

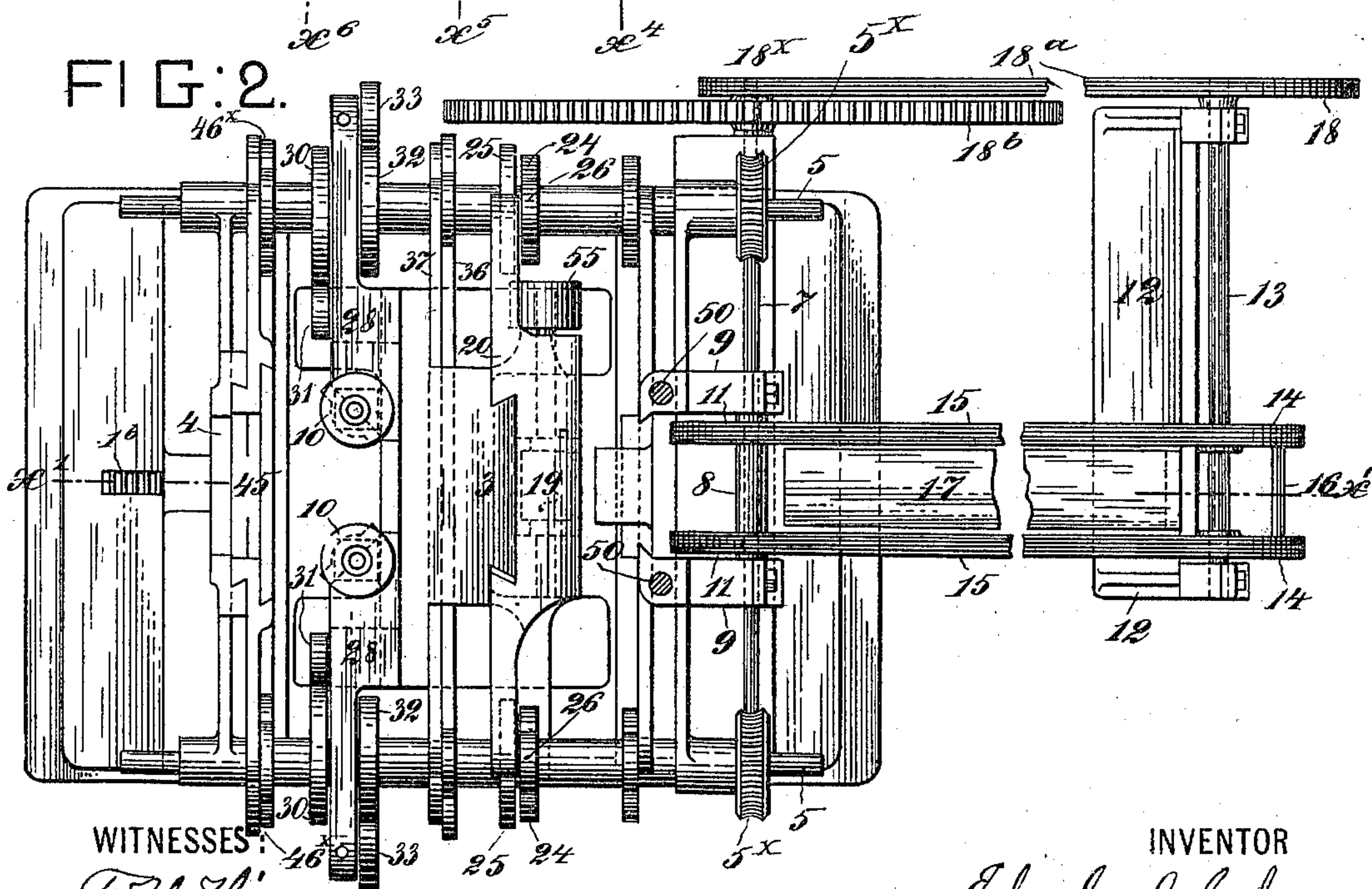
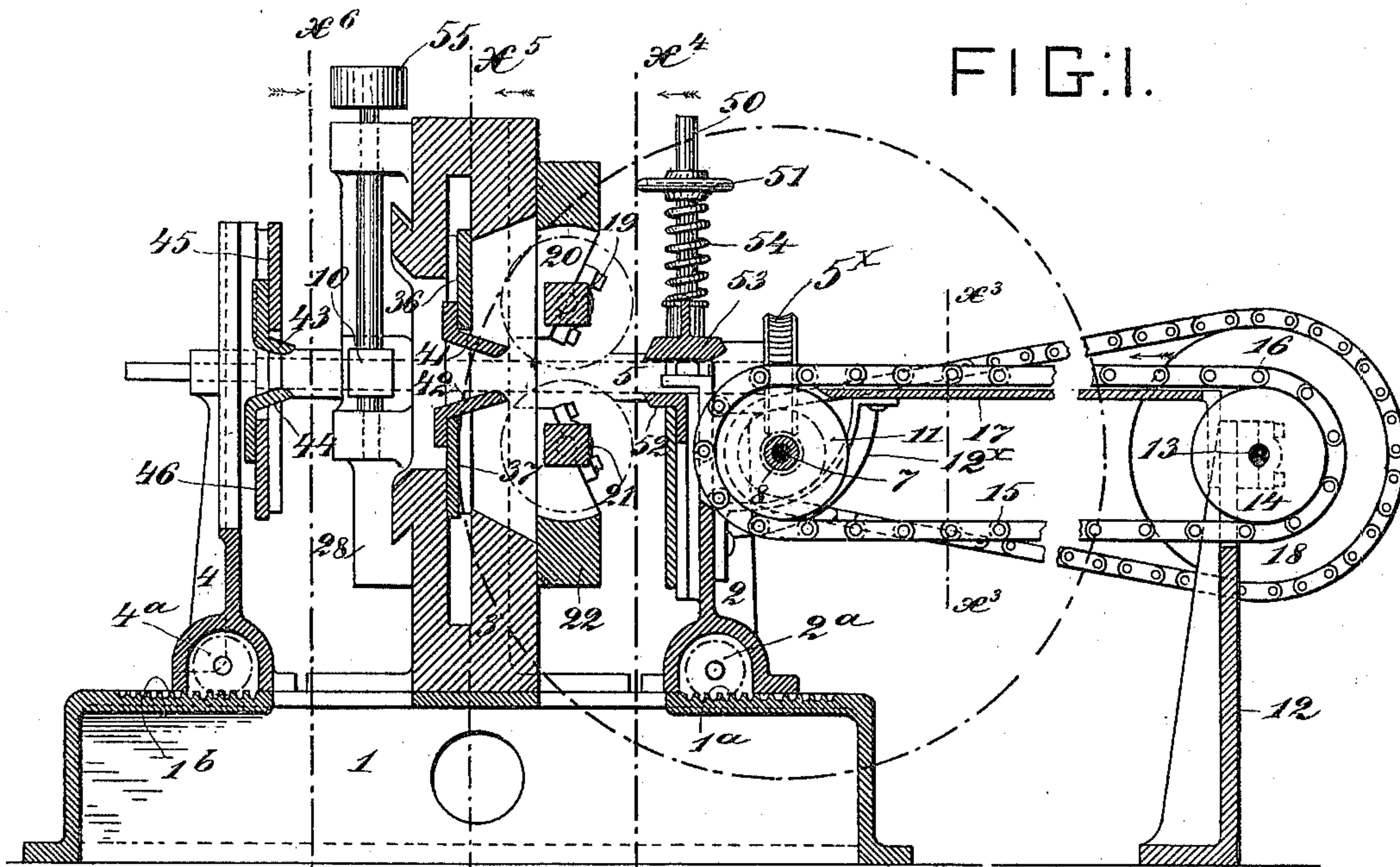
(No Model.)

