

(No Model.)

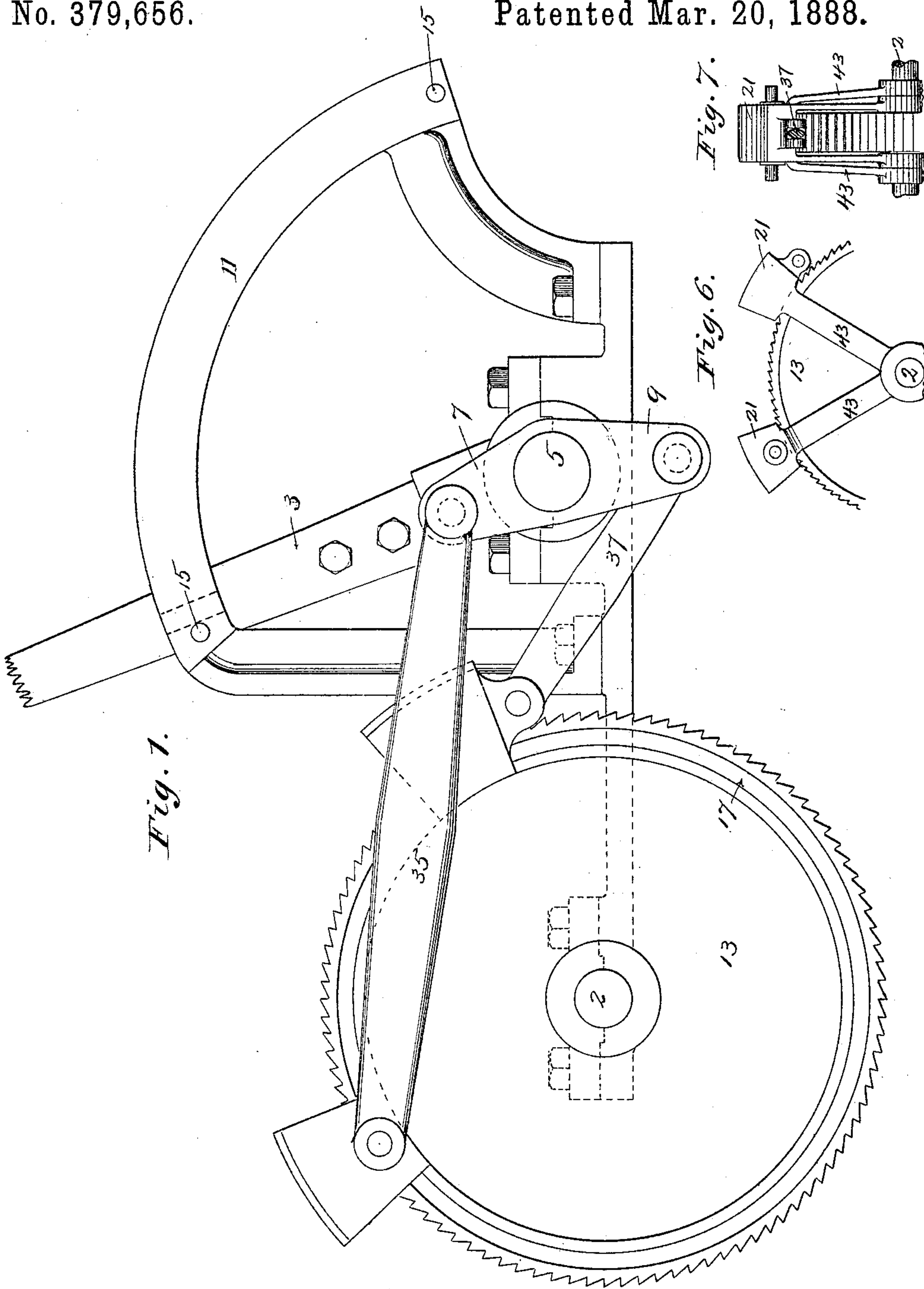
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W. F. PARISH.

RATCHET MECHANISM FOR SAW MILL SET WORKS.

No. 379,656.

Patented Mar. 20, 1888.



Witnesses.
A. Paul
R. H. Sanford.

