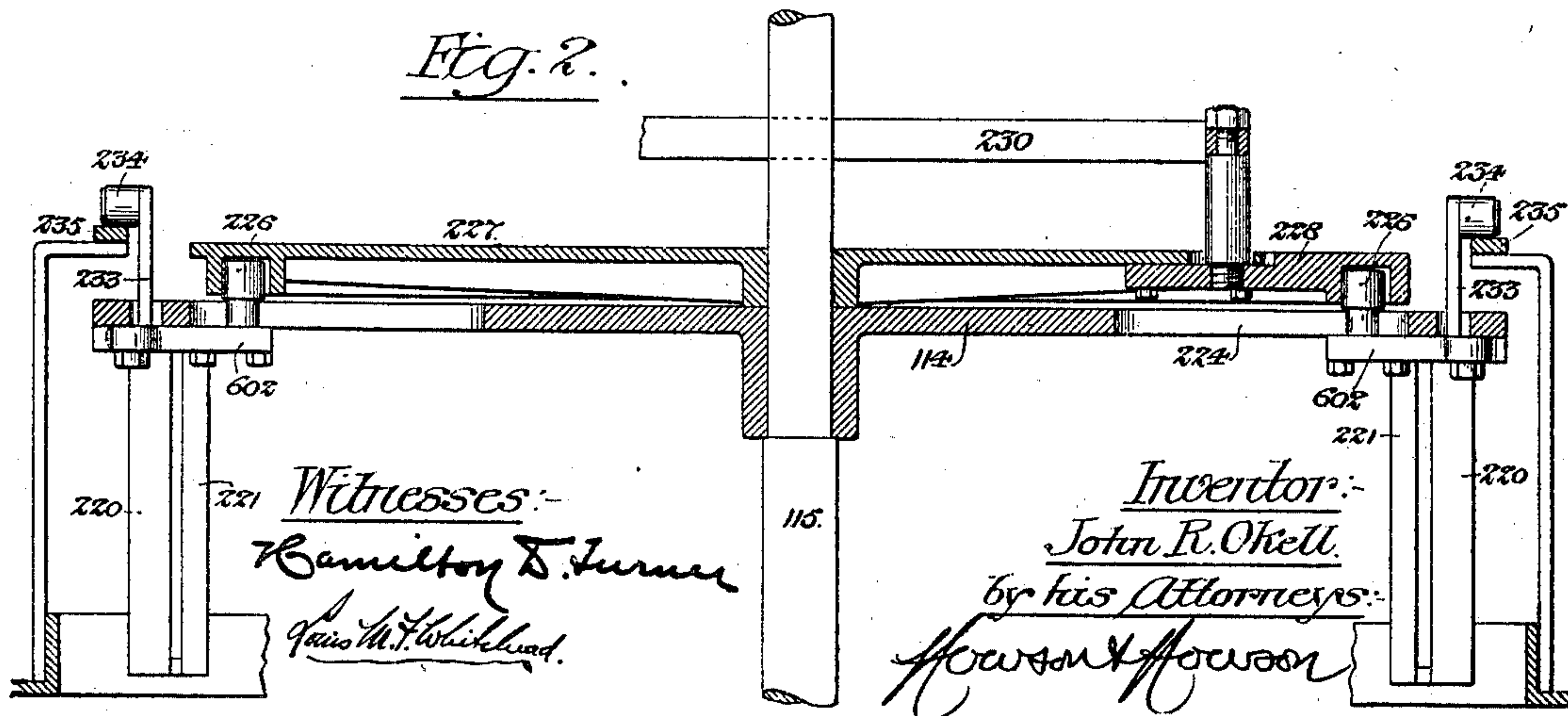


Fig. 2.



