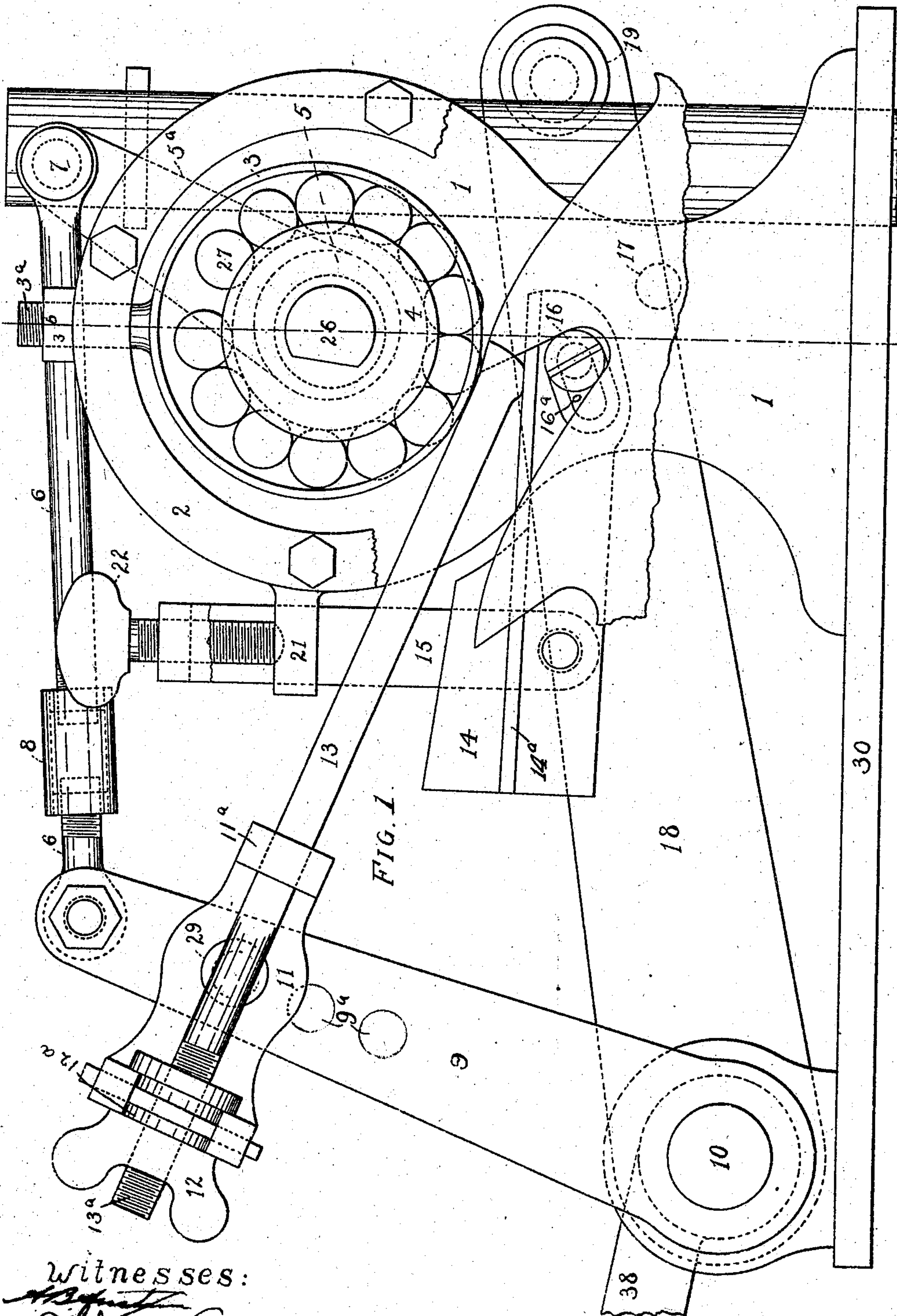


No. 815,269.

