

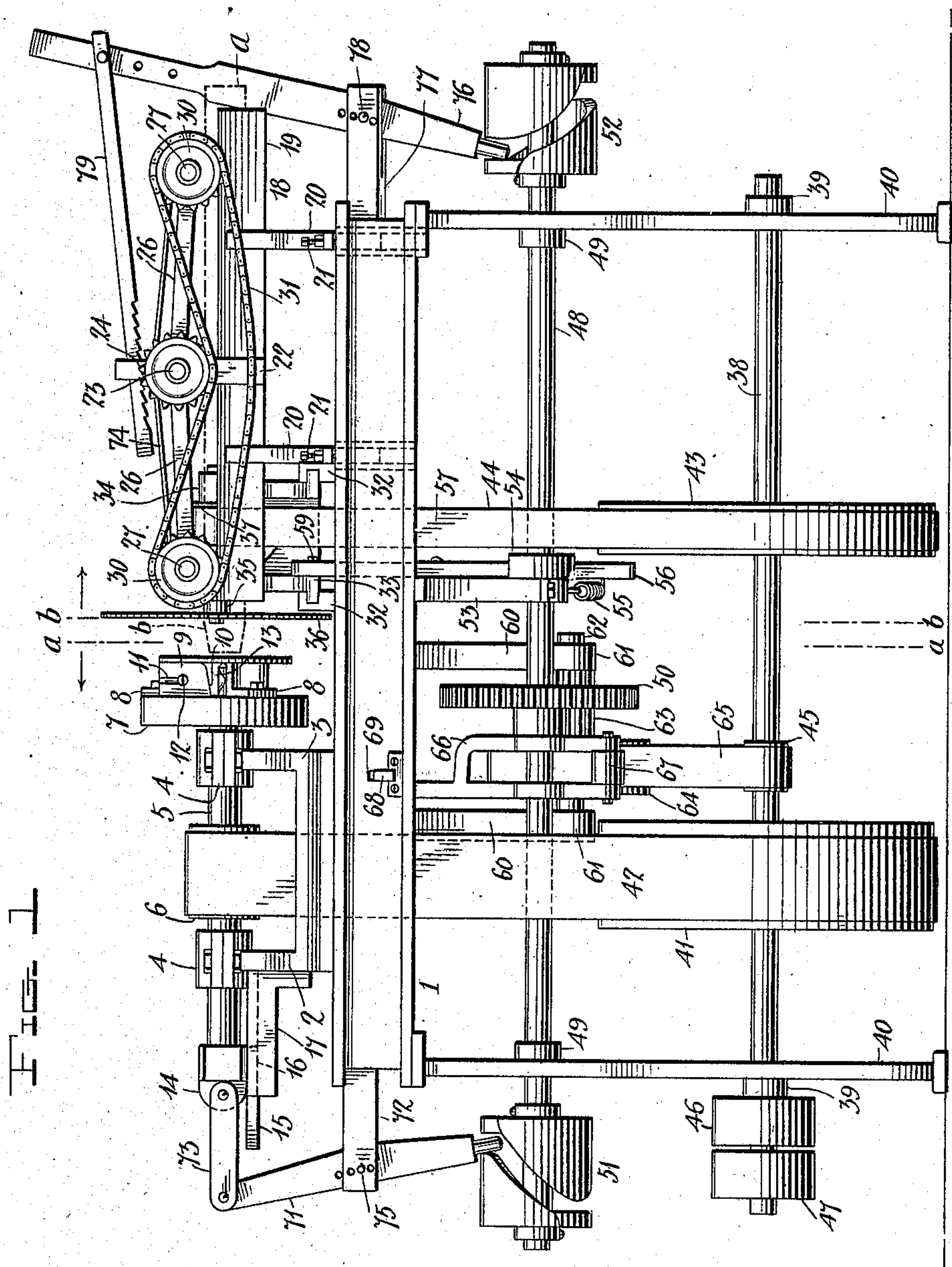
No. 885,718.

PATENTED APR. 28, 1908.

H. BRUBAKER.
MACHINE FOR MAKING PAPER ROLL PLUGS.

APPLICATION FILED DEC. 17, 1906.

