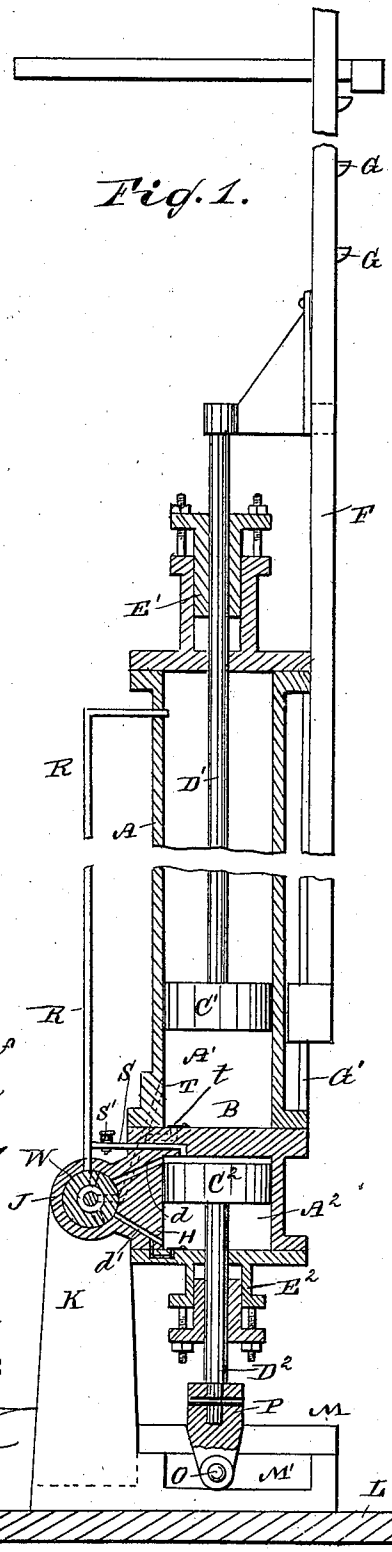
(No Model.)

J. EVERED.

LOG TURNER.

No. 326,280. Patented Sept. 15, 1885.



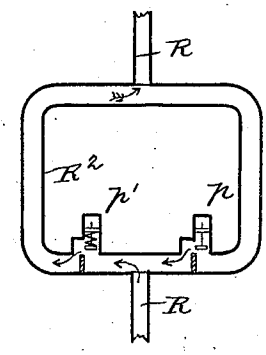
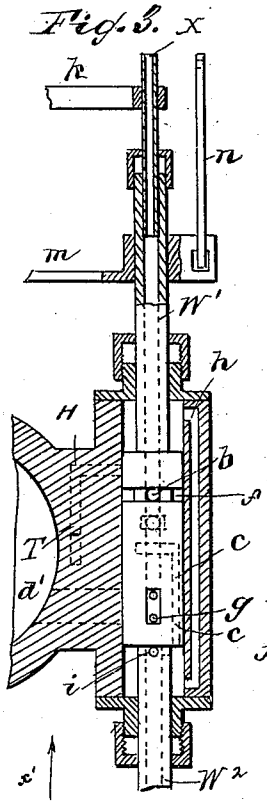
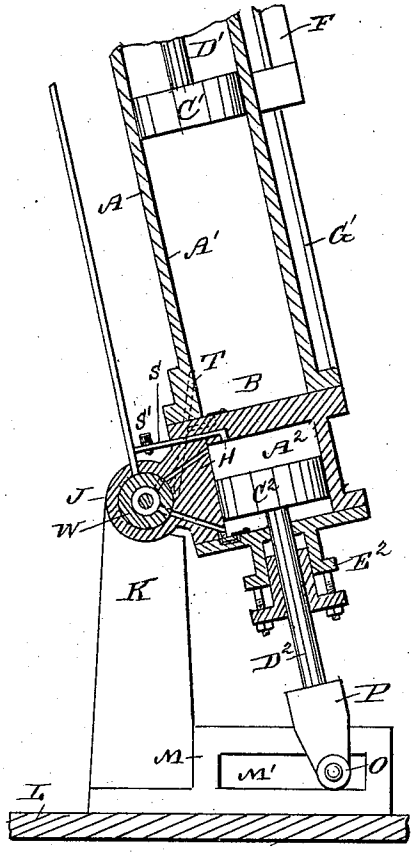


Fig. 2.





