

(No Model.)

2 Sheets—Sheet 1.

J. B. ST. LOUIS.
AUTOMATIC GANG TRIMMER.

No. 387,604.

Patented Aug. 7, 1888.

Fig. 1.

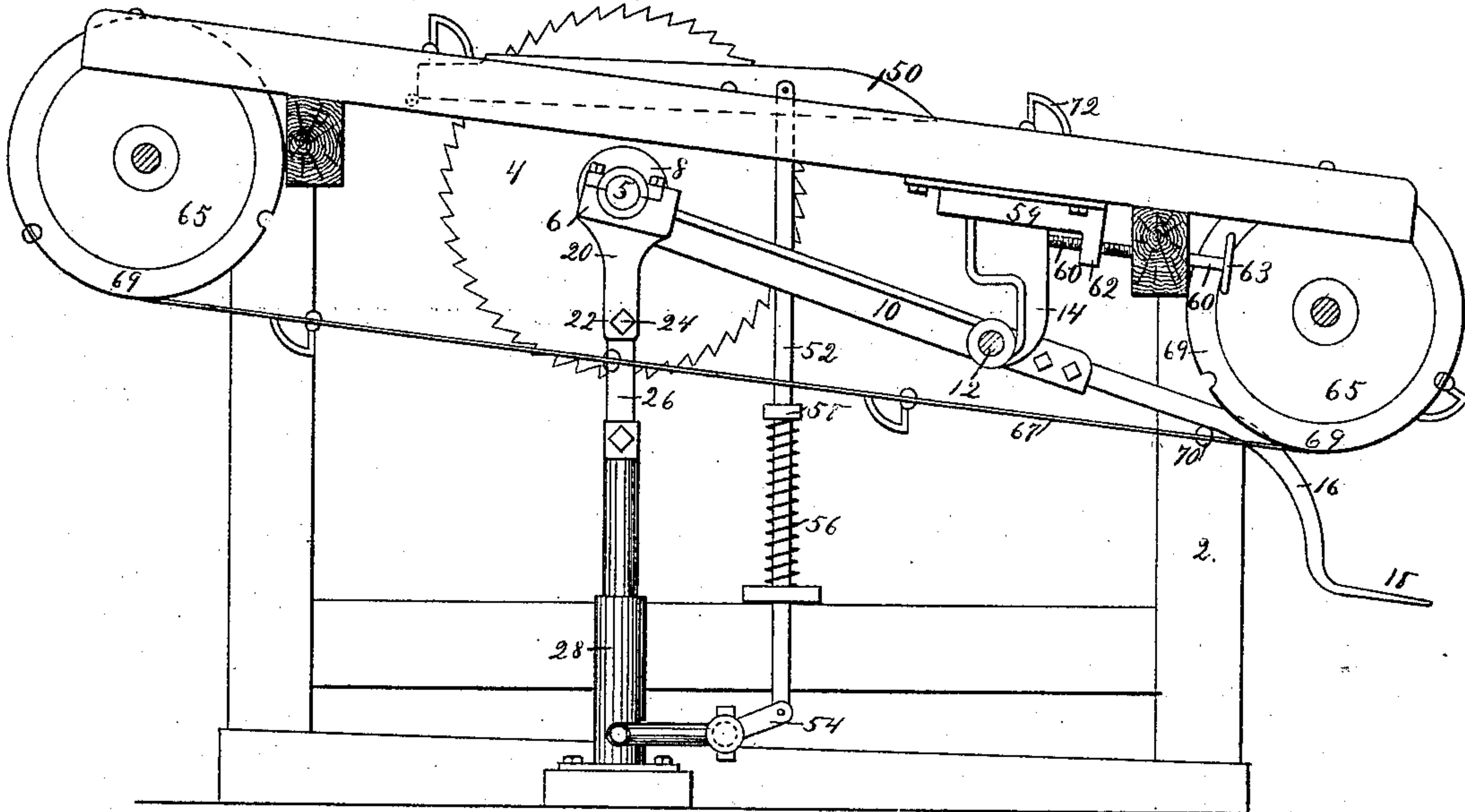


Fig. 3.