3 Sheets—Sheet 1.

E. G. A. SCHENSON.
SHAPING MACHINE FOR WOOD, &c.

No. 598,309.

Patented Feb. 1, 1898.



WITNESSES:

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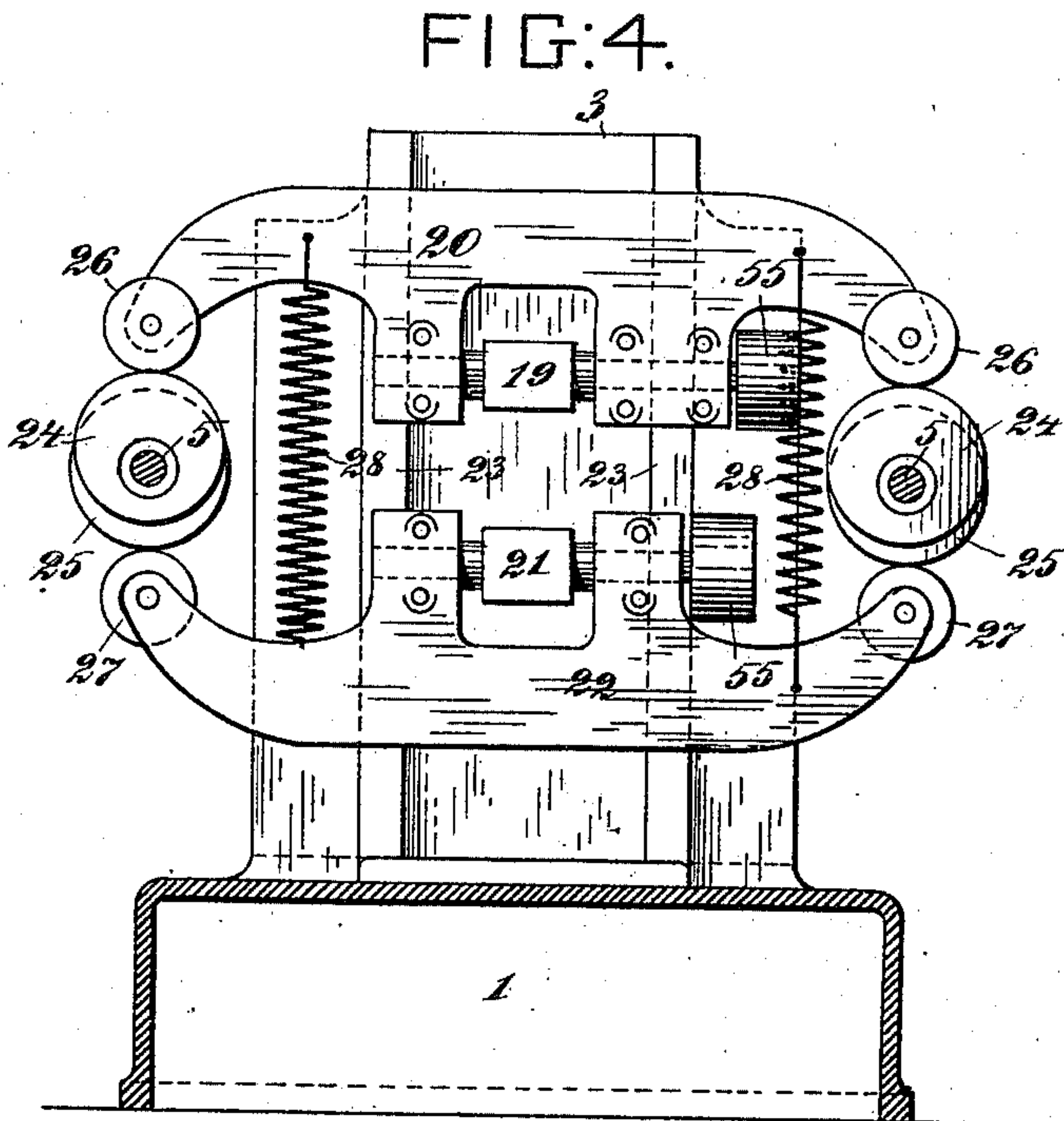
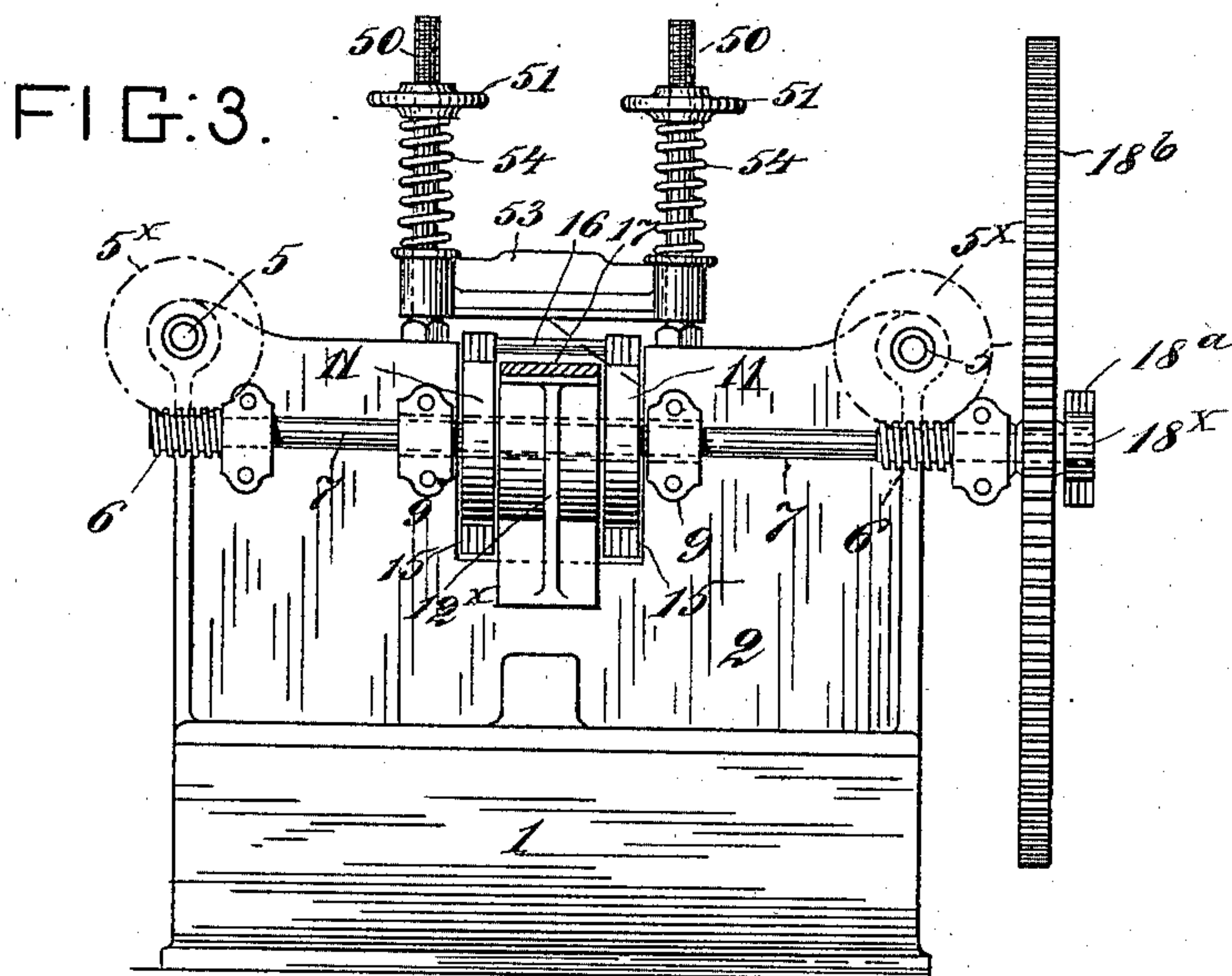
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3 Sheets—Sheet 2.