Inventor.
William F. Parish

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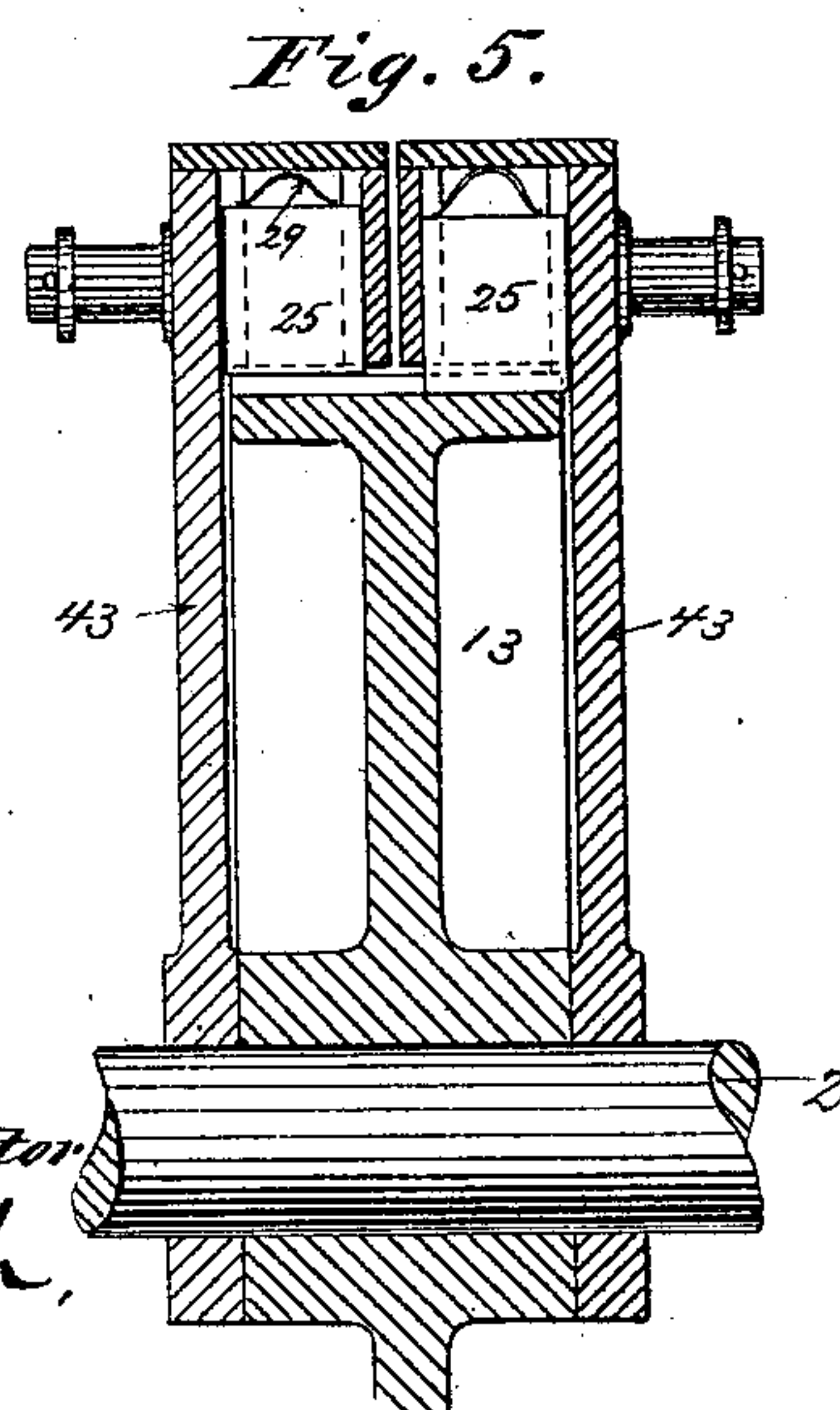
