

(No Model.)

2 Sheets—Sheet 1.

W. E. HILL.
LOG LOADER AND TURNER.

No. 570,552.

Patented Nov. 3, 1896.

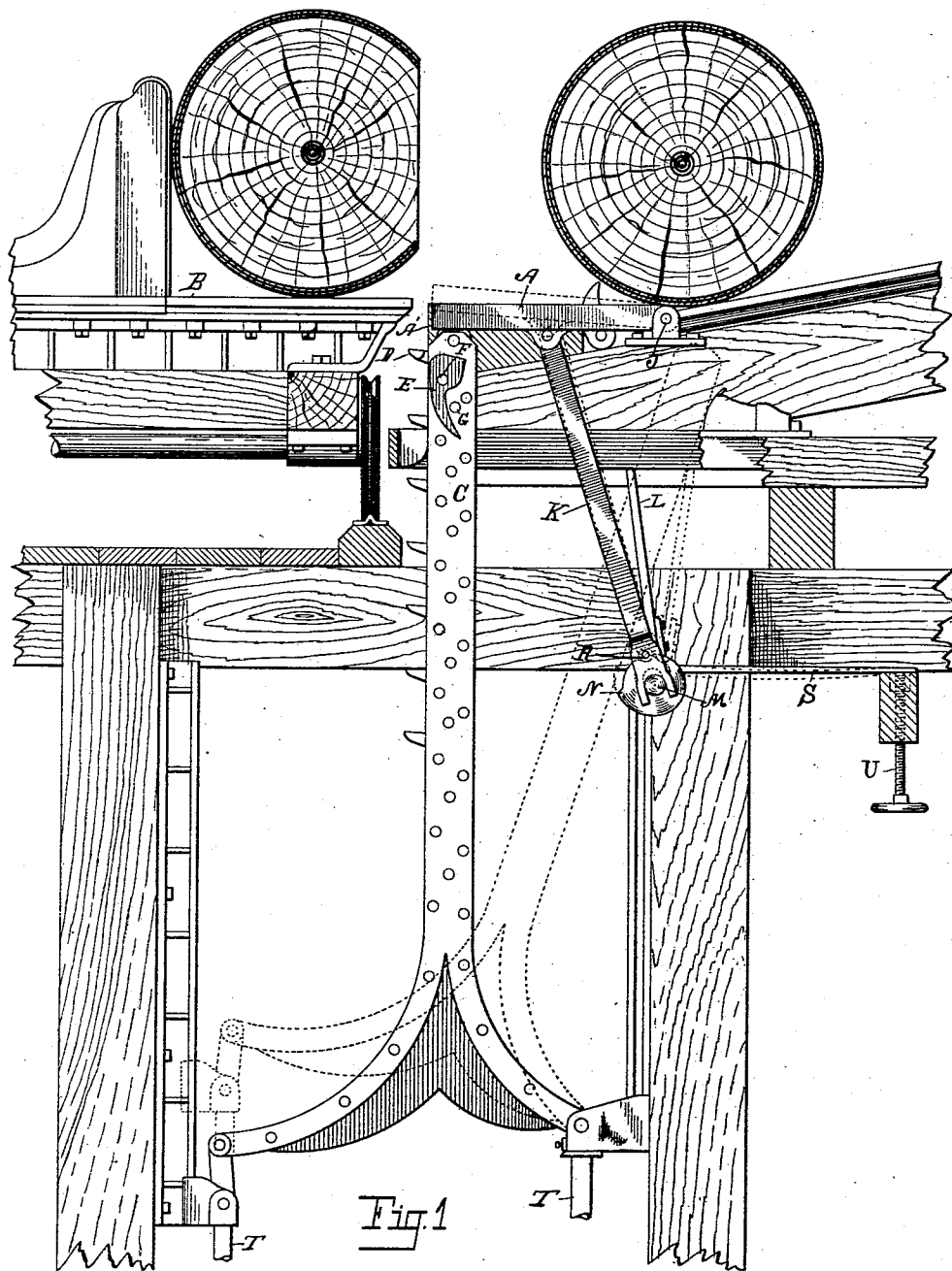


Fig. 1

Witnesses:

Walter S. Wood
Marian J. Longyear.

Inventor,

William E. Hill
By Fred L. Chappell
Att'y.