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3 Sheets—Sheet 3.

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FIG:5.

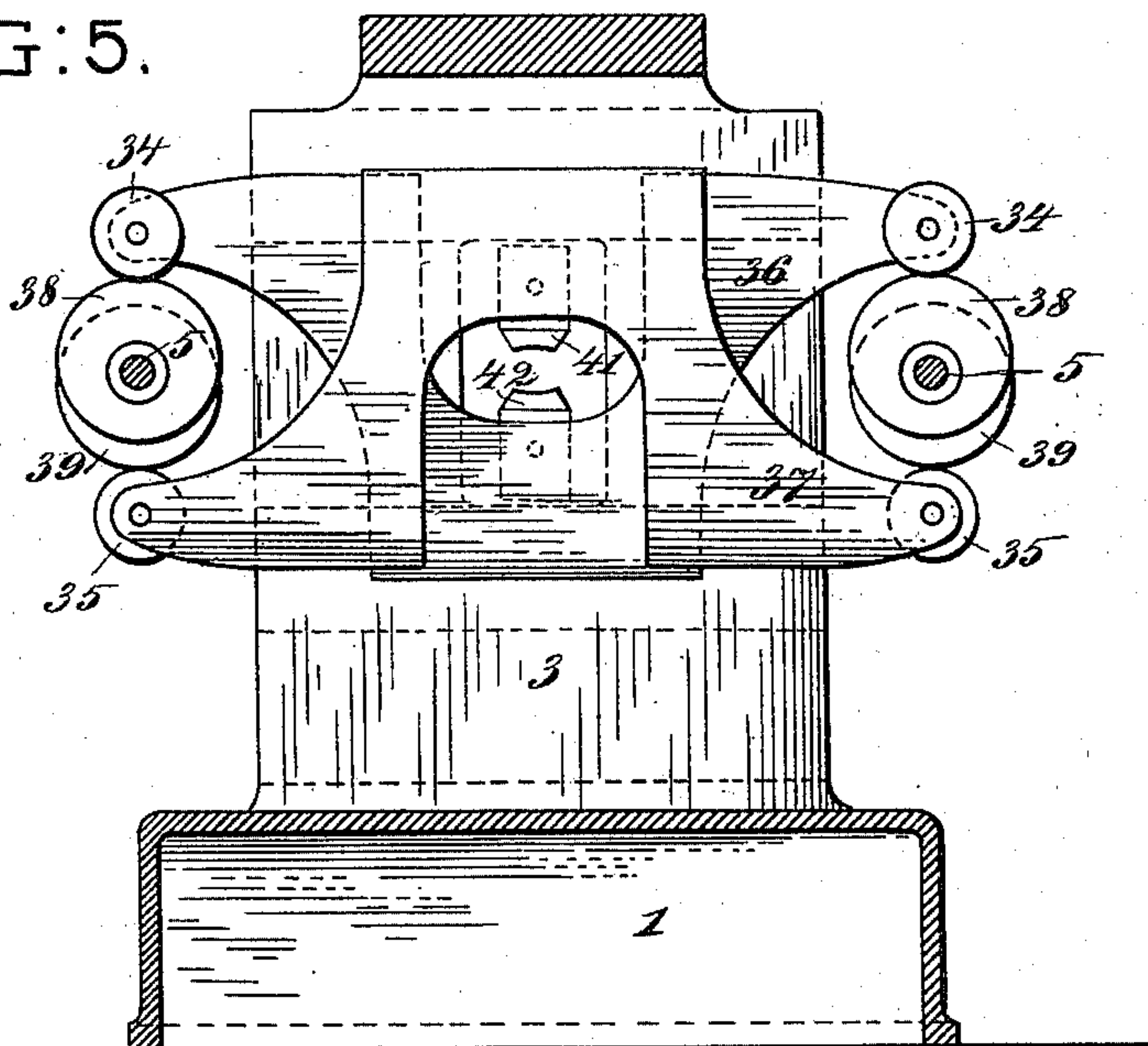


FIG:6.