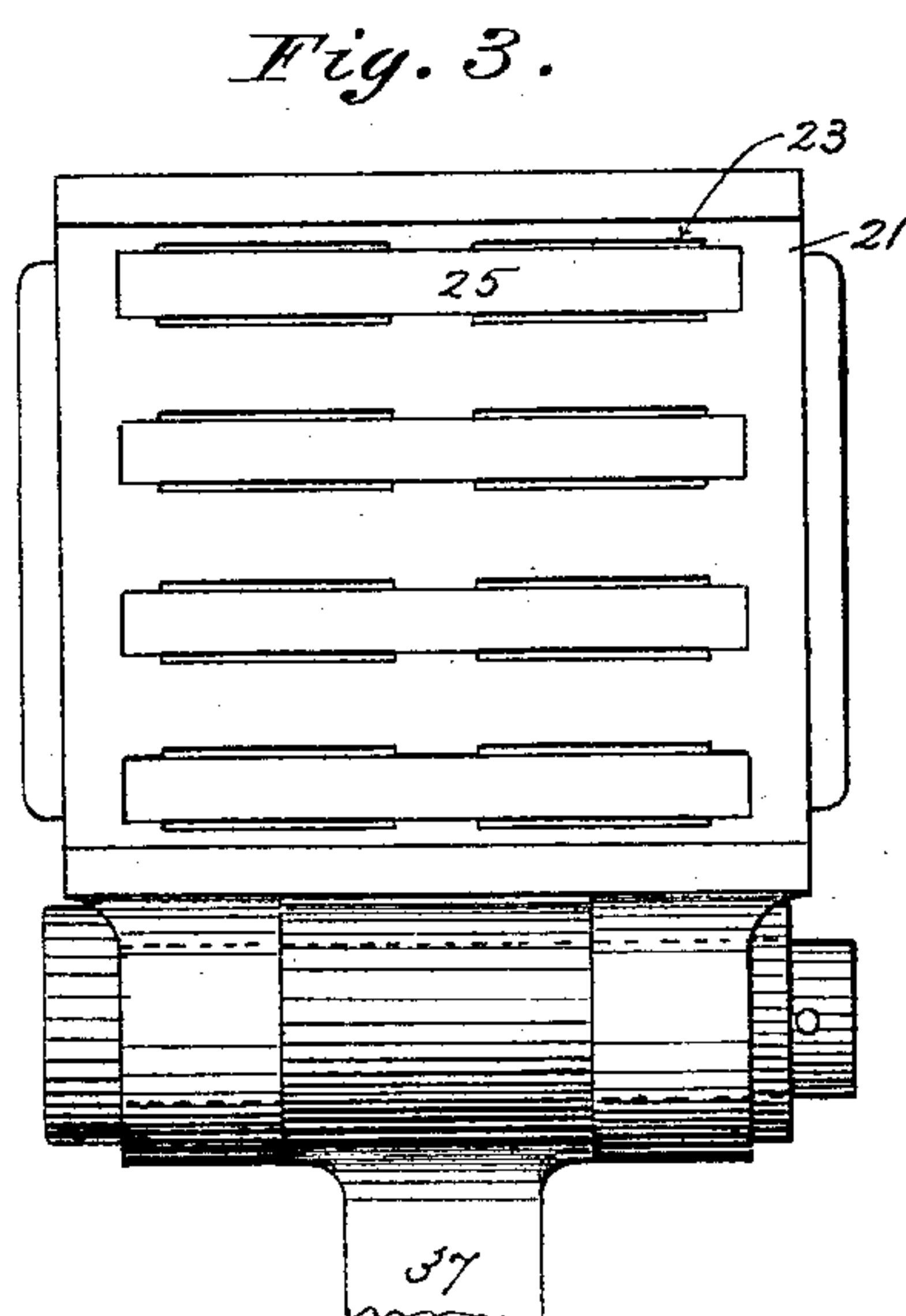
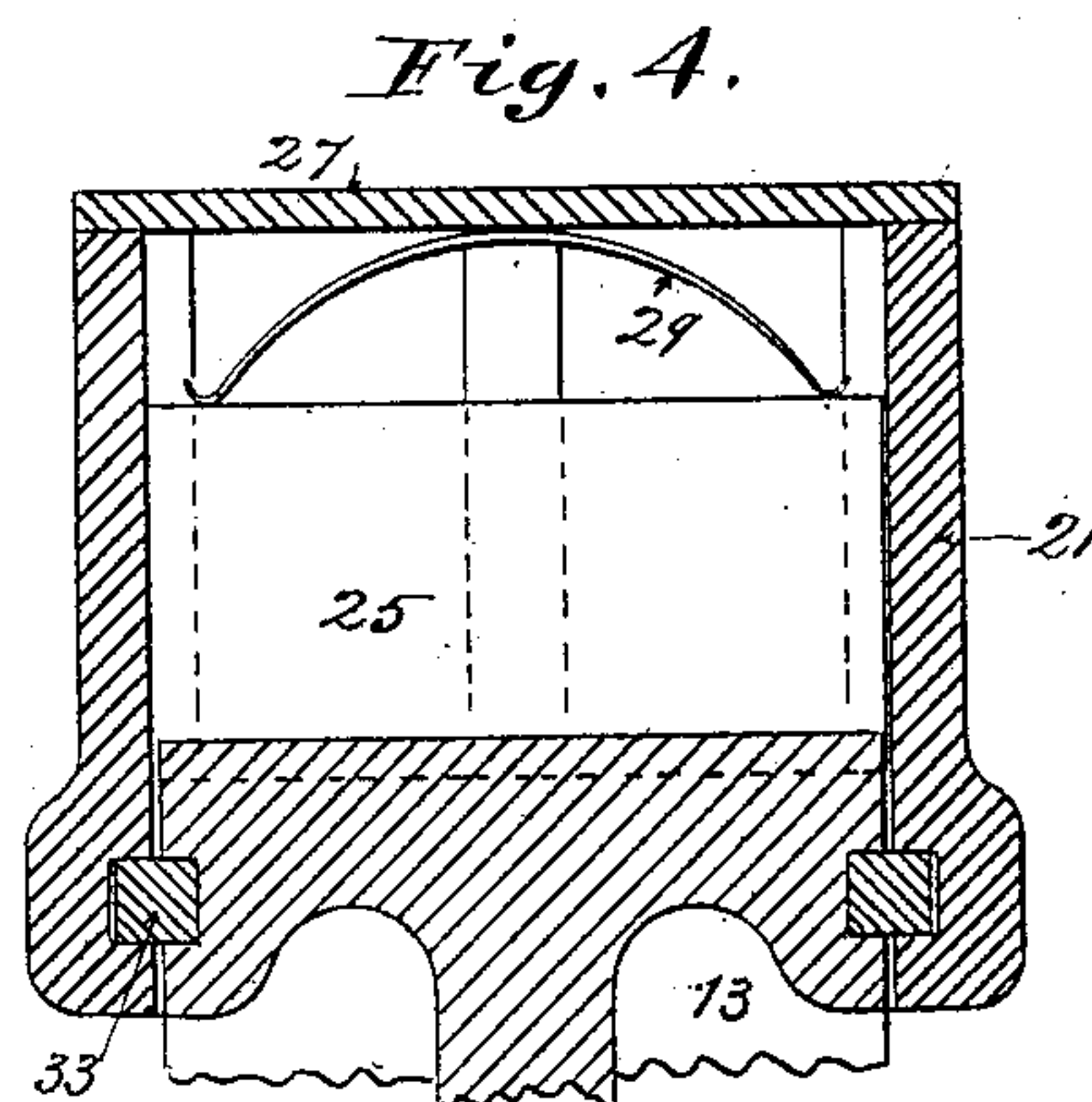