4 SHEETS—SHEET 1.



Witnesses
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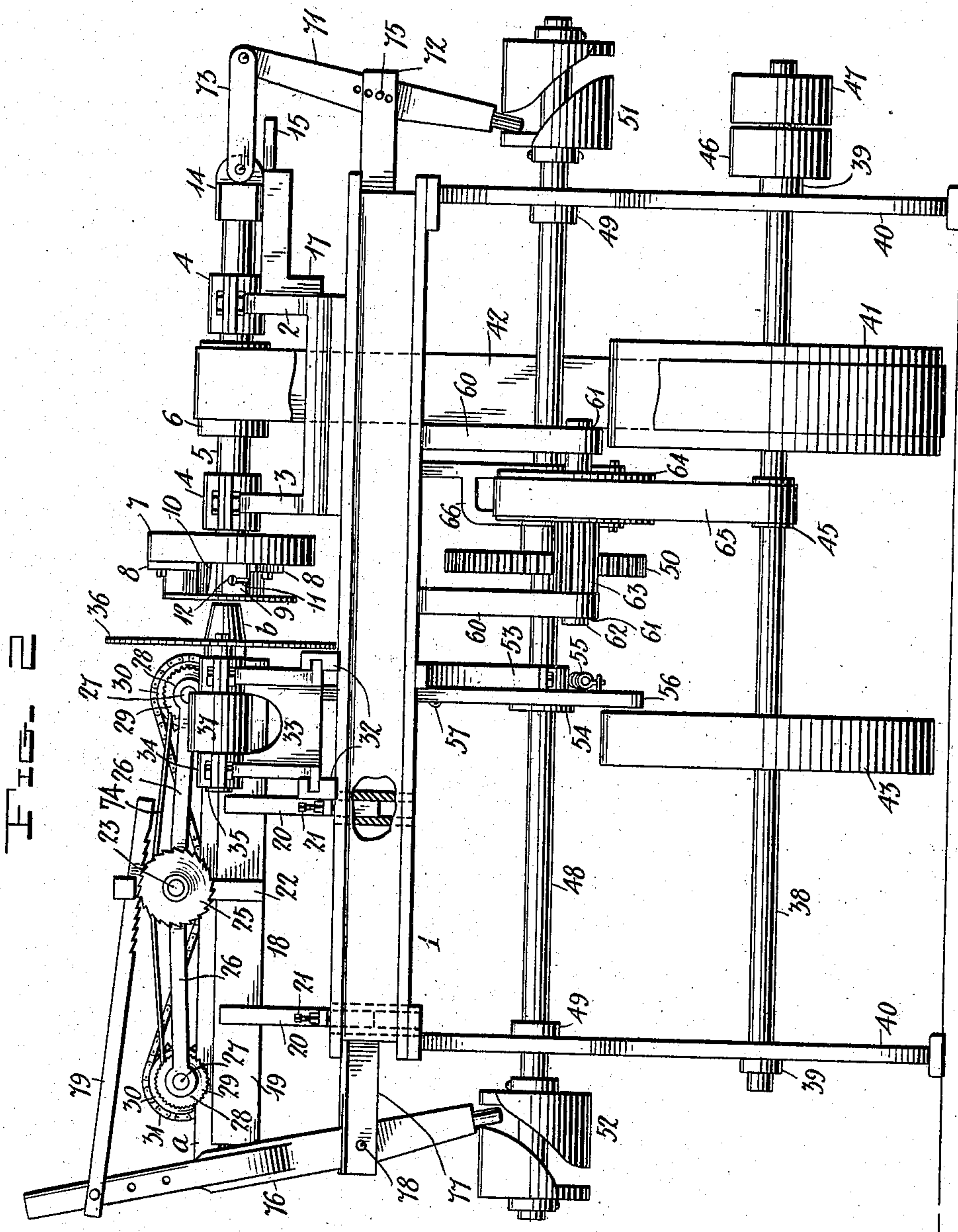
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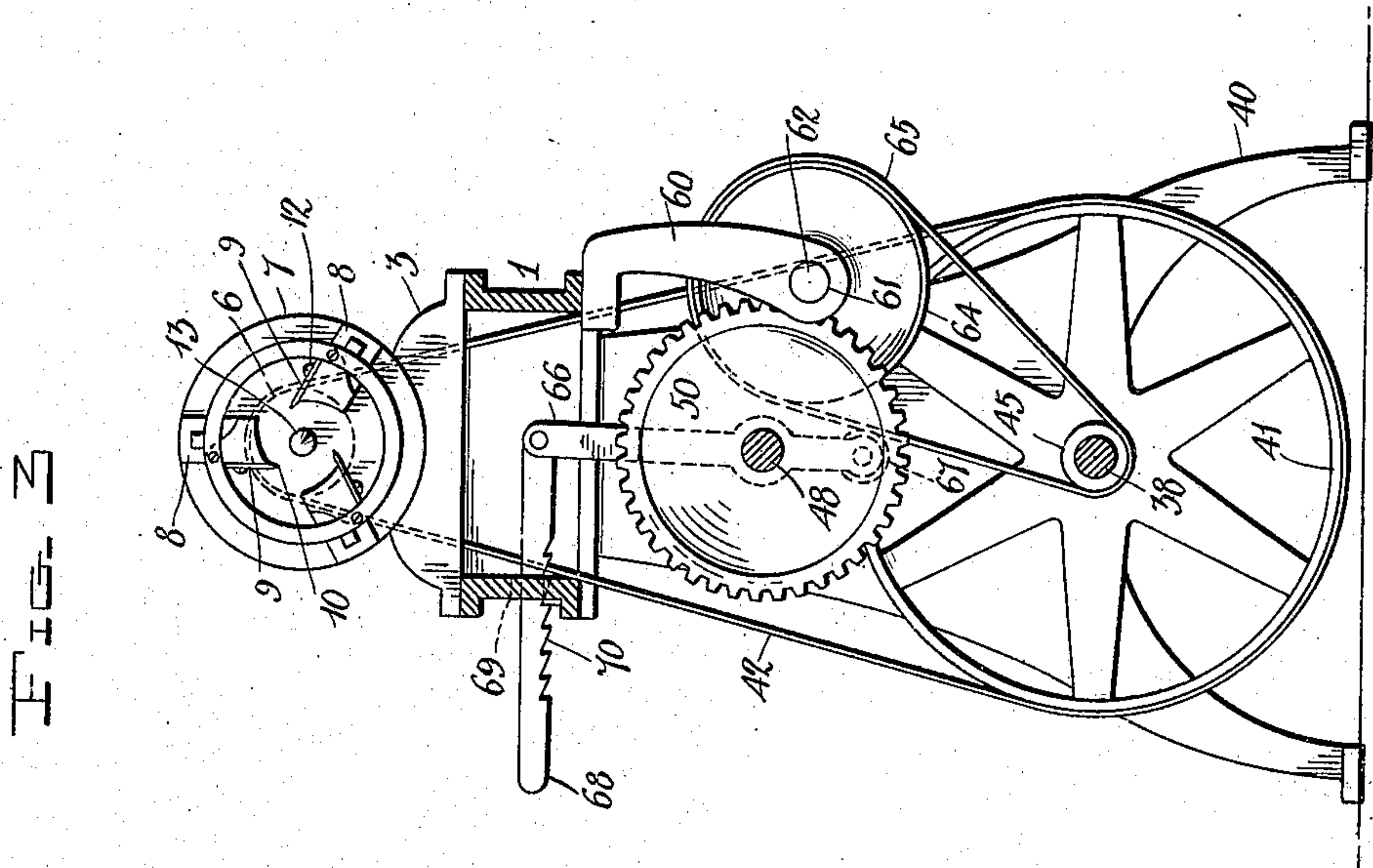