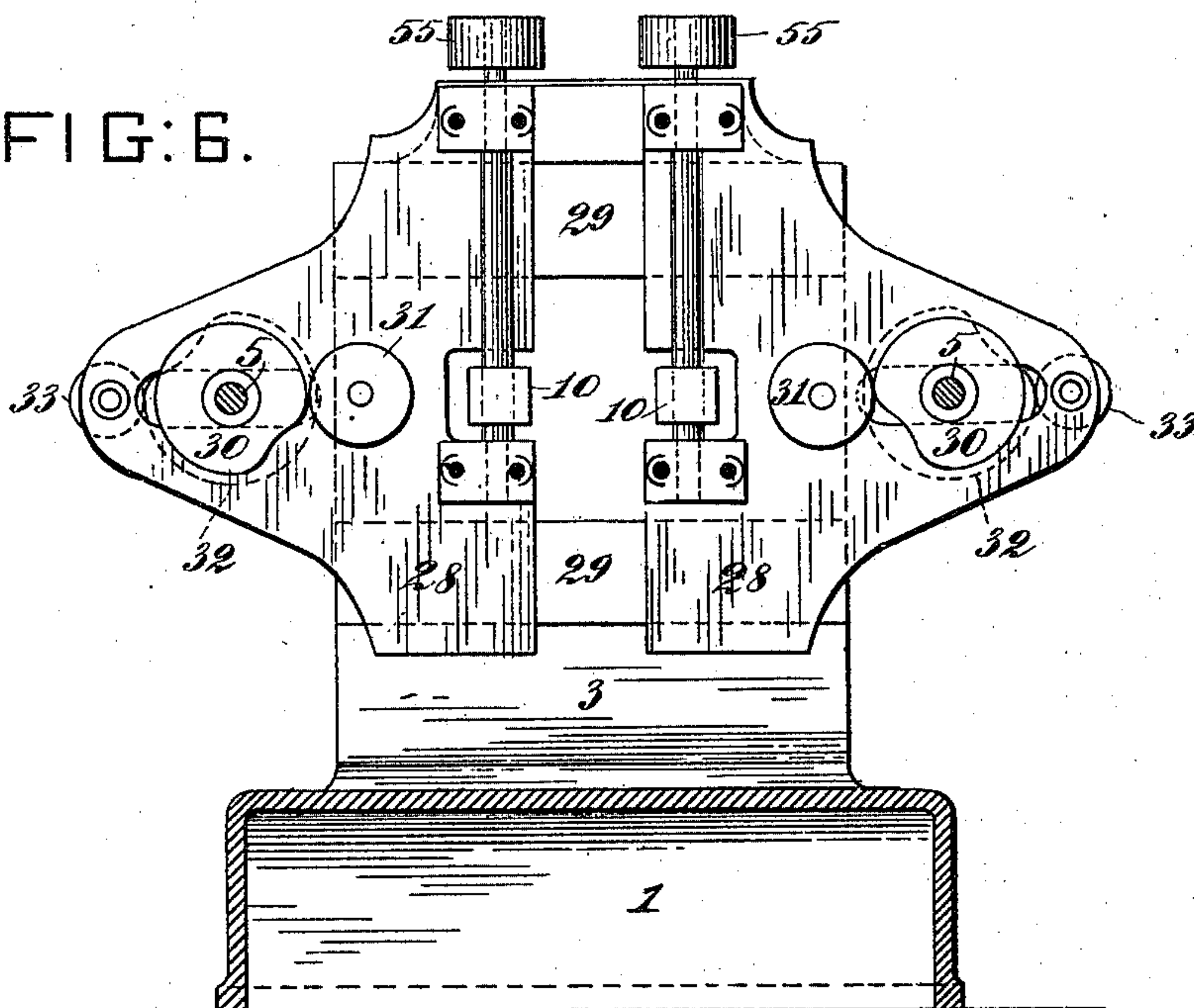
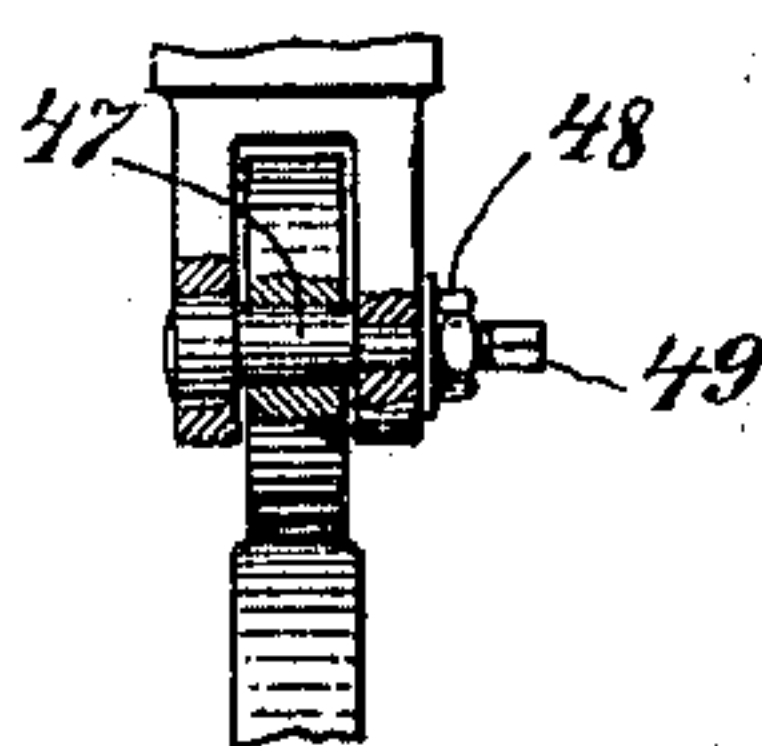
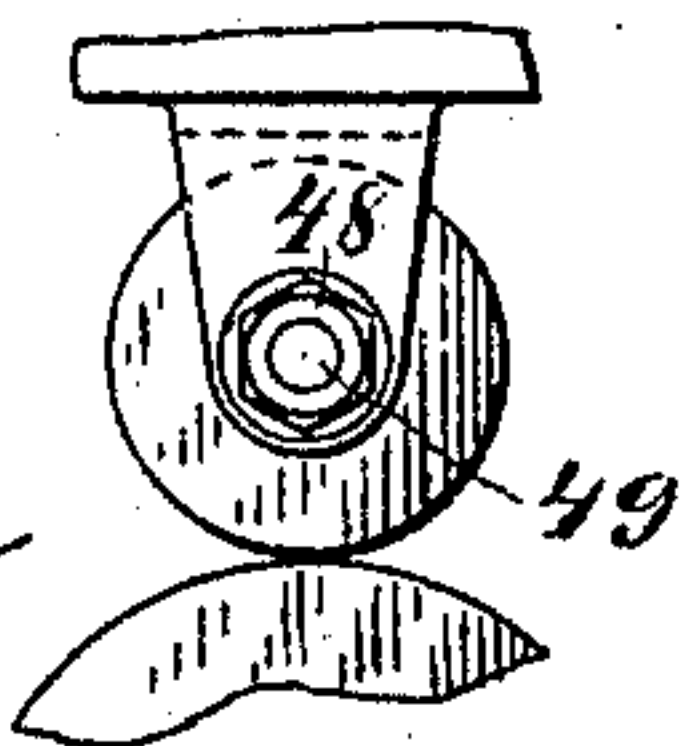


FIG:7

FIG:8.

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UNITED STATES PATENT OFFICE.

ELIS GUSTAF ADOLF SCHENSON, OF ARBRA, SWEDEN, ASSIGNOR TO THE
PATENTÅKTIEBOLAGET SVEA, OF STOCKHOLM, SWEDEN.

SHAPING-MACHINE FOR WOOD, &c.

SPECIFICATION forming part of Letters Patent No. 598,309, dated February 1, 1898.

Application filed April 20, 1897. Serial No. 632,962. (No model.)