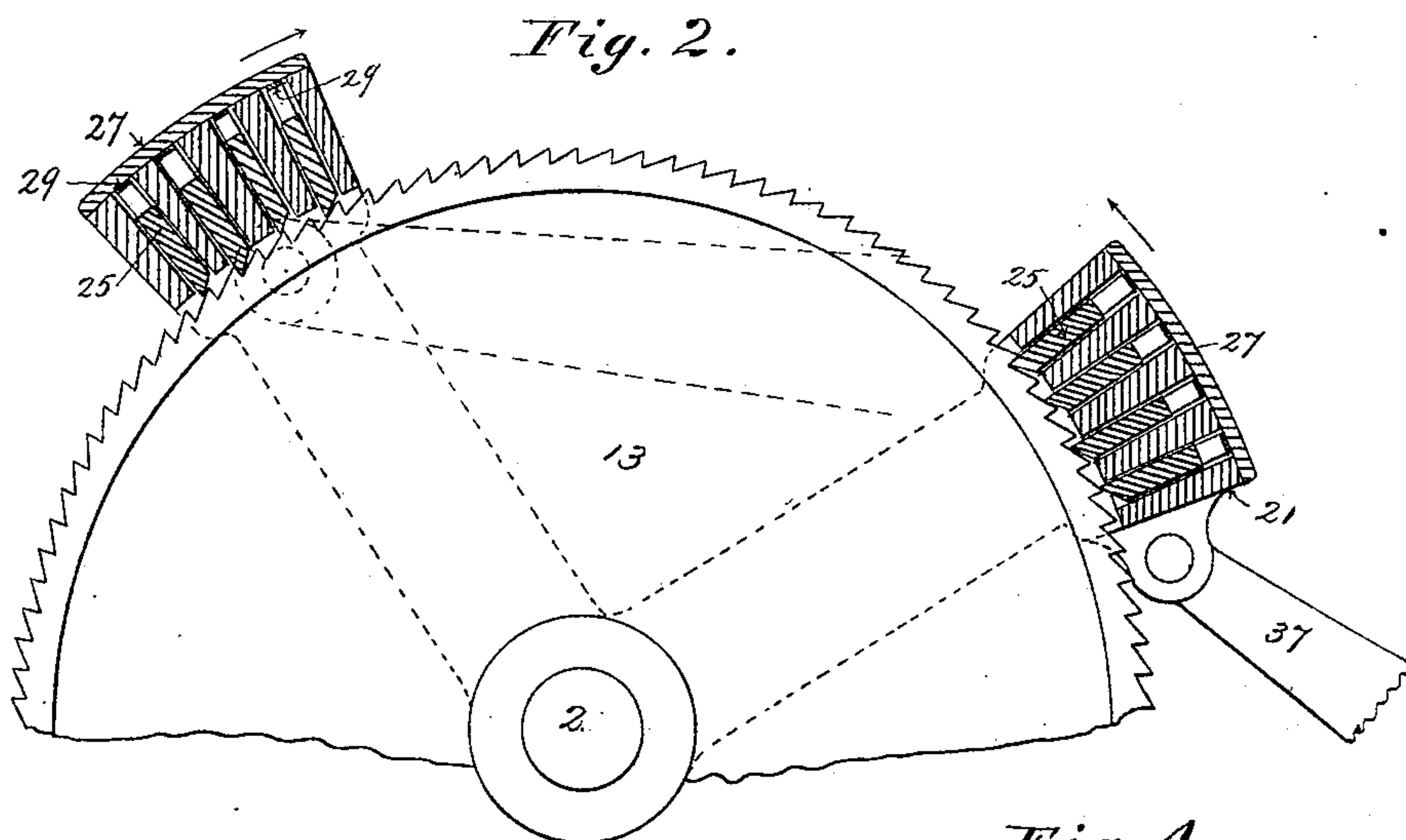
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UNITED STATES PATENT OFFICE.