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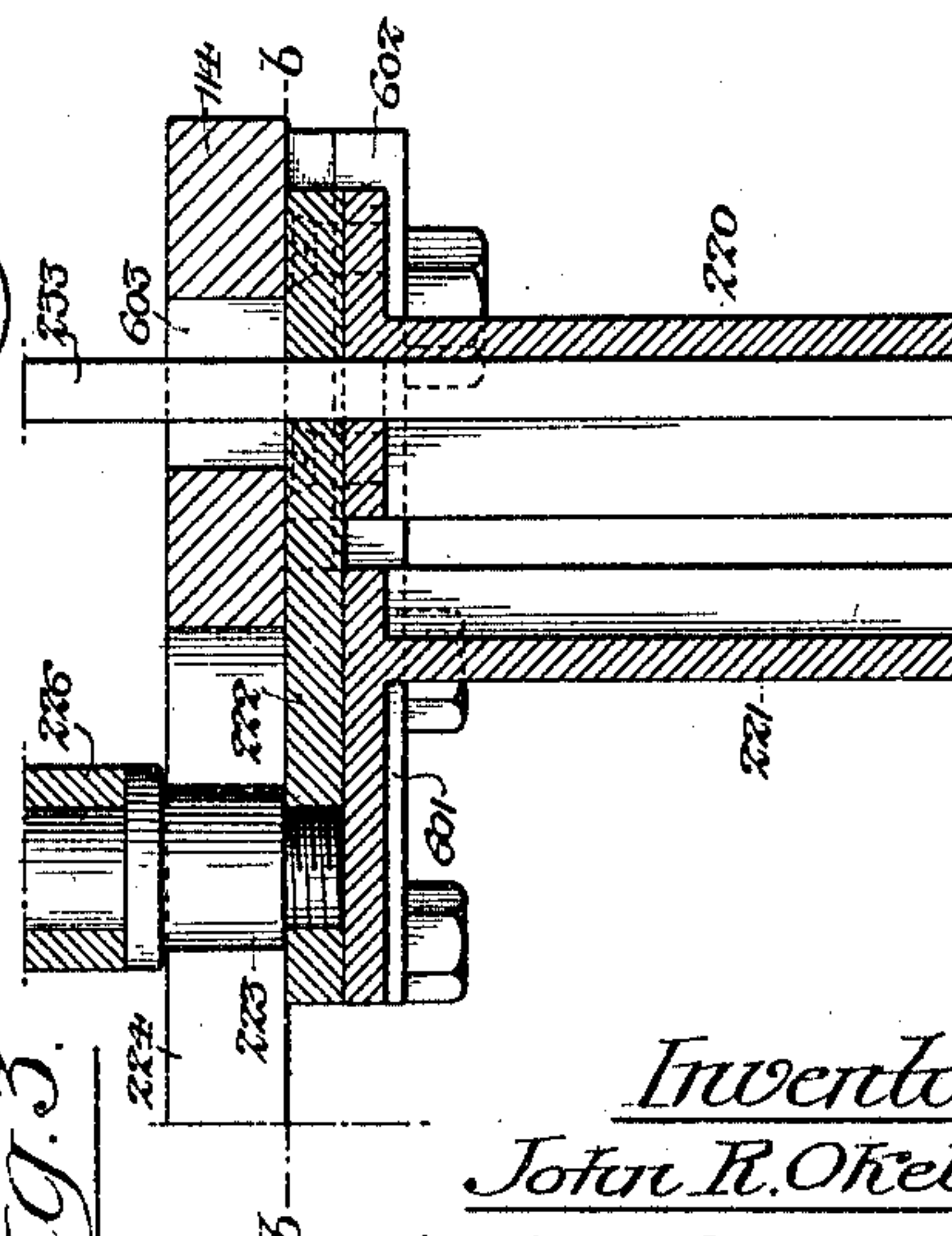
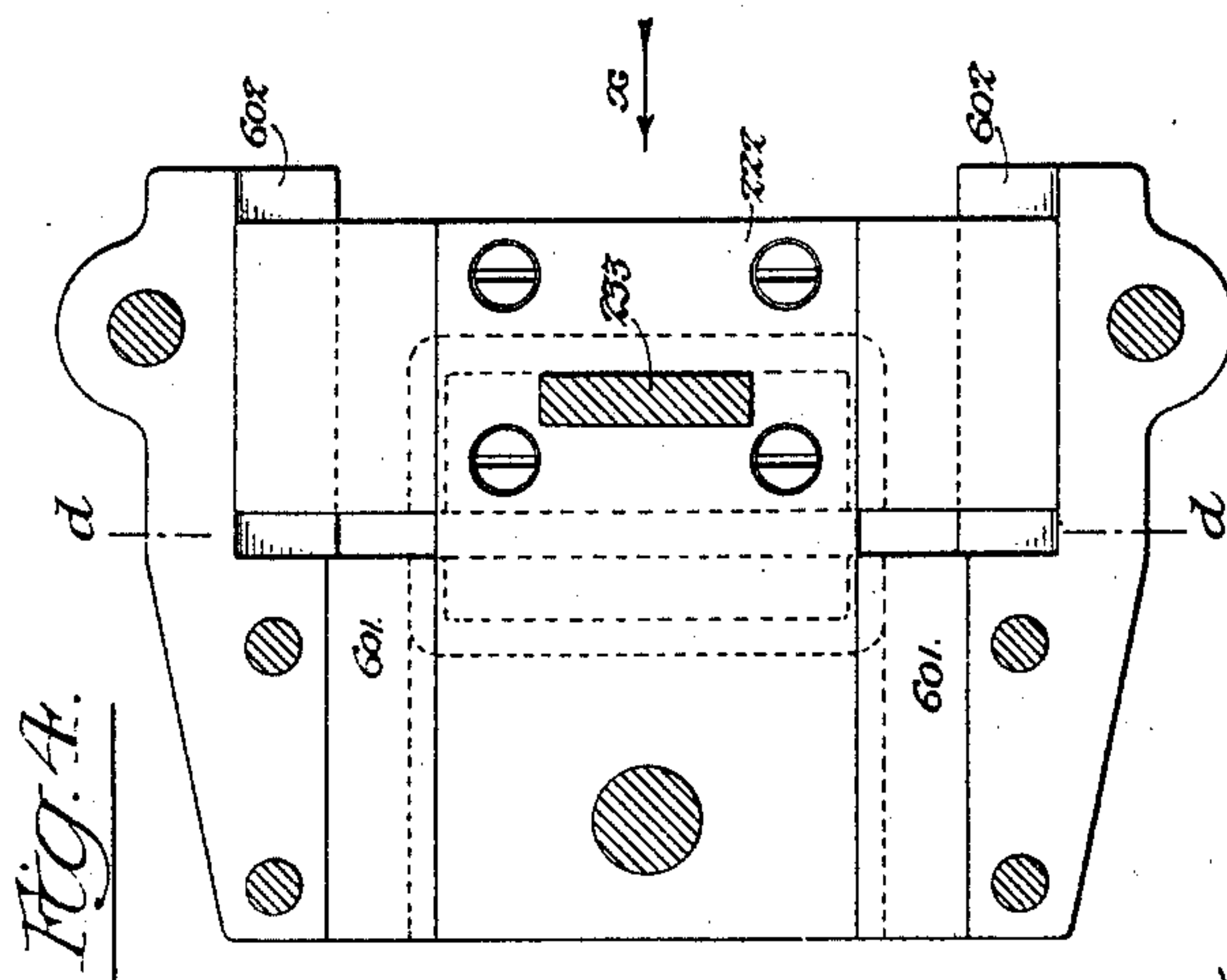
