

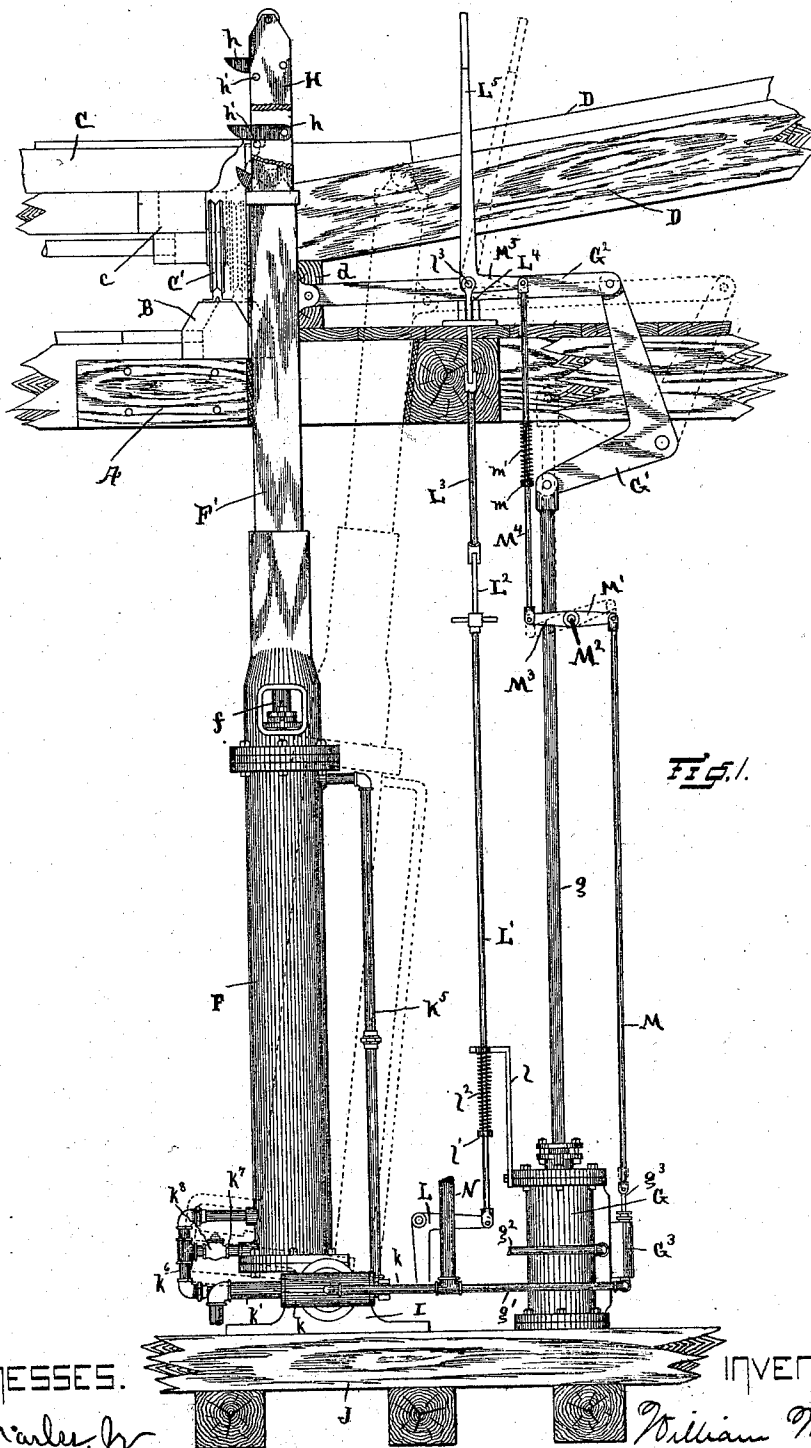
(No Model.)

3 Sheets—Sheet 1.

W. M. WILKIN.
LOG TURNER FOR SAWMILLS.

No. 559,429.

Patented May 5, 1896.



WITNESSES.

Wm. M. Wilkin, Jr.
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INVENTOR.