PATENTED MAR. 13, 1906.

W. L. COVEL.
SAW SWAGING MACHINE.
APPLICATION FILED AUG. 15, 1904.

4 SHEETS—SHEET 1.



Witnesses:

[Signature]
[Signature]

Inventor:

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SHEETS—SHEET 2.

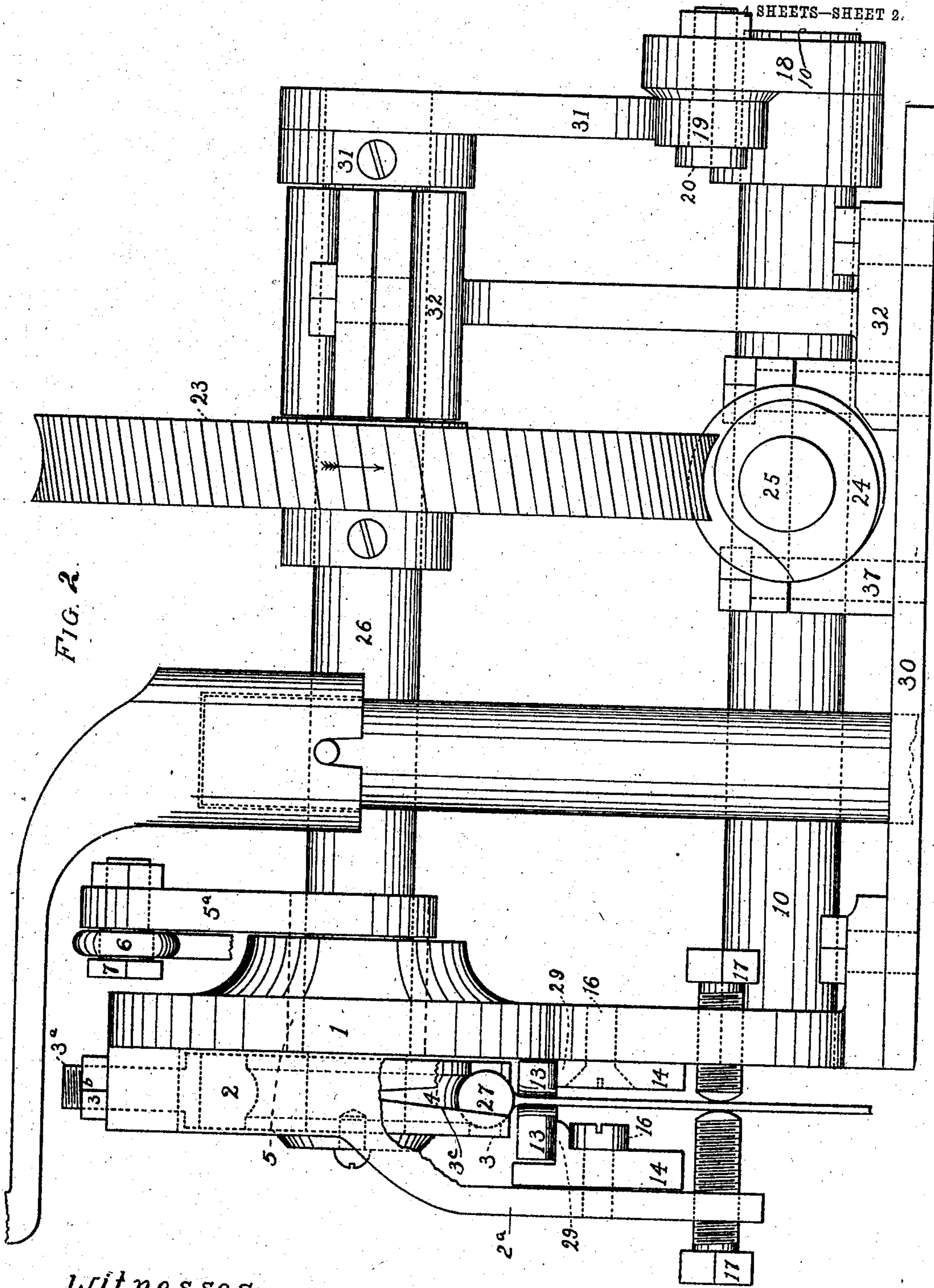


FIG. 2.

