

J. ORM.

Log Turner for Saw-Mills.

No. 163,398.

Patented May 18, 1875.

Fig. 1.

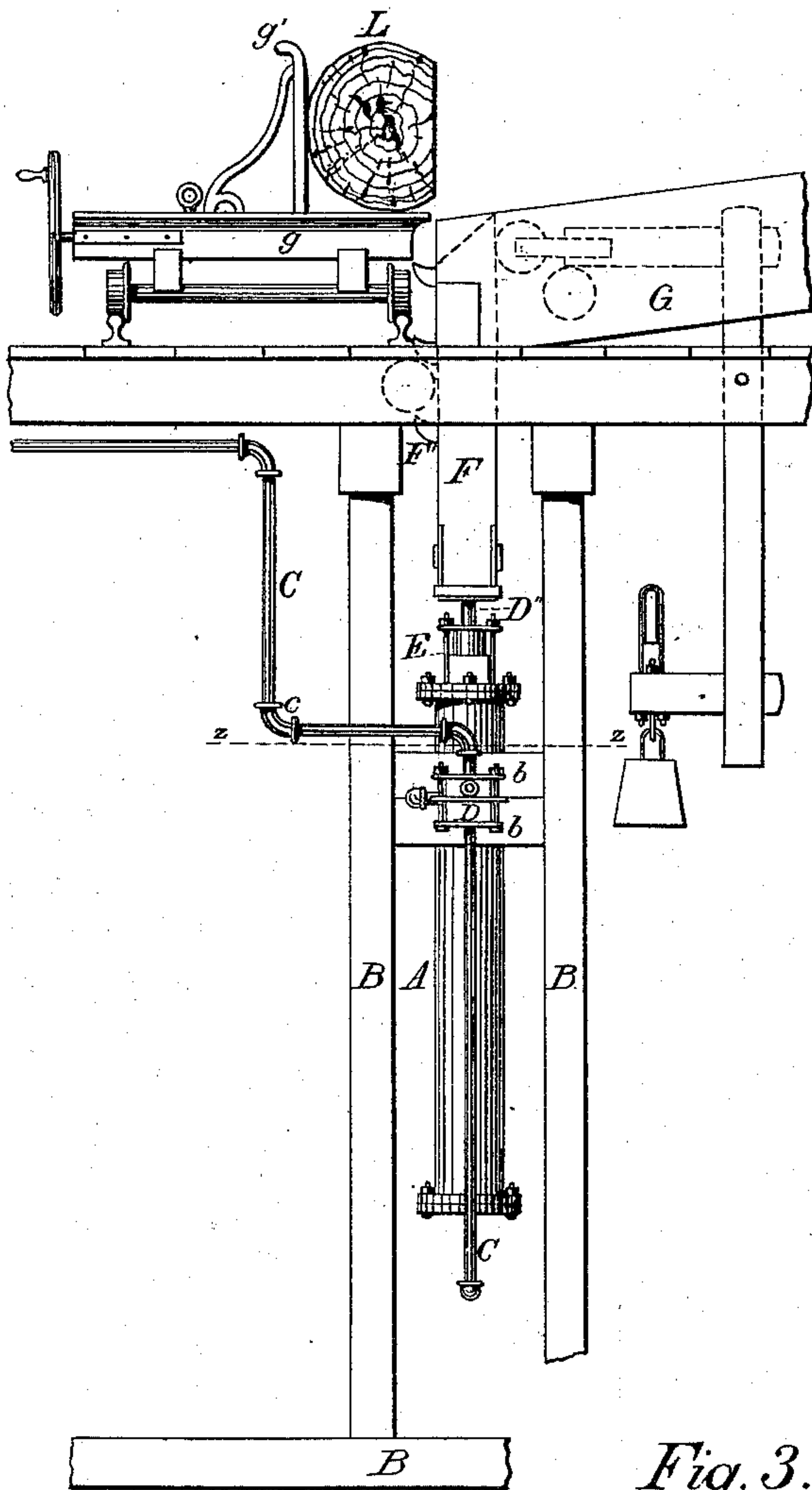


Fig. 2.