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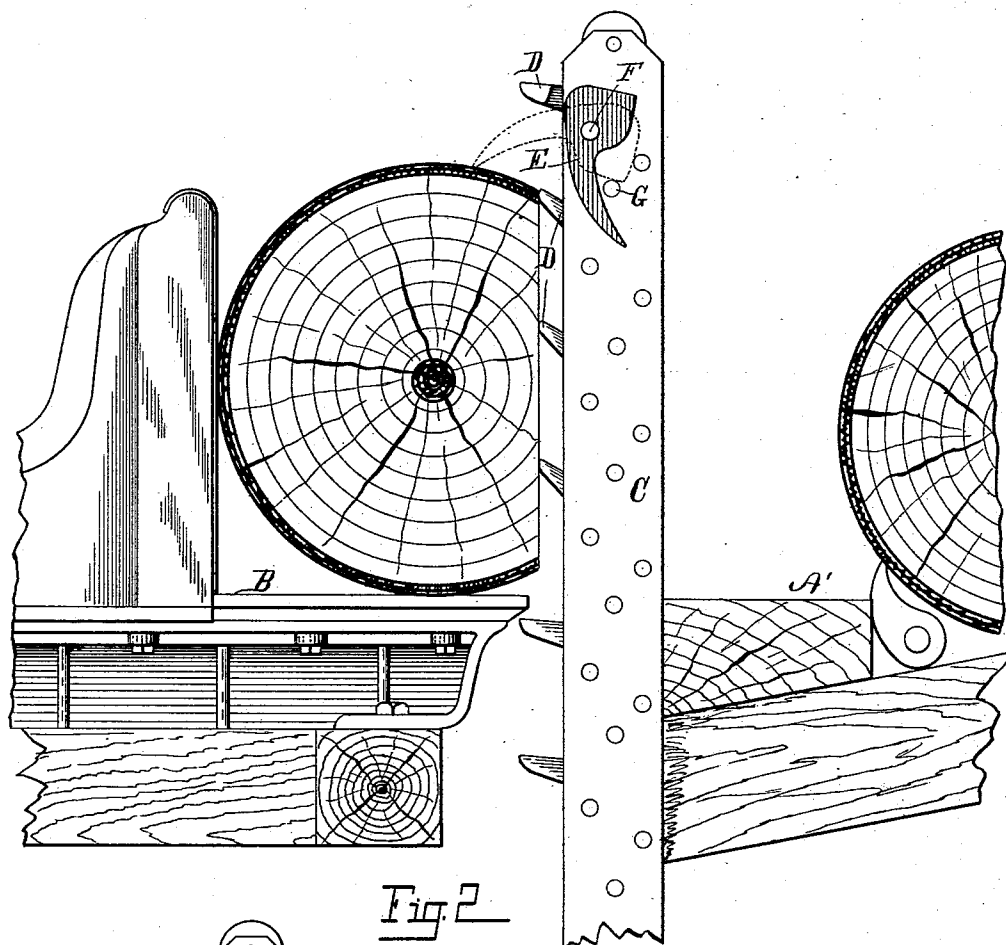


Fig. 2

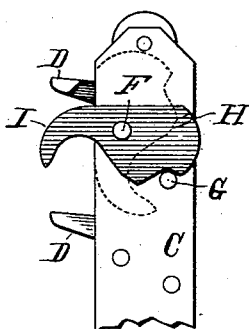


Fig. 4

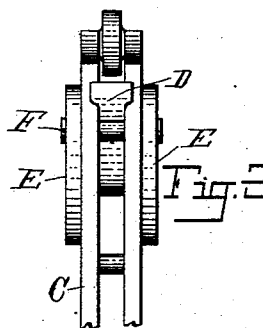


Fig. 3

Witnesses:

Walter S. Wood
Marian J. Longyear

Inventor,

William E. Hill
By *Edw. L. Chappell*
Att'y.

UNITED STATES PATENT OFFICE.

WILLIAM E. HILL, OF KALAMAZOO, MICHIGAN.

LOG LOADER AND TURNER.

SPECIFICATION forming part of Letters Patent No. 570,552, dated November 3, 1896.

Application filed April 19, 1895. Serial No. 546,346. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. HILL, a citizen of the United States, residing at the city of Kalamazoo, in the county of Kalamazoo and State of Michigan, have invented certain new and useful Improvements in Log Loaders and Turners, of which the following is a specification.

My invention relates to improvements in log loaders and turners, and more particularly to the style of log loaders and turners heretofore patented to me in various patents of the United States, and especially to the log-turner described in Patent No. 514,550, issued February 13, 1894.