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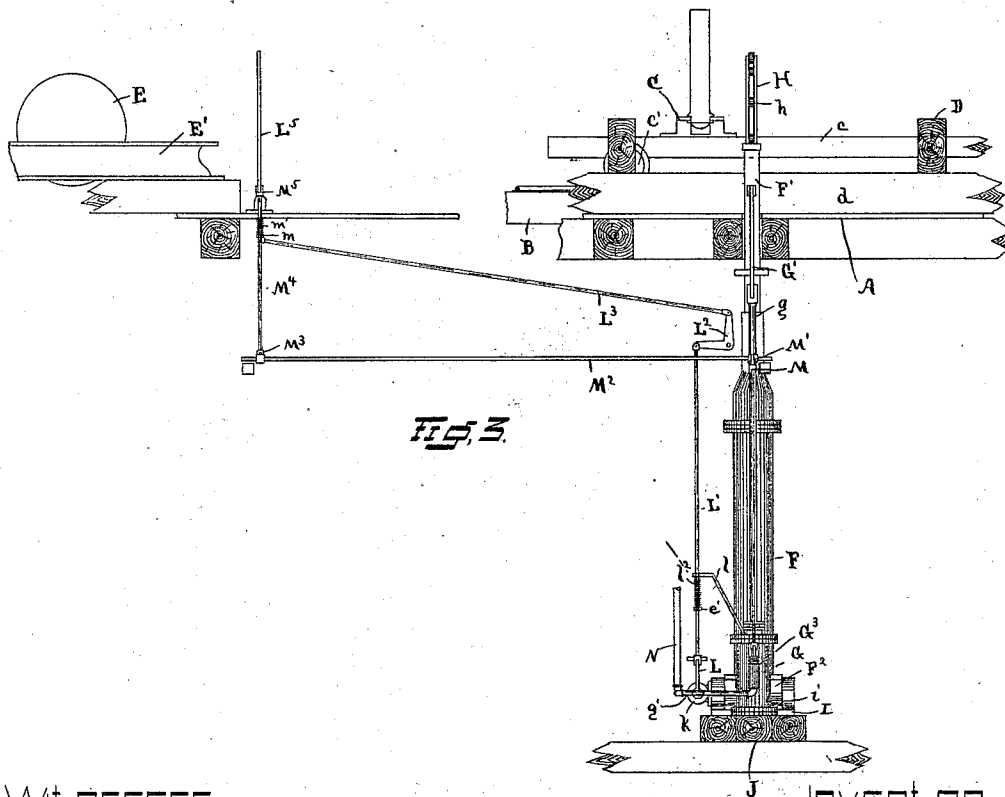
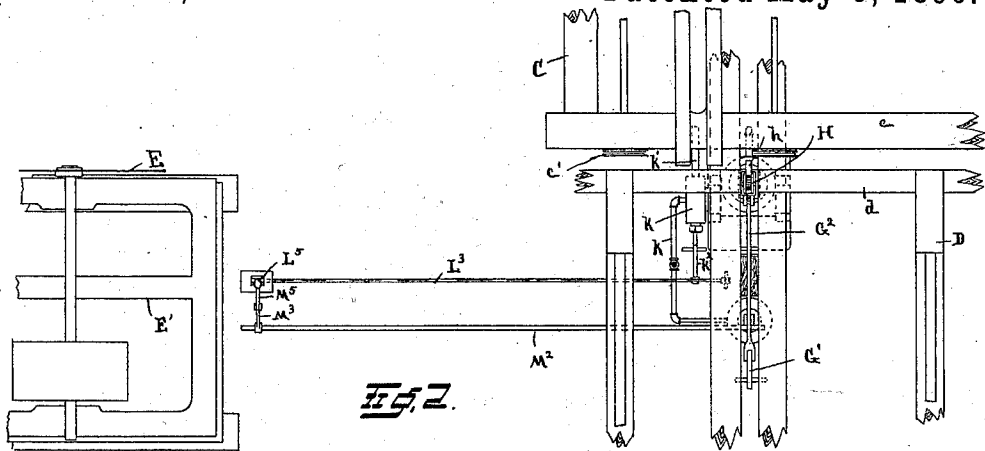
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WITNESSES.

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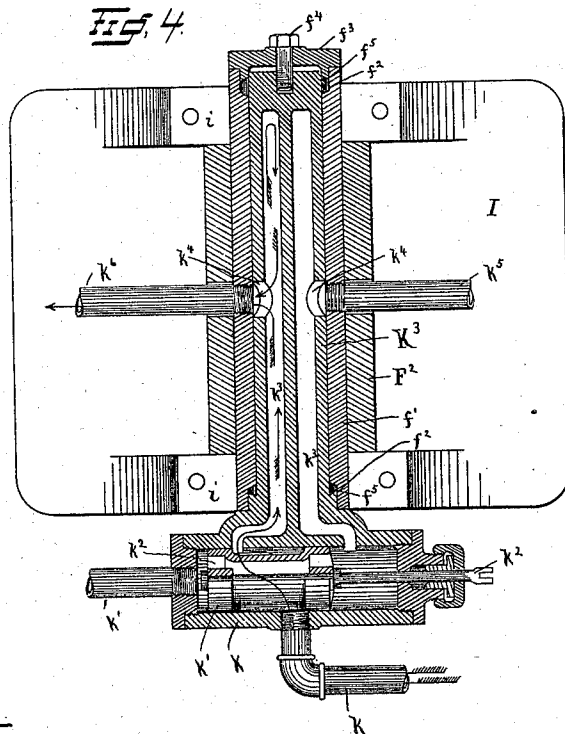
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WITNESSES.