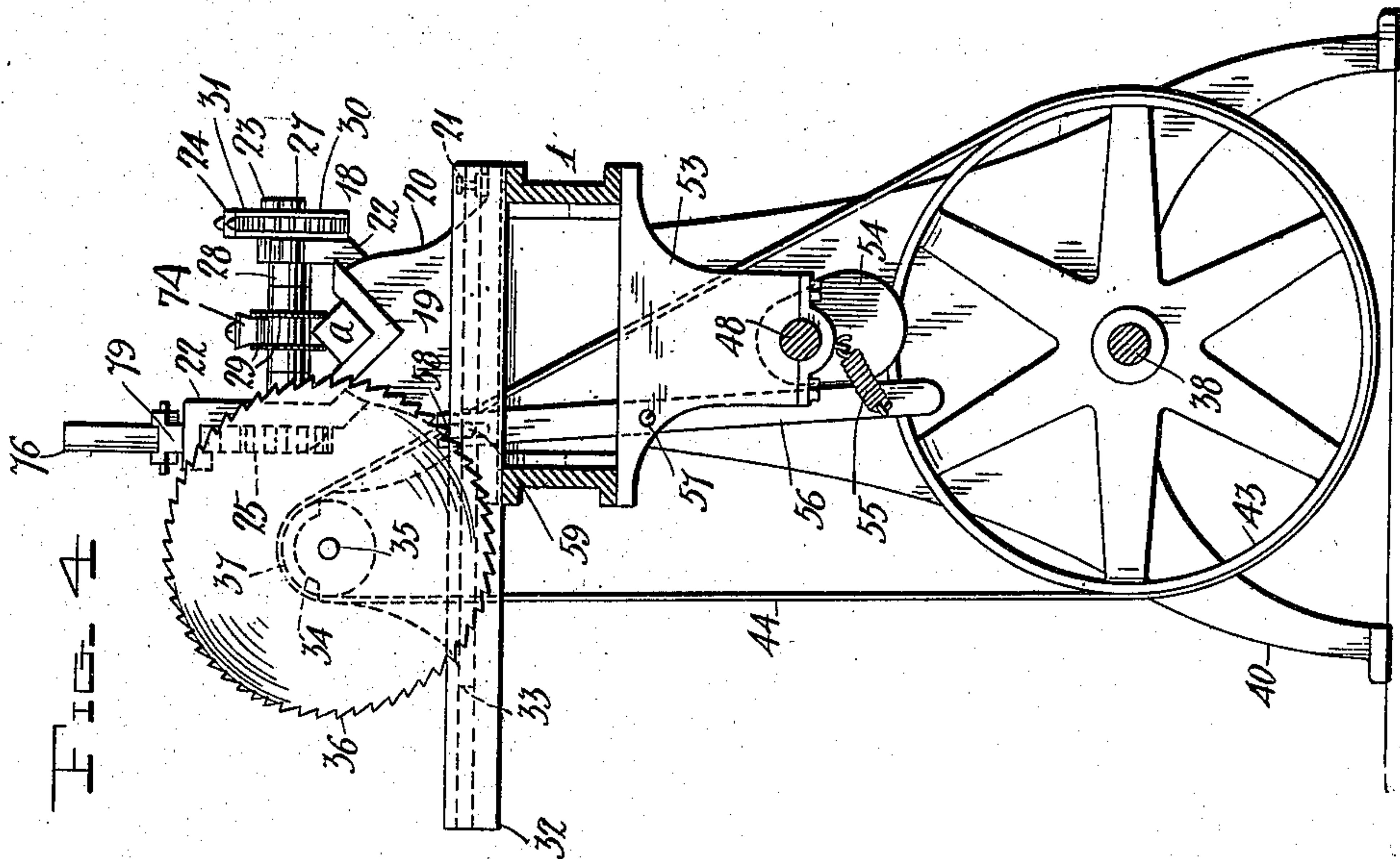
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