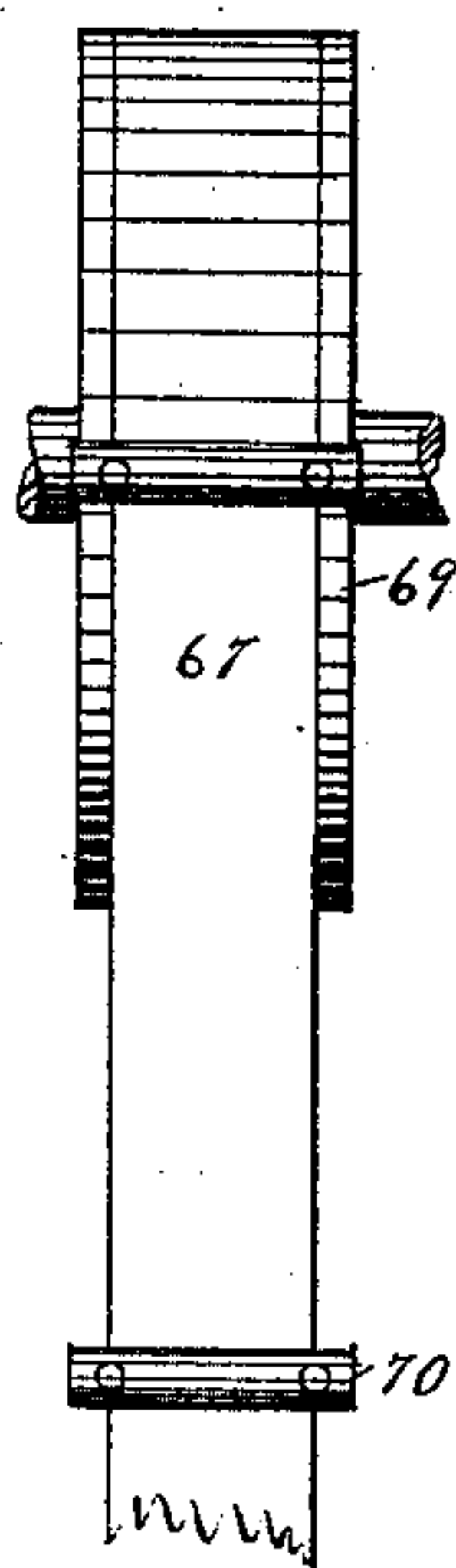


Fig. 2.