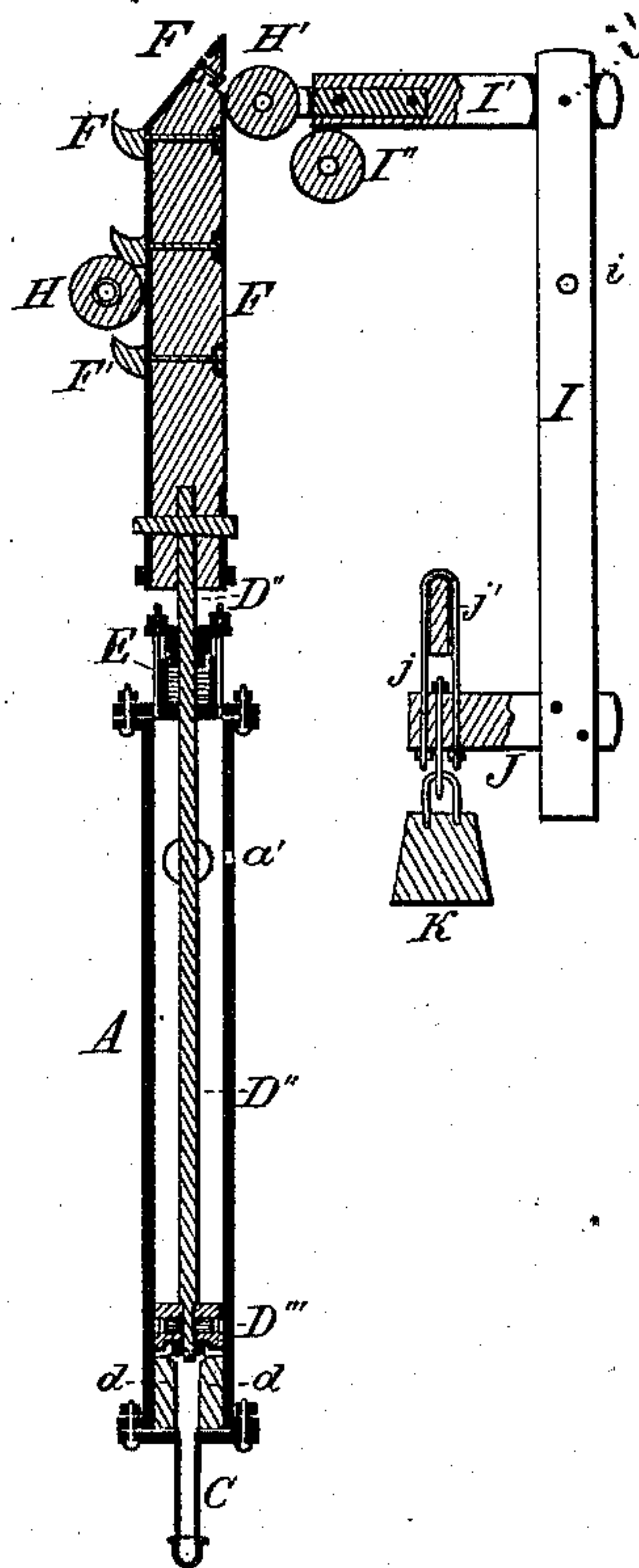
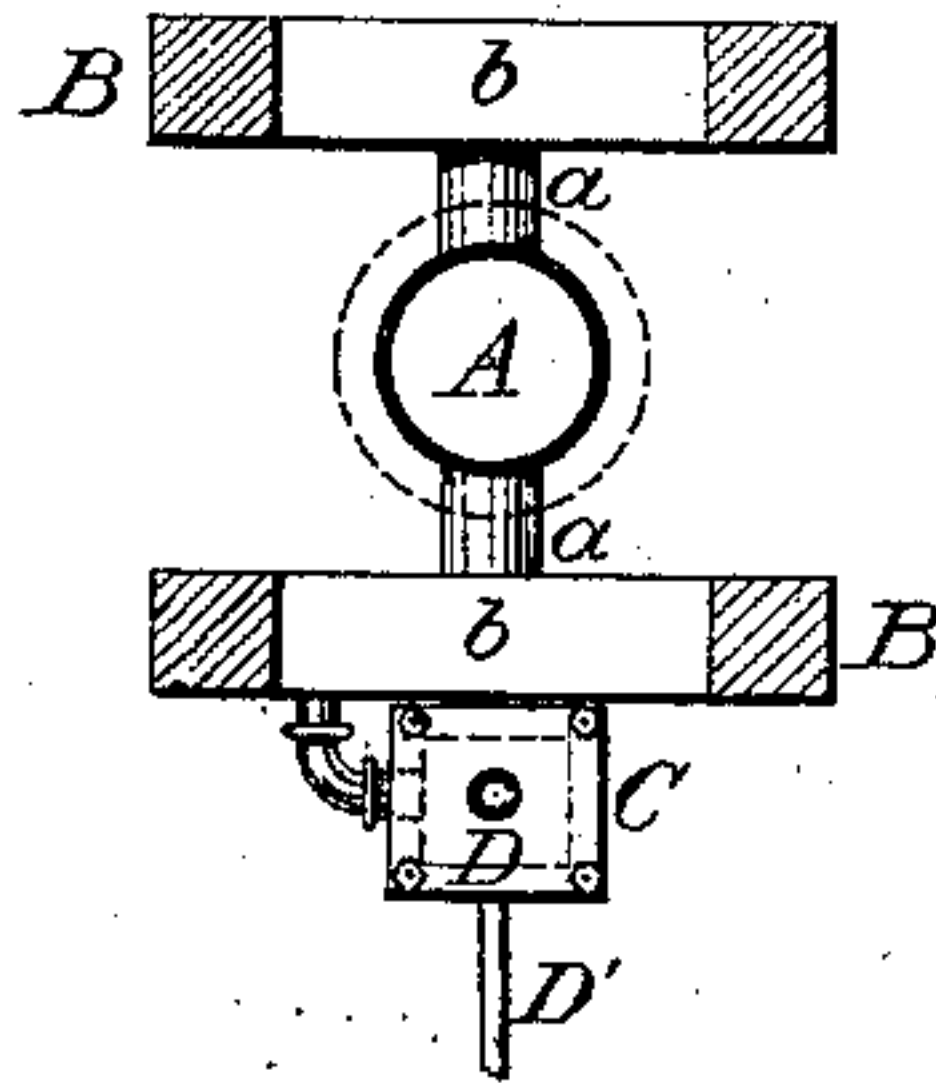


