(No Model.) 3 Sheets—Sheet 1.

W. T. SMITH.

LUMBER STACKER.

No. 310,232. Patented Jan. 6, 1885.

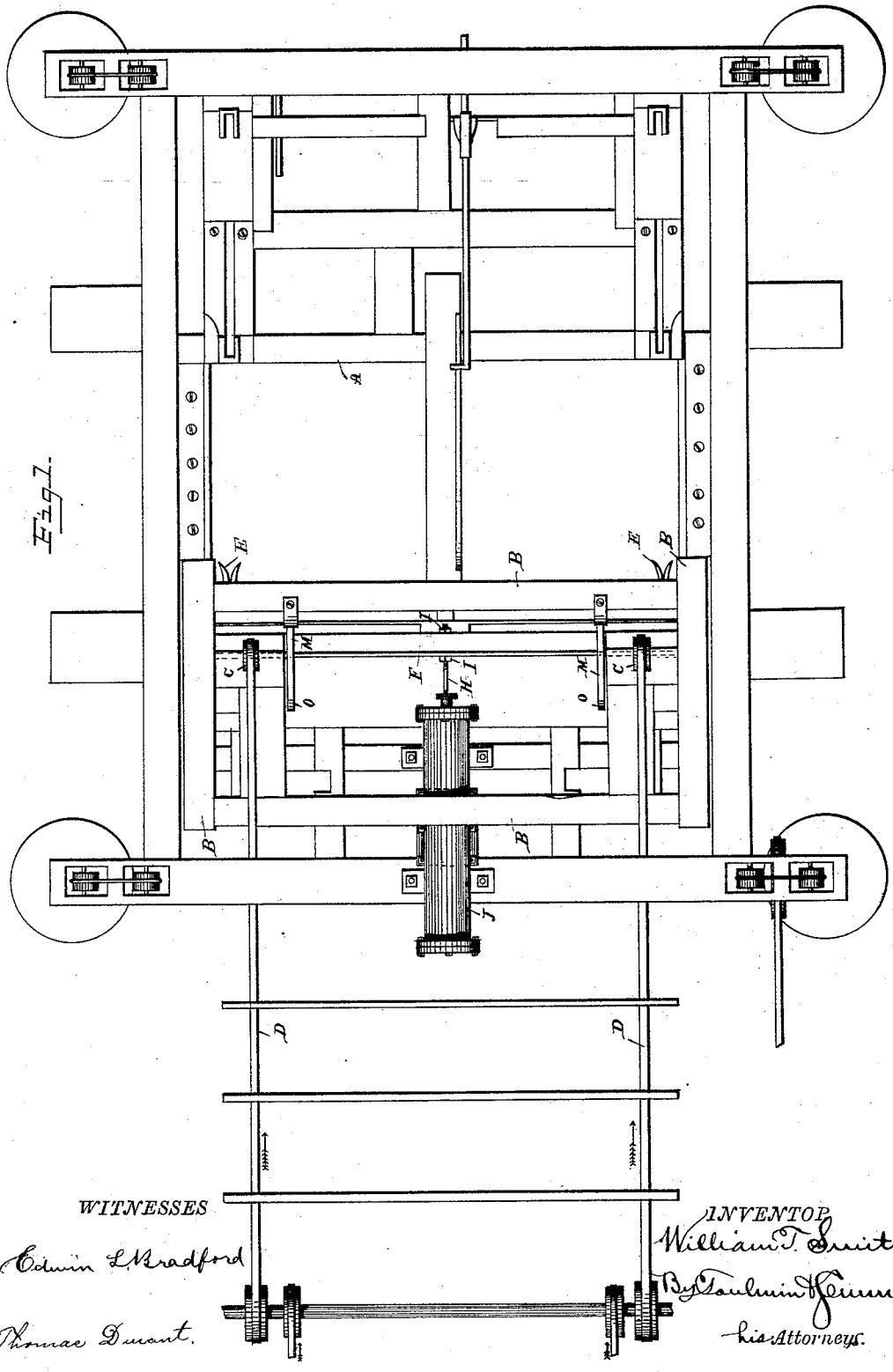


Fig. 1.