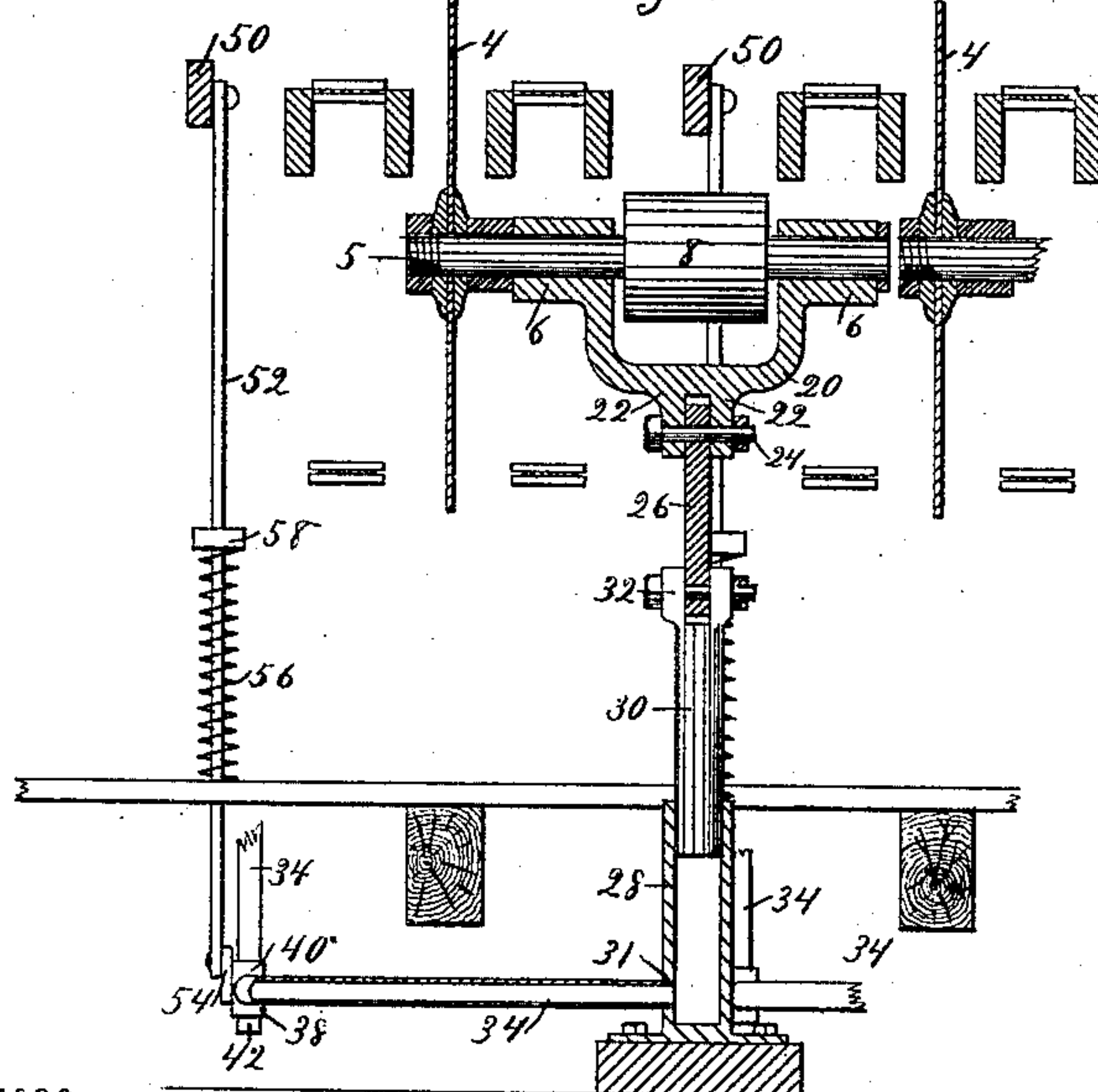