Witnesses:

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4 SHEETS—SHEET 3.

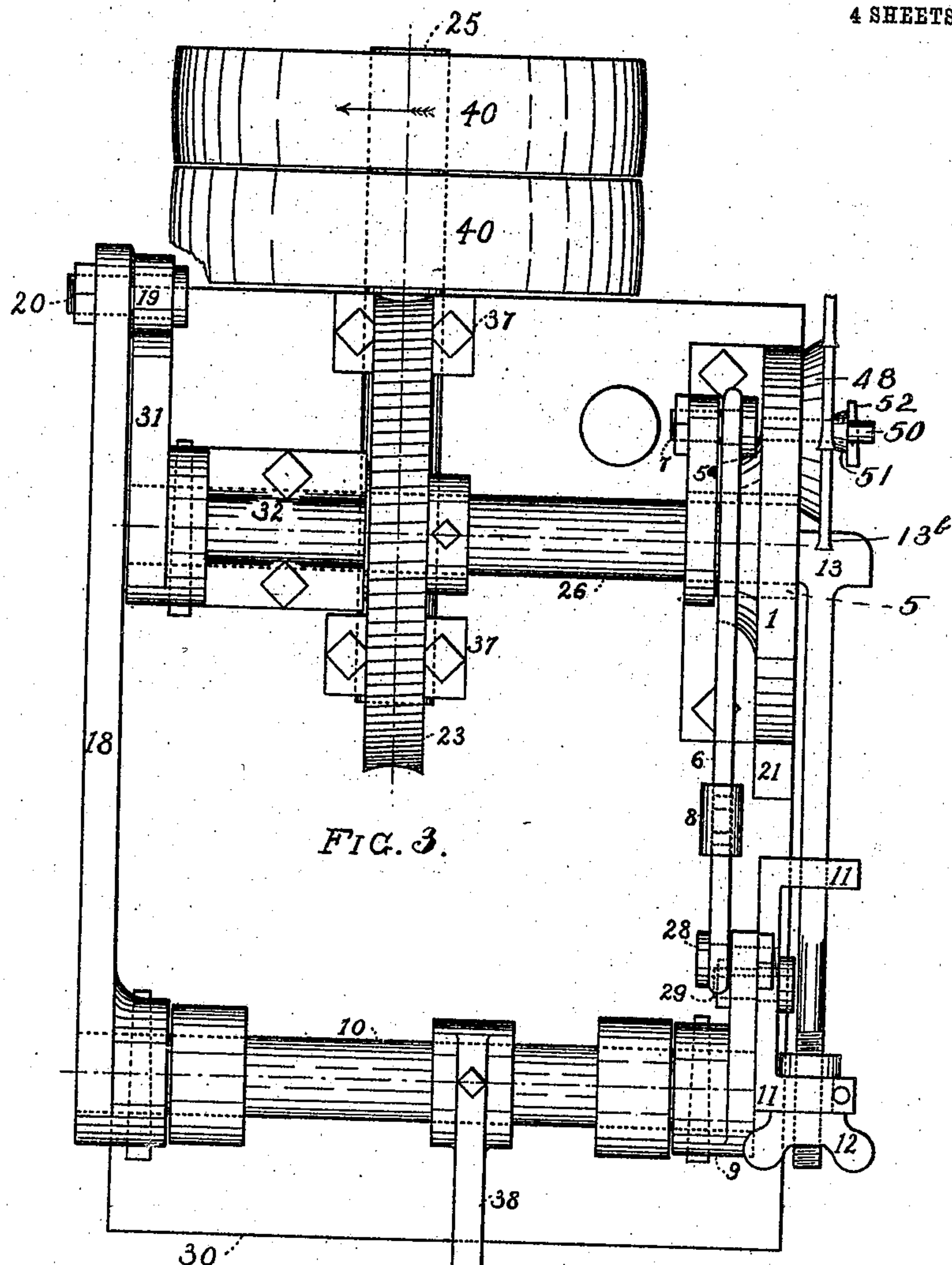


FIG. 3.

