

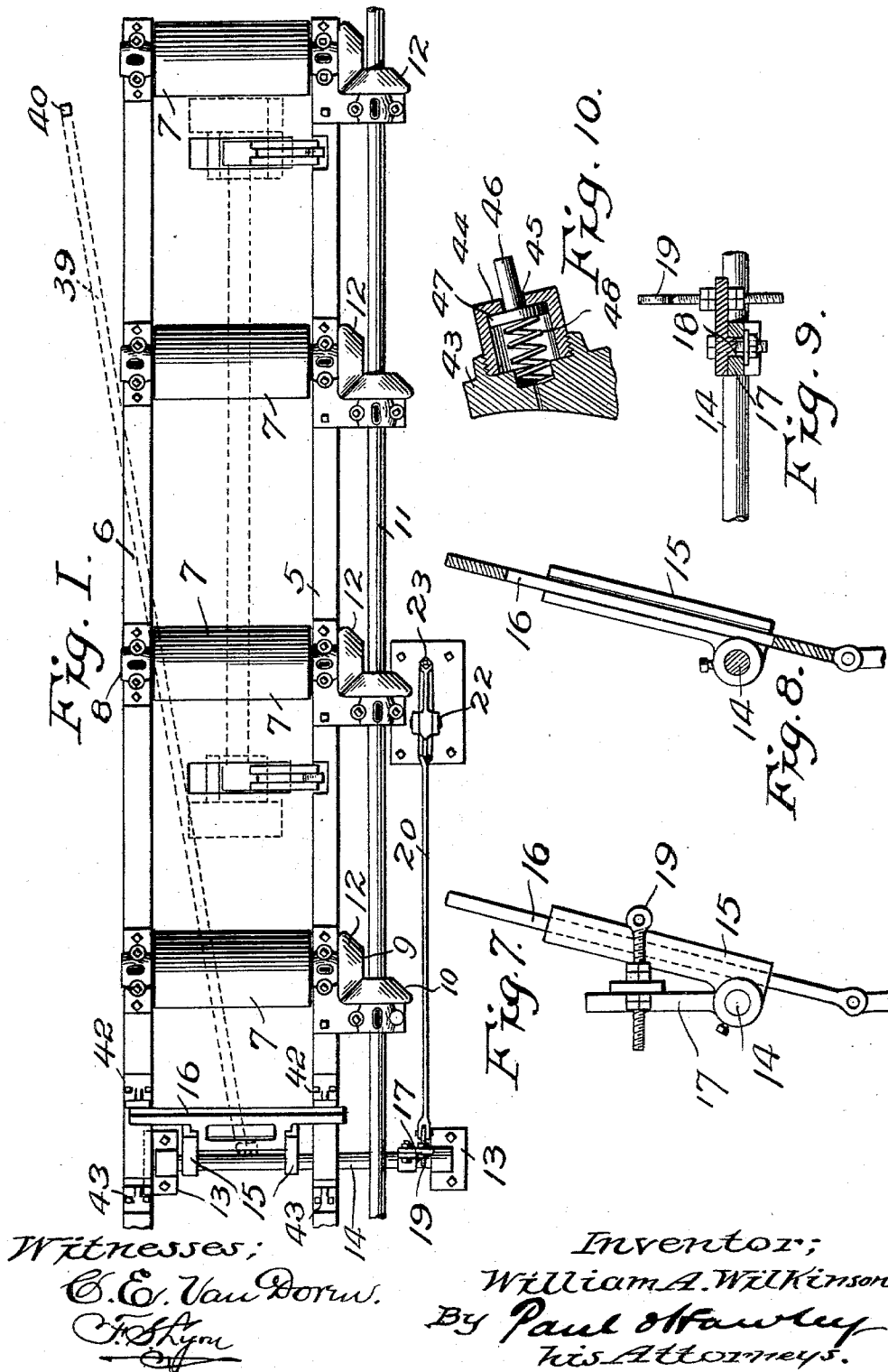
(No Model.)

4 Sheets—Sheet 1.

W. A. WILKINSON.
STEAM LUMBER TRANSFER.

No. 584,027.