WITNESSES

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W. T. SMITH.

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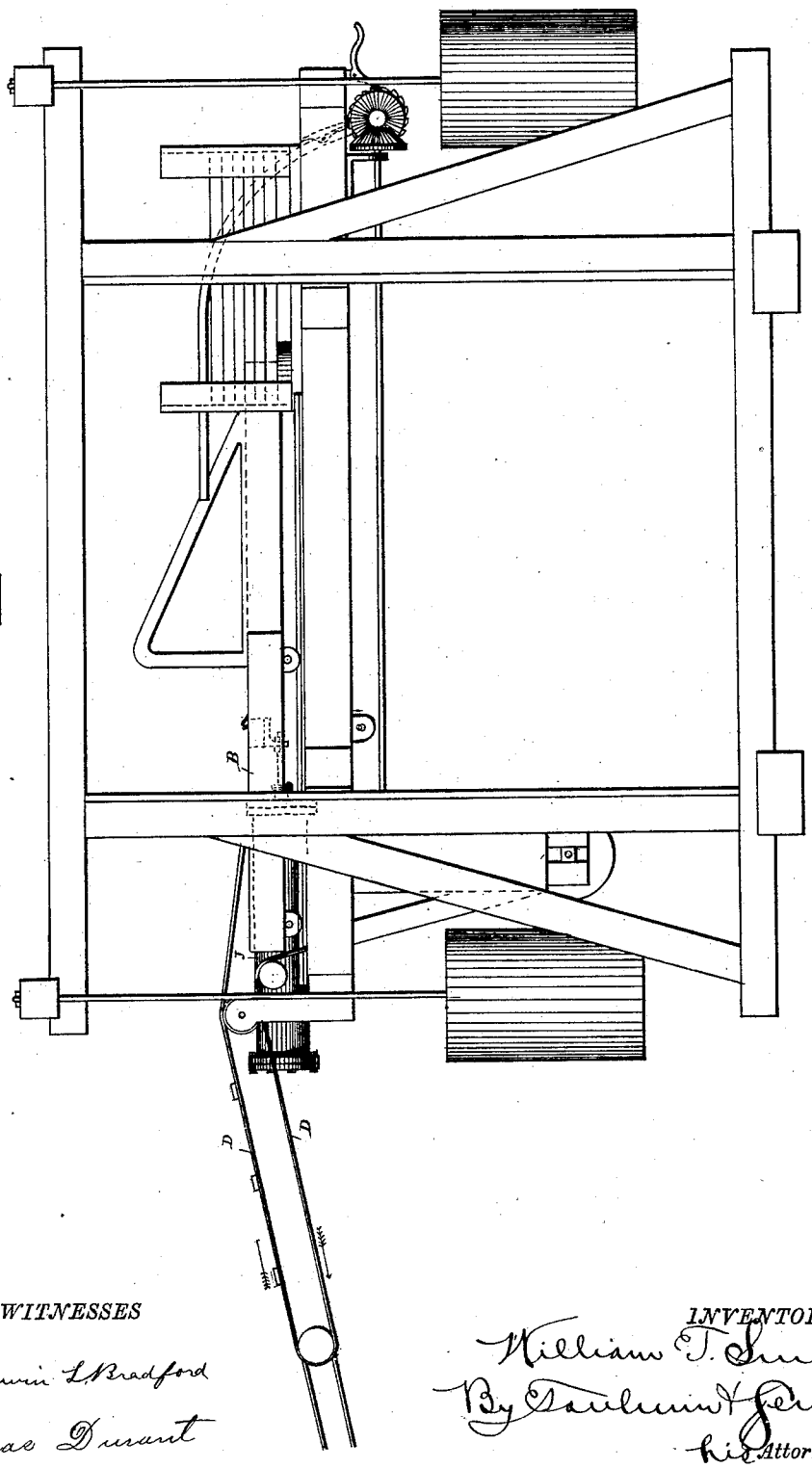


Fig. 2.

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(No Model.) 3 Sheets—Sheet 3.

W. T. SMITH.

LUMBER STACKER.

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Fig. 3.