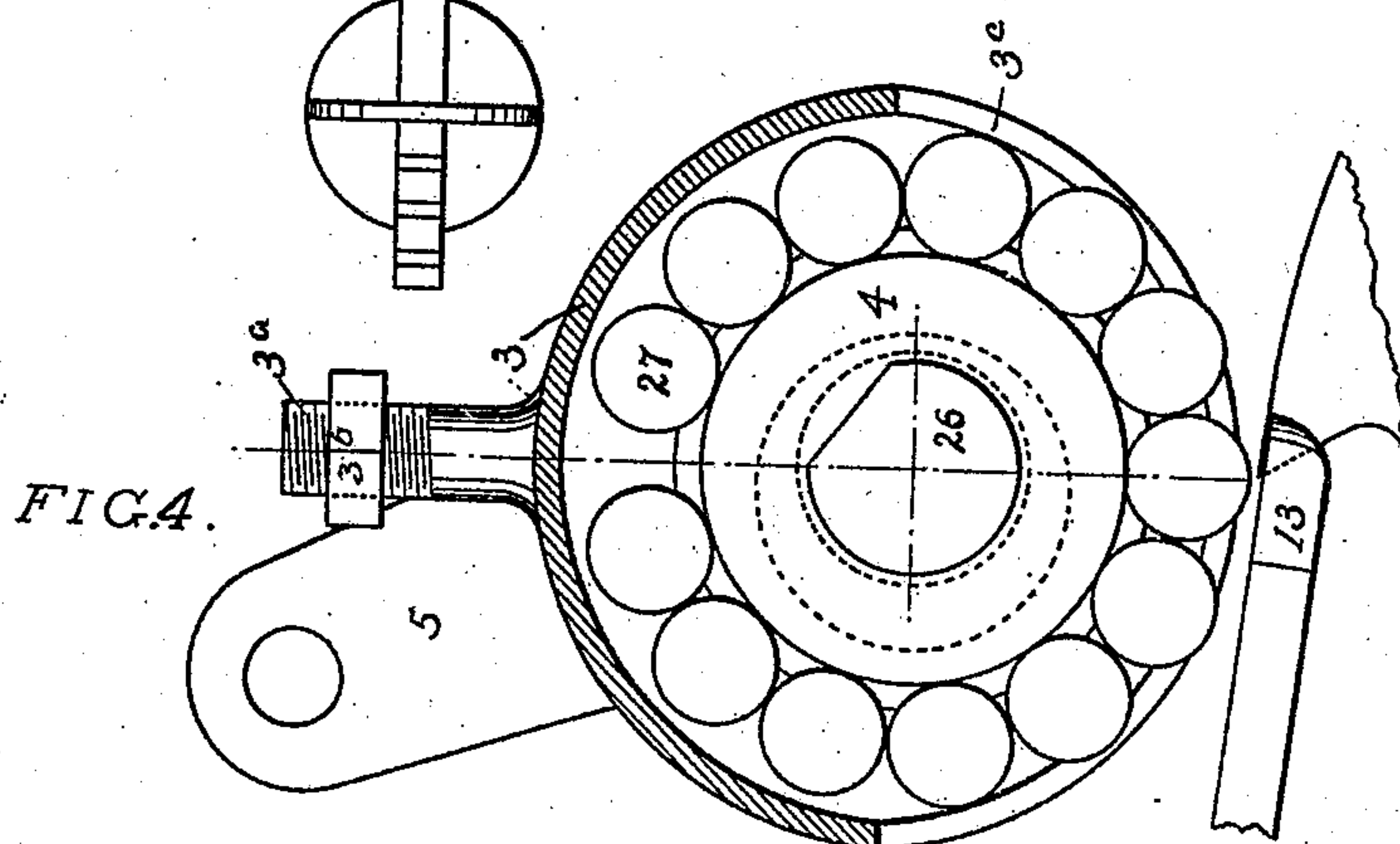


FIG. 4.

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