Fig. 3.



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JOHN ORM, OF PADUCAH, KENTUCKY.

IMPROVEMENT IN LOG-TURNERS FOR SAW-MILLS.

Specification forming part of Letters Patent No. **163,398**, dated May 18, 1875; application filed April 19, 1875.

To all whom it may concern:

Be it known that I, JOHN ORM, of Paducah, in the county of McCracken, in the State of Kentucky, have made certain Improvements in Log-Turners for Saw-Mills, of which the following is a specification:

The object of this invention is to apply steam-power to the spike-bar, and in its upward reciprocation the projecting spikes will engage the log on the saw side, and cause it to turn on its head-blocks; and it consists in the construction and arrangement of devices whereby the log is successfully turned by the application of steam-power, as will be hereinafter fully described.

In the drawings, Figure 1 represents an upright side view; Fig. 2, a sectional view of some of the parts, and Fig. 3 a horizontal sectional view through *z z* in Fig. 1.

A represents a steam-cylinder, suspended in, or supported by, any proper framing, B, which may be a part of the mill-frame or separate therefrom, and is held or suspended by trunnions *a a*, on opposite sides of the cylinder, that enter into the horizontal girts *b* of framing B, which allows the cylinder to oscillate to accommodate the spike-bar to take hold of logs that may project over the saw-line in the process of turning. Cylinder A is provided with the usual piston-head, piston, and packing-box. C is the steam-supply pipe for steam-cylinder A, and leads from the boiler or other convenient part of the engine that furnishes power for the saw-mill or other machinery, and is furnished with a flexible joint or part, *c*, in order to allow of the oscillation of the cylinder A. D is a valve-chest, in which is located a valve to open and close and admit the steam into cylinder A, or cut the supply off, or to regulate the amount of steam passing into cylinder A. D' is the valve-stem or rod by which the valve is operated in chest D, and to its outward end has such connection or device as will extend upward to be within easy control of the sawyer, so that he can, without moving from his position, by the motion of his foot upon a treadle, or his hand upon a lever, control the flow of steam into cylinder A, shut it off or exhaust it, as may be desired. D'' is the piston-rod, securely attached at its lower end to piston-head D'', and