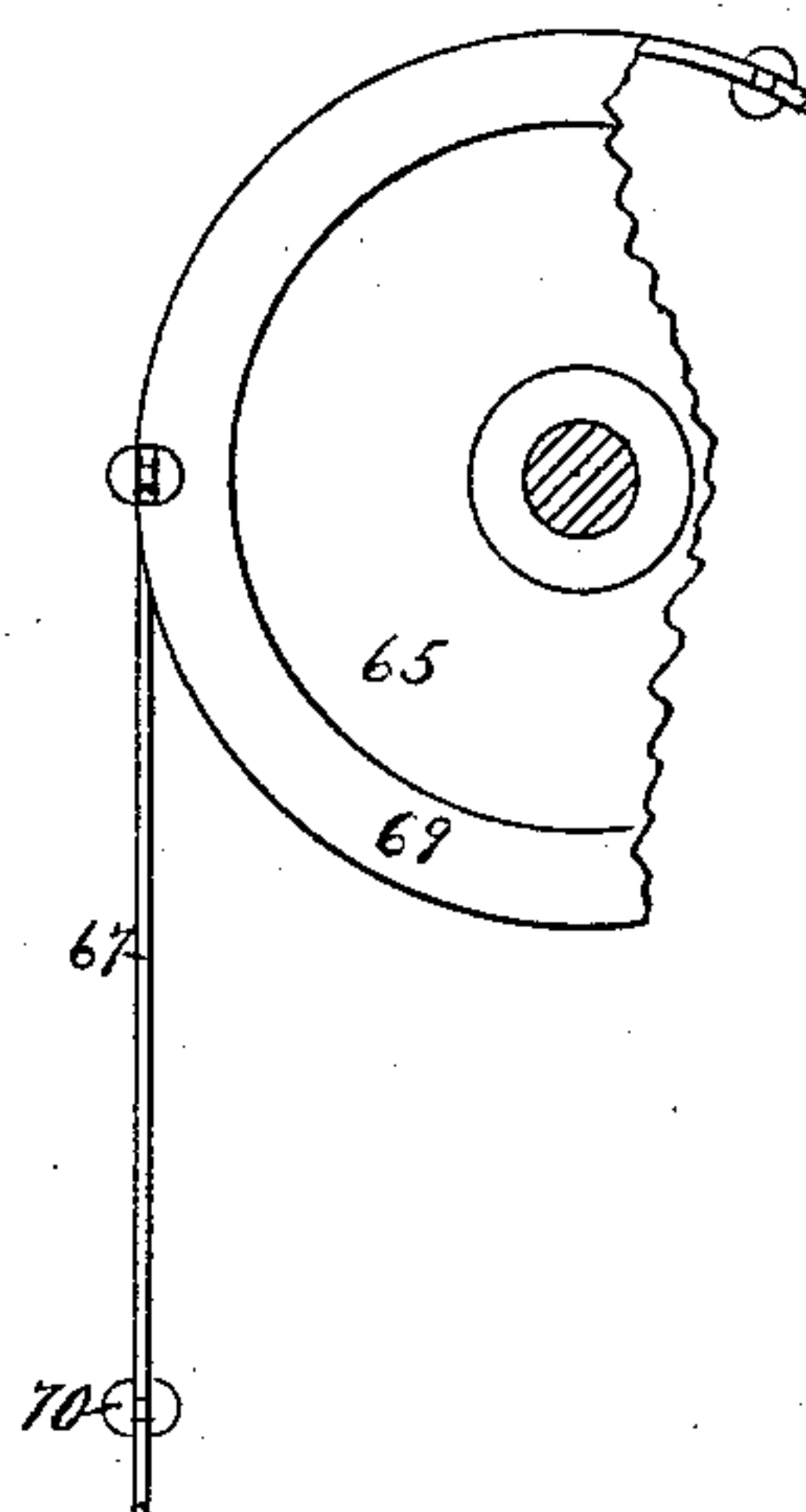


