

No. 692,297.

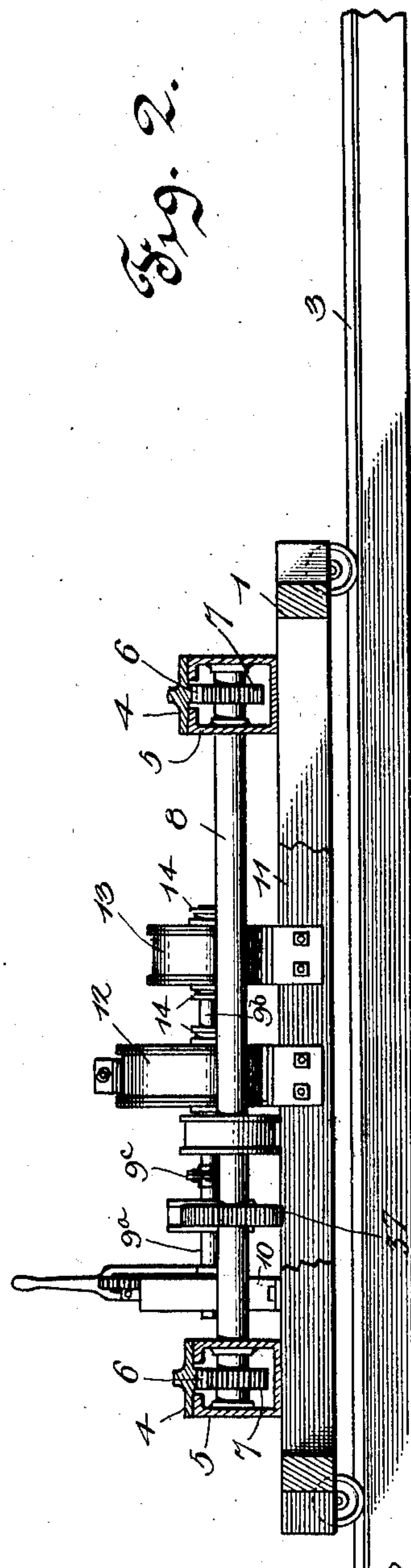
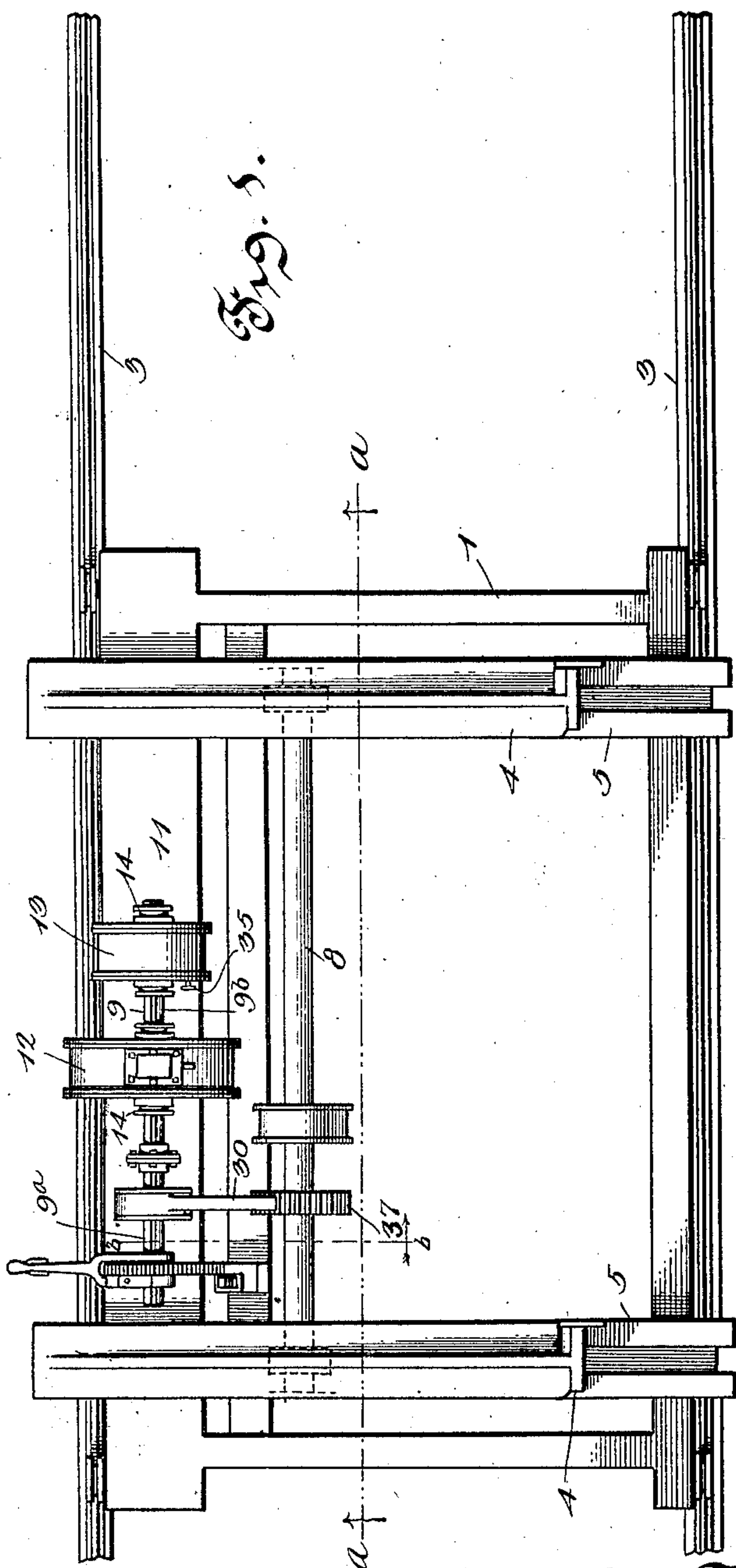
Patented Feb. 4, 1902.

