

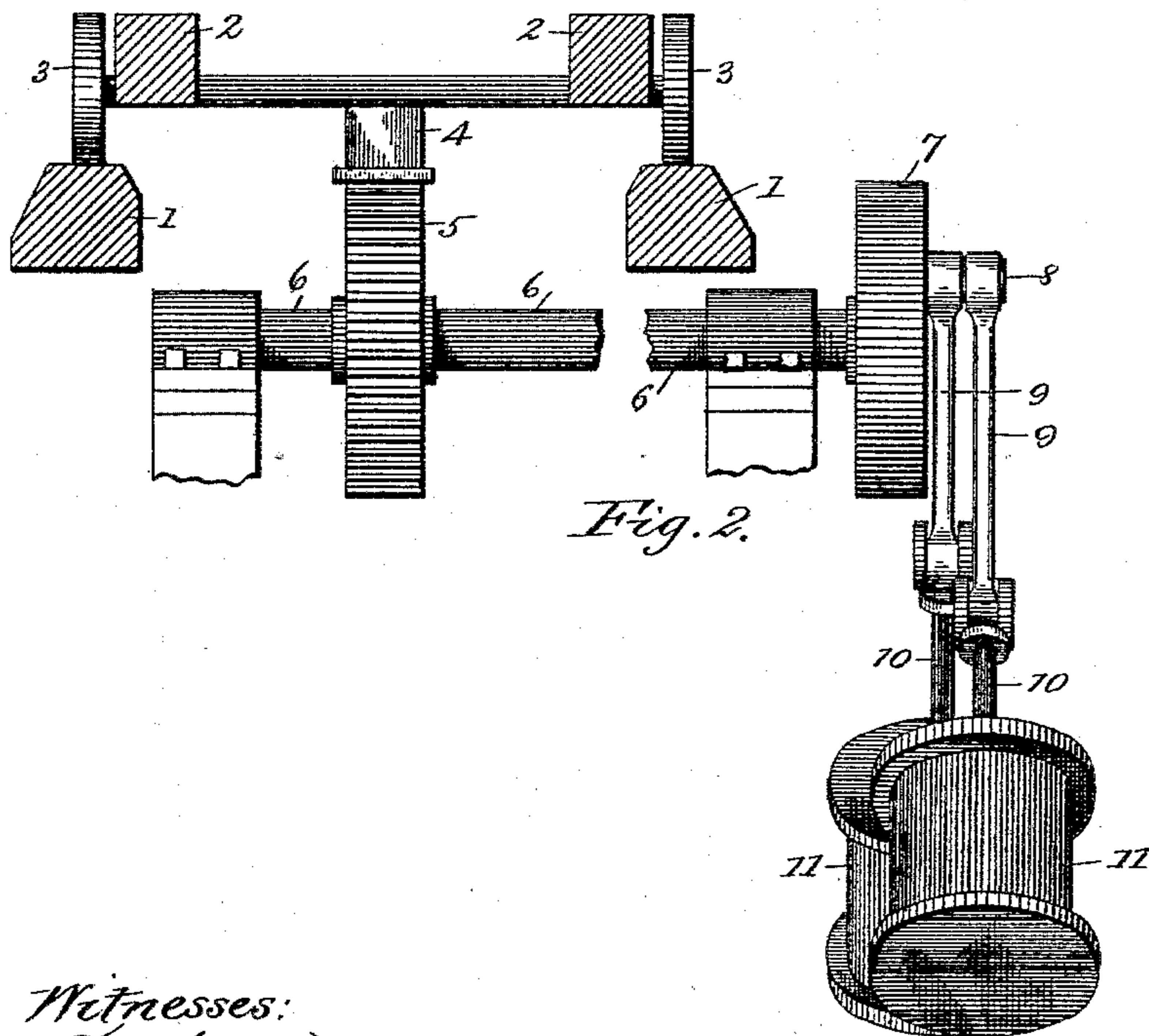