Patented June 8, 1897.



Witnesses;
C. E. Van Dorn.
C. E. Van Dorn.

Inventor;
William A. Wilkinson.
By Paul & Hawley
his Attorneys.

(No Model.)

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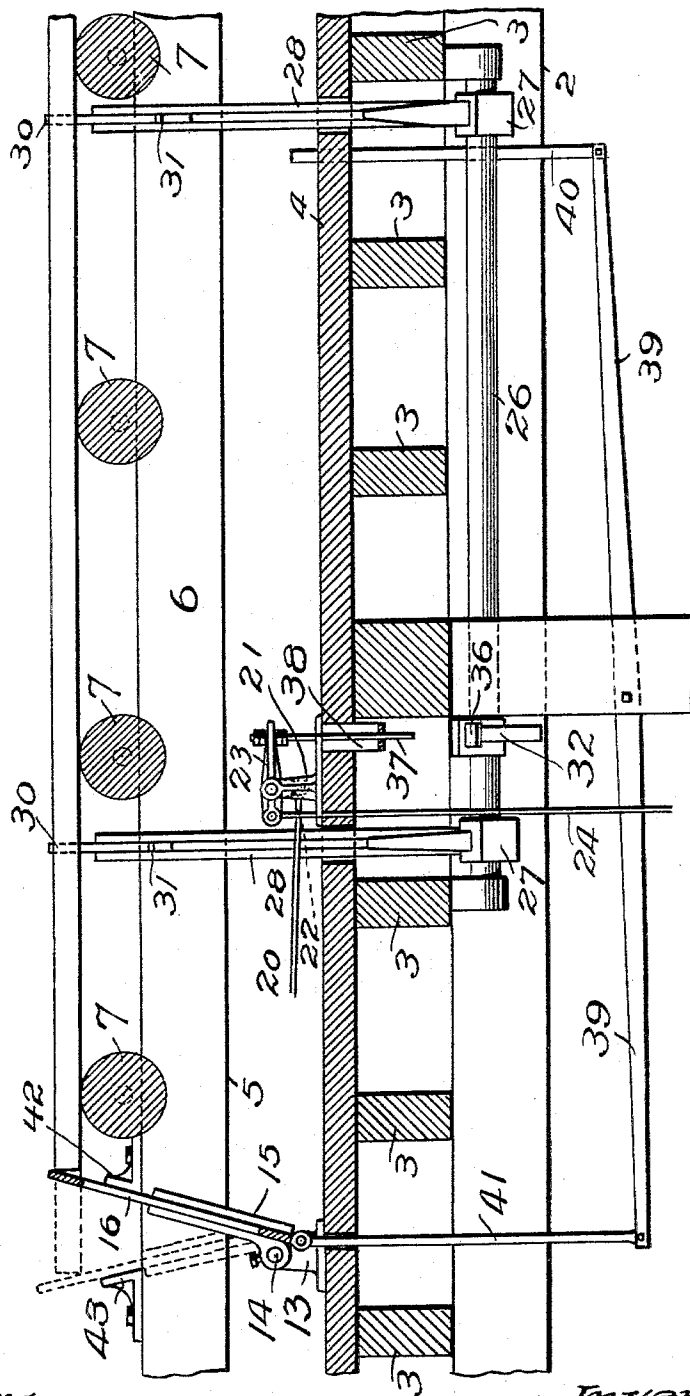


Fig. 2.