M. F. JOHNSTON.  
SAWMILL SET WORKS.

(Application filed Sept. 29, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

J. Frank Leuwerwell,  
J. W. Garner

M. F. Johnston, Inventor.  
By C. A. Snow & Co.  
Attorneys

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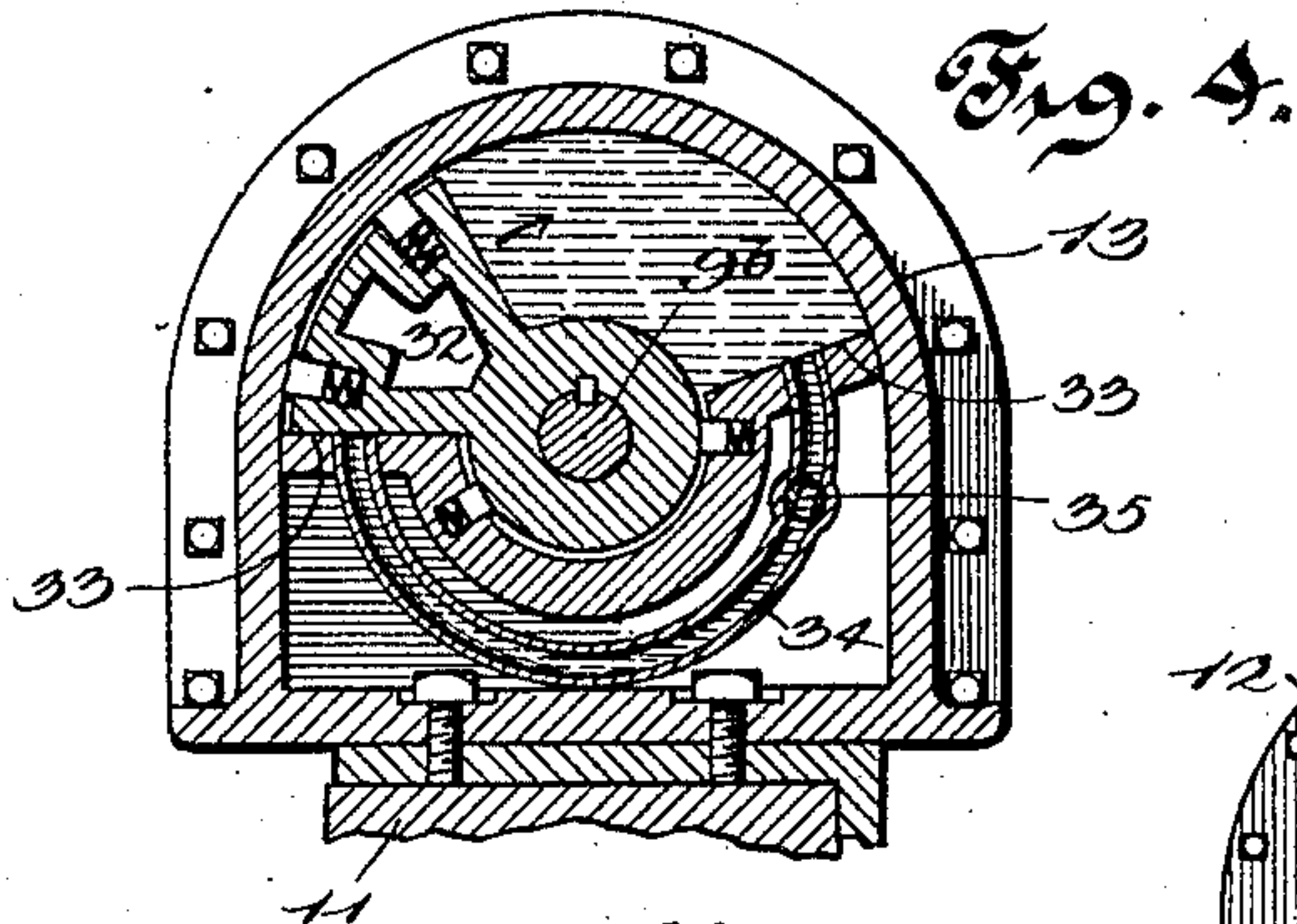


