

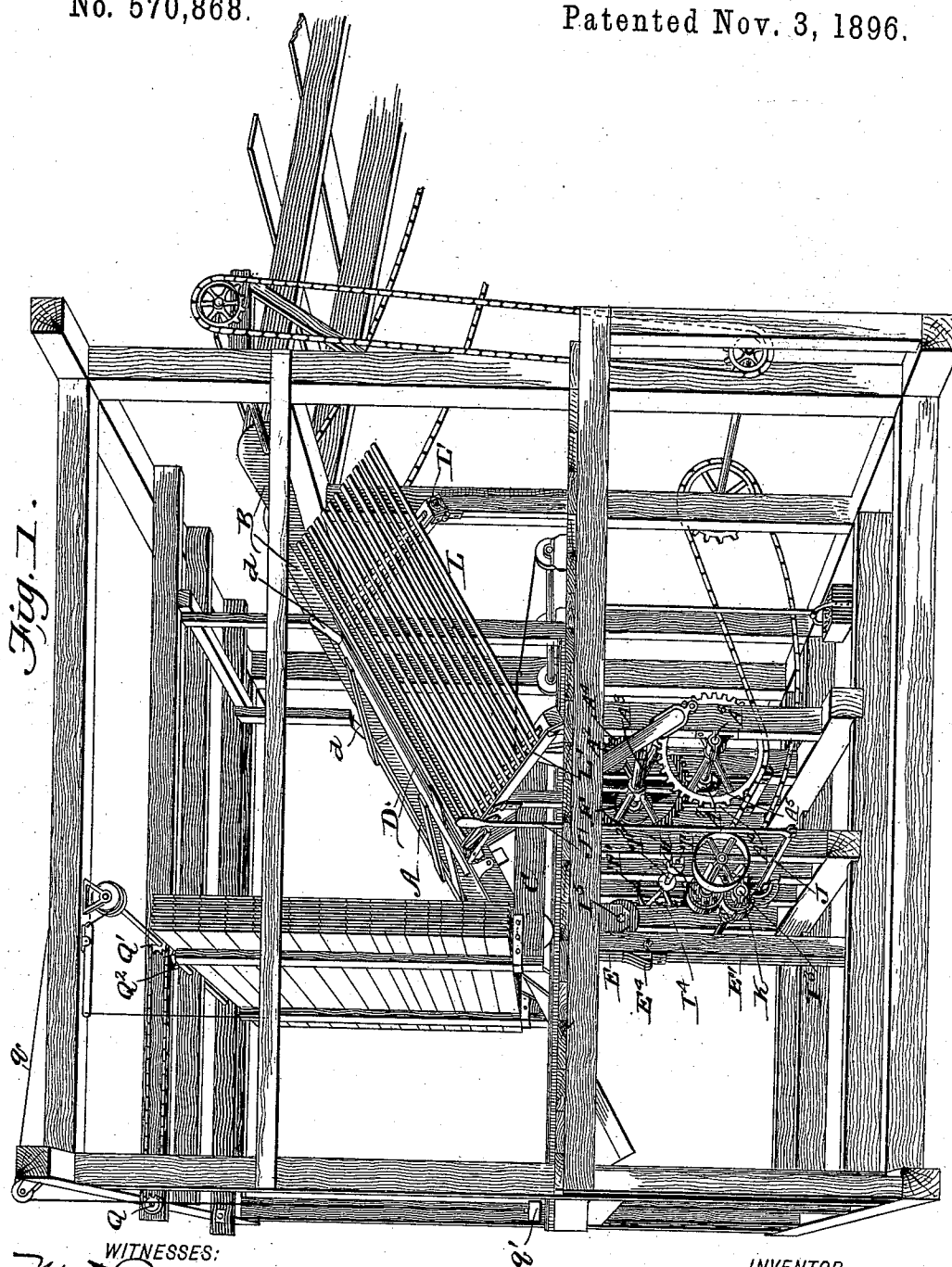
(No Model.)

5 Sheets—Sheet 1.

H. DANIELS.
LUMBER PILING MACHINE.

No. 570,868.

Patented Nov. 3, 1896.



WITNESSES:

WITNESSES:
M. D. Cloudes.
P. B. Turpin.

INVENTOR

INVENTOR
Howard Daniels.

BY *Mumt Co.*

ATTORNEYS.

(No Model.)

5 Sheets—Sheet 2.

H. DANIELS.
LUMBER PILING MACHINE.

No. 570,868.

Patented Nov. 3, 1896.