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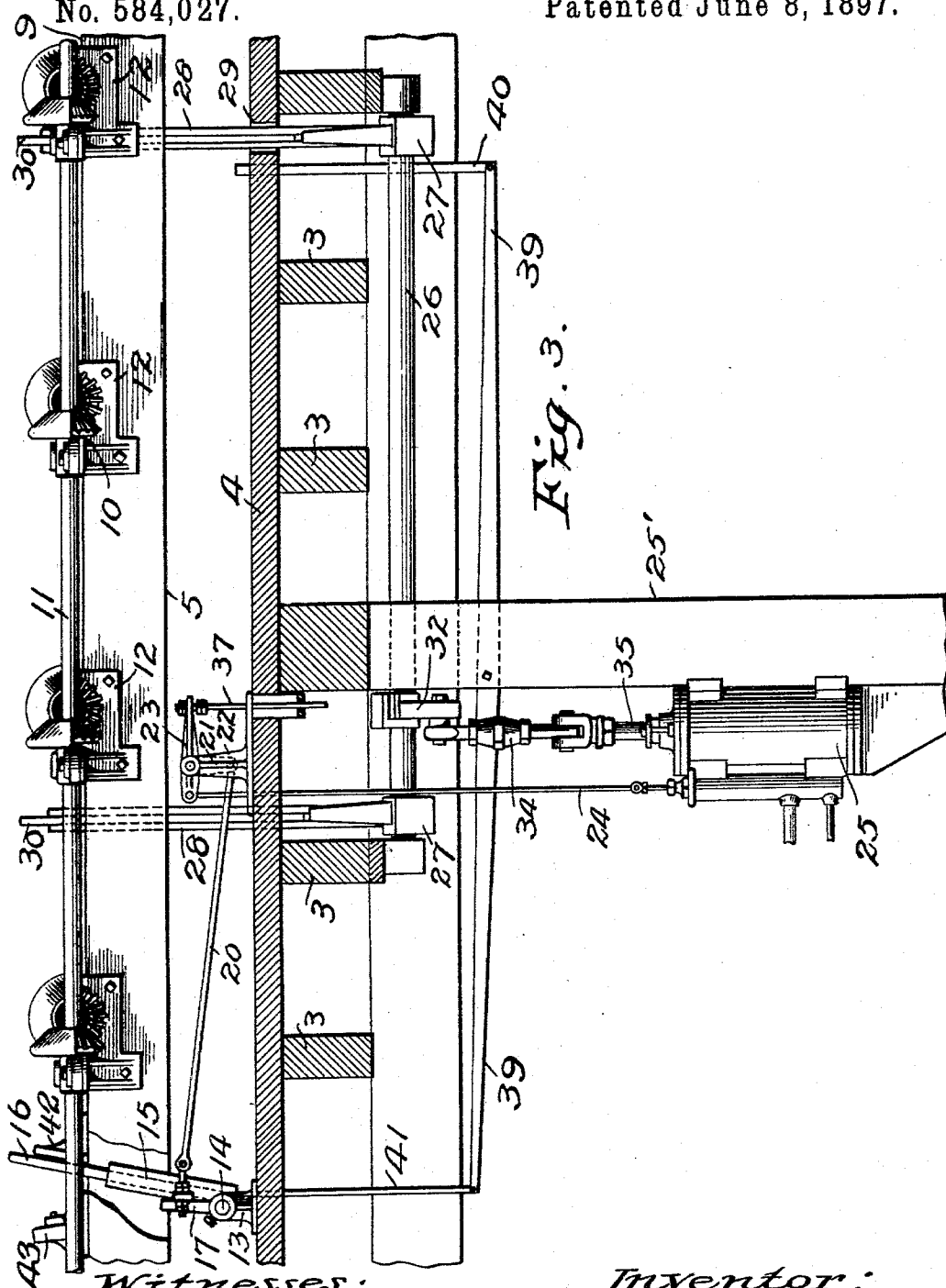
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