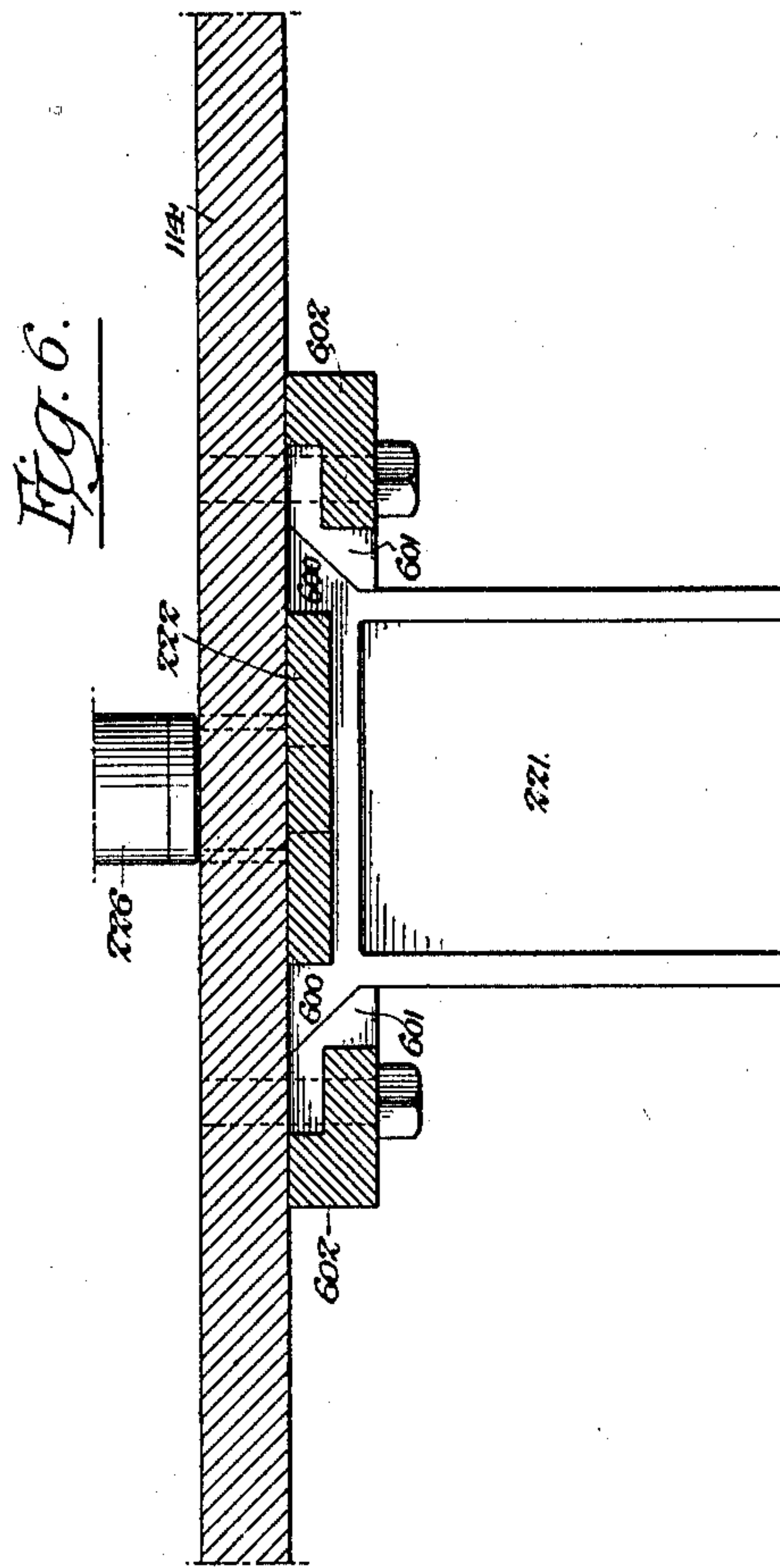
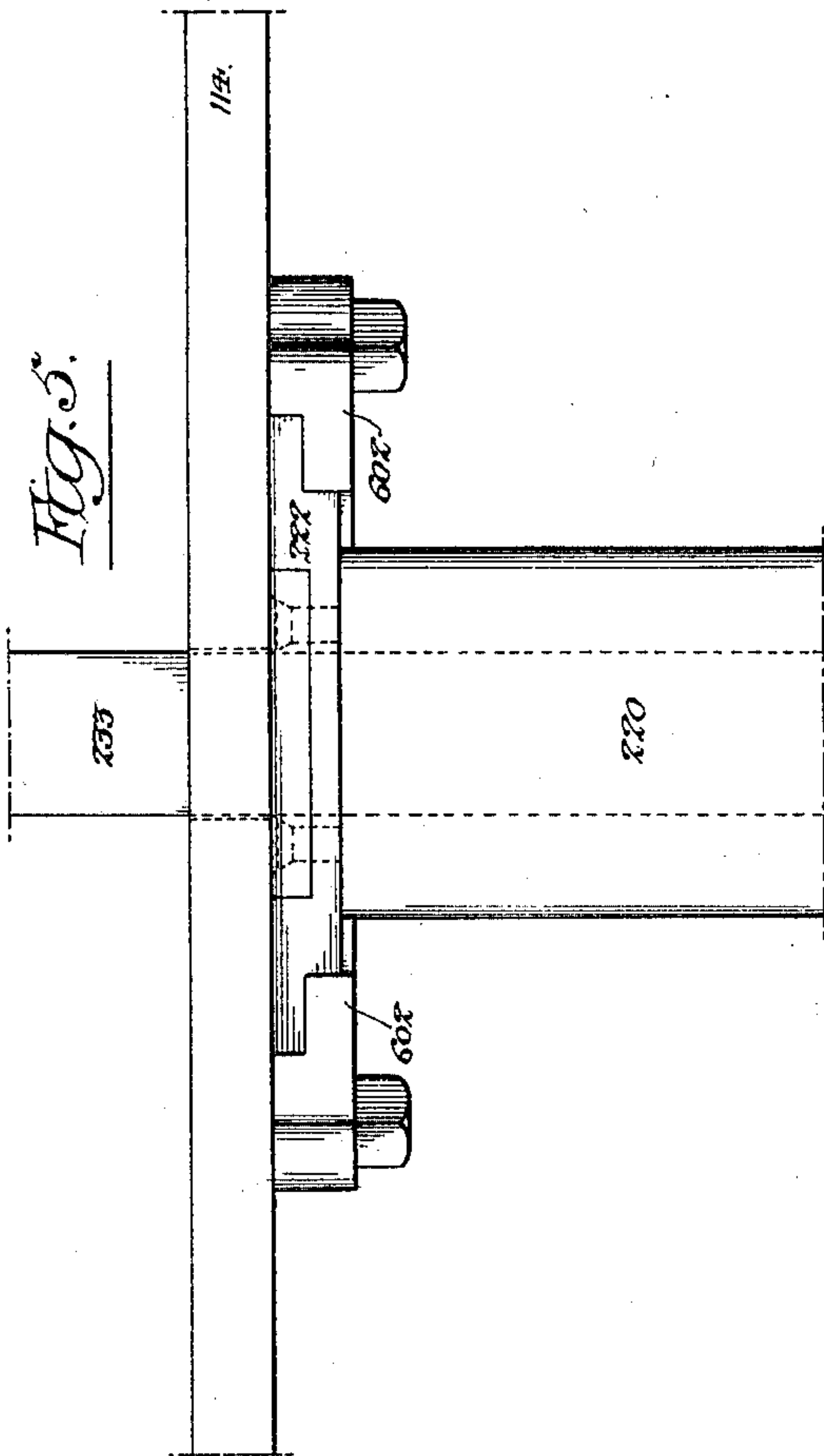
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5 SHEETS—SHEET 2.