WILLIAM F. PARISH, OF MINNEAPOLIS, MINNESOTA.

RATCHET MECHANISM FOR SAW-MILL SET-WORKS.

SPECIFICATION forming part of Letters Patent No. 379,656, dated March 20, 1888.

Application filed May 24, 1886. Serial No 203,065. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. PARISH, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain Improvements in Ratchet Mechanism for Saw-Mill Set-Works, of which the following is a specification.

This invention relates to improvements in that class of ratchet mechanisms that are used for operating the set-shafts of saw-mill carriages; and my invention consists, generally, in the construction and combination hereinafter described, and pointed out in the claim.

In the accompanying drawings, forming part of this specification, Figure 1 is a side elevation of a ratchet mechanism constructed in accordance with my invention. Fig. 2 is a partial side elevation of the ratchet-wheel and section of the pawl-carriers. Fig. 3 is a plan of one of the carriers with the top plate removed. Fig. 4 is a transverse vertical section of one of the carriers and a portion of the wheel. Fig. 5 is a transverse vertical section of the carriers and a portion of the wheel, showing a modified arrangement. Figs. 6 and 7 are details.

The ratchet-wheel may be mounted directly on the set-shaft of the carriage in the usual way, or it may be mounted on a counter-shaft that is connected by suitable gearing with the set-shaft, as shown in my Patent No. 352,838, granted November 16, 1886.

In the drawings, 2 represents the shaft to which the ratchet-wheel is secured. This shaft is mounted in suitable bearings upon the saw-mill carriage. The operating-lever 3 is secured to a rock-shaft, 5, mounted in suitable bearings and provided with crank-arms 7 and 9. An arc or quadrant, 11, which is preferably provided with pins or stops 15, is secured to the frame in position so that the lever or an attachment thereon strikes against one of the pins as the lever is moved in either direction.

The ratchet-wheel 13 may be of any ordinary form or construction. It has the usual ratchet-teeth and may be provided upon each side with an annular groove, 17, located near its edge.