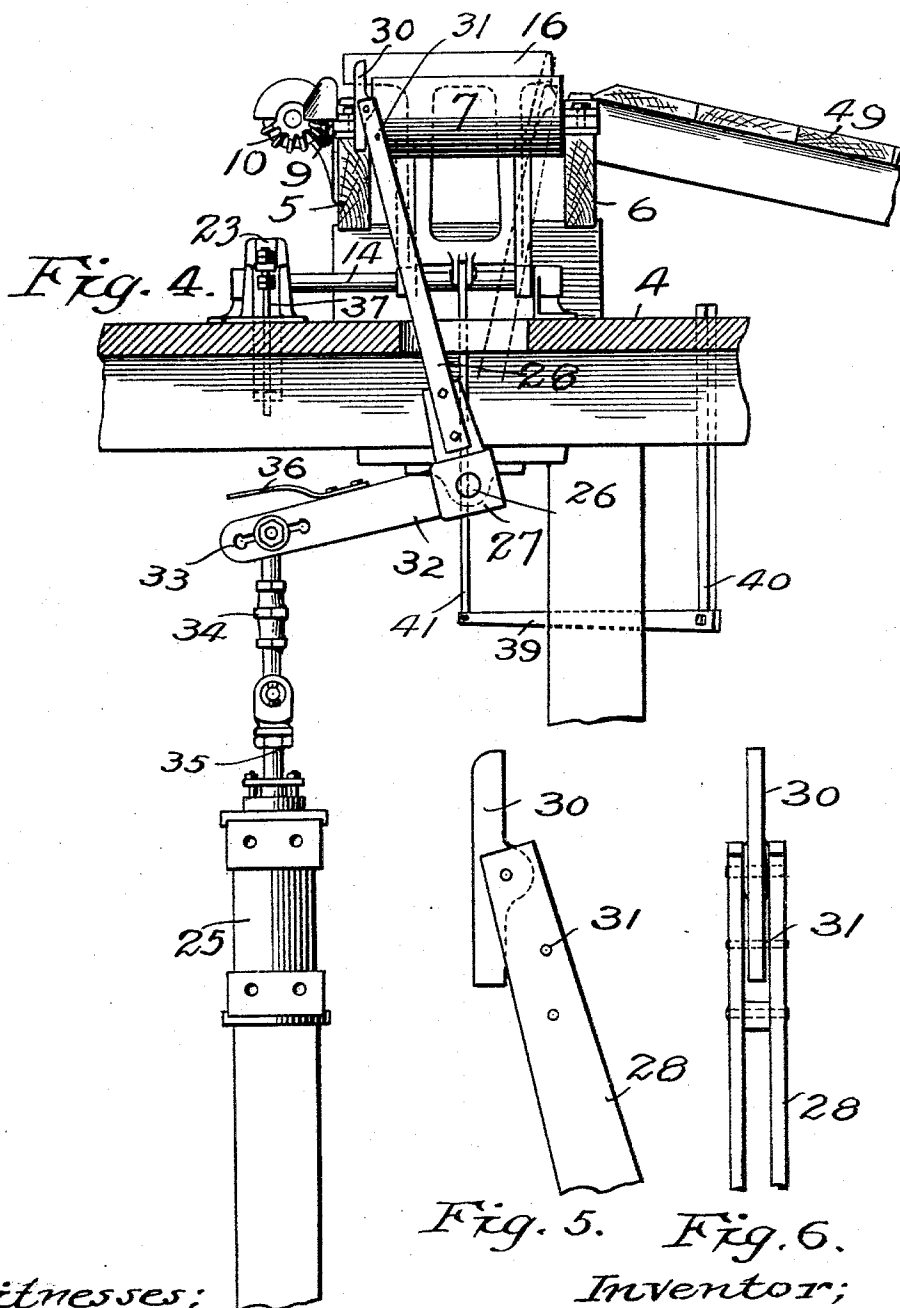
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UNITED STATES PATENT OFFICE.