To all whom it may concern:

Be it known that I, ELIS GUSTAF ADOLF SCHENSON, a subject of the King of Sweden and Norway, residing at Arbra, in the Kingdom of Sweden, have invented certain new and useful Improvements in Shaping-Machines for Wood and Similar Materials, of which the following is a specification.

This invention relates to the class of wood-working machines wherein cutters act upon a strip of wood or similar material as it is fed through the machine, so as to shape or mold it.

The object of the invention is to provide improved guides and feeding mechanism for the material and for the cutter-frames, all as will be hereinafter fully described, with reference to the accompanying drawings, and its novel features carefully defined in the claims.

In the drawings, which illustrate an embodiment of the invention, Figure 1 is a vertical longitudinal mid-section of the machine, taken in the plane of line x' in Fig. 2. Fig. 2 is a plan of the machine. Figs. 3, 4, 5, and 6 are transverse vertical sections of the machine, taken in the respective planes indicated by lines x^3 , x^4 , x^5 , and x^6 in Fig. 1. Figs. 7 and 8 are respectively a face and edge view, on a larger scale, of one of the antifriction-wheels, illustrating the adjustable mounting of the same. In Fig. 8 part of the wheel is broken away.

1 is a suitable bed-piece or base, on which are fixed upright bearing-frames 2, 3, and 4. The end frames have in their respective bases gear-wheels 2^a and 4^a , (indicated by dotted circles in Fig. 1,) which gear, respectively, with racks 1^a and 1^b on the base, whereby these frames may be conveniently moved over or adjusted on the base. This adjusting feature is not, however, essential to my invention.

Mounted rotatively in bearings in the frames 2 and 4 at the respective sides of the machine and extending longitudinally thereof are two cam-shafts 5, on each of which is a worm-wheel 5^x , which gears with a worm 6, Fig. 3, on a transverse shaft 7 at the front end of the machine. This shaft 7 has bearings in brackets on the frame 2. A tubular shaft 8 embraces the middle part of shaft 7

and has bearings in brackets 9 on the frame 2. The shaft 8 is not connected with the shaft 7, but turns independently of the latter. On the tubular shaft 8 is fixed a pair of chain-wheels 11, and in a frame 12 (which may or may not be connected with the base 1) is mounted a shaft 13, on which is fixed another pair of chain-wheels 14, over which and the wheels 11 are endless feed-chains 15, connected by a transverse tie bar or bars 16.

The shaft 13 may be driven from any source of power and through any suitable mechanism. As herein shown, there is a chain-wheel 18 on the shaft 13, and a chain 18^a connects this wheel 18, with a lesser wheel 18^x on the shaft 7, with the large gear-wheel 18^b , adapted to receive motion from any prime mover. The wheel 18^b is indicated by a dotted circle in Fig. 1.

Between the chains 15 is a receiving-table 17 for the pieces of wood or the like to be operated on. The shaft 13 imparts motion to the feed-chains, and the bar 16 takes against and forces the pieces of wood into the machine. The table 17 is mounted at its front end on a bracket 12^x and at its outer or rear end on the frame 12. It may be set at any desired height with respect to the chains.

The upper rotary cutter-head 19 is journaled in a vertically-sliding frame 20, Fig. 4, and the lower rotary cutter-head 21 is similarly journaled in a sliding frame 22. These frames are connected by springs 28, which tend to draw the cutter-heads together on the piece of wood passing between them. The upper frame is provided at its respective ends with antifriction-rollers 26 and the lower frame with similar rollers 27. The rollers 26 bear on cam-disks or pattern-disks 24 on the respective shafts 5, and the rollers 27 bear, respectively, on similar disks 25 on the shafts 5. These disks 24 and 25 are herein represented as simple eccentrics; but they may have any desired contour, the latter depending on the pattern to be cut on the wood passing through the machine. The disks operate to move the cutter-heads and the springs 28 keep the antifriction-rollers up to the cam-disks. The frames 20 and 22 have dovetail guides in the upright frame 3.

Two pattern or cam disks are employed by preference, one for the upper and one for the lower sliding frame, as if one were used for both frames the pattern could only extend half-way around it, the other half of the disk being a mere repetition of the pattern. Where two disks are used as herein shown, the pattern extends entirely around the disk.

On the rear face of the frame 3 are mounted in horizontally-disposed dovetail guides 29 the sliding frames 28, carrying the rotary side cutters or cutter-heads 10, the shafts of which are arranged vertically or perpendicular to the shafts of the cutters 19 and 21.