Fig. 4.

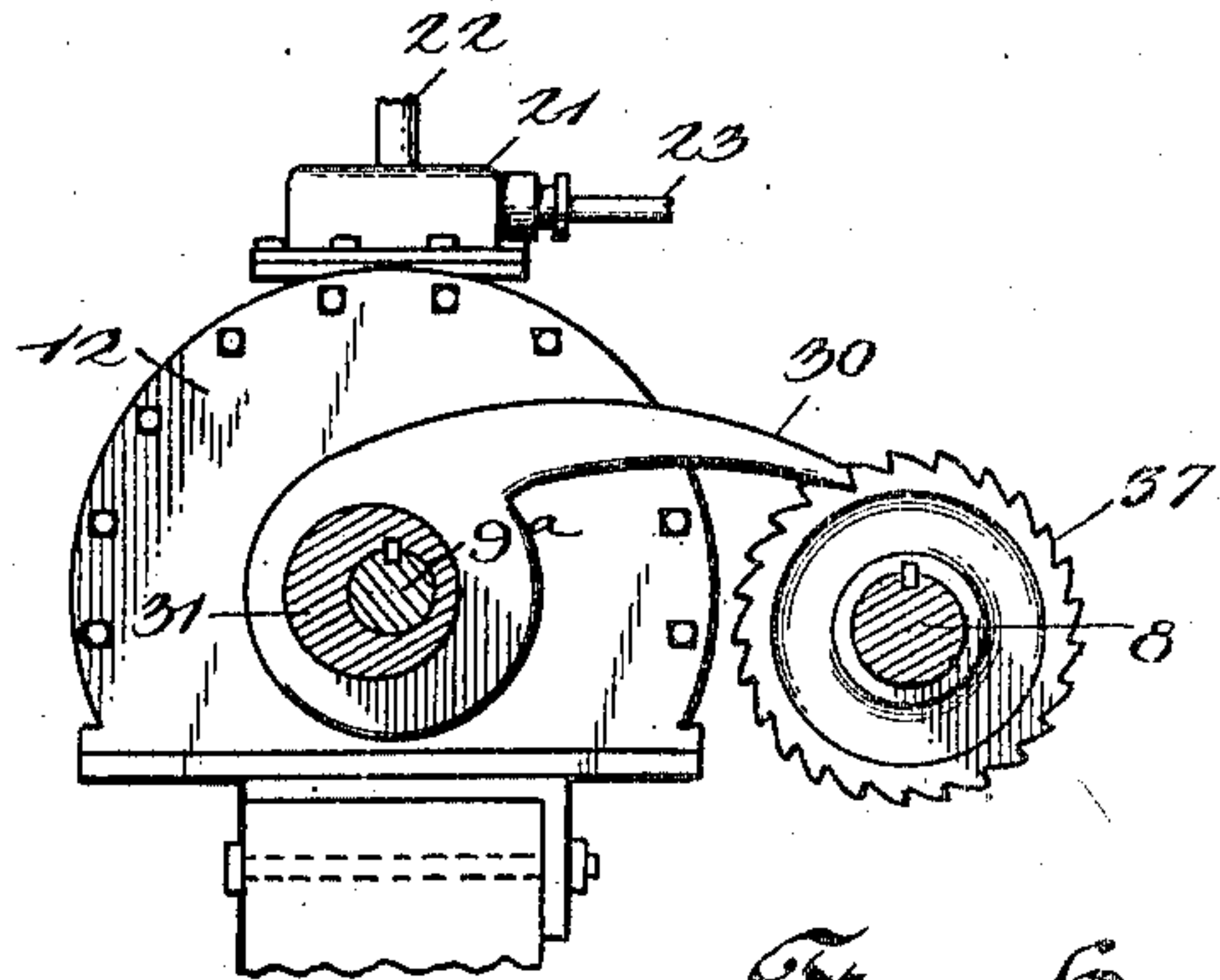