at its top end to the spike-bar that is used to turn the log. *d* is an annular spring or cushion at the bottom of cylinder A, to neutralize or prevent any shock that might occur when the steam is shut off, and the weight of the spike-bar causes the piston-head to suddenly fall. The steam from pipe C to supply cylinder A passes through the opening in the center of spring or cushion *d*. Cylinder A, on its top end, has the usual stuffing-box E, in which the piston-rod D'' works, and is packed steam-tight. It also has an opening at *a'*, a short distance below the top, for the escape of the steam. As soon as the piston-head passes this opening, and before it reaches the upper head of the cylinder, the steam ceases to act upon the piston-head, and the air in the cylinder above the opening is compressed, and becomes a cushion, and upon which the momentum of the piston-head is taken up. F is the reciprocating spike-bar, securely attached at its lower end to the piston-rod D'', and has on the side toward the saw-line or log on the head-blocks a series of projecting and upwardly-curved spikes or teeth, F', to take into the side of the log in its upward reciprocation. Teeth F' are also curved upwardly on their lower edges, so that they will readily slide off of the log in the downward reciprocation of the spike-bar after the log is turned on the head-blocks. G is the skid or logway, over which the logs are rolled on being placed on the head-blocks *g* of the saw-mill. H is a guide-wheel, revolving on an axle that is permanently attached to the framing of the mill under the floor, and the wheel acts upon the center of the spike-bar F, and between the two rows of teeth or spikes that are near the edges of the bar, leaving a space for the wheel to bear upon that side of the bar between the rows of teeth; or, if a single row of spikes are used, a double wheel will then take the place of the single one, and straddle the row of spikes. I is a pivoted and oscillating bar, nearly upright, and pivoted to the framing of the mill at *i*, and near its top end, and at nearly right angles thereto, extends a horizontal arm, I', toward the spike-bar F, and at the end of said arm is securely attached pressure-wheel H', which revolves on an axle having bearings in metal bars projecting from the end of arm I',

and bears upon the opposite side of the spike-bar. The arm I' is pivoted to bar I at *i'*, so that it will be loose at the joint, and give as the bar I is thrown out of perpendicular position. I'' is a supporting-wheel, revolving on an axle in the framing of the mill under the floor, and upon which the under side of arm I' bears, whether the bar I is perpendicular or on either side of a perpendicular position. J is a short fixed arm, at or nearly at the bottom or pendent end of bar I, and at right angles thereto. *j* is a staple or other device, rising above the arm J, to receive a lever, *j'*, by which, through some connection—such, for instance, as a hand-lever or foot-treadle passing up through the floor to within reach of the sawyer—the bar I can be oscillated by the sawyer at will, or can be held by the weight K, that is suspended to arm J, so that the guide-wheel H' shall cause the spikes in the spike-bar to keep their hold in the log during the upward reciprocation of the spike-bar in the operation of turning the log on the head-blocks.

It will be seen that it is important to have the guide-wheel that bears upon the back side of the spike-bar to be yielding, and that steam-cylinder should oscillate freely from a perpendicular, because, in the upward reciprocation of the spike-bar, the upper spikes first take into the edge of the log that has been straightened on one side by a cut of the saw, and as the log is turned, or the side that the upper spikes first take into is lifted up, the opposite side of the log bearing against the fixed knees *g'* of the head-blocks, the log L will project back of the saw-line, and cause the spike-bar to go from a perpendicular position, necessitating a corresponding departure of the steam-cylinder from a perpendicular position, as well as the bar I, and with it

the guide-wheel H', that bears upon the back side of the spike-bar, as the succeeding spikes take into the log, and turn the log still farther, as desired.

After the log has been turned on the head-blocks and the spike-bar is falling down, so that the piston-head rests upon spring *d*, the sawyer can, through the lever *j'*, move the guide-wheel H' back, so that the spikes F' will clear the log, and prevent any sudden or violent shock by reason of the under and curved side of the spikes striking against the side of the log, as both the guide-wheel and flow of steam into the cylinder are under the control of the sawyer.

Having thus described my invention, what I claim is—

1. In a log-turning device, the spike-bar F, having spikes F', in combination with the piston-rod D'' and piston-head D''' of a steam-cylinder, A, constructed and operating substantially as and for the purposes described.

2. The oscillating steam-cylinder A, having trunnions *a*, and provided with piston-head D''', piston-rod D'', and opening *a'*, in combination with the spike-bar F, reciprocating in directions differing from a perpendicular line, to suit the different sizes of logs to be acted upon, substantially as and for the purposes described.

3. The swinging or oscillating bar I, arm I', having guide-wheel H' attached thereto, and bearing upon the supporting-wheel I'', and arm J, supporting weight K, in combination with the reciprocating and oscillating spike-bar F, substantially as shown and described.

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Witnesses:

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S. H. LANGSTAFT.