Fig. 4.



Witnesses.

S. J. Beardslee.

J. Juren.

Inventor.

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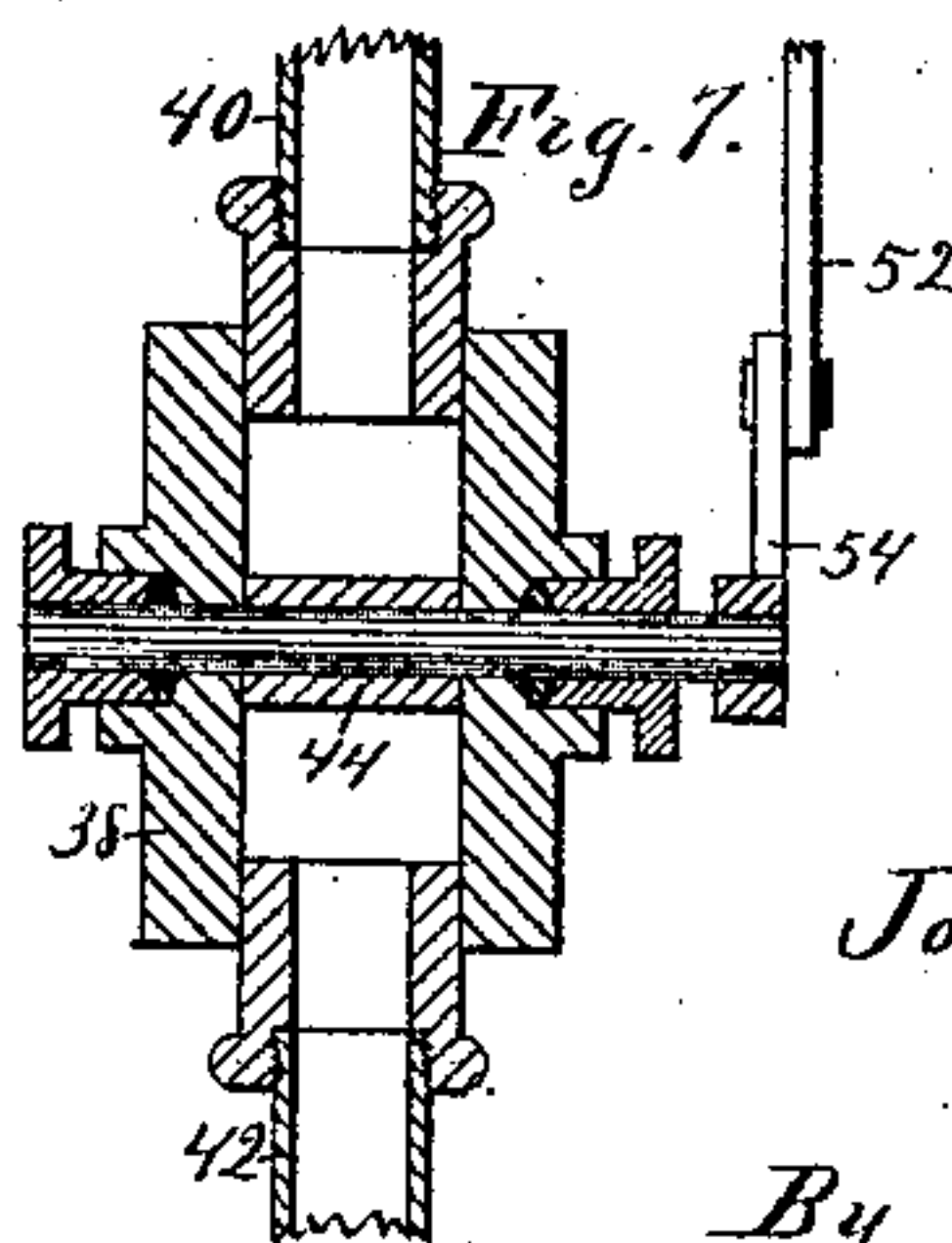
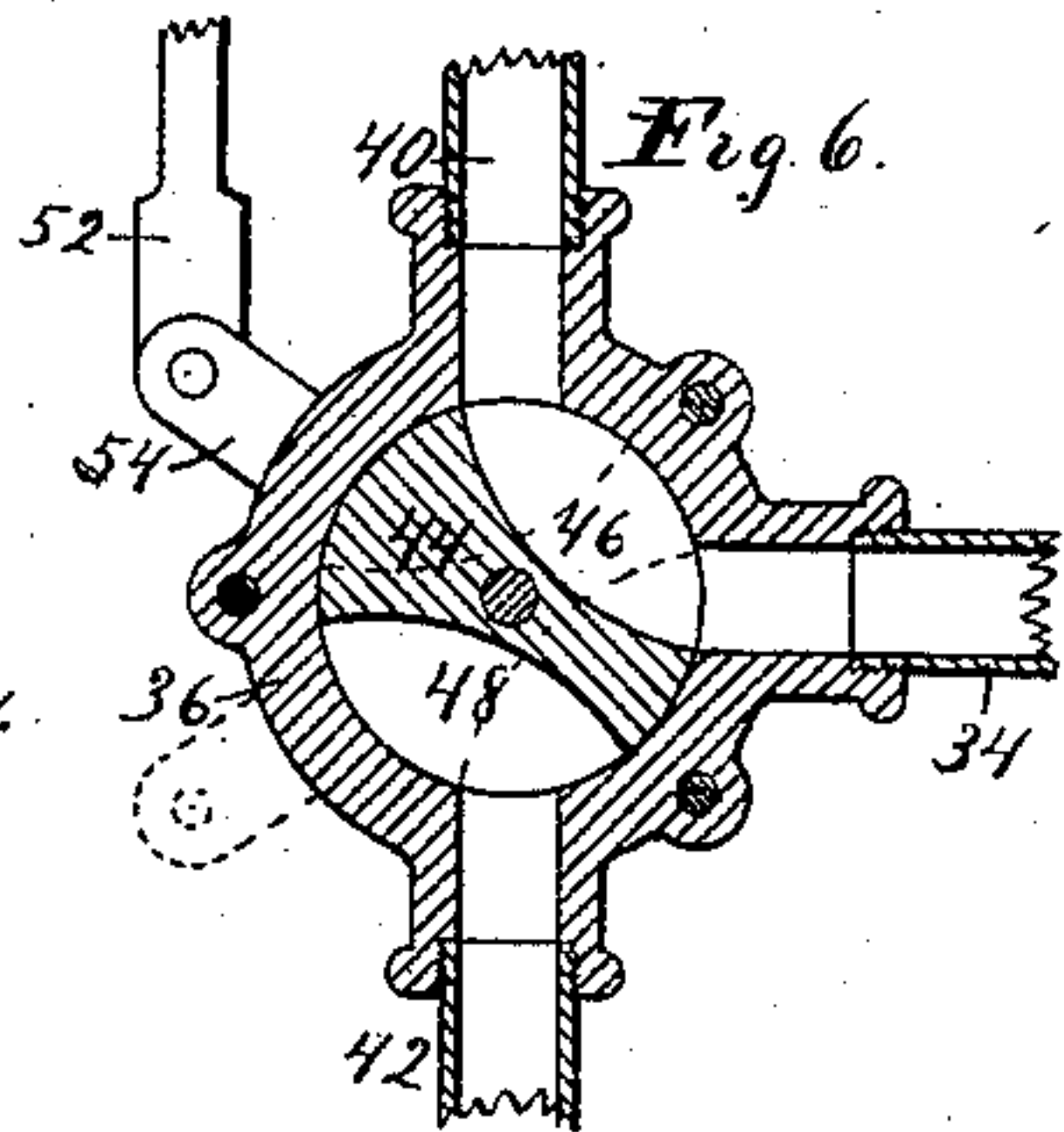
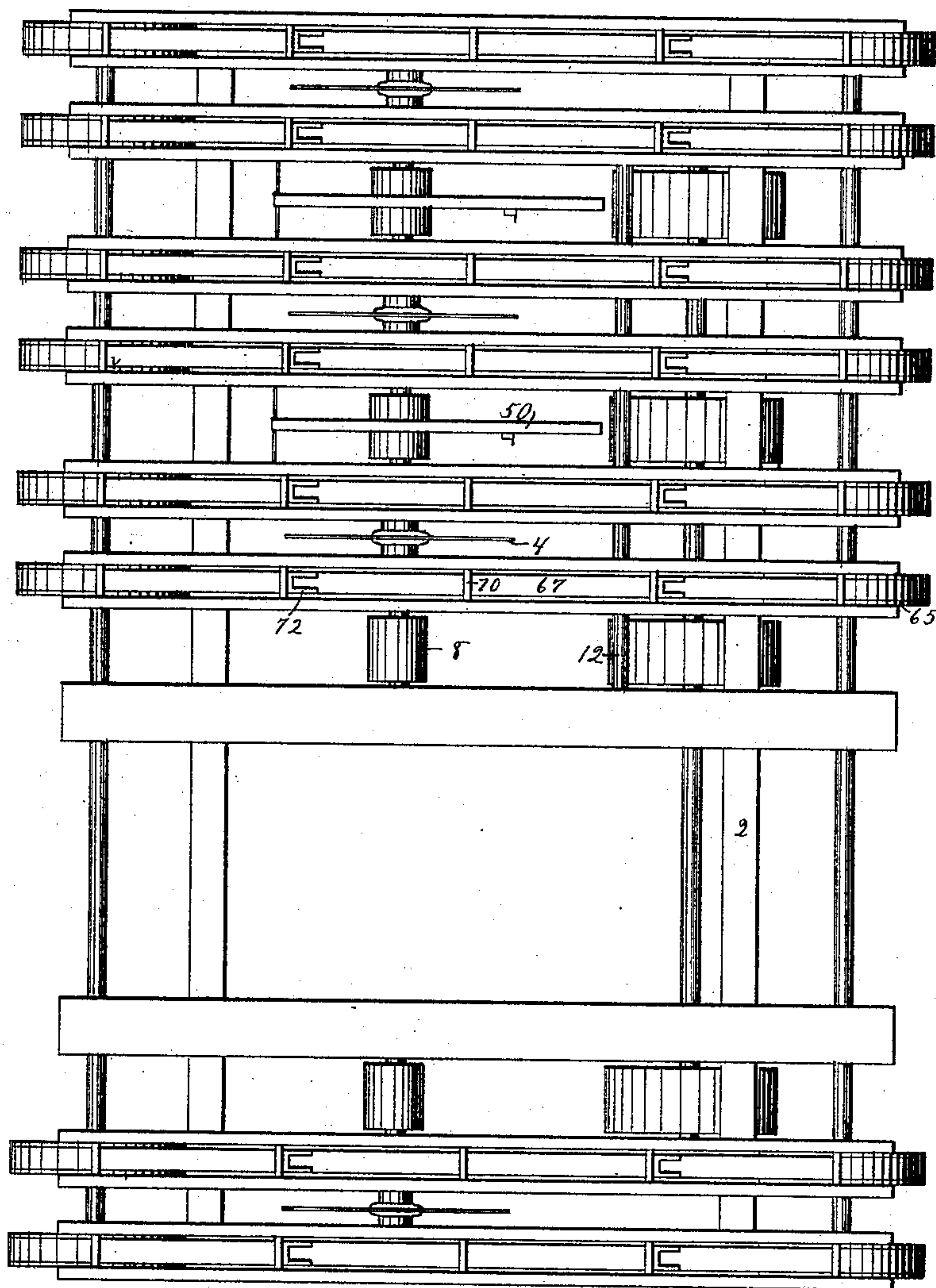
By A. C. Paul att'y