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5 SHEETS—SHEET 3.
Fig. 7.

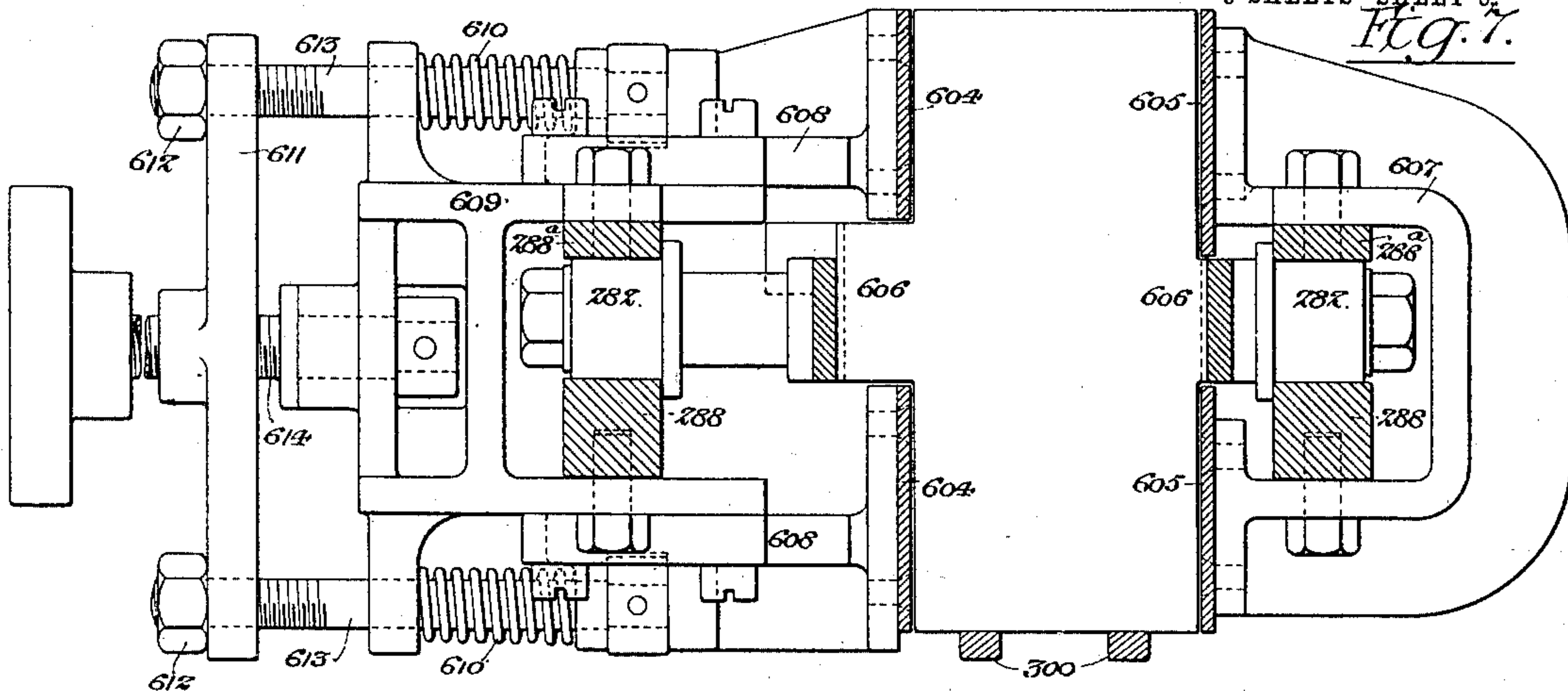
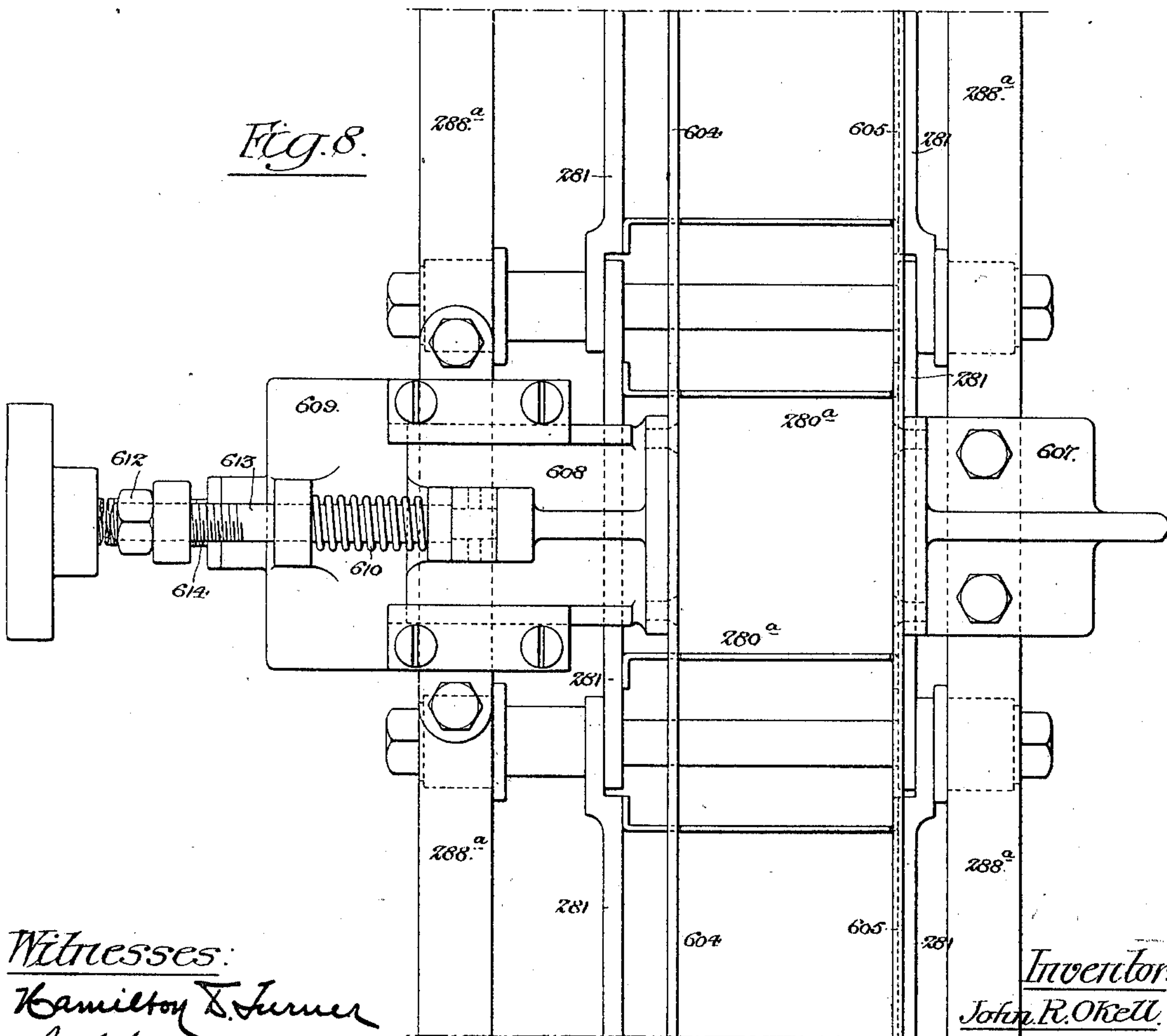