Fig. 6.

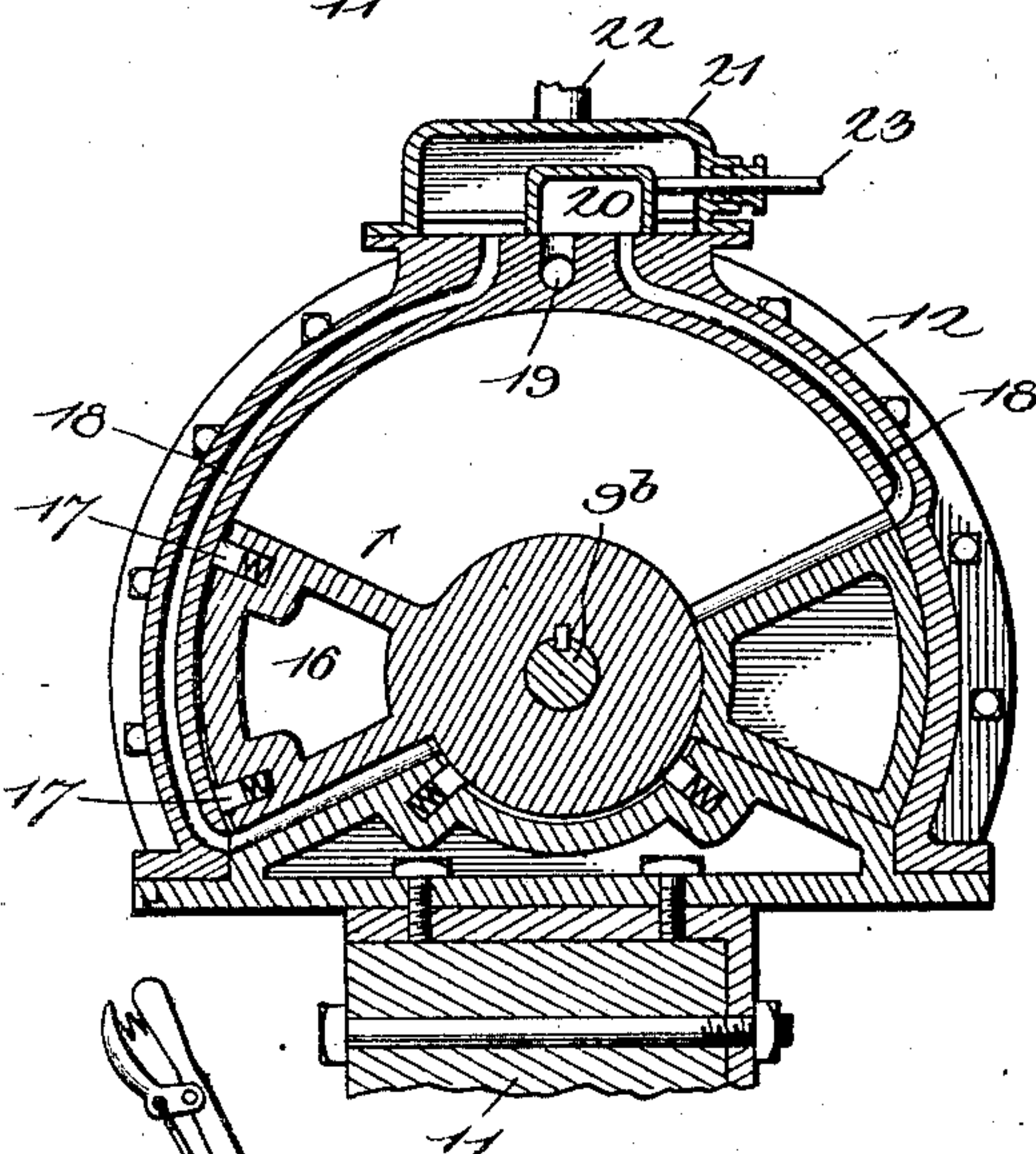


Fig. 3.