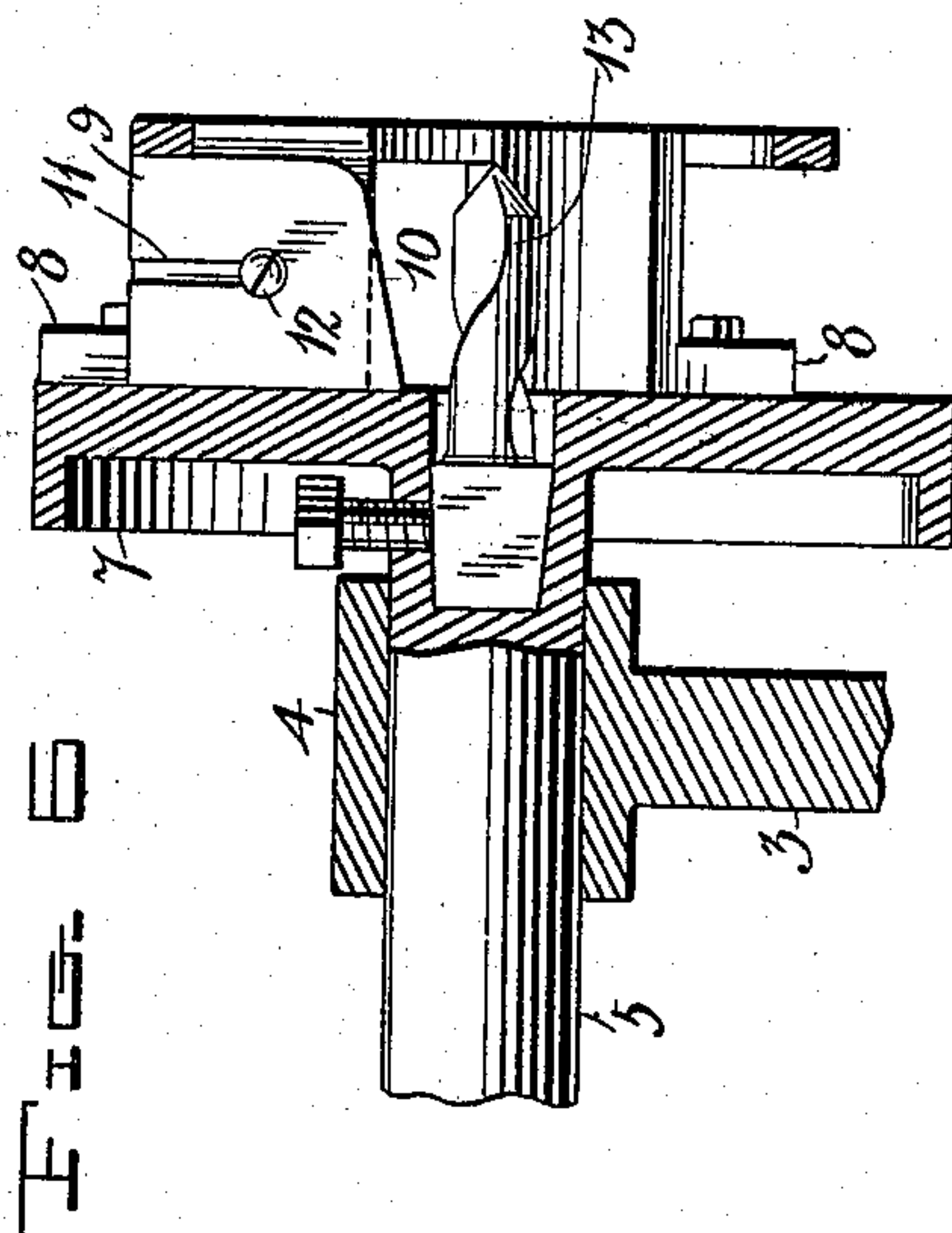
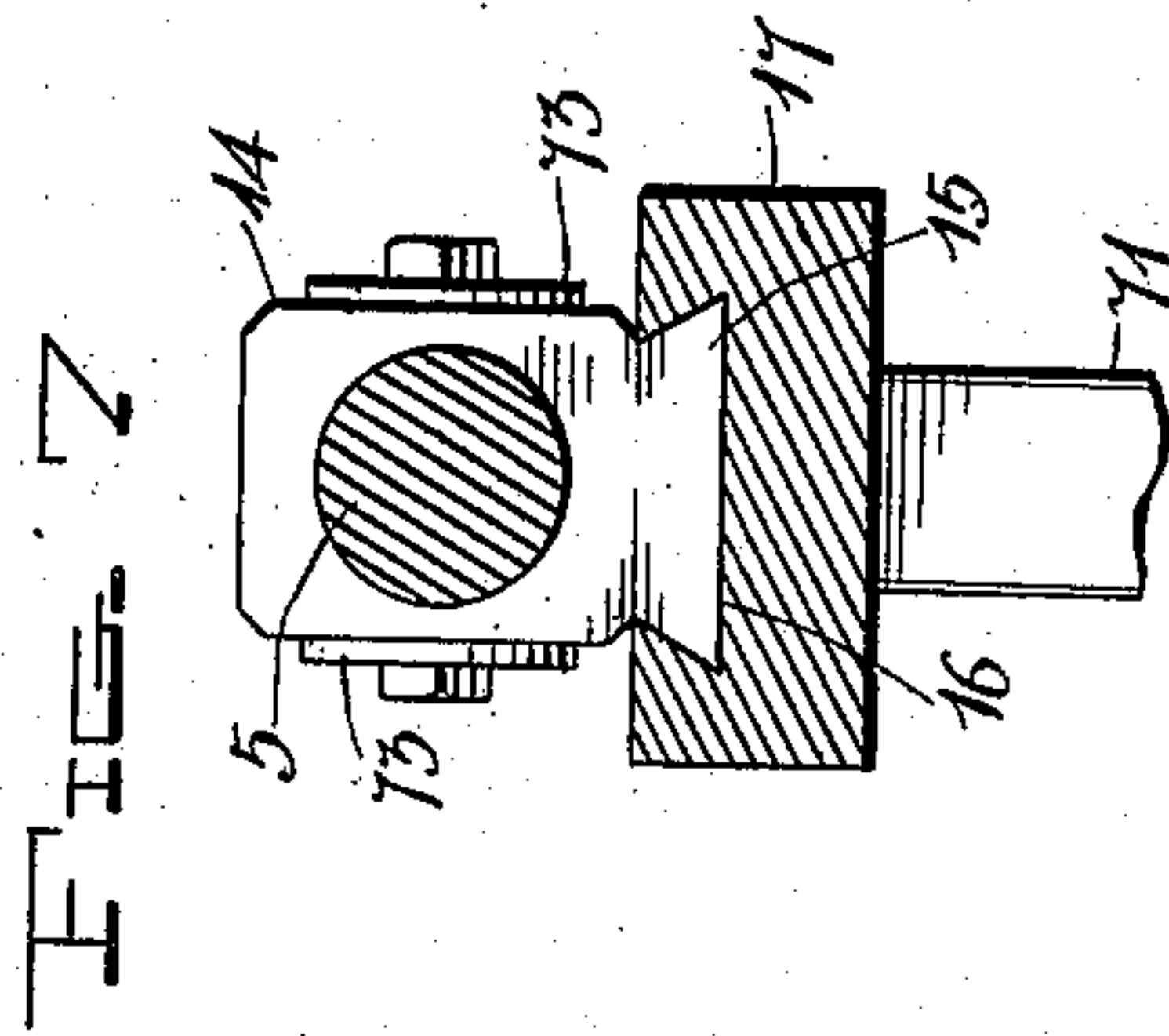