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Fig. 5.



Witnesses.
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UNITED STATES PATENT OFFICE.

JOHN B. ST. LOUIS, OF MINNEAPOLIS, MINNESOTA.

AUTOMATIC GANG-TRIMMER.

SPECIFICATION forming part of Letters Patent No. 387,604, dated August 7, 1888.

Application filed July 5, 1887. Serial No. 243,321. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. ST. LOUIS, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Automatic Gang-Trimmers, of which the following is a specification.

My invention relates to improvements in automatic gang lumber-trimmers; and it consists, generally, in a machine of this class in which all or any of the trimming-saws will be thrown out of operation by the lumber as it advances, thus making the machine automatic in its action and adapting it to trim lumber of varying lengths.

My invention further consists in a flexible metallic belt-feed for conveying the lumber to the saws.

My invention further consists in the construction and combination hereinafter described, and particularly pointed out in the claims.

In the drawings which form a part of this specification, Figure 1 is a cross-section of a lumber-trimming machine with my improvement applied thereto. Fig. 2 is a longitudinal section of a portion of the machine, showing the construction of the device for moving the saws. Fig. 3 is a plan of a portion of my improved feed-belt. Fig. 4 is a side elevation of Fig. 3. Fig. 5 is a plan of the machine. Figs. 6 and 7 are details of the valve.

In the drawings, 2 represents the frame of the trimmer, constructed in the ordinary way. 4 represents the adjustable cut-off saws, each mounted upon an arbor, 5, revolving in journal-boxes 6 and driven by a belt on the pulley 8. The journal-boxes are secured to an oscillating frame, 10, which swings upon a pin or shaft, 12, secured to an adjustable fulcrum, 14. The frame 10 may also be provided with a lever, 16, which extends to the front of the machine, and is preferably provided with a treadle, 18, by which any one of the saws may be independently operated by the foot, if desired, and placed in position to cut off the lumber. I prefer to attach a yoke, 20, to the journal-boxes 5, which extends below the said boxes and terminates in the lugs or jaws 22. These jaws are bored to receive a pin, 24, which passes through them and through the upper end of the connecting-rod 26.

28 represents a cylinder having a piston, 30, fitted closely to its interior and provided with a port, 31, which enters the bore of the cylinder beneath the piston. The piston is preferably made solid, and its upper extremity is connected by a knuckle-joint, 32, to the connecting-rod 26.

The port 31 is preferably adapted to receive a pipe, 34, which is provided with a three-way valve, 36, which is preferably constructed with an outer case, 38, provided with the inlet-port 40 and exhaust-port 42. The interior of this valve is bored to fit a plug or rotary valve, 44, having recesses 46 and 48 formed in its opposite walls.

When the valve is turned in one direction, the recess 46 covers the inlet-port 40 and the opening to the pipe 34, thus completing the inlet to the cylinder for the steam or other motive power. When the valve 44 is turned in the opposite direction, the inlet-pipe is closed, and the recess 48 covers the exhaust-port 42 and the pipe 34, and completes an opening from the cylinder to the open air. By this means the pressure in the cylinder will be relieved.

50 represents a bar hinged to the frame 2 at a point at the rear of the saw. This bar is located so that its front end will be above the level of the top of the frame, and is beveled or rounded toward the front, so that the advancing lumber will pass over and depress it. A rod, 52, serves to connect the bar 50 with a lever, 54, upon the rotary valve 44. A spring, 56, is secured to the frame and acts upon a collar, 58, upon the rod 52, in order to keep the bar 50 raised when there is no pressure brought to bear upon it by the advancing lumber. The connection with the valve 44 is such that when the bar 50 is raised the inlet-port to the cylinder 28 will be open, and when the bar is depressed the inlet-port will be closed and the exhaust-port open.