Fig. 8.



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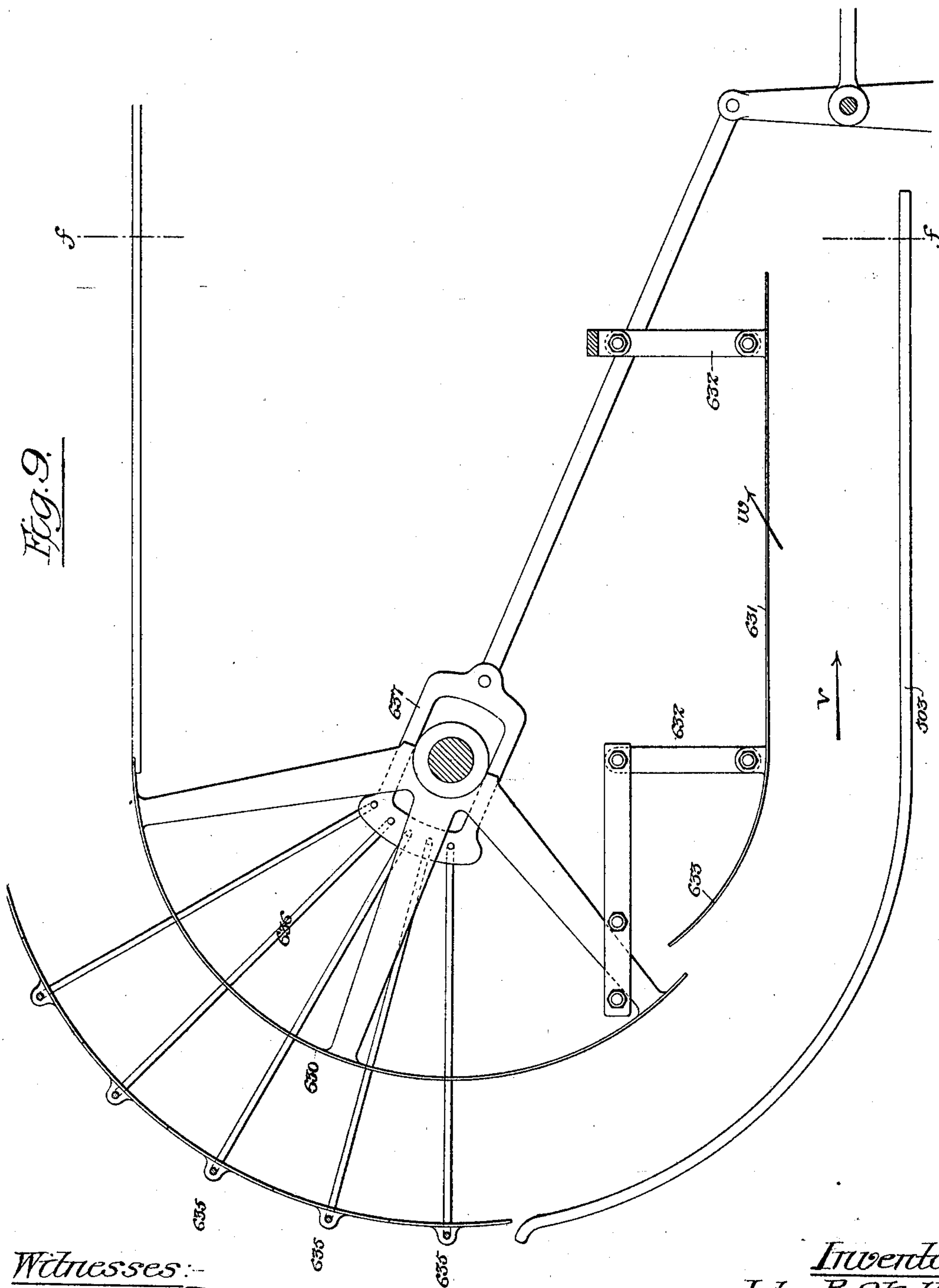
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5 SHEETS—SHEET 4.