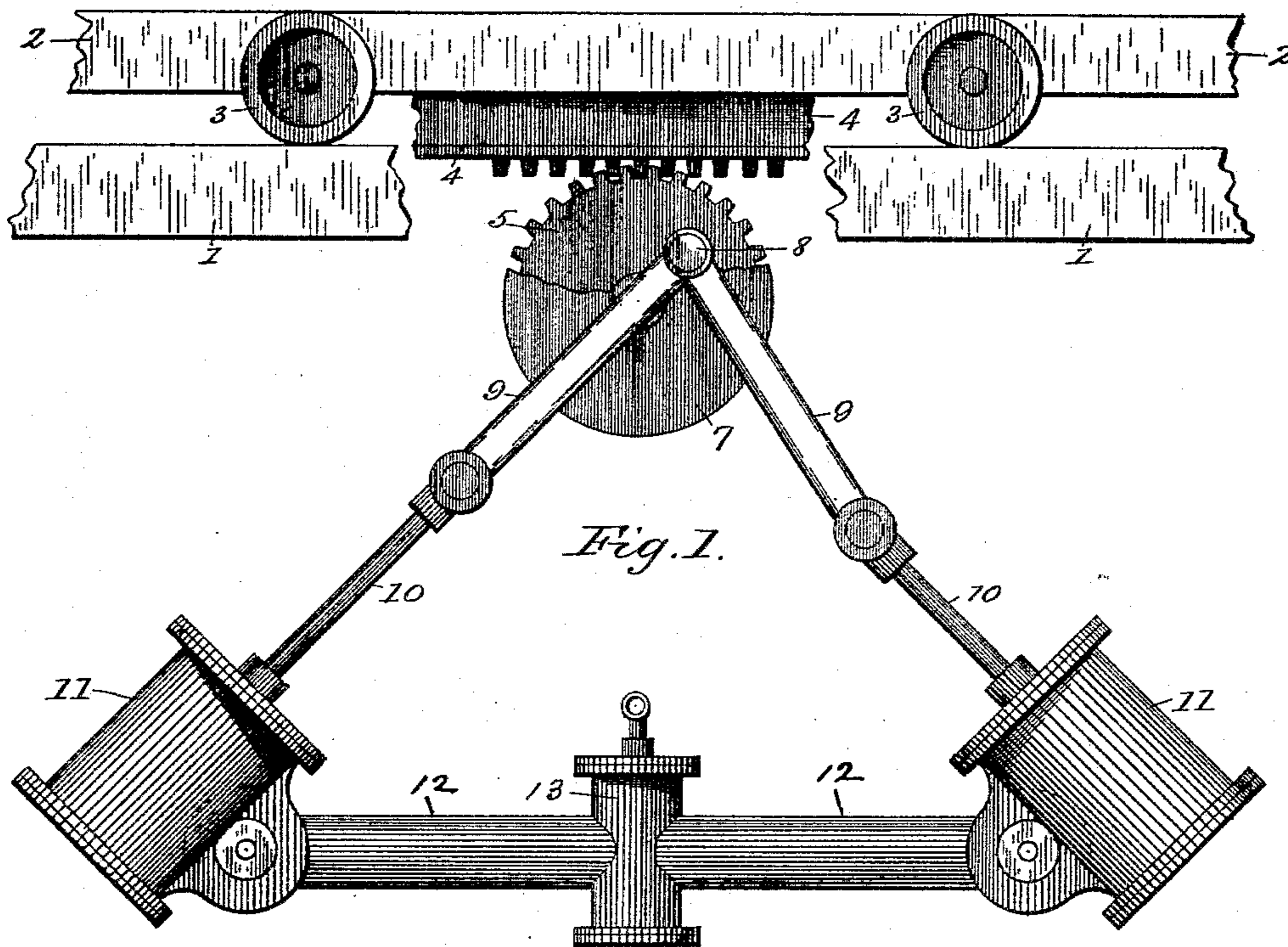
(No Model.)

