

UNITED STATES PATENT OFFICE.

JOHN TORRENT, OF MUSKEGON, MICHIGAN.

STEAM LOG-TURNER.

SPECIFICATION forming part of Letters Patent No. 379,086, dated March 6, 1888.

Application filed April 13, 1885. Serial No. 162,095. (No model.)

To all whom it may concern:

Be it known that I, JOHN TORRENT, a citizen of the United States, residing at Muskegon, in the county of Muskegon, State of Michigan, have invented a new and useful Improvement in that class of saw-mill machinery known as "Steam Log-Turners," of which the following is a specification.

My invention relates to certain improvements in toothed-bar log turners or rollers operated by the direct application of steam; and it consists in the peculiar manner of applying the steam-power to the toothed bar and in the combination of the various parts.

In the drawings similar letters refer to similar parts.

Figure 1 is an isometrical drawing of the machine, showing the relations and operation of the various parts, and a log deck and carriage of a saw-mill, which are shown in Fig. 2, and in the construction and operation of which there is nothing new. Fig. 2 shows the bar grasping a log preparatory to throwing the same on the carriage, while the dotted line shows the same bar in position to turn the log on its axis against the knees of the carriage.

In Fig. 1, *d* represents a portion of the floor of the basement of a saw-mill; *G*, an upright post erected thereon, suitably slotted at *a*, its upper end.

A is a fixed steam-cylinder rigidly attached to the floor and the upright *G*. *B* represents a piston working therein, carrying a piston-rod, *R*, having a *Y* at its upper end. This cylinder may be either single-acting or double-acting, as described.

I is a toothed bar having teeth *P P P P* at its upper end on its forward side, and is extended below to enable it to reach a rubber block or elastic cushion, *K*, attached to the floor of the mill. When the bar and its connections descend, the elastic cushion *K*, in connection with the steam-cushion formed within the cylinder, prevent any dangerous shocks. Near the middle of the bar and on the opposite side from the teeth is attached an arm, *S*, of sufficient length to reach through the slot *a*, formed in the post *G*, wherein it plays in its upward and downward movements, being prevented from entering too far in the slot by a curved bearing rigidly attached on either

side of the arm, as shown in the drawings. To this arm *S* is movably pivoted the piston-rod *R*.

Y is a portion of the under deck or framing of the mill, (to which is attached the post *G*,) and which being horizontally slotted, permits the passage of the toothed bar *I*, and also affords a guide to the movement of its upper end. Near the lower end of the bar *I*, and on the side opposite the teeth, is formed on it a projection, *L*, preferably carrying a friction-wheel at its outer end. Pivotaly attached to the cylinder *A* is a triangularly-movable gate, *C*, carrying at its upper end, immovably fixed thereon at a suitable angle, an arm or yoke, *T T*. To one end of this yoke is attached a rope or chain passing over a pulley fixed on the post *G* and carrying a weight, *H*. On the opposite end of the yoke at *T* is also attached a rope or chain, *W W*, which, passing around another pulley on the post *G*, is conducted up through the log-deck above to within reach of an operator's hand at *W*, the construction being such that when the rope *W W* is suitably drawn the gate *C* is partially rotated upon its pivot and brought into the position *C'*, as shown by the dotted lines in Fig. 1, so that the projection *L* shall, when the bar *I* is raised, engage with the gate *C*, and when *W W* is released the weight *H* will automatically cause the gate *C* to rotate out of the way of the projection *L*.

In Fig. 2 a plan view of the same parts is shown, with the piston *B* and inlet and outlet *D F* omitted, while a log-carriage and its mechanism and a log-deck with a log thereon are added, the toothed bar *I* being shown in position grasping a log preparatory to throwing the same upon the carriage, while the dotted lines show the bar preparatory to rolling the log in that position.

J represents the log-deck of an ordinary saw-mill. *Z'* represents a log thereon.

J' is a log-carriage, about which there is nothing new. *C'* represents the knees thereon.

I am aware that toothed bars for rolling logs in saw-mills have been operated by steam; but heretofore all of such devices have employed oscillating cylinders, which have been objectionable by reason of the difficulties always incident to their employment, and which are

well known, and, so far as I am aware, the device above described is the first to employ a fixed cylinder for this purpose, with its advantages of rigidity; and while I do not claim, broadly, the employment of oscillating cylinders, I do claim to be the first to use steam-cylinders in this mechanism.

The operation of my device is as follows: A log, Z, being in position on the log-deck, as shown in Fig. 2, the toothed bar I at rest on the cushion K, and the piston B at or near the bottom of the cylinder A, as shown in Figs. 1 and 4, the gate C is first swung into position, as shown in Fig. 1, C', by means of its connecting-rope W. The operator then admits steam into the cylinder through the inlet-pipes D and E. The piston B, through the connections, raises the arm S of the toothed bar. As the arm S is held in the slot or guide *a* in the post G, the bar will necessarily be pivoted upon the piston-rod and its upper end will be tilted backward, as shown indirectly in the dotted lines in Fig. 1 and directly in Fig. 2, thereby permitting the upper end of said bar to engage with the log, which, as the piston continues to rise, will be thrown on the carriage, as represented by Z' in Fig. 2. On disengaging the rope W, the gate C, by virtue of its attachment to the weight H, will be rotated out of the way, and the steam being allowed to escape through the pipe D the piston and its connected mechanism descend.

If the weight of the tooth-bar and piston with their connections does not cause them to descend with sufficient rapidity, the cylinder may be double-acting.

When it is desired to rotate the log Z on its axis against the knees of the carriage, the use of the gate C is dispensed with, all the other operations being the same. Steam being admitted below the piston, the bar I is raised perpendicularly. The teeth P P P being compelled to engage the log by means of the angularity of the application of the power, it is rotated to any desired extent. On the descent of the bar I it is free to move backward, thus preventing the teeth from rotating the log or tearing it.

Having thus described my invention, what I claim as new is—

1. In a log-turner, the combination, with a suitable frame, of the steam-cylinder supported upon the frame-base, a piston and piston-rod working therein, and a vertical toothed bar, I, operated by the piston and connected thereto by means of a rod, S, said rod being fixed at one end to the bar I and pivoted to the piston, and a rear extension on said rod projecting into a slot in the rear post, G, of the frame, whereby it is guided vertically, substantially as described.

2. In a log-turner, the combination of the steam-cylinder carrying a piston and piston-rod, a movable cam-faced gate, C, and a toothed bar connected to the piston-rod of said cylinder and fitted to engage with said gate, which is pivoted to the cylinder or a post directly in rear of the said toothed bar, substantially as described.

3. In a log-turner, the combination, with a suitable frame, of a steam-cylinder mounted on said frame, a piston and piston-rod working therein, a vertical toothed bar in front of said frame operated by the piston and connected thereto by means of a rod, S, which is connected to the bar I at one end and pivoted to the piston at the other end, and a cam-faced gate, C, pivoted to the cylinder or a post directly in rear of said bar I, with which it is adapted to engage, and the ropes W W, substantially as described.

4. In a log-turner, the combination, with a suitable frame, and a toothed bar guided therein, of the fixed cylinder having a piston and piston-rod, said toothed bar being pivoted to said piston-rod and adapted to be moved thereby, substantially as described.

5. A steam log-turner with a fixed cylinder, a toothed bar having two projections, to one of which the power is applied and the end of which moves in suitable guides, the other arm engaging with a movable cam-faced gate, said movable cam-faced gate pivoted in rear of said toothed bar, all constructed and operating substantially as described.

JOHN TORRENT.

Witnesses:

HERMAN O. LANGE,
W. S. HOFSTRA.