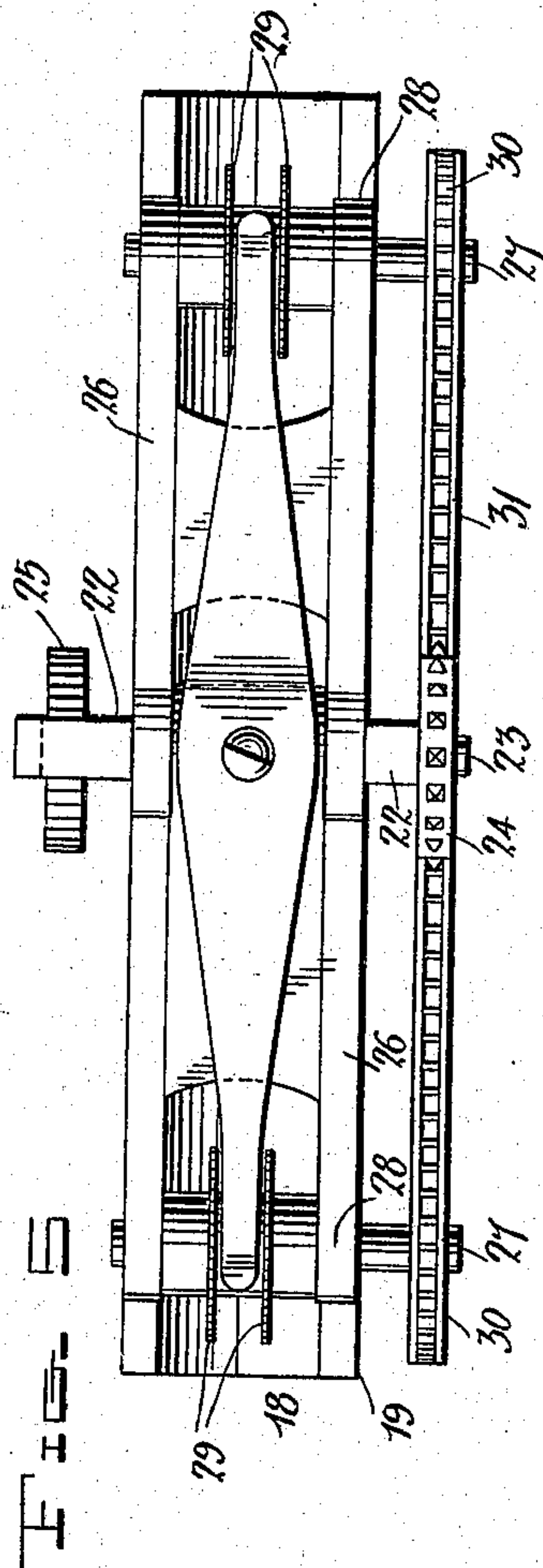
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UNITED STATES PATENT OFFICE.