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UNITED STATES PATENT OFFICE.

WILLIAM M. WILKIN, OF ERIE, PENNSYLVANIA.

LOG-TURNER FOR SAWMILLS.

SPECIFICATION forming part of Letters Patent No. 559,429, dated May 5, 1896.

Application filed April 25, 1895. Serial No. 547,085. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. WILKIN, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Log-Turners for Sawmills; 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.

This invention relates to log-turners for sawmills; and it consists in certain improvements in the construction thereof, as will be hereinafter fully described, and pointed out in the claims.

The invention is illustrated in the accompanying drawings as follows:

Figure 1 shows an end elevation of the log-rolling mechanism with fragments of the carriage and skid way to show the relative position of parts. Fig. 2 shows a plan of said parts with a diagram of the saw-arbor added. Fig. 3 shows a side elevation of said parts. Fig. 4 is an enlarged view of the valve mechanism.

A marks the mill floor and supports; B, the carriage-way; C, the carriage with frame side *c* and wheels *c'*; D, the skidway-timbers leading to the carriage, and E and E' the saw and saw-arbor.

The log-turning mechanism forming the subject-matter of my invention is operated by steam from a main cylinder F and an auxiliary cylinder G, the main cylinder actuating the log-turning mechanism vertically and the auxiliary cylinder horizontally. A sleeve F' is rigidly attached to the main cylinder and extends upwardly therefrom. The tooth-bar H is carried by this sleeve, and is connected with the piston (not shown) by the piston-rod *f*, and is consequently reciprocated with the piston. The tooth-bar is provided with pivoted teeth *h*, which when out of the sleeve rest on pins *h'*, which hold them horizontally or at an inclination, as desired. The top of the sleeve is flush with the top of the carriage side, so that as the tooth-bar is lowered the teeth contact the top of the sleeve and are folded or pulled back on their pivots, allowing the bar to descend into the sleeve. As the tooth-bar is elevated to roll a log, the

teeth, as they reach the top of the sleeve, fall by gravity to the stop-pins *h'*.

In the drawings the full lines show the relative positions of the carriage side and parts relative to the working position of the tooth-bar as they are placed with the ordinary tooth-bar. The dotted lines show the positions made possible by the pivot-teeth and sleeve.

The sleeve allows the tooth-bar to be pushed in against the carriage side, and the teeth, as they reach the top of the sleeve, drop out over the carriage side under the log.

Where the ordinary tooth-bar is used, the teeth often do not extend in sufficiently far to get sufficient hold of the log to turn it, and the result in this case is that the teeth act like a saw and cut the log transversely, so that a considerable portion of the log is often made unfit for boards.

With my device the teeth may be of such length and so positioned as to readily and surely engage the log so as to turn it.

The cylinder F is pivoted off the center at the side opposite the sawmill-carriage, so that its weight tends to hold it in position to operate. It is pivoted on a base I (see Fig. 4) in boxes *i*.

The pivot-joint and steam connections are as follows: The bottom head of the cylinder has a transversely-bored projection F². A piece of piping *f'*, preferably steel, is driven into the bore of this projection, the ends protruding sufficiently to extend through the boxes *i*, this forming the oscillation bearing for the cylinder. The steam-chest K is placed at the end of the bearing-pipe *f'*. A plug-valve K' takes steam from the centrally-located steam-pipe *k* and conducts it to the ports *k*³, as indicated by the arrows. One end chest is directly connected with the exhaust *k'*, and a port *k*² through the center of the valve connects the other end and port *k*³ with the exhaust. An extension K³ is preferably cast integrally with the steam-chest and carries the ports *k*³ into the bearing-pipe *f'*. The pipes *k*⁵ and *k*⁶ carry the steam to the top and bottom of the cylinder, respectively. They are passed through the projection F² and screwed into the pipe-bearing *f'*. Openings *k*⁴ complete the communication between the cylinder and steam-chest. These

openings are slightly elongated, so that the communication may be constant during the oscillation of the cylinder. The ends of the bearing-pipes f' have a slightly greater inside diameter, forming packing-glands f^2 , in which are placed packing-strips f^5 . The chest end of the extension K^3 is of such diameter as to fit the larger diameter of the gland. The opposite end of the extension has a head f^3 , secured by a bolt f^4 , which acts upon the packing f^5 to secure a tight joint. It will readily be seen that by manipulating the bolt f^4 both ends of the extension may be adjusted to their seats against the packing f^5 . The lower pipe k^6 enters the cylinder at a point somewhat above the bottom and a pipe k^7 connects it with the bottom of the cylinder. A check-valve k^8 allows the in-passage of steam, but prevents an exhaust by this pipe k^7 . The object of this construction is to form a steam-cushion for the reciprocating parts when the steam is exhausted from the bottom of the cylinder. The valve has a valve-pin K^2 , and this is actuated through a series of intermediate levers and links by an end movement of a hand-lever L^5 . The links and levers are as follows: bell-crank L , connected with the valve-pin; link L' ; bell-crank L^2 ; link L^3 , and extension L^4 on the hand-lever. The extension L^4 is pivoted to the hand-lever at l^3 , so that the hand-lever may have side movement as well as end movement. It moves, however, with the hand-lever when the hand-lever is moved endwise. It will readily be seen that this system will communicate the movement of the hand-lever to the valve.