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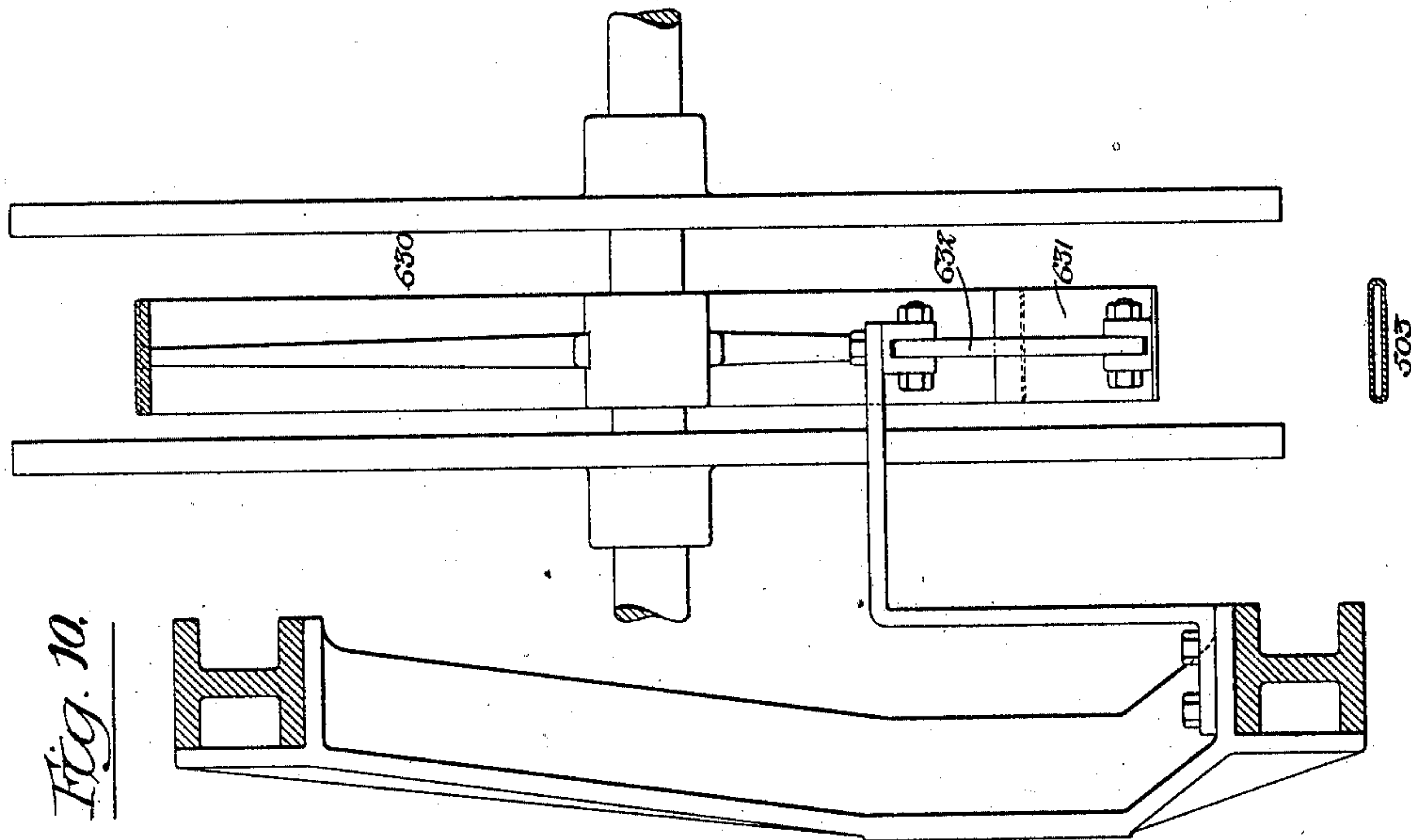
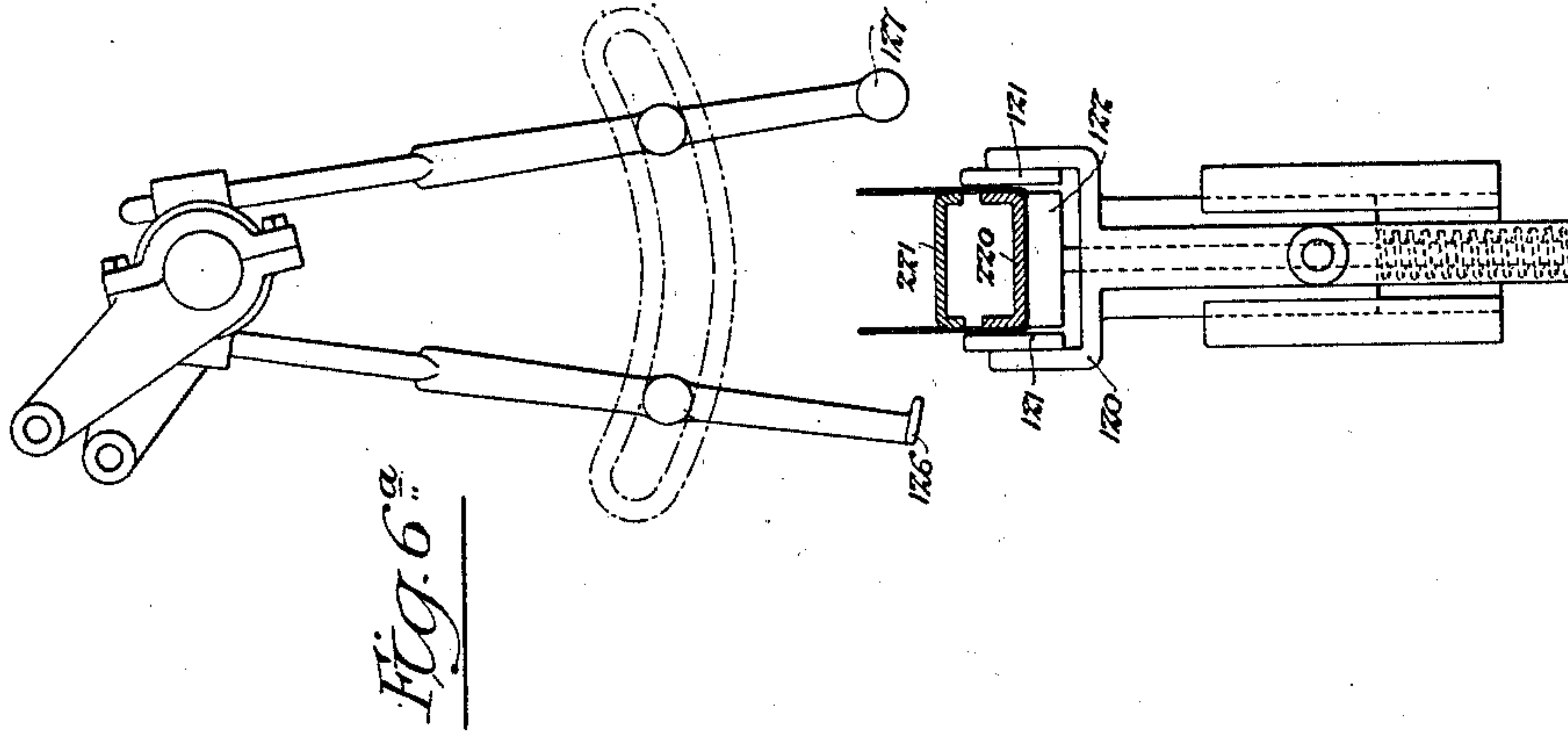
J. R. OKELL.