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MACHINE FOR MAKING PAPER-ROLL PLUGS.

No. 885,718.

Specification of Letters Patent.

Patented April 28, 1908.

Application filed December 17, 1906. Serial No. 348,257.

To all whom it may concern:

Be it known that I, HENRY BRUBAKER, a citizen of the United States, residing at York, in the county of York and State of Pennsylvania, have invented certain new and useful Improvements in Machines for Making Paper-Roll Plugs; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention is an improved machine for making conical plugs such as are used in the ends of paper rolls, and for also making other similar articles, and it consists in the construction, combination and arrangement of devices hereinafter described and claimed.

In the accompanying drawings,—Figure 1 is a front elevation of a plug making machine, embodying my invention; Fig. 2 is a rear elevation of the same; Fig. 3 is a vertical transverse sectional view of the same, taken on the plane indicated by the line *a—*a** of Fig. 1; Fig. 4 is a similar view, taken on the plane indicated by the line *b—*b** of Fig. 1, and Figs. 5, 6 and 7 are detail views.

The frame 1 may be of the form here shown, or of any other suitable form. Near one end of the frame and on the upper side thereof are a pair of standards 2, 3, provided with bearings 4 for a revoluble and longitudinally movable shaft 5, which is provided with a pulley 6. At the inner end of the said shaft is a head 7 which is provided on its face with radially disposed brackets 8, each of which is provided on one side with a removable and radially adjustable cutter plate or bit 9. The same may be of any suitable construction, and their inner, cutting edges 10, may be of any suitable shape, according to the work which is to be done by the machine. Each of the cutter plates or bits is here shown as having a slot 11, to receive the screw 12 which secures the same to the bracket, said screws and slots admitting of the radial adjustment of said plates or bits, as will be understood. The said brackets and cutter plates or bits are spaced from the center of the said head, and the latter is provided at its center with a suitable boring bit or tool 13. To the outer end of the said shaft is swiveled a knuckle 14, which has at its lower side a slide 15, which operates in a guideway 16 in an arm 17 that projects outwardly from the standard 2. The cutter

plates serve to cut and shape the outer side of the work, and the boring bit serves to bore through the center of the work while its outer side is being so cut and shaped.

On the opposite end of the frame from that on which the standards 2, 3, are located, is a work feed guide 18, which is here shown as a guide trough 19 provided with standards 20, which are vertically adjustable by means of screws 21. The guide trough is here shown as V-shaped in cross-section to receive and guide the stock *a*, from which the plugs *b* or other work, are made and cut. On the upper side of said guide trough, at the center thereof, are standards 22, in which is journaled a shaft 23. On one end of said shaft is a sprocket wheel 24. A ratchet wheel 25 is secured to the other end thereof.

A pair of presser arms 26, which are disposed longitudinally over the guide trough, have their inner ends pivotally mounted on the said shaft 23. At their outer ends which are vertically movable are shafts 27, journaled in bearings 28, with which they are provided. Each of said shafts has a pair of peripherally toothed feed wheels 29, which operate on the upper side of the stock on the guide trough, and each of said shafts is further provided at one end with a sprocket wheel 30. An endless sprocket chain 31 connects the sprocket wheels 30, and one lead thereof engages the sprocket wheel 24, so that when the latter is revolved, said wheels 30 are also caused to revolve and the feed wheels 29 which turn therewith are caused to move the stock toward the cutter. A spring 74 bears downwardly on the feed wheels to insure their engagement with the stock.

The frame is provided on its upper side, near the center, with a pair of transversely-disposed guides 32. A saw carriage 33 is movable transversely on and with reference to the frame and has a bearing 34 in which is mounted the arbor 35 of a saw 36, which is employed to cut the plugs or other work, after each has been shaped and bored, from the stock. A pulley 37 is secured to one end of the saw arbor.

A driving shaft 38 is journaled in bearings 39, with which the supporting standards of the frame 1 are provided. Said shaft has a large pulley 41, connected to the pulley 6 by an endless belt 42; a large pulley 43 connected to the saw pulley 37 by an endless belt 44, and a small pulley 45. At one end

of the driving shaft is a fast pulley 46 and a loose pulley 47.

A shaft 48, which is located at a suitable distance above the shaft 38, is journaled in bearings 49 in the standards 40 and is provided at a suitable point with a large spur gear 50. At opposite ends of the said shaft are cams 51, 52. A hanger 53 depends from the frame 1, at a point near its center, and has a bearing for the shaft 48. Said shaft has a cam 54, which coacts with a spring 55 to operate a lever 56, which is fulcrumed at 57 on the hanger and has a slot 58 in the upper end, in which operates a stud 59 which projects from the saw carriage. A pair of brackets 60 depend from the rear side of the frame 1, at a suitable point, and have bearings 61 for a shaft 62, which is provided with a pinion 63 that meshes with the gear 50, and is further provided with a pulley 64, which is larger than the pulley 45 and is connected thereto by an endless belt 65. A belt tightening frame 66 is pivotally mounted on the shaft 48 and has at its lower end, an anti-friction roller 67 to bear on the belt 65. An operating arm 68 is pivotally attached to the upper end of the belt tightening frame 66, operates in an opening 69 in the front side of the frame 1 and is provided in its under side with lock teeth 70, to engage the lower side of the opening 69 and secure the belt tightening frame in any position in which it may be adjusted.