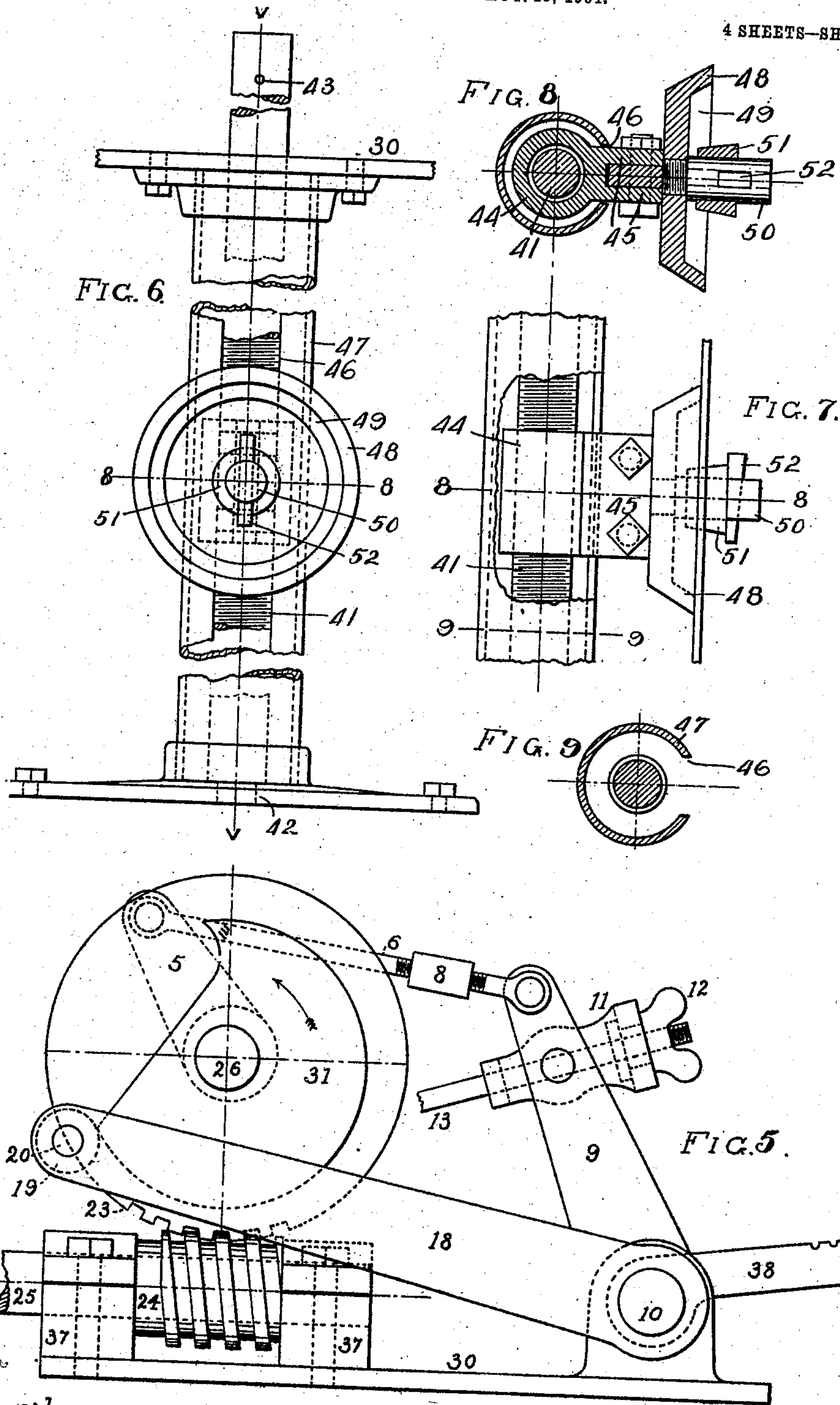
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Witnesses:

[Signature]
[Signature]

Inventor:

William Landon Covell

UNITED STATES PATENT OFFICE.

WILLIAM LANDON COVEL, OF BILOXI, MISSISSIPPI.

SAW-SWAGING MACHINE.

No. 815,269.

Specification of Letters Patent.

Patented March 13, 1906.

Application filed August 15, 1904. Serial No. 220,884.

To all whom it may concern:

Be it known that I, WILLIAM LANDON COVEL, of Biloxi, Harrison county, and State of Mississippi, have invented a new and Improved Saw-Swaging Machine, of which the following is a full, clear, and exact description.

My invention relates to saw-swaging machines; and it consists in the constructions, combinations, and arrangements herein described and claimed.

An object of my invention is to provide an improved saw-swaging machine which can be quickly and conveniently adapted for use with all types of saws.

A further object of my invention is to provide an improved saw-swaging machine which can be readily adjusted to produce any desired degree of swaging and in which sufficient metal will be drawn over the point of the tooth during the swaging operation to permit sufficient sharpening of the tooth.

Referring to the accompanying drawings, forming a part of this application and in which similar reference-symbols indicate corresponding parts in the different views, Figure 1 is a front elevation showing the supporting-table and a preferred embodiment of my invention mounted thereon. Fig. 2 is an end elevation with parts broken away for clearness. Fig. 3 is a plan view on a reduced scale, the front plate and its attached parts being omitted. Fig. 4 is a detail sectional view illustrating the ball-casing and the operating parts. Fig. 5 is a detail rear elevation of the parts shown in Fig. 3. Fig. 6 is a detail front elevation of the adjustable saw-supporting standard. Fig. 7 is a detail side elevation of the saw-supporting standard with the outer casing broken away for clearness. Fig. 8 is a sectional view on the line 8 8 of Figs. 6 and 7, and Fig. 9 is a detail section on the line 9 9 of Fig. 7.

Referring to the drawings, 30 indicates a suitable support or base, to which is secured a standard 1. A sleeve or bushing 5 is rotatably supported in the standard and carries a crank 5^a, which latter is connected to a swing-arm 9 by an adjustable rod 6, a turnbuckle 8 or other suitable means being provided for adjusting said rod. A shaft 26 is eccentrically journaled in the sleeve 5 and provided with a suitable bearing 32. A head 4 is secured to the front end of the shaft 26 and provided with a peripheral groove for receiving a series of balls 27. A steel casing 3 for

retaining said balls in their groove is provided with a threaded stud 3^a, which extends through a front plate 2 and is engaged by a nut 3^b for adjusting said casing to produce any desired pressure of the balls against the head 4. As shown especially in Fig. 2, the casing 3 is provided with a tapering slot 3^c to permit the balls 27 to project beyond the lower face thereof a sufficient distance to engage the saw-teeth during the swaging operation. This construction necessitates supporting said casing eccentrically to the annular head 4, as shown especially in Fig. 1.

A front plate 2 is bolted to the standard 1 about a portion of the casing 3 and is provided with a dependent bracket 2^a and with a lug 21, on which a yoke 15 is adjustably supported by a thumb-screw 22. Two guide-plates 14, provided with guide-rails 14^a, are pivotally supported at their rear portions to the two arms of the yoke 15 and secured at their forward ends, respectively, to the standard 1 and bracket 2^a by means of screws 16, which engage slots 16^a in said plates. This construction enables the guide-plates to be shifted toward and from the series of swaging-balls 27 and also to be adjusted angularly thereto.