WILLIAM A. WILKINSON, OF MINNEAPOLIS, MINNESOTA.

STEAM LUMBER-TRANSFER.

SPECIFICATION forming part of Letters Patent No. 584,027, dated June 8, 1897.

Application filed October 17, 1895. Serial No. 565,982. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. WILKINSON, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Steam Lumber-Transfers, of which the following is a specification.

My invention relates to means for transferring and assorting lumber as it is moving over the rolls after leaving the saw; and the object I have in view is to provide a mechanism which when set in motion by the operator will lift or transfer the lumber from the rolls to a platform arranged at one side thereof; and, further, my invention consists in particular means for arresting the forward movement of the lumber preparatory to transferring the same; and a still further object is to provide an automatic device for stopping the mechanism when the transfer has been completed.

My invention consists generally in providing a series of upright swinging arms arranged between the rolls, and means for operating the same, in combination with a swinging stop device arranged to be thrown into position to arrest the movement of any piece of lumber that it is desired to separate from the rest while it is passing over the rolls, all as hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a plan view of a steam lumber-transfer embodying my invention. Fig. 2 is a longitudinal sectional view. Fig. 3 is a side elevation showing the mechanism beneath the floor for transferring the lumber. Fig. 4 is a transverse section. Figs. 5 and 6 are side and edge views of the upper end of one of the upright arms or levers that engage the edge of the lumber. Figs. 7, 8, and 9 are details of the swinging vertically-movable stop for arresting the forward movement of the lumber. Fig. 10 is a sectional view of the spring stop or cushion, against which the stop is swung when struck by the moving lumber.

In the drawings, 2 and 3 represent the timbers which support the floor 4 of the mill. Supported at a suitable height above the floor 4 are the parallel timbers 5 and 6, and ar-

ranged at intervals on their upper surface are the rolls 7, journaled in bearings and provided at one end with a bevel-gear 9, which meshes with a similar gear 10 in the shaft 11, which extends parallel to the timber 5, and is supported by hangers 12 thereon.

Upon the floor 4, beneath the timbers 5 and 6, are the standards 13, provided with bearings, in which is mounted the rock-shaft 14, which extends under the timber 5 and to a point beneath the inner edge of the timber 6 and at right angles thereto. Upon the shaft 14 and between the timbers 5 and 6 is arranged a swinging stop, comprising the main portion, secured on said shaft by a set-screw or in any other suitable way and provided with a longitudinal slot or opening through its center, through which the auxiliary part 16, forming the movable portion of the stop for the lumber, is arranged to slide.

On the outer end of the rock-shaft 14 is arranged an upright arm 17, held in position on the shaft by a set-screw or other suitable means and having near its upper end an opening 18 to receive a screw-eye 19, to which is pivoted a rod 20, having its opposite end pivoted to a depending arm 21, which is in turn connected to a horizontally-pivoted arm 23, supported by the standard 22 on the floor of the mill. To one end of the arm 23 is pivoted a vertical rod 24, to the lower end of which is connected the valve which controls the admission of steam to the cylinder 25, secured to a vertical timber 25', which depends from the floor-timbers above.

Secured to the under side of the timbers 3 above the cylinder 25' is the horizontal rock-shaft 26, parallel with the timbers 5 and 6 above the floor and at right angles to the rolls 7 thereon. The rock-shaft 26 is provided at each end with the short arms 27, to which are secured the forked transfer-arms 28, which extend up through the slots provided in the floor of the mill to a point between the rolls 7, as shown in Figs. 2 and 3. A short swinging arm 30 is pivoted to the upper end of each of the arms 28, and pins 31 are provided, extending through the upper end of said arms to limit the swinging movement of the arms 30.

The arms 30 extend above the upper surface of the rolls in position to engage the edge of the lumber moving over them, and when

the arms 28 are moved to the position indicated by dotted lines in Fig. 4 it is obvious that unless these swinging arms 30 were provided it would not be possible to move the arms 28 back to their normal position without interfering with the moving lumber. The rock-shaft 26 is also provided with a downwardly-extending arm 32, having a slot 33 near its outer end, in which is pivoted the link 34, having its lower end pivotally secured to the piston-rod 35 of the cylinder 25, so that when steam is admitted to the cylinder 25 by movement of the vertical rod 24 the movement of the piston will rock the shaft 26 and swing the arms 28 back and forth between the rolls. As shown in Fig. 4, a spring 36 is provided upon the upper edge of the arm 32 in position to engage the lower end of the rod 37, which is secured to the opposite end of the arm 23 from the rod 24, whereby when the shaft 26 has been rocked and the lumber moved off the rolls by the arm 28 the spring 36 will engage the rod 37, lowering the rod 24 and shutting off the steam from the cylinder 25.

The rod 37 extends through an opening provided in the floor of the mill and is provided at its upper end with nuts above and below the end of the arm 23, by means of which the rod 37 may be adjusted in any desired position and the throw of the arms 28 regulated at will.