The shaft 38 is driven at high speed by an ordinary driving belt, operating on the fast pulley 46, and shiftable to the loose pulley 47, and it will be understood that the driving connections hereinbefore described, between the said shaft 38 and the cam shaft 48 cause the latter to be revolved at a comparatively low rate of speed.

The cam 51 operates a lever 71, which is mounted in a bracket 72 that projects from one end of the frame 1. The upper end of the said lever is connected by links 73 to the knuckle 14, and hence said lever causes the cutter which is carried by the shaft 5, to move toward and from the end of the stock presented from the opposing end of the guide trough.

The fulcrum 75 of the lever 71 is shiftable with reference to the latter to vary the "throw" of the upper end thereof, and hence vary the longitudinal movement of the cutter as may be required. The cam 52 operates a lever 76 which is mounted in a bracket 77. The fulcrum 78 of said lever is shiftable, to vary the "throw" of the upper end thereof, and to the upper end of said lever is pivotally connected a ratchet bar 79, which bears on the upper side of and engages the ratchet wheel 25.

It will be understood that the bar 79 is moved back and forth longitudinally by the lever 66 and that at each stroke thereof in

one direction, it causes the ratchet wheel 25, and hence also the shaft 23 and sprocket wheel 24 to turn, and hence the feed wheels 29 are operated, and caused to move the stock toward the cutter. The extent to which the stock will be thus fed to the cutter will be commensurate with the "throw" of the upper end of the lever 76, and since this may be pre-determined and controlled by shifting the fulcrum of the lever, the stock may, at each operation of the said lever, be moved to any desired extent, and hence plugs or other work, of varying lengths may be made by the machine. The work feed guide is vertically adjustable by the screws 21 to enable the same to feed stock of various thicknesses to the cutter, as will be understood.

The cams on the cam shaft are each provided with a straight circumferential portion and otherwise so constructed and timed as to cause the cutter and the stock to be moved simultaneously toward each other, so that the cutter plates and the boring bit will cut the outside and make the longitudinal bore through the center of a plug, at one end of the stock, the cutter to be then withdrawn, and the saw to be moved across the stock so as to cut off the finished plug or other article and back out of the way, while the cutter is at the outer end of its stroke, and the stock is at rest, prior to the next operation of the feeding mechanism. Hence each plug or other article made by the cutter will be cut from the stock and will drop out of the way before the cutter and the stock are again moved toward each other.

Within the scope of my invention, any suitable means may be employed to vary the "throw" of the upper ends of the lever which imparts longitudinal movement to the cutter and the stock. For the purposes of this specification, such levers are shown as provided with adjusting openings and the brackets in which they are mounted are also shown as provided with adjusting openings for the reception of the fulcrums of such levers and to enable such fulcrums to be shifted with respect to such levers. I do not desire to limit myself in this particular.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention, as defined by the appended claims.

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

1. In a plug making machine, a frame, a cutter head journaled thereon, a work support on the frame, a shaft mounted on said support, spring pressed arms pivotally mounted at their inner ends on said shaft, feed wheels journaled in the free ends of said

arms, and means for intermittently actuating said wheels in unison.

5 2. In a plug making machine, a frame, a cutter head journaled thereon, a work support on the frame provided with standards, a shaft journaled in the standards and provided with a sprocket wheel, oppositely extending spring pressed arms pivotally mounted on said shaft at their inner ends, a shaft
10 journaled in the outer end of each arm provided with a feed wheel and a sprocket wheel, a sprocket chain on said sprocket wheels, and means connected with the shaft in the standards for actuating said chains and wheels intermittently.
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3. In a plug making machine, a frame, a cutter head journaled thereon, a work support on the frame, a shaft mounted on the support provided with a ratchet wheel at one
20 end, arms pivotally mounted on said shaft at their inner ends, feed wheels at the outer ends of said arms, means for actuating said feed wheels from said shaft, a cam, a lever pivot-

ally mounted on the frame with one end in engagement with said cam, and a notched 25 bar connected with the other end of the lever in position for engaging with said ratchet wheel.

4. In a plug making machine, a frame, a cutter head journaled thereon, a work support provided with standards, a shaft journaled in the standards, two oppositely extending arms pivotally mounted on said shaft at their inner ends, feed wheels journaled in the outer ends of said arms, a spring having 35 its ends in engagement with said wheels, and means for intermittently actuating the feed wheels in unison.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses. 40

HENRY BRUBAKER.

Witnesses:

B. R. PAXTON,

GEORGE S. DELLINGER.