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APPLICATION FILED NOV. 5, 1900.

NO MODEL.

5 SHEETS—SHEET 5.



Witnesses:-

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UNITED STATES PATENT OFFICE.

JOHN R. OKELL, OF SCRANTON, PENNSYLVANIA.

MACHINE FOR PACKAGING POWDERED OR GRANULAR MATERIALS.

SPECIFICATION forming part of Letters Patent No. 719,251, dated January 27, 1903.

Application filed November 5, 1900. Serial No. 35,517. (No model.)

To all whom it may concern:

Be it known that I, JOHN R. OKELL, a citizen of the United States, and a resident of Scranton, Pennsylvania, have invented certain Improvements in Machines for Packaging Powdered or Granular Materials, of which the following is a specification.

My invention consists of certain improvements in or modifications of the package making and filling machine for which I obtained Letters Patent of the United States numbered 655,574 on the 7th day of August, 1900, the objects of my present improvements being to simplify or improve the construction or operation of those parts of the machine to which they relate.

In the accompanying drawings, Figure 1 is a sectional plan view of that part of the machine which controls the expansion and contraction of the molds around which the bag is formed. Fig. 2 is a view of the same, partly in elevation and partly in section, on the line *a a*. Fig. 3 is a longitudinal section, on an enlarged scale, of the parts which carry the sections of the bag-mold. Fig. 4 is a sectional plan on the line *b b*, Fig. 3. Fig. 5 is an end view looking in the direction of the arrow, Fig. 4. Fig. 6 is a transverse section on the line *d d*, Fig. 4. Fig. 6^a is a sectional plan of one of the bag-molds and of the parts which operate in conjunction therewith. Fig. 7 is an enlarged transverse section of part of the frame of the machine and of the means for feeding the bags forwardly and guiding them in their forward movement. Fig. 8 is a plan or top view of the devices shown in Fig. 7. Fig. 9 is a longitudinal sectional view illustrating the bag-guiding devices at the rear end of the machine; and Fig. 10 is a transverse section on the line *f f*, Fig. 9.

Referring first to Figs. 1 to 6^a, 220 and 221 represent, respectively, the outer and inner sections of the bag-mold depending from the intermittently-moved mold-carrier 114, which is mounted upon the upright shaft 15; but in the present instance the inner sections 221 of the bag-molds are fixedly mounted upon said carrier 114 and the outer sections 220 of the molds are adjustable radially on the mold-carrier in order to increase or diminish the size of the mold to suit the size of the bag to be made, this being the reverse of the construction

adopted in the patented machine and being intended to render unnecessary any radial adjustment of the folders which fold in the overlapping portions of the bag-blank on the inside of said inner section 221 of the mold.

The inner section 221 of the mold is secured to the under side of the mold-carrier 114 by providing the upper portion of said mold-section 221 with beveled flanges 600, as shown in Fig. 6, these beveled flanges being engaged by beveled wings 601, formed upon the guides 602 for the sliding plate 222, which carries the outer section 220 of the mold, said plate having, as before, a stud 223, which plays in a radial slot 224 in the mold-wheel and has a bolt upon which is mounted an antifriction-roller 226, which travels in a groove formed in the under side of the cam-plate 227, fixedly mounted above the mold-wheel.

Expansion or contraction of the mold is effected by the cam-slide 228, which is adjustable radially in an opening in the cam-plate 227 by means of the yoke 230, connected to the adjusting-screw, as before.

The adjustment of the outer sections of the molds can be effected without any derangement of the mechanism for imparting the primary folds to the bag-blank in the formation of the bag-body, such mechanism comprising a spring-presser 122, bearing against the outer face of the outer section of the bag-mold, and side folders 121 for pressing the projecting edges of the blank around the side of the mold, as shown in Fig. 6^a.