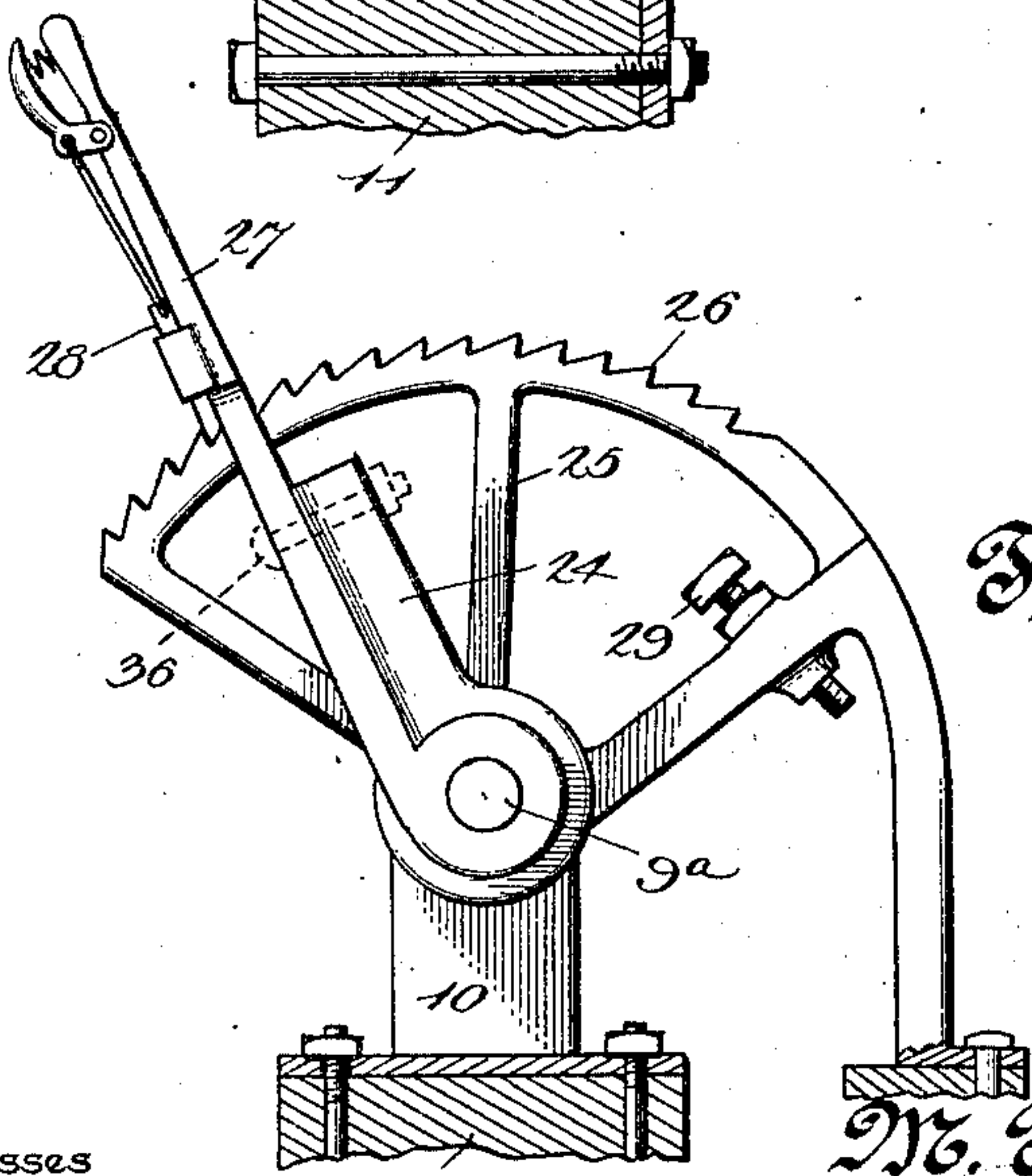


Fig. 5.