The mechanism is provided with two pawl-carriers that are secured to the wheel, and each holds a series of sliding pawls or dogs, any

one of which is adapted to engage with the teeth of the ratchet-wheel. The pawl-carriers each consist of a box or frame, 21, having a series of openings, 23, in each of which is placed a sliding dog, 25. The carriers are formed with suitable bearings for the sliding dogs, preferably at the ends, and in the center of each dog, as shown in Fig. 3. A plate, 27, is provided for each carrier. This plate fits over the top of the carrier and holds the dogs in place. The weight of the dogs causes them to slide downward in the carriers into position to engage the teeth of the ratchet. I prefer, however, to provide a spring, 29, for each dog, that tends to press it down into engagement with the ratchet-wheel. These springs are arranged in the carrier between the dogs and the plate 27. The springs 29 are shown as elliptic springs. I may, however, use suitable coiled springs in place thereof. The sliding dogs and the teeth of the ratchet-wheel are preferably differentially spaced, so that a fine adjustment of the wheel may be made.

I prefer to provide four dogs for each carrier and to arrange them so as to divide into quarters the spaces of the teeth. The four dogs may be arranged to cover five teeth on the wheel, and in order that there may be considerable metal in the carrier between every two dogs I prefer to arrange them as shown in Fig. 2. As here shown, the middle space, or that between the second and third dogs, is equal to one and three-quarters tooth of the wheel, and the other spaces between the dogs are equal to one and a half tooth of the wheel. When the first dog in the carrier is in engagement with the ratchet, as shown at the right-hand side of Fig. 2, the second dog is one-half of a space from the point of a tooth, the third one-quarter, and the fourth three-quarters. There are, in effect, therefore, four dogs to each tooth of the ratchet-wheel, which allows the ratchet mechanism to be set by quarter-divisions of the teeth. I do not, however, confine myself to this number of dogs for each carrier, as one, two, three, or more dogs may be used without departing from my invention. When two or three dogs are used, they are arranged so as to divide the ratchet-teeth into halves or thirds, and so on for any other number of dogs.

Each of the carriers is provided with keys

33, that fit into the grooves 17 on the sides of the ratchet-wheel and hold the carriers in place. The carriers are also connected by rods 35 37 with the crank-arms 7 and 9. The back carrier is preferably connected to its crank-arm 9 by a single connecting-rod, 37, that is pivoted to the crank-arm and to one end of the carrier, while the other is connected by two connecting-rods, 35, pivoted upon each side thereof and passing upon opposite sides of the back carrier, to the crank-arm 7.

The ratchet mechanism is operated by moving the lever 3 in either direction, thereby advancing one of the pawl-carriers and receding the other. The ratchet-wheel is thereby continuously rotated.

In some instances the carriers may be connected by carrier-arms 43 with the shaft, and thereby be held upon the edge of the wheel, and the groove 17 and keys 33 may be dispensed with, as shown in Figs. 2, 6, and 7. When the carriers are thus arranged, the arms 43 of the forward carrier extend outside of the arms of the back carrier, as shown in Fig. 7, so that the arms do not interfere when the carriers approach each other.

Instead of arranging one carrier in advance of the other, I may arrange them side by side, as shown in Fig. 5, and connect each one with the shaft by the carrier-arm 43. In this instance the width of each carrier is equal to about one-half the width of the face of the wheel.

This ratchet mechanism possesses many advantages over those commonly used. The mechanism is very strong, as with this mode of spacing the dogs a fine adjustment may be obtained without using fine teeth and small

dogs. The mechanism is also inexpensive and the dogs and springs are substantially inclosed on all sides and protected from dust and dirt.

Another great advantage is in the wearing qualities of the mechanism. As the dogs are brought at all times when at work fairly in contact with the faces of the teeth, there is very little wear, and what wear there is does not affect their operation, as when their ends become worn the dogs drop down farther in the carriers and engage the teeth as before. Moreover, two of the dogs may be removed when there are four in the carrier, and the ratchet-teeth will then be divided into halves by the two remaining dogs; or all but one of the dogs may be removed and the division will then be simply that made by the ratchet-teeth.

When the ratchet-wheel is placed on the set-shaft, a simple cam may be used to slide the teeth back into the carrier when the set-shaft is to be reversed.

I claim as my invention—

The combination, with the ratchet-wheel, of the pawl-carrier arranged over the face of the wheel and having the series of openings 23 extending through it, the cap-plate secured upon said carrier and covering all of said openings, the series of sliding dogs arranged in said openings, and the springs arranged in said openings between said dogs and said plate, all substantially as described.

In testimony whereof I have hereunto set my hand this 20th day of May, 1886.

WILLIAM F. PARISH.

In presence of—

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