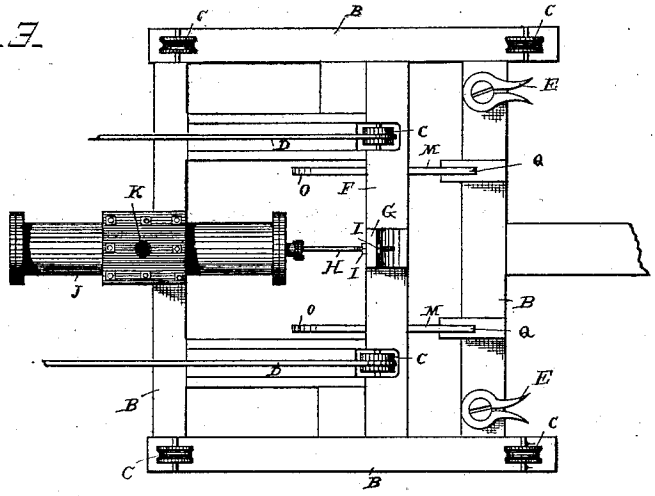


Fig. 4.

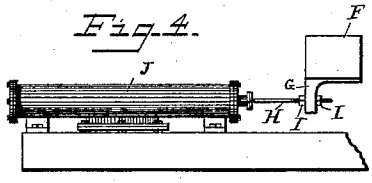


Fig. 5.

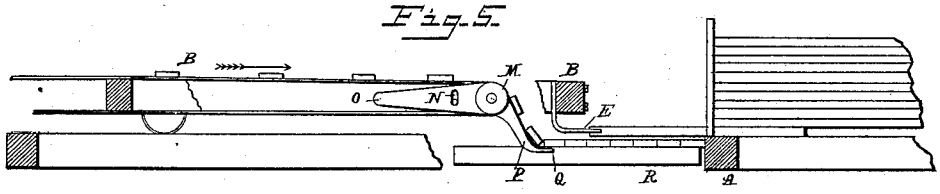
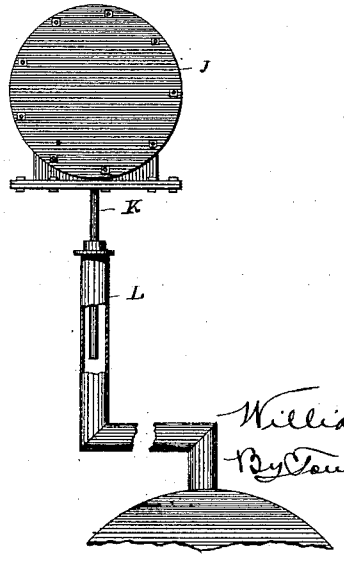


Fig. 6.



WITNESSES

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UNITED STATES PATENT OFFICE.

WILLIAM T. SMITH, OF BOZEMAN, ALABAMA.

LUMBER-STACKER.

SPECIFICATION forming part of Letters Patent No. 310,232, dated January 6, 1885.

Application filed November 12, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM T. SMITH, a citizen of the United States, residing at Bozeman, in the county of Autauga and State of Alabama, have invented certain new and useful Improvements in Lumber-Stackers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in machines for elevating and stacking lumber, and it has special reference to the machine for that purpose on which a patent was granted to me September 9, 1884, numbered 304,760; and the objects of the present invention are, first, to provide improved mechanism for operating and controlling the movements of the traveling carriage, which acts to lay the spacing-strips and deposit the lumber thereon; and, second, to improve the construction of the depositing-levers.

In the accompanying drawings, forming a part of this specification, and on which like letters of reference indicate the same or corresponding features, Figure 1 represents a plan view of my improved lumber-stacking machine, of substantially the character shown and described in the patent above alluded to; Fig. 2, a side elevation thereof; Fig. 3, a detached enlarged inverted plan view of the traveling carriage, showing the actuating mechanism in connection therewith; Fig. 4, a view, partly in vertical section and partly in side elevation, of a portion of the traveling carriage, the supporting-platform, and of the actuating means; Fig. 5, a longitudinal vertical sectional view of the supporting-platform and traveling carriage, showing a stack of spacing-strips, the actuating mechanism being omitted, and Fig. 6 a rear view of the actuating mechanism, showing the pipe-connection.