Witnesses

J. Frauleinwell.  
J. C. Garner

M. F. Johnston, Inventor.  
By C. A. Snow & Co.  
Attorneys



# UNITED STATES PATENT OFFICE.

MOSES F. JOHNSTON, OF DUNBAR, WISCONSIN, ASSIGNOR OF ONE-HALF TO  
RALPH E. GIESLER, OF DUNBAR, WISCONSIN.

## SAWMILL SET-WORKS.

SPECIFICATION forming part of Letters Patent No. 692,297, dated February 4, 1902.

Application filed September 29, 1900. Serial No. 31,519. (No model.)

*To all whom it may concern:*

Be it known that I, MOSES F. JOHNSTON, a citizen of the United States, residing at Dunbar, in the county of Marinette and State of Wisconsin, have invented a new and useful Sawmill Set-Works, of which the following is a specification.

My invention is an improved sawmill set-works, one object of my invention being to provide fluid-pressure-actuated mechanism for operating the set-shaft of the set-works.

Another object of my invention is to provide means for cushioning the fluid-pressure-actuated mechanism, deadening the concussion thereof, and preventing the set-works from being unduly jarred thereby.

My invention consists in the peculiar construction and combination of devices herein-after fully set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is top plan view of a sawmill-carriage provided with set-work embodying my invention. Fig. 2 is a vertical longitudinal sectional view of the same, taken on a plane indicated by the line *a a* of Fig. 1. Fig. 3 is a detail transverse sectional view through the fluid-pressure-actuated mechanism and the set-shaft. Fig. 4 is a similar view through the cushioning mechanism. Fig. 5 is a detail elevation of the adjusting-segment, the adjusting-lever, and the coacting adjusting-arm of the set-shaft. Fig. 6 is a detail sectional view taken on a plane indicated by the line *b b* of Fig. 1.

The sawmill-carriage 1 may be of the usual or any preferred construction and operates on the usual trackway 3. The knees 4 operate on the head-blocks 5 and are provided on their undersides with rack-bars 6, as is usual, which rack-bars are engaged by pinions 7 on a shaft 8, said set-shaft having its bearings in the head-blocks, as shown. A rock-shaft 9 is journaled in a bearing 10, which is bolted on a longitudinally-disposed timber 11, with which the carriage is provided, and the said rock-shaft also has its bearings in annular casings 12 13, which are also bolted on the said timber 11. The heads of the said casings through which the said rock-shaft extends are provided with stuffing-boxes, (indicated at 14,) 50

which are of the usual construction. The said rock-shaft comprises two sections 9<sup>a</sup> 9<sup>b</sup>, which are connected together by a coupling 9<sup>c</sup>, which comprises a pair of disks keyed to the respective sections of the rock-shaft and bolted together, as shown. The coupling may be otherwise constructed, if preferred. The casing 12 is of segmental form, and in the same is an oscillating head or piston 16, which is keyed to the rock-shaft and is provided with suitable spring-pressed packing-strips 17. The said casing 12 is provided with channels 18 to admit fluid under pressure to and from the interior of the casing at points representing the limits of the strokes of the oscillating piston, and said casing is further provided with an exhaust-port 19. The channels 18 are alternately uncovered by a valve 20 in a chest 21, to which steam or other suitable fluid under pressure is admitted through a suitable pipe, as at 22. The valve 20 has an operating-rod 23, which is manually operated, and it will be understood from the foregoing that the shaft 9 may be rocked by operating the valve 20 in such manner as to apply fluid-pressure to opposite sides of the oscillating piston 16 alternately.

An adjusting-arm 24 is keyed on the rock-shaft, near one end thereof, and operates on one side of an adjusting-segment 25, which in the embodiment of my invention here shown is provided with a series of peripheral teeth 26, which represent units of measure. An adjusting-lever 27 is mounted on the rock-shaft 9, so that it may be turned independently of the said rock-shaft. Said adjusting-lever is bifurcated at its inner end and disposed astride of the adjusting-segment and is provided with a spring-pressed adjusting-dog 28, which by engagement with the teeth of the adjusting-segment may secure the adjusting-lever at any desired point. An adjusting-bolt 29 is supported by the adjusting-segment and forms one stop for the adjusting-arm 24 to limit the movement of the latter, and hence of the rock-shaft, in one direction, the movement of said lever and said rock-shaft in the reverse direction being limited by the adjusting-lever 27, which forms a stop for said adjusting-arm.