G. R. RAY.

MECHANISM FOR RECIPROCATING THE LOG CARRIAGES OF SAW MILLS.

No. 412,119.

Patented Oct. 1, 1889.



Witnesses:
T. H. Stuart
S. A. Sweet

Inventor:-
George Robert Ray.
By Marble & Mason,
Attys.

UNITED STATES PATENT OFFICE.

GEORGE ROBERT RAY, OF MANISTEE, MICHIGAN.

MECHANISM FOR RECIPROCATING THE LOG-CARRIAGES OF SAW-MILLS.

SPECIFICATION forming part of Letters Patent No. 412,119, dated October 1, 1889.

Application filed November 7, 1888. Serial No. 290,197. (No model.)

To all whom it may concern:

Be it known that I, GEORGE ROBERT RAY, a citizen of the United States, residing at Manistee, in the county of Manistee and State of Michigan, have invented certain new and useful Improvements in Mechanism for Reciprocating the Log-Carriages of Saw-Mills; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to mechanism for reciprocating the carriages of saw-mills for feeding logs to circular, band, or reciprocating saws; and it consists in the improved construction and arrangement or combination of parts hereinafter disclosed in the description, drawings, and claims.

The objects of my invention are, first, to simplify, improve the arrangement, and lessen the number of parts hitherto employed for reciprocating the log-carriages of saw-mills, and, second, to so arrange a pair of engines and their connections at one side of the carriage-track that they will be out of the way of the conveyer, which carries away the sawdust, bark, and other refuse.

In saw-mills employing log-carriages which are reciprocated upon tracks and operated by pinions engaging racks upon said carriages and revolved by an engine or engines which are separate or independent from the machinery which operates the saw or saws it is desirable to have said engine or engines placed at one side of the track, so that the sawdust, bark, or other refuse may be conveyed from beneath the log-deck and said track and delivered to the boiler or other suitable depository; but devices for accomplishing this result have heretofore been constructed and operated without practical success. This lack of success has been principally caused by the arrangement, number, and complication of the intermediate gears employed for conveying motion from the engine to the feed wheel or pinion which reciprocates the carriage; but I avoid these defects and accomplish the above-recited objects by the construction and arrangement of parts illustrated in the accompanying drawings, form-

ing part of this specification, in which the same reference-numerals indicate the same parts, and in which—

Figure 1 represents a side elevation of a portion of the track and log-carriage of a saw-mill provided with my improvement, showing the engines or cylinders as situated between the upper or operating floor and the ground floor of the mill, portions of the track, carriage, and crank-disk being represented as broken away; and Fig. 2, a partly transverse section and end view of the same.

In the drawings, the numerals 1 1 indicate the track-rails, and 2 the log-carriage, which travels upon said track-rails with its rollers or wheels 3. A toothed or cogged rack 4 is secured to the under side of said carriage, and is engaged by a pinion 5, which is mounted upon a horizontal shaft 6, which in practice is journaled at one end in a bearing attached to the mill-floor directly beneath the track, the other end being extended outside of said track and journaled in a bearing secured to the frame-work of the engines. This shaft is centrally located between the two steam-cylinders, and is provided on its outer end, which projects out from one side of the track, with a crank-disk 7, which has a double-journaled crank-pin 8, to which are attached the connecting-rods 9 of the piston-rods 10, which project from the two steam-cylinders 11. These steam-cylinders are connected with suitable steam-pipes 12, which communicate with a valve-chest 13, containing a suitable distributing or reversing valve, which is operated by reversing-gear or suitable levers and connections, which are arranged within convenient reach of the sawyer and upon the operating-floor of the mill, so that he can have control over the admission and exit of the steam for imparting motion to the pistons. This valve and its reversing-gear are not shown in the drawings, as their construction forms no part of my invention. The steam-cylinders are placed at an inclination toward each other, about at a right angle, and therefore as their connecting-rods are pivoted to the same double-journaled crank-pin they will operate to carry said crank-pin and its disk over the dead-centers and produce the same effect and in the same manner as will

the connecting-rods of two parallel cylinders when pivoted to two cranks standing at right angles to each other.

It will be obvious from the foregoing that
 5 by arranging the engines or cylinders and the pinion-shaft and its crank-disk at one side of the track any suitable conveyer or other means for conveying the sawdust, bark, or other refuse from beneath the log-carriage and
 10 saw may be employed, as there will be ample space left for the same beneath the operating-floor of the mill and on a line with the log-carriage tracks, which is not the case in former inventions of this character, where the
 15 engines or cylinders are placed immediately or directly below the tracks. In my invention the power from the engines is also directly applied to the horizontal pinion-shaft, and consequently no loss of power is experienced, which is not the fact with the devices
 20 in which intermediate gearing between the engines and pinion-shafts is employed.