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JOSHUA EVERED, OF DULUTH, MINNESOTA.

LOG-TURNER.

SPECIFICATION forming part of Letters Patent No. 326,280, dated September 15, 1885.

Application filed June 9, 1885. (No model.)

To all whom it may concern:

Be it known that I, JOSHUA EVERED, of Duluth, St. Louis county, Minnesota, have invented a new and Improved Log-Roller, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved steam-actuated machine for rolling logs.

The invention consists in the combination, with a pivoted cylinder divided into two compartments, of a piston in each compartment, a valve in the journal, and a toothed log-rolling bar connected with the upper piston.

The invention also consists in parts and details and combinations of the same, as will be fully set forth hereinafter.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a longitudinal sectional elevation of my improved log-roller. Fig. 2 is a longitudinal sectional view of the lower part of the same in a different position. Fig. 3 is an enlarged sectional plan view showing the construction of the valve, and Fig. 4 is a detail view of a part of the steam-pipe connected with the upper compartment.

The steam-cylinder A is divided by the partition B, near its lower end, into two compartments, A′ and A^2, containing the pistons C′ C^2, provided with the piston-rods D′ D^2, projecting through the stuffing-boxes E′ E^2 on the top and bottom of the cylinder A, respectively. The outer end of the piston-rod D′ is connected with the sliding bar F, having prongs or studs G, and having one end guided by a track, G′, on the cylinder. The cylinder A is provided near its bottom with a lateral projection, H, on the end of which a hollow cylindrical trunnion is formed, the chamber of which is the valve-chamber J, and contains the cylindrical valve W, which is mounted in the chamber J in such a manner that the trunnion can turn on said valve, the valve thus forming a pivot for the cylinder A. The valve is also arranged to slide in the chamber J. The ends of the valve are mounted in standards on a base, L, on which base a longitudinally-slotted piece, M, is secured into the slot M′, in which the roller O passes, which roller is pivoted in the lower end of a head, P, on the lower end of the piston-rod D^2.

Stuffing-boxes on the ends of the chamber J contain packing surrounding the ends W′ W^2 of the valve W, said ends W′ W^2 having less diameter than the middle portion of the valve.

b is the steam-port in the valve—that is, the port through which the steam passes out of the valve—the said steam being conducted into the valve through a pipe, X, passing into the end of the valve, the pipe X being surrounded by a packing secured in the stuffing-box on the end of the valve for the purpose of preventing leakage, as the valve is to slide on the tube X.

The channel T (shown in dotted lines in Fig. 3) leads from the chamber J into the lower part of the chamber A′ of the cylinder.

The tube R extends from the chamber J to the upper chamber, A′, in the cylinder. *c* (shown in dotted lines in Fig. 3) is an exhaust-port in the valve W, which exhaust-port is to register with the tube R.

g are the feed-ports in the valve W for the lower chamber, A^2, of the cylinder; and *d* and *d′* are the passages leading from the valve-chamber J to the top and bottom, respectively, of the bottom compartment, A^2, of the cylinder A, and the ports *d* and *d′* are to register with the port *g* in the valve.

f is an annular groove to register with the tube R for the upper chamber of the cylinder.

i is the exhaust-port in the valve W, and conducts the steam into the tubular end W^2 of the valve.

h is an exhaust-passage connecting the two ends of chamber J.

k is a brace for holding the tube X.

m is a crank for rocking the valve.

n is a connecting-rod for sliding the valve.

p p′ are valves in the bend R^2 of the pipe R. The steam feeds through one of said valves and exhausts through the other.

S′ is a check-valve in the pipe S, connected with the pipe R, which pipe S leads to the top of its bottom compartment, A^2, of the cylinder.

t is a cushion-valve in the bottom of the compartment A′, and is connected by cushion-ports with the main port T.