The objects of my invention are, first, to provide a log loader and turner which will turn a log in either direction, as required; second, to provide an attachment for use upon the style of log loaders and turners above referred to, which makes them perfectly adapted for loading logs or unloading the same to or from the carriage, or turning them in either direction; third, to provide, in connection with a log loader and turner, to be operated in connection therewith, suitable skids for supporting the log above the edge of the sawmill-carriage when loading a log, which, when the log is loaded, will drop down out of the way and permit of a free turning of the log, even though there should be knots or projections on it. I accomplish these objects of my invention by the devices shown in the accompanying drawings, in which—

Figure 1 presents a side view of a tooth-bar of my improved log-loader in place in a sawmill in connection with the automatically-adjustable skids mentioned. Fig. 2 is an enlarged detail view of the upper end of the tooth-bar, showing the manner of engaging the log to turn it down upon the sawmill head-blocks. Fig. 3 is a front elevation of the upper end of the tooth-bar, as shown in Fig. 2. Fig. 4 is a detail view of a modification of the construction there shown.

Similar letters of reference refer to similar parts throughout the several views.

In the drawings the various parts are shown supported on the usual or any appropriate framework.

Referring to the lettered parts of the draw-

ings, B represents the sawmill head-blocks, with the knees thereon, as usually supported on the carriage.

C represents the tooth-bar of a log-turner, which is operated in the manner indicated in my Patent No. 514,550, issued February 13, 1894, the teeth D in this instance being constructed in exactly the manner indicated in that patent. To the upper end of the tooth-bar and to each side of the same are pivoted swinging teeth E, the points of which depend downward, and in the preferred construction hang back to the side of the bar. These are pivoted on the pin F, which is an extension of the stop-pin, against which the top tooth D rests when in action. A pin G is placed in the bar to serve as a stop for the tooth E when it is in action, as indicated by the dotted lines in Fig. 2. In using the tooth-bar as constructed in this manner it may be used directly to turn the log up, as particularly described in my patent above referred to.

When the log is very large and it is desired to turn it down by swinging the tooth-bar C toward the log and checking it or allowing it to swing against the log, the lower end of the tooth E swings out, and by lowering the bar C at that instant the tooth E will engage on the upper side of the log and by continuing the downward pressure it will roll the log down from the top toward the tooth-bar. This is very desirable in handling heavy logs, as by turning them down on the flat side they can be crowded against the knees of the head-block much more easily and conveniently than they can be turned over. This results in a great saving of time and relieves much strain on the head-blocks, knees, and carriage, and by pursuing this course also with the additional tooth E, continuing the pressure downward, the log can be given a roll off from the head-blocks and be retained there by sending the bar up in front of it at any time it may be desired to remove the log from the saw mill-carriage. The construction I have shown in Figs. 1, 2, and 3 of this improved tooth is preferred by me for use where it is intended to saw large logs and small ones, too, at the same mill. With this construction the tooth-bar can be used in the ordinary manner and, when it is desired to handle heavy logs, it requires but a slight motion,

which I mentioned above, to bring the tooth E into use. However, where the timber which it is intended to saw is all very large, (as it frequently is in some of the primeval forests on the Pacific Slope,) the tooth-bar constructed as I have indicated in Fig. 4 will be preferred.

The tooth H differs from my tooth E mainly in the manner in which it is weighted, the tooth H being weighted to throw the point of it out to bring it into use at any and all times to roll a log down, it only being possible to lower the tooth-bar C without rolling the log down by swinging the bar from the log when it is carried down until it is lowered below the top of the log. The construction of the tooth, being similar to the construction of the tooth described in my patent above referred to, it will, (so long as the tooth is running over the smooth-sawed surface of the log,) not engage the same, and the tooth-bar can be moved up or down, so long as the tooth H is in that position, without danger of injuring the lumber or timber.

In the construction of log-turners heretofore considerable difficulty has been experienced from the position of the skids interfering with the proper action of the same. I have therefore supplied for use, in connection with the same, automatically-operated skids which will hold the log up well above the carriage, so that when the log is loaded onto the carriage it will roll down upon the same without striking it a violent blow to one side, (or can be pushed onto the carriage when it is turned down.) As soon as the log is upon the carriage the skids automatically drop out of the way, so that it is possible to roll the log in either direction without the skids interfering. If it were not for this interference, the skids for supporting the log might be placed in a higher position and remain there, but they should be in the elevated position during the process of loading the log and be down out of the way when the log is loaded. I accomplish this result by placing the skids A at intervals along the front of the logway and pivoting them at J. Extending along below the skids is a rock-shaft M. Arms K are pivotally connected to the under side of the skids A and extend downwardly to the rock-shaft M, and engage the same by suitable forked ends. A pin or roller R is situated on the side of the arm K, toward the lower end of the same. On the shaft M, by each arm K, appears a cam N, which acts upon the roller or pin R, at the lower end of the arm K, to operate the skids A. A recess is in the cam, and when it is in the normal position at rest the pin or roller R drops down into the recess and leaves the skids in the lower position. (Indicated by full lines in the drawings in Fig. 1.) An arm L extends up from the rock-shaft M at a proper point to be engaged by the tooth-bar C, when it is swung back, as indicated by the dotted lines, to take hold of a log. This swings the rock-shaft M