It will be understood from the foregoing



that the rock-shaft may be caused to move as far at each stroke of the piston 16 as may be requisite to adjust the knees on the head-blocks to the desired extent. Any suitable means may be employed for communicating power from the rock-shaft to the set-shaft 8. In the embodiment of my invention here shown the set-shaft 8 is provided with a ratchet-wheel 37, which is engaged by a pawl 30, operated by an eccentric 31, which is keyed on the rock-shaft.

It is desirable to provide means for cushioning the fluid-pressure-actuated mechanism, which operates the rock-shaft, in order to keep the set-works from being unduly jarred thereby, and to this end I provide a piston 32, which is keyed to the rock-shaft and operates in the segmental-shaped casing 13, between the shoulders 33 thereof. The said casing is filled with oil or other suitable fluid and is provided with a channel 34, of suitable capacity, which conducts the oil from one side of the piston to the other side thereof at each stroke of the piston, which is occasioned by the operation of the rock-shaft, and in this channel is a valve or cock 35, by means of which said channel may be closed or partly closed to any desired extent. The body of oil or other fluid in the cushioning-casing must be displaced at each stroke of the piston and caused to pass from one side of the piston to the other. It will be understood that the oil tends to retard the movement of the piston and by being compressed between the latter and the coacting shoulders of the cushioning-casing prevents concussion between the piston 16 and the coacting shoulders of the casing 12.

In the event that the fluid-pressure-actuated mechanism should get out of working order the rock-shaft may be operated manually by the lever 27, which in this event coacts with the adjusting-arm 24 to operate the rock-shaft. When thus manually operated, it is desirable to connect the lever 27 to the adjusting-arm 24, as by a bolt 36, which is indicated in dotted lines in Fig. 5. When the rock-shaft is thus operated manually, the sections of the rock-shaft are uncoupled, as will be understood. The adjusting-bolt 29 enables the stroke of the arm 24, and hence of the rock-shaft, to be predetermined with great nicety in order that the knees may be adjusted on the head-block exactly as may be required to cause the lumber to be sawed of the desired thickness.

Having thus described my invention, I claim—

1. In sawmill set-works, the combination with knees and means to adjust them, of a

rock-shaft connected to and actuating said knee-adjusting means, a rock-arm on said rock-shaft, means to oscillate said rock-shaft and thereby actuate said knee-adjusting means, a set-lever and locking-arc therefor, a stop to limit the strokes of the rock-shaft, and means to detachably secure said set-lever to said rock-arm and thereby adapt the rock-shaft to be manually operated, substantially as described.

2. In sawmill set-works, the combination with knees and means to adjust them, of a rock-shaft connected to and actuating said knee-adjusting means and having a rock-arm, and an oscillating piston, a casing in which said piston oscillates, means to apply fluid-pressure alternately to opposite sides of said piston, a set-lever and an adjustable stop, said set-lever and stop coacting with said rock-arm to limit the strokes of the rock-shaft, and means to secure said set-lever to said rock-arm and thereby adapt the rock-shaft to be manually operated, substantially as described.

3. In sawmill set-works, in combination with knees and means to adjust them, a rock-shaft in two sections and having a coupling to secure said sections together and detach them at will, a fluid-pressure mechanism operative on one of said sections to rock said shaft, a hand-lever pivoted on the other section, the latter also having a rock-arm fast therewith, a stop, coacting with said hand-lever, to limit the strokes of the rock-arm and thereby limit the strokes of the rock-shaft, means to secure said hand-lever to said rock-arm, for the purpose set forth, and connections between said rock-shaft and the means for adjusting the knees, substantially as described.

4. In sawmill set-works, in combination with knees and means to adjust them, a rock-shaft in two sections and having a coupling to secure said sections together and detach them at will, a power mechanism operating on one of said sections to rock said shaft, a rock-arm fast with the other section of said rock-shaft, a hand-lever, a locking-arc therefor, means to detachably connect said lever with said rock-arm, a stop to limit the strokes of the rock-shaft, and connections between said rock-shaft and the means for adjusting the knees, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

MOSES F. JOHNSTON.

Witnesses:

RALPH E. GEISLER,  
WILLIAM R. GODSHALL.