Above the cylinder 25 and pivoted to the timber 25' is a horizontal lever 39, provided at its opposite ends with the upright pivoted rods 40 and 41. The rod 40 extends up through the floor of the mill to a point where it may be depressed by the foot of the operator, while the upper end of the rod 41 is pivotally connected to the lower end of the auxiliary part 16, so that when the rod 40 is depressed the stop 16 will be raised up between the rolls and into the path of the moving lumber.

Upon the upper surface of the timbers 5 and 6, at the left of the auxiliary part 16, I provide the cushion-stops 43, which limit the movement of the part 16 when engaged by the end of the moving lumber and takes up any shock that might result from the sudden stopping of the same. Upon the opposite side of the part 16 are provided the stops 42, against which the part 16 strikes when it is returned to its normal position.

The cushion-stops comprise the threaded caps 44, arranged to be screwed into threaded flanges on the surface of the stops 43 and provided with an opening 45 to receive the studs 46, provided on the disk 47, arranged within the caps 44. Springs 48 are arranged beneath the disk 47 to hold the same in engagement with the outer end of the caps 44 until the studs 46 are struck by the moving part 16.

At the right of the rolls is an inclined platform 49, upon which the lumber is thrown by the swinging movement of the arms 28.

The operation of the device is as follows: The lumber as it comes from the saws passes

over the rolls 7, and should the operator desire to separate a particular piece from the rest he will depress the upright rod 40 before the piece of lumber reaches the point above the rock-shaft 14, thereby raising the sliding portion of the stop into position to be engaged by the end of the lumber. As soon as the said sliding portion strikes the cushion-stops heretofore described, the forward movement of the lumber over the rolls will be arrested. When the part 16 is engaged by the end of the moving lumber, the shaft 14 will be rocked, raising the arm 23 and the rod 24, thereby opening the valve and admitting steam to the cylinder, and as the piston is raised under the pressure of the steam in the cylinder the shaft 26 will be rocked and the arms 28 moved against the side of the lumber, which will be pushed or thrown laterally off the rolls upon the inclined platform 49. When the arms 28 reach the limit of their movement, the spring provided upon the upper edge of the arm 32 will strike the lower end of the depending arm 37, raising the same and also the end of the arm 23, which movement will depress the rod 24 and shut off the steam beneath the piston. The steam being admitted above the piston the arms 28 are brought back to their normal position, and as the pivoted arms 30 are swung down to permit the arms 28 to pass beneath the moving lumber it is not necessary that the rolls should be clear of lumber before the arms can be returned to their normal position.

From the foregoing description it will be noted that the transfer mechanism may be put in motion with one movement of the foot of the operator, and that the engagement of the lumber with the sliding stop automatically turns on the steam into the cylinder, and that the movement of the mechanism is automatically reversed when the transfer-arms have reached the limit of their movement.

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

1. The combination, with the gang-rolls, and means for operating the same, of the vertically-movable stop, the rock-shaft supporting the same, and adapted to be rocked by the engagement of the lumber with said stop, means for raising said stop into the path of the moving lumber, the transfer mechanism, comprising a rock-shaft, the arms supported thereby, the cylinder arranged beneath said last-named rock-shaft, the crank-arm carried by said last-named rock-shaft and connected to the piston of said cylinder, the pivoted arm 23, the rod 24 connecting one end of said arm and the valve for controlling the admission of steam to said cylinder, means connecting said arm 23 and said first-named rock-shaft whereby when the latter is rocked, said arm will be raised and the steam admitted to said cylinder, and said arm being provided at its opposite end with a downwardly-extending arm or rod in position to be engaged by

said crank-arm whereby said arm 23 will be returned to its normal position, and the steam shut off when the transfer-arms are near the limit of their stroke, substantially as described.