backward and raises the arm K out of the recess in the cam, and it rests upon a flattened portion of the cam. The log is rolled upon the same, and the weight on it, increasing the friction prevents the rock-shaft M from returning to the normal position until the log is rolled off onto the carriage, when, the friction being relieved, the cams are easily returned to their normal position, preferably by the spring S, which is suitably attached to the rock-shaft. The proper tension is put upon the spring to the rear by the hand-screw U in this case, though any means for putting torsion on the shaft may be employed instead.

It will be readily understood from an examination of the operation of my improved log-turner that it can be considerably varied without departing from my invention. The exact location of the shaft M is not material so long as it is below the skids and in convenient position to be acted upon by the tooth-bar when it is tipped over to act on the log. It would probably be possible to operate the skids from other moving parts of the machinery, and other means might be provided for supporting them. The downwardly-pointed tooth in a different form could possibly be substituted for the forms of teeth I have shown by properly hinging them to the upper end of the tooth-bar and accomplish the work very well, although the special forms I have shown are particularly well adapted for the purpose and are, I believe, superior to any that can be produced on account of their not injuring the timber, and at the same time being very effective.

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

1. In a log loader and turner, the combination with the tooth-bar and suitable means of manipulating the same as tipping it backward and forward and raising and lowering it; of the skids, A, pivoted toward the front of the log-deck; a shaft, M, below said skids; arms, K, pivotally connected to the under side of said skids and engaging the shaft, M, by a suitable forked end; cams, N, on said shaft, M, by each arm, K; pins, R, to rest in said cams; an adjustable spring, S, for putting torsion on said shaft, M; and a lever, L, secured to said shaft and located to the rear of said tooth-bar to be operated by the same to rock the rock-shaft, M, to elevate the skids to hold the log or timber above the sawmill head-blocks until it is pushed upon the same, all coacting together substantially as described for the purpose specified.

2. In a log loader and turner, the combination with the tooth-bar and suitable means of manipulating the same; of the skids, A, pivoted toward the front of the log-deck; a shaft, M, below said skids; arms, K, pivotally connected to said skids and engaging the shaft, M, by a suitable forked end; cams, N, on said shaft, M, by the arms, K, to actuate said arms; suitable means of holding said shaft yield-

ingly in position; a lever on said shaft to be acted upon by the tooth-bar to raise the skids when the log or timber is being loaded, as specified.

5 3. In a log loader and turner, the combination of the tooth-bar and suitable means of manipulating the same; of skids pivoted to the front of the log-deck and independent of said tooth-bar; suitable means of elevating
10 the skids adapted to be operated by the tooth-bar when it is thrown back to engage a log or timber, for the purpose specified.

15 4. In a log loader and turner, the combination of an upright tooth-bar having upwardly-pointing, pivotal receding teeth; a downwardly-pointing, pivotal receding tooth at the upper end of said tooth-bar; a stop on said bar in position to hold said tooth in the downwardly-pointing position, so that it will
20 engage a log on its downstroke; and means for reciprocating said tooth-bar vertically and swinging it from side to side, as and for the purpose specified.

25 5. In a log loader and turner, the combination of an upright log loader and turner bar; a downwardly-pointing, pivotal receding tooth at the upper part of the same; a suitable stop on said bar positioned to hold said tooth in the downwardly-pointing position;

and means for reciprocating said bar vertically and swinging it from side to side, as specified. 30

6. In a log loader and turner, the combination of an upright tooth-bar; a downwardly-pointing curved pivotal receding tooth at the
35 upper part of the same, weighted to hold the point from the bar; a stop on said bar positioned to engage said tooth and hold it in the downwardly-pointing position; and means for reciprocating said bar vertically and
40 swinging it from side to side, as specified.

7. In a log loader and turner, the combination of a log loader and turner bar, with a cross portion at the bottom; a downwardly-pointing, pivotal receding tooth at the upper
45 part thereof; a stop to hold said tooth in the downwardly-pointing position; and upright steam-engine cylinders, below, the piston-rods of which, are connected by suitable joints to the cross portion of the bar, as specified. 50

In witness whereof I have hereunto set my hand and seal in the presence of two witnesses.

WILLIAM E. HILL. [L. S.]

Witnesses:

WALTER S. WOOD,
MARIAN I. LONGYEAR.