Fig. 2.

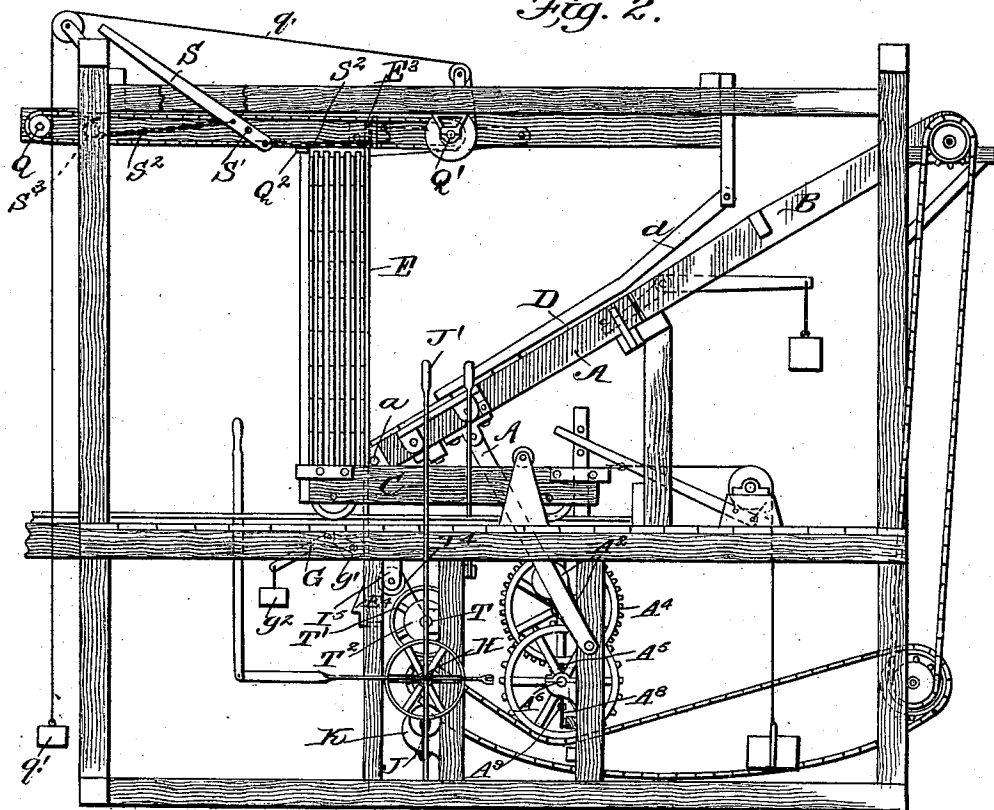


Fig. 3.

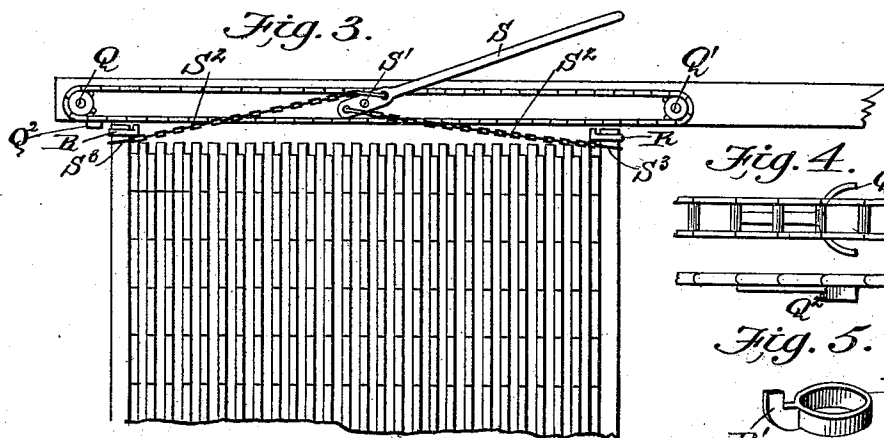
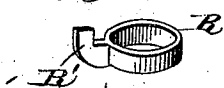


Fig. 4



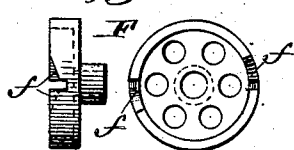
Fig. 5.



WITNESSES:

W. H. Bloude,
P. B. Zupin

Fig. 10.



INVENTOR

Howard Daniels.
BY *Munn & Co.*

ATTORNEYS.

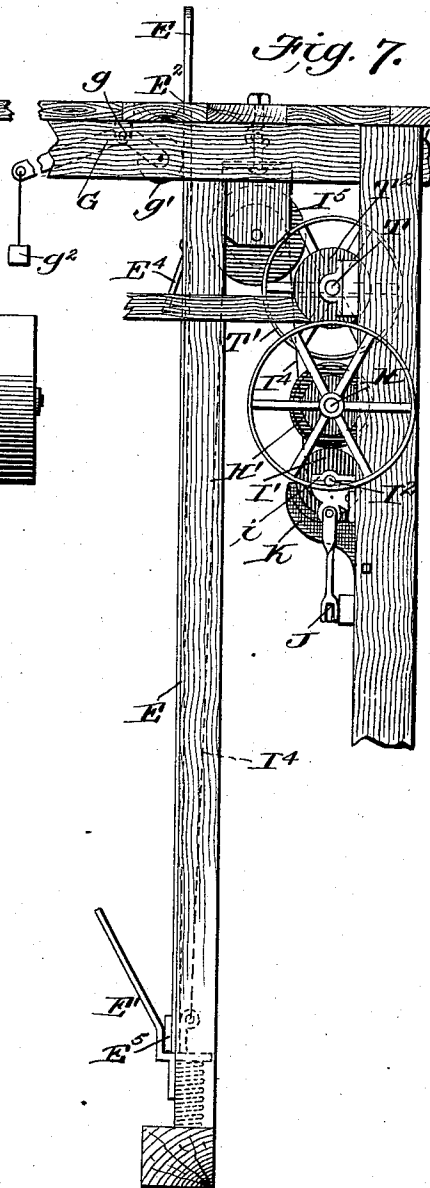
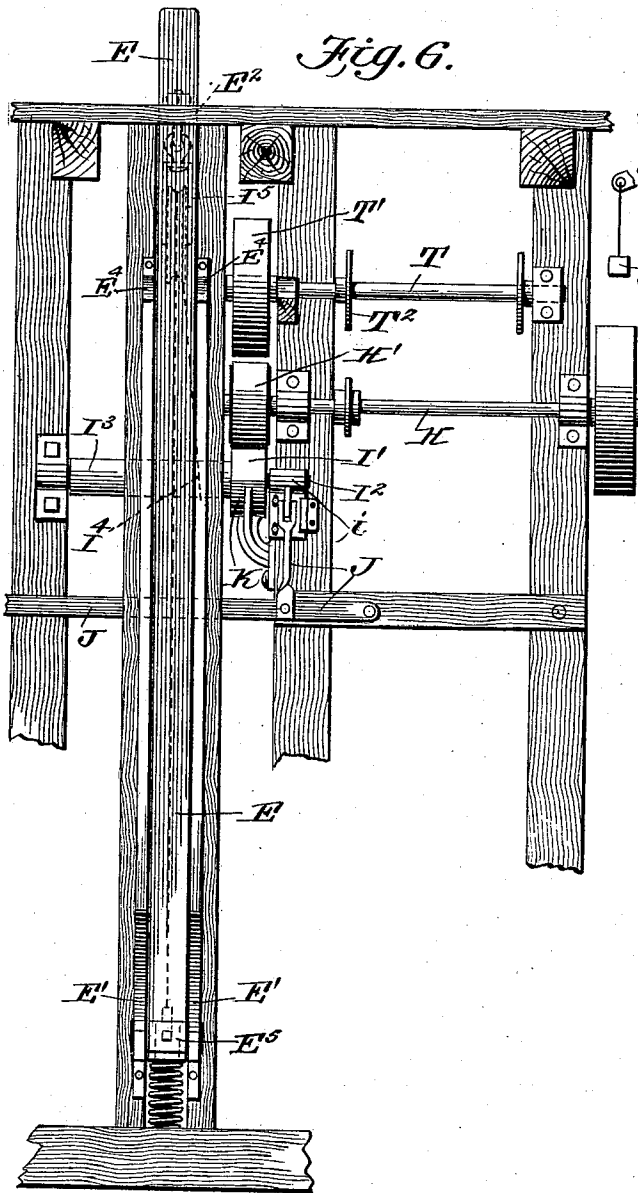
(No Model.)

5 Sheets—Sheet 3.

H. DANIELS.
LUMBER PILING MACHINE.

No. 570,868.

Patented Nov. 3, 1896.



WITNESSES:

M. S. Bloudef.
R. B. Turpin

INVENTOR

Howard Daniels

BY *Mumma & Co.*

ATTORNEYS.