I am aware of the fact that my invention is not the first in which an engine has been
 25 arranged at one side of the log-carriage track; but in former saw-mills employing this arrangement it has been found necessary to use an extra counter-shaft and two extra pinions or two pinions and a weighted vibratory
 30 quadrant-shaped toothed segment, their attendant bearings, and other attachments, in order to provide room beneath the carriage-track for a conveyer for receiving the refuse falling thereon from the log-deck and saw,
 35 whereas under the construction and arrangement of the parts of my invention, as described, and plainly shown in Fig. 2, I dispense with some or lessen the number of the parts hitherto employed for this purpose, and
 40 thus take up less room and as a consequence lessen the cost and wear and tear of the mill, and also greatly increase the output of the same, as the fewness and compactness of its parts permit it to be run at a much greater
 45 speed than has hitherto been attained in this class of saw-mills.

I am also aware that two engines have been connected to cranks at the opposite ends of the shaft which carries the pinion for operating the rack and carriage; but by my arrangement of the two engines at one end of said
 50 shaft and at one side of the track I am not only enabled to concentrate or collect all of the operative parts in small space, but to lessen the number of parts hitherto employed, as I dispense with the transverse connecting mechanism which is used in connection with two engines when they are arranged at both
 55 sides of the track, and which would prevent or render difficult the use of the space under said track for a conveyer.

Having thus fully described the construction and arrangement or combination of the several parts of my improved mechanism for
 65 reciprocating the log-carriages of saw-mills,

its operation and advantages, what I claim as new therein is—

1. In a saw-mill, the combination, with a log-carriage provided with a toothed or cogged rack and a track for said carriage, of a shaft
 70 journaled with its inner end transversely below said track and provided with a pinion which meshes with said rack, and steam-cylinders provided with piston-rods which are directly connected to the outer end of said
 75 shaft and arranged at one side of said track, substantially as and for the purpose described.

2. In a saw-mill, the combination, with a log-carriage provided with a toothed or cogged rack and a track for said carriage, of two
 80 steam-cylinders provided with piston-rods, and a horizontal shaft arranged centrally between said cylinders and provided at its inner end with a pinion which meshes with said rack and at its outer end, which projects out
 85 from one side of said track, with a crank-disk which is provided with a crank-pin, to which said piston-rods are pivoted, substantially as and for the purpose described.

3. In a saw-mill, the combination, with a
 90 log-carriage provided with a cogged rack, a track for said carriage, and a shaft geared to reciprocate said carriage, of a crank-disk mounted upon the outer end of said shaft at one side of said track and provided with a
 95 crank-pin, and two steam-cylinders, which are inclined at right angles to each other and provided with piston-rods, which are pivoted to said crank-pin, substantially as and for the purpose described. 100

4. In a saw-mill, the combination of the track 1, the reciprocating log-carriage 2, provided with the rack 4, the transversely-arranged horizontal shaft 6, provided with the
 105 pinion 5, meshing with said rack and with the crank-disk 7, which projects out from one side of said track and is provided with the crank-pin 8, the steam-cylinders 11, inclined at right angles to each other, the piston-rods 10, and the connecting-rods 9, pivoted to said
 110 crank-pin, substantially as and for the purpose described.

5. In a saw-mill, the combination of the track 1, the log-carriage 2, provided with the rack 4, the two steam-cylinders 11, the piston-rods 10, the connecting-rods 9, and the
 115 horizontal shaft 6, provided at its inner end with the pinion 5, which meshes with said rack, and at its outer end with the crank-disk 7, which is projected out from one side of said track and provided with double-journaled crank-pin 8, to which said connecting-rods are directly pivoted, substantially as and for the purpose described. 120

In testimony whereof I affix my signature in
 125 presence of two witnesses.

GEORGE ROBERT RAY.

Witnesses:

GEO. M. BURR,

C. T. CUTCHEON.