In machines of this class it is difficult to secure the required tension upon the belts which drive the saws, and in my improvement I have shown a means for readily accomplishing this result. I form a plate, 59, at the base of the fulcrum 14, upon which the said fulcrum slides, and pass a screw-threaded rod, 60, through a lug or projection, 62, on the said plate, and connect it with the body of the ful-

crum. The rod 60 is preferably passed out to the front of the machine and provided with a hand-wheel, 63, by which it is turned. By turning the hand-wheel the fulcrum and saw-frame attached thereto are moved forward or back, and any desired tension can be placed upon the belt. The longitudinal position of the bar 50 is preferably at some distance from the saw which it operates, so that a variation in the length of the boards will not interfere with the working of the device. The boards are conveyed to the machines and are received by the feed chains or belts and are advanced up the inclined top of the machine. When the board comes in contact with the bar 50, the weight of the board will depress the said bar and force down the rod 52 against the tension of the spring. This operation rotates the valve 44 and closes the steam-port and opens the exhaust-port. When the steam is exhausted from the cylinder, the weight of the frame and saw will cause the piston to travel downward in the cylinder. This will carry the saw attached to this piston below the surface of the table, and the lumber will pass over the saw without being cut. This will occur to as many of the saws as would come in contact with the body of the board. At the end of the board the bar 50 will not be struck by the board, and the valve in this case will not be operated. The pressure in the cylinder will hold the saw up and the board will be trimmed.

The link or chain belts ordinarily used for feed devices in machines of this class are expensive and cumbersome, and in my machine I have constructed a feed-belt which is simple, light, and inexpensive. I place sprocket-wheels 65 at the front and back of the machine in the ordinary manner. These sprockets are formed to receive an endless metallic band, 67, and are provided with flanges 69 at each side of said band, which have recesses or notches cut into their outer circumference to receive the bars 70, attached at given intervals to the belt. These bars are preferably formed of two sections of half-round iron, that extend a sufficient distance over the edge of the belt to engage the flanges of the sprockets and are riveted to the band.

72 represents brackets secured to one of the half-round bars and extending upward therefrom for the purpose of engaging and moving the lumber.

I claim as my invention—

1. The combination, in a lumber-trimmer, of an adjustable frame, a saw mounted therein,

a steam-cylinder for adjusting said frame, a valve controlling the supply of steam to said cylinder, and a movable bar connected with said valve and arranged on the machine in the path of the moving lumber, substantially as and for the purpose set forth.

2. The combination, in a lumber-trimmer, of a series of adjustable frames, saws mounted in said frames, steam-cylinders, valves controlling the supply of steam to said cylinders, pistons in said cylinders connected with said frames, and movable bars 50, arranged on the frame of said machine in proximity to said saws and connected with said valves, as and for the purpose set forth.

3. The combination, in a lumber-trimmer, with the frame 2, of the pivoted frame 10, the saw mounted therein, the steam-cylinder, the piston arranged in said cylinder and connected with said frame, the steam-valve, and the operating-bar 50, mounted on said frame 2 and connected with said valve, substantially as set forth.

4. The combination, in a lumber-trimmer, with the frame 2, of the frame 10, mounted on a pivot, 12, means for adjusting said pivot, the saw mounted in said frame 10, the steam-cylinder, and the piston arranged in said cylinder and connected with said frame 10, substantially as set forth.

5. The combination, in a lumber-trimming machine, with the frame 2, of the pivoted frame 10, the yoke 20, secured thereto, the saw mounted in said yoke, the steam-cylinder, the piston connected with said yoke, the valve controlling the admission of steam to said cylinder, and the bar 50, mounted on the frame 2 and connected with said valve, for the purpose set forth.

6. The combination, in a lumber-trimmer, with the frame 2 and the saws 4, of the sprocket-wheels 65, having the notched flanges 69, the bands 67, having the bars 70 secured thereto and fitting the notches in said flanges, and the carriers 72, secured to said bars, substantially as described.

7. The lumber-carrier consisting of the flexible metallic bands 67, having the half-round bars 70 secured upon opposite sides thereof, substantially as described.

In testimony whereof I have hereunto set my hand this 28th day of June, 1887.

JOHN B. ST. LOUIS.

In presence of—

R. H. SANFORD,
A. C. PAUL.