The main frame is the same as that set forth in the Letters Patent before alluded to, and within which is adapted to travel vertically the traveling frame, provided with supporting-chains and counterbalancing-weights. The rear portion of this frame, at each side thereof, is provided with two oppositely-disposed vertical pockets, which serve to receive and hold the spacing-strips, which are located between each successive layer of lumber, the lower portion of the pockets, facing the front of the machine, being cut away, so as to allow of the entrance of the grasping-fingers which serve to lay the strips, as will presently appear.

The cross-beam A of the frame, upon which the two forward pockets rest, is vertically channeled, as more clearly represented in Fig. 5, so as to form a continuation of the pocket, whereby the ends of the strips are guided as they are drawn out and laid in the process of stacking. This frame is also provided with tracks on its upper surface, and mounted upon said tracks is the traveling carriage B, the same being of rectangular form, and provided at opposite sides with pulleys C, over which travel the endless chains D, which serve to conduct the lumber as it issues from the trimming-machine to and upon the carriage, as also described in said Letters Patent. The several features of arrangement, including the various pulleys over which these chains pass, and the weighted sliding idlers, which serve to take up the slack or give proper tension to said chains, are the same as described and shown in that patent. The rear end of the carriage is provided with grasping-fingers E, of the character of those indicated in said patent, and which serve the same purpose.

To the transverse bar or beam F of the carriage is secured a depending bracket, G, and to this bracket is firmly attached the outer end of a piston-rod, H, preferably by means of the nuts I, one being at either side of said bracket.

Secured by preference near the forward end of the traveling frame, is an engine-cylinder, J, of the ordinary or any approved construction, in which said piston is adapted to work. In order to supply steam, water, or other motive agent to this cylinder and yet admit of its traveling in a vertical direction, according to the movement of the frame upon which it is mounted, I have provided a pipe, K, which conducts such agent from the generator to the valve-chest, with an expansive joint. This pipe consists of the section K, of reduced diameter, and of the section L, of comparatively larger diameter, whereby the smaller section is capable of fitting and moving within it. The section L is provided with a stuffing-box,

whereby a tight joint and perfect yet yielding union between the two are effected without loss of steam or other agent. The other end of the section L is connected with a suitable generator—a steam-boiler, for instance—while the inclosed end of the section K is open, so as to conduct the steam or motive agent to the valve-chest of the engine.

The admission of the motive agent to the engine is controlled by any of the known means, and the position of the cylinder being fixed with relation to the carriage, it will be observed that the piston-rod, being secured to the latter, it will be actuated in one or the other direction when the motive agent is admitted to one or the other port of the engine.

The speed at which the carriage shall travel is regulated by the quantity of active force derived from the motive agent which is introduced into the cylinder, and it is noticeable that, in consequence of the feasibility of thus graduating, through the instrumentality of the throttle-valve, the admission into the engine of the motive agent, a smooth and regular movement shall at all times be imparted to the traveling carriage.

At a convenient point on the carriage and in close proximity to the axis of the rollers over which the endless chains pass are pivotally mounted depositing-levers M, the upper members of which are slotted at N, and through which are passed bolts for the purpose of controlling the oscillating or tilting motion of said levers. The upper arms or members, O, of the levers are provided with weights, or are in themselves of greater specific gravity than their opposite ends, whereby the latter ends are normally held in such position with relation to the successive layers of boards as to clear the upper surface of the same. The members P of the levers stand in an inclined position of such an angle as to expose the boards which slide down upon the same, in the manner to be presently described, to the influence of gravity. The extremities of these arms are shouldered at Q, so as to form an abutment to engage the edge of a board, to force all the boards of a layer together, as will also presently appear. The position of the members of these levers is such as to bring them close to the sides of the spacing-strips, and the vertical thickness of the ends thereof being less than the like thickness of the strips, permits of the boards being deposited side by side in the several stacks, while the said ends are between the board being laid and those of the stack below already laid. This feature also admits of the levers being readily withdrawn from under each board as it is deposited as the carriage moves forward.