The completion of the bag-tube is effected by folding in the projecting side edges on the inner side of the inner section of the mold by means of a swinging plate 126 and roller 127, as shown in Fig. 6^a, and the construction of the machine is materially simplified by dispensing with the necessity for radial adjustment of said plate and roller and of the parts which carry the same. The stem 233 of the movable bottom of the mold is now carried by the movable outer section of the mold, the mold-wheel 114 having a radial slot 603 for the travel of said stem, which has at the upper end an antifriction-roller 234, running upon a rail 235, as before.

The change in the construction of the mechanism for traversing the bags forwardly

through the machine will be understood on reference to Figs. 7 and 8, in which 281 represents the links of the endless chain, whereby the bag-conveying devices are operated, and 300 represents the supporting-rails for the bags in their travel, the chains being supported by means of antifriction-rollers 282, running upon longitudinal rails 288, and prevented from rising by means of superposed rails 288^a.

Instead of employing box-like carriers for receiving the bag, as in the former machine, I now employ pairs of pusher-plates 280^a in connection with inner and outer guide-rails 604 and 605, each made in upper and lower sections, so as to provide for the passage between them of the wings 606, whereby the pusher-plates 280^a are attached to the links 281 of the carrying-chain. The sections of the outer guide-rail 605 are fixedly mounted upon a yoke 607, which is secured to the outer supporting-rails 288 and 288^a of the machine; but each section of the inner guide-rail 604 is carried by a slide 608, adapted to guides on a yoke 609, mounted on the supporting-rails 288 and 288^a, each of said slides 608 being acted upon by a spring 610, tending to press it inwardly to an extent determined by contact of a stop-bar 611 with a nut 612 on a stem 613, projecting from the slide 608, the stop-bar 611 being adjustable by means of a screw-stem 614, so as to vary the limit of inward movement of the sections of the guide 604. These sections of the guide, however, can be pressed outwardly by different-sized bags under the yielding pressure of the springs 610.

The improvements in the bag-guiding devices at the rear end of the machine are intended to relieve the bags from pressure while they are being carried forwardly and yet subject them to endwise pressure while they are in a position of rest, and, further, to subject the bags to a yielding pressure while they are being carried along horizontally toward the lateral take-off belt.

Instead of using continuous semicircular inner and outer segments between which the bags are fed at the rear end of the machine I now use a partial inner segment 630 in combination with a swinging bottom plate 631, carried by radius-arms 632 of equal length mounted upon suitable bearings upon the fixed frame of the machine, so that when subjected to the pressure of a bag moving forwardly or in the direction of the arrow V, Fig. 9, upon the lower run of the steam-heated bag-support 503 it will have a tendency to swing upwardly and forwardly or in the direction of the arrow W, Fig. 9, and its weight and the weight of the radius-arms 632 will therefore be exerted to press the bags downwardly upon said support 503. The rear end of the plate 631 is bent upwardly, as at 633, and preferably terminates some distance inside of the lower end of the segment 630, so

as to remove any possibility of contact of the end of a bag with the end of the plate.

The upper portion of the outer bag-retaining segment at the delivery end of the machine is composed of sections 635, each guided so as to move radially and each connected, by means of a rod, yoke, or other suitable connection 636, to a sliding yoke 637, to which reciprocating motion is imparted at suitable intervals by means of a proper cam driven from one of the high-speed shafts of the machine. By this means each of the segments 635 can be moved outwardly to a slight extent just before and during the time that the bags are being moved forwardly between the inner and outer segments and can then be retracted again to its normal position, thus relieving the bags from pressure during their movement, while providing for proper end pressure upon them during their periods of rest, thereby rendering the movement of the bags easier than it was in the former machine and effecting a corresponding saving in the amount of power required to operate the machine.

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

1. In a machine for forming paper bags, the combination of the bag-mold carrier, with a series of bag-molds composed of outer adjustable sections and inner non-adjustable sections, primary folding devices operating in conjunction with the outer adjustable sections of the molds, and final folding devices operating in conjunction with the inner non-adjustable sections of the molds, substantially as specified.

2. The combination in a machine for forming paper bags, of a mold-carrier, a series of molds composed of adjustable sections, and guides for the outer sections of the molds, said guides having clamping portions which retain the inner sections of the molds upon the mold-carrier, substantially as specified.

3. The combination in a bag-filling machine, of the longitudinal bag-support, and means for traversing the bags thereon, comprising independent pusher-plates, one for each bag, and independent of said bag-support, and longitudinal guide-rails for the bags, substantially as specified.

4. The combination in a bag-filling machine, of a longitudinal bag-support, bag-carriers, and means for imparting yielding pressure to one side of each of said bag-carriers to move it toward the bag, substantially as specified.

5. The combination in a bag-filling machine, of the longitudinal bag-support, and means for traversing the bags thereon, comprising pusher-plates, longitudinal guide-rails, and springs acting upon one of said guide-rails to move it toward the bags, substantially as specified.

6. The combination in a bag-filling machine, of the longitudinal bag-support, and

means for traversing the bags thereon, comprising pusher-plates, longitudinal guide-rails, springs acting upon one of said guide-rails to move it toward the bag, and an adjustable stop-bar for limiting the extent to which the guide-rail is projected by said springs, substantially as specified.

7. The combination in a bag-filling machine, of a longitudinal support for the bags, and bag-conveying mechanism comprising endless chains, pusher-plates having contracted portions secured to and carried by said chains, and longitudinal guide-rails made in sections to permit of the passage of the contracted portions of the pusher-plates between them, substantially as specified.

8. The combination in a bag-filling machine, of a bag-support, and a pivotally-mounted guide and presser-plate, said pivotal

mounting being so disposed in respect to the plate that the latter will swing forwardly and upwardly under the action of the bag, substantially as specified.

9. The combination in a bag-filling machine, of a segmental guide having opposite walls one of which is composed of sections, and means for expanding and contracting said sections so as to relieve the bags from pressure when they are being moved, and subject them to pressure when at rest, substantially as specified.

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

JOHN R. OKELL.

Witnesses:

F. E. BECHTOLD,
JOS. H. KLEIN.