2. The combination, in a machine of the class described, of the moving rolls, the rock-shaft arranged beneath the same, a valve-controlling mechanism connected with said rock-shaft to be operated thereby, a stop carried by said shaft, and adapted to swing with the rocking of the same, said stop comprising the main portion secured to said shaft and a sliding portion, and means connected with said sliding portion, whereby the same may be raised into the path of the moving lumber, for the purpose set forth.

3. The combination, in a machine of the class described, of the moving rolls, the rock-shaft arranged beneath the same, a valve-controlling mechanism connected with said rock-shaft to be operated thereby, a stop carried by said shaft, and adapted to swing with the rocking of the same, said stop comprising a main portion secured to said shaft and sliding portion, stationary cushion-stops to engage said swinging stop, and means connected with said sliding portion whereby the same may be raised into the path of the moving lumber, for the purpose set forth.

4. In a machine of the class described, the combination, with the moving rolls, of the rock-shaft arranged beneath the same, a valve-controlling mechanism connected with said rock-shaft to be operated thereby, a stop carried by said shaft, and adapted to swing with the rocking of the same, said stop comprising the part 15 adjustably secured to said shaft, and a part 16 vertically slidable through an opening provided in said part 15, means connected with the lower end of said part 16 for raising the same up between the rolls, and the stops provided upon the opposite sides of said part 16 for limiting the movement of the same, substantially as described.

5. The combination, in a machine of the class described, of the rolls, the movable stop beneath the same, and arranged to be projected above the surface of the rolls, the transfer-arms also arranged between the rolls, the rock-shaft whereon said arms are supported, the cylinder arranged beneath the same, the piston connected to said rock-shaft, the pivoted lever 23, the rod 24 connecting said lever with a valve for controlling the admission of steam to the cylinder, said lever 23 being also provided with a depending rod 37 and the rod 20 connecting said lever 23 with said swinging stop, substantially as described, and for the purpose set forth.

6. In a device of the class described, the combination, with the rolls, and means for operating the same, of the transfer-arms arranged between said rolls, the rock-shaft

whereon said arms are mounted, the crank-arm provided on said rock-shaft and connected to the piston of the cylinder beneath the same, a lever 23 arranged above said rock-shaft, the rod 24 connecting said lever with a valve for controlling the admission of steam to said cylinder, the rod 37 carried by said lever 23 and extending into the path of said crank-arm, and a spring 36 provided upon the upper edge of said crank-arm to engage said rod 37 when said transfer-arms are near the limit of their movement, for the purpose set forth.

7. In a device of the class described, the combination, with the rolls, and means for supporting the same, of the rock-shaft arranged beneath said rolls, and at right angles thereto, the upright transfer-arms carried by said rock-shaft, the crank-arm also provided on said shaft and connected with the piston of the cylinder beneath the same, the lever 23 pivoted above said rock-shaft and connected with the valve for controlling the admission of steam to said cylinder, an adjustable rod depending from said lever 23 into the path of said crank-arm to be operated by the same for operating said lever, the pivoted arm provided at the upper end of said transfer-arms and a pin 31 provided in the upper end of said transfer-arms to be engaged by said pivoted arm, for the purpose set forth.

8. In a device of the class described, the combination, with the moving rolls, and means for operating the same, of the rock-shaft beneath said rolls and substantially at right angles thereto, the upright arms provided on said shaft, the crank-arm, the cylinder having its piston connected thereto, means to be operated by the moving lumber for admitting steam to the cylinder beneath said piston, and means to be engaged by said crank-arm for shutting off the steam from the cylinder beneath said piston and admitting it above the same, for the purpose set forth.

9. In a device of the class described, the combination with the moving rolls, of the rock-shaft beneath the same and substantially at right angles thereto, the upright arms provided on said shaft, the crank-arm, the cylinder having its piston connected thereto, means to be operated by the moving lumber for opening the cylinder-valve and admitting steam beneath the piston, the lever 23, means connecting the same with said cylinder-valve, and the rod depending from the lever 23 into the path of said crank-arm, for the purpose set forth.

In testimony whereof I have hereunto set my hand this 19th day of August, A. D. 1895.

WILLIAM A. WILKINSON.

In presence of—

C. G. HAWLEY,
M. E. GOOLEY.