The operation is as follows: As shown in

Fig. 3, the valve W is so located in its chamber J that the ports *g* in the said valve can register with the channels *d* and *d'*, leading to the lower compartment, A^2, of the cylinder, so that by rocking the valve in one direction or the other the steam will be conducted into the upper channel, *d*, or the lower channel, *d'*, and only the piston C^2 in the lower compartment, A^2, will be acted upon. By then shifting the valve W in its chamber J in the direction of the arrow *x'* the port *b* in the valve registers with the end of the channel T, leading into the upper compartment, A', and at the same time the end of the pipe R is registered with the exhaust-channel *c* in the valve. If the valve is again rocked, the steam will only be admitted into the upper or lower part of the upper chamber, A', in the cylinder, and not in the lower chamber, and thus the piston in the upper chamber only is moved. By admitting steam on the top of the lower piston, C^2, in the lower compartment, A^2, the said piston is forced out and the log-roller is inclined more or less, as may be desired. Then the valve is shifted in the direction of its length, and steam is admitted into the lower part of the upper compartment, A', for the purpose of forcing the upper piston, C', upward, whereby the toothed bar F is moved up behind the log—that is, steam is admitted into the upper or lower part of the lower compartment, A^2, and the cylinder A swung forward or back into its required position, and the steam is then admitted into the upper compartment to move the toothed bar up or down, as may be desired. By means of one valve I am thus enabled to control the movements of the bar F and the inclination of the cylinder, and can move the bar up and down with the cylinder vertical or at the desired inclination. When the steam passes up through the pipe R, it raises the valve *p'*, as indicated by the arrows, and when it passes down through the pipe R it raises the valve *p*.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with a steam-cylinder divided into two compartments, of a piston in each compartment, a hollow projection on the cylinder, forming a valve-chamber, a valve in said chamber operating with both cylinders, standards on which the valve in the cylinder is mounted, which valve forms a pivot on which the cylinder can rock, and a log-rolling bar connected with one piston-rod, substantially as herein shown and described.

2. The combination, with a steam-cylinder divided into two compartments, of a piston in each compartment, a hollow projection on the cylinder, forming a valve-chamber, a valve in said chamber, which valve is mounted to rock and move lengthwise on its longitudinal axis and operating with both cylinders, and a log-rolling bar connected with one piston-rod, substantially as herein shown and described.

3. The combination, with a steam-cylinder divided into two compartments, of a piston in each compartment, a hollow projection on the cylinder, forming a valve-chamber, a valve mounted on standards to rock and reciprocate on its longitudinal axis, which valve is in the above-mentioned chamber and forms a pivot for the cylinder, the said valve being provided with two sets of ports, one set for conducting the steam into the upper part of the cylinder and the other for conducting the steam into the lower compartment, and a log rolling beam connected with one of the pistons, substantially as herein shown and described.

4. The combination, with a pivoted steam-cylinder divided into two compartments, of a piston in each compartment and a log-rolling bar connected with one of the pistons, the other piston serving to adjust the angle of the cylinder and rolling-bar, and suitable valves and ports for said compartments, substantially as herein shown and described.

5. The combination, with a steam-cylinder divided into two compartments by a partition, of a piston in each compartment, the piston-rods of which pistons project from the opposite ends of the cylinder, and a log-rolling bar connected with one of the piston-rods, and a grooved or slotted bearing-plate in which the outer end of the other piston is guided, and suitable valves and ports for said chambers, substantially as herein shown and described.

6. The combination, with the pivoted cylinder A, divided into the compartments A' and A^2 by the transverse partition B, of the pistons C' C^2, the piston-rods D' D^2, the toothed bar F, connected with the piston-rod D', and the guide M, in which a roller works pivoted on the lower end of piston-rod D^2, whereby the position of the cylinder is governed, substantially as herein shown and described.

7. The combination, with the base L and the standard K, of the cylinder A, mounted to swing on the standard and divided into two compartments, the piston-rods D' D^2, the pistons C' C^2 in said compartments, the log-rolling rod F, operated by the piston C', the head P on the outer end of piston D^2, the roller O on said head and bearing on the base, and suitable valves and ports for the cylinder, substantially as set forth.

8. In a log-roller, the combination, with a cylinder pivoted to swing in the vertical plane, of a log-actuating bar connected with a piston-rod projecting from the top of the cylinder and a piston-rod for swinging the cylinder projecting from the lower end of the same, substantially as herein shown and described.

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Witnesses:
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