Fig. 6 is a face view of the side cutters, as seen from the left in Fig. 1. Pattern-disks 30 on the respective shafts 5, acting on anti-friction-rollers 31 on the respective frames 28, serve to press the frames and cutters inward or toward the wood being cut, and in order to avoid the use of springs or the like to retract the cutters complementary pattern-disks 32 are employed, bearing on anti-friction-rollers 33 on the sliding frames. The disks 30 and 32 may both be either in front of or behind the lateral wings of the frames 28. In the drawings the disk 30 is shown as at the rear of the frame and the disk 32 in front thereof.

The machine is provided with two sets of guides, one adjacent to and just back of each pair of cutters. These guides each have two jaws which press upon the shaped piece as it moves through the machine, and these jaws are moved automatically toward and from each other in a manner to conform to the pattern cut on the piece. Fig. 5 is a face view of this guide, which is situated just to the rear of the cutters 19 and 21. In this guide the upper jaw 41 is mounted in a slide-frame 37, which plays in a way or recess in the upright frame 3 and carries at its outer ends anti-friction-rollers 35, which take under and bear on the lower faces of pattern disks or cams 39 on the respective cam-shafts 5, and the lower jaw 42 is mounted in a similar slide-frame 36, which has rollers 34, which bear on the upper faces of pattern-disks 38, also on the shafts 5. By this arrangement the pressing apart of the rollers 34 and 35 causes the jaws 41 and 42 to move toward each other.

Of course the pattern-disks 38 and 39 will have the proper contour to follow the shape cut on the passing piece of wood or the like no matter what this shape may be. The peculiar crossing of the frames 36 and 37 obviates the use of springs or weights for moving said frames in one direction. The jaws or bearing-faces 41 and 42 serve as guides, and they may also serve to burnish or rub the surface cut. They hold and securely support the piece being cut. The other guide referred to is situated back of the edge-cutters 10. It is seen in Figs. 1 and 2, and as it is the same in construction as that last described (seen in Fig. 5) it will be necessary

only to say that it comprises two jaws 43 and 44, secured to slide-frames 45 and 46, mounted in the upright frame 4 and operated by pattern-disks 46^x on the respective shafts 5.

The several anti-friction-wheels which bear on the several pattern-disks have eccentric bearings, as clearly shown in Figs. 7 and 8, so that they may be delicately and nicely adjusted with respect to said disks. The journal 47, on which the roller turns, is eccentric to the axis of the stud on which it is formed, and this stud has a screw-thread to receive a nut 48 for tightening it and a square 49 on its projecting end to receive a wrench for turning the stud to adjust the roller.

A supporting device or guide for the piece of wood or the like as it enters the machine is employed in addition to those before described. This device is illustrated in Figs. 1 and 2, and it comprises a lower plate 52 and an upper plate 53, which latter is capable of being raised and lowered and is held down by springs 54 on uprights 50, having on them wheel-nuts 51 to vary the tension of the springs.

The cutters 10, 19, and 21 may be rotated by any desired mechanism—as belts, for example—and the several shafts of the cutters are shown provided with suitable belt-pulleys 55.

Having thus described my invention, I claim—

1. In a shaping-machine, the combination with means for automatically feeding a piece to be shaped, and the rotating cam-shafts 5, situated at the respective sides of the machine and parallel with the line of feed, of rotating cutters for shaping the respective upper and lower surfaces of the piece fed between them, rotating cutters for shaping the respective lateral edges of the said piece, sliding frames carrying said cutters, and pattern-disks, fixed on the respective shafts 5 and adapted to act on said cutter-carrying frames for moving said frames and cutters, substantially as set forth.

2. In a shaping-machine, the combination with means for automatically feeding a piece to be shaped through the machine, cutters to shape said piece, and means for moving the said cutters up to and away from said piece, of a guiding and holding device for the shaped piece, comprising the slide-frames 36 and 37, adapted to be moved toward and from the shaped piece, the jaws mounted on the respective slide-frames, anti-friction-wheels 34 on the frame 36, anti-friction-wheels 35 on the frame 37, and rotating pattern-disks for operating the said frames, the disks 38 impinging on the wheels 34, and the disks 39 impinging on the disks 35, whereby the disks serve to move the jaws toward the piece to be shaped, substantially as set forth.

3. In a shaping-machine, the combination with the frame having guides, the sliding frames mounted thereon and carrying rollers 31 and 33, arranged on the respective oppo-

site faces of said sliding frames, and the rotatable cutter-heads carried by said frames, of the rotatable shafts 5, and the pattern-disks, 30 and 32, fixed in couples on the said
5 shafts and bearing, the disks 30 on the wheels 31, and the disks 32 on the wheels 33, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

ELIS GUSTAF ADOLF SCHENSON.

Witnesses:

CARL P. GERELL,
ERNST SVANGVIST.