A block 11 is pivoted on a stud 29, adapted to be secured in a series of apertures 9^a, formed in the swinging arm 9, whereby said block can be pivotally secured along any desired portion of said arm. A feed-rod 13 extends through a guiding-aperture 11^a in the block 11 and is provided with a threaded portion 13^a in engagement with a thumb-nut 12, which is swiveled at 12^a on said block. The forward end of the feed-rod 13 is provided with a recess 13^b, constructed to engage the saw-teeth and feed them successively against the swaging-balls 27 upon oscillation of the swing-arm 9. The above-described means for supporting the feed-rod 13 enables the machine to be adjusted for producing any desired length of swaging on various saws having teeth of greatly different sizes.

A shaft 25 is journaled at 37 37 on the base 30 and carries a worm 24 in mesh with a worm-wheel 23, secured to the shaft 26, the usual fast and loose pulleys 40 being shown on the shaft 25. A cam 31 is secured on the shaft 26 in position to engage an antifriction-roller 19, carried by a crank-arm 18, secured to the shaft 10, a counterweight-lever 38 being secured to the shaft 10 for maintaining the roller 19 in contact with said cam.

Referring especially to Figs. 3, 6, 7, 8, and 9, the saw-supporting standard comprises a threaded rod 41, which is supported at its lower end in a step-bar 42 and extends upward through the support 30, the upper end of the rod being shown provided with pins 43 for receiving a wrench. A nut 44, threaded on said rod, is provided with wings 45, which extend through a slot 46 in a tube 47, surrounding the threaded rod 41. A clamping-plate 48 is shown bolted to the wings 45 on the nut 44 and provided with a recess 49, from the bottom of which extends a stud 50. A centering-cone 51 is adapted to slidably engage the stud 50 for securing the saw thereon for clamping it against the plate 48, a key 52 being provided for securing the centering-cone in position. Steadying-screws 17 are threaded in the standard 1 and bracket 2^a for exactly centering the saw relative to the feed-rod 13 and balls 27 and for steadying the saw during swaging operation. As shown especially in Fig. 2, the steadying-pins are preferably formed with rounding ends for engaging the opposite sides of the saw.

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

1. In a saw-swaging machine, the combination of a series of movable balls for swaging the saw-teeth, and means for moving the several balls of said series and simultaneously shifting said series, substantially as described.

2. In a saw-swaging machine, the combination of a saw-support, a series of movable balls for swaging the saw-teeth, and means for moving the several balls of said series and

simultaneously shifting said series relative to said saw-support, substantially as described. 40

3. In a saw-swaging machine, the combination of an annular series of balls for swaging the saw-teeth, and means for rotating the several balls about the center of the annular series and simultaneously shifting such center of rotation, substantially as described. 45

4. In a saw-swaging machine, the combination of a series of balls for swaging the saw-teeth, a rotatable head for moving said balls, means for rotating said head, and an adjustable casing for maintaining said balls in contact with said head, substantially as described. 50

5. In a swaging-machine, the combination of a series of balls for swaging the saw-teeth, a rotatable head for moving said balls, means for rotating said head, and an adjustable casing for maintaining said balls in contact with said head, said casing provided with a tapering slot to permit gradual projection of the balls therethrough during a portion of their travel. 60

6. In a saw-swaging machine, the combination of a series of balls for swaging the saw-teeth, a rotatable head provided with a grooved track for said balls, means for rotating said head, an adjustable casing for maintaining said balls against said grooved track, and means for adjusting said casing to vary the pressure of the balls on said track, substantially as described. 70

WILLIAM LANDON COVEL.

Witnesses:

J. P. HOGAN,
EDW. MEDUS.