The purpose of the auxiliary cylinder, as before stated, is to operate the horizontal actuating mechanism. The cylinder G is rigidly secured to the bed-timbers J . The piston-rod g is connected with the bell-crank G' , which in turn is connected by means of the link G^2 with the sleeve F' . By following the mechanism it will be seen that a downward movement of the piston (not shown) actuates the parts so as to push the tooth-bar forward.

When the parts are so connected, it is necessary while not operating the device to keep steam in the under side of the cylinder to hold the tooth-bar normally back out of the position, as shown in dotted lines; but this disadvantage is compensated by the quickness with which the parts may be put into action, the gravity of the piston and connected parts assisting materially in overcoming the inertia and in having this weight of the piston and parts added to the force of the steam in pushing the bar to its work.

The cylinder G is provided with a steam-chest G^3 , in which any suitable valve is placed and which is connected with the common steam-pipe N by a pipe g' . The exhaust-pipe is indicated as g^2 and the valve-stem g^3 .

The following links and levers communicate the movement of the hand-lever to the valve: The link M connects the valve-stem with the rock-arm M' , the rock-shaft M^2 communi-

cates the movement of the rock-arm M' to the rock-arm M^3 , and the link M^4 connects the arm M^3 with the lever M^5 , which is simply an arm extending from the hand-lever. From this it will be seen that both valves are controlled by the different movements of the same lever.

It is desirable that the parts be returned to and kept normally at the position shown in the dotted lines. To accomplish this result, I provide springs which carry the valves to such a position as to have the desired effect.

In the device shown an arm l is fixed to some stationary part and the spring l^2 attached thereto. The spring is preferably coiled around a link of the actuating system and attached to the link, as with a collar l' . This spring is so tensioned as to bring the valve to neutral, so that the ports will return to normal by gravity, or it may be so tensioned as to throw the valve to admit steam at the top of the cylinder if a more positive movement is desired. A similar spring m is connected with the link M^4 by means of a collar m' and is so tensioned as to throw the valve of the auxiliary cylinder as to admit steam at the bottom of the cylinder, so as to hold the tooth-bar back to the position shown in dotted lines.

What I claim as new is—

1. In a log-turner for sawmills, the combination with the carriage; and the actuating mechanism; of a sleeve immediately adjacent to said carriage; and a tooth-bar adapted to move in and out of said sleeve and having pivoted teeth thereon which are tilted back and sheathed by said sleeve.

2. In a log-turner for sawmills, the combination with the actuating mechanism; of a tooth-bar having pivoted teeth thereon; and means for tilting and sheathing said teeth at points such as the carriage side or mill-floor by which said tooth-bar moves.

3. In a log-turner for sawmills, the combination with the actuating mechanism; of the carriage; a tooth-bar having pivoted teeth normally protruding therefrom; and means of folding or tilting said teeth back upon said bar at and below the top of the carriage side.

4. The combination with the oscillatory main cylinder having a transversely-bored projection thereon and ports leading from said bore; of bearings protruding from said projection concentric with said bore; boxes in which said bearings are journaled; a steam-chest at one end of said bore containing the valve mechanism, and having a port extension extending therefrom into said bore, said port extension containing ports connecting the steam-chest with the ports leading from said bore.

5. The combination with the oscillatory cylinder having a transversely-bored projection as F^2 ; of a bearing-pipe as f' placed within the bore and protruding therefrom; bearings as i in which said pipe is journaled; and the port-communicating mechanism within the pipe.

6. The combination with the oscillatory cylinder having a transversely-bored projection as F^2 ; a pipe within said projection with gland-cavities as f^2 therein; a port extension as K^3 within said pipe with an enlargement at one end to fill the gland-cavity; and a head as f^3 for closing the opposite gland-cavity.

7. In a log-turner for sawmills, the combination with the carriage; and the toothed bar having pivoted teeth; a sleeve carried by the cylinder and immediately adjacent to said carriage a sheath for the toothed bar in which

said teeth are tilted; the oscillating main cylinder; the auxiliary cylinder; and connecting mechanism attached to said sleeve and operated from said auxiliary cylinder for the purposes set forth.

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

WILLIAM M. WILKIN.

Witnesses:

H. A. STRONG,
J. KEESE HALLOCK.