The operation of my invention will be readily understood when taken in connection with the foregoing, and is as follows: Movement being imparted to the chains which conduct the lumber from the trimming-machine to the traveling carriage, and a strip or sill, R, being placed to receive the first layer of boards, or the truck, described in the above-mentioned Letters Patent, being run under the traveling frame, and the carriage adjusted to the rear of the machine, the first board which reaches the depositing-levers after leaving the chains slides down the members P of the same and rests upon the said sill. As the successive boards reach and slide down the said members of the depositing-levers, the carriage gradually moves forward under the influence of the piston-rod H, the port of the engine having been open for the admission of the motive agent.

The speed at which the carriage travels is regulated according to the speed at which the chains are traveling, so as to prevent undue accumulation of boards on the members P of the levers. When a completed layer is made, should the weight of each board as it slid down the incline not have been sufficient to cause the boards to lie closely together, then the carriage is moved slightly forward until the shoulder Q reaches the outer edge of the last board laid. The carriage is then reversed, and the shoulder forced against the board, and each successive board forced against the other until all are made to hug closely together. When this is effected, the carriage is moved forward until the ends of the members P clear the last board, when the greater weight of the members O will elevate the former above the first layer. The carriage is then moved in a rearward direction, causing the grasping-fingers E to engage each a spacing-strip. Then the carriage is run forward, and the strip drawn across the layer of boards below the vertical kerfs in the beam A of the traveling frame, serving to guide the rear ends of the strips. The carriage is then run rearward, and the operation of depositing boards in the manner above described repeated.

In lieu of the traveling carriage, a cross-head may be used and connected with the piston-rod, ways being provided at either side of the carriage to guide it.

The cross-head will be provided with grasping-fingers, and the pulleys, at the rear end of the carriage in the present instance, will be mounted on the cross-head, and the depositing-levers will also be pivoted thereto.

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

1. In a lumber-stacker, the combination, with the traveling mechanism constructed to lay the spacing-strips and to deposit boards thereon, of the cylinder connected therewith and adapted to actuate it when charged with a motive agent.

2. In a lumber-stacker, the traveling mechanism provided with grasping-fingers, depositing-levers, the chains or belts to feed the lumber thereto, and the stationary cylinder hav-

ing its piston-rod connected with said mechanism, and adapted to operate the same to and fro when charged with a motive agent.

3. In a lumber-stacker, the combination, with a vertically-adjustable frame and traveling mechanism supported thereby, and constructed to lay the spacing-strips and to deposit boards thereon, of the cylinder having its piston-rod attached to said mechanism, and adapted to actuate it when charged with a motive agent.

4. In a lumber-stacker, the combination, with traveling mechanism constructed to deposit boards in layers, of a cylinder having its piston-rod attached thereto, and adapted to actuate said mechanism when charged with a motive agent.

5. In a lumber-stacker, the combination, with a vertically-traveling frame, a traveling carriage mounted thereon provided with grasping-fingers and depositing-levers, and the chains or belts for conveying the lumber to the levers, of a cylinder fixed to the frame and having its piston-rod connected with the carriage, and adapted to actuate the same when charged with a motive agent.

6. In a lumber-stacker, the combination, with a traveling carriage provided with grasping-fingers and depositing-levers, and the chains or belts to deliver the lumber to these levers, of the fixed cylinder having its piston-rod connected with said carriage, and adapted to actuate the same when charged with a motive agent.

7. In a lumber-stacker, the combination, with the traveling carriage, of the depositing-levers yieldingly connected thereto, and constructed to oscillate a given distance, and having an incline and an overbalancing member.

8. In a lumber-stacker, the combination of a traveling frame having grasping-fingers connected thereto, and the depositing-levers pivotally connected therewith, having inclined and overbalancing members, a shoulder, a slot, and a stud or bolt to determine the oscillation thereof.

9. In a lumber-stacker, a depositing-lever constructed with two members, one to overbalance the other and provided with a slot, and the other at an angle thereto and having a shoulder.

10. In a lumber-stacker, the combination, with the actuating-cylinder, of the pipe for conducting the motive agent, constructed in sections, one of which is adapted to slide in the other.

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

WILLIAM T. SMITH.

Witnesses:
TIMOTHY L. JONES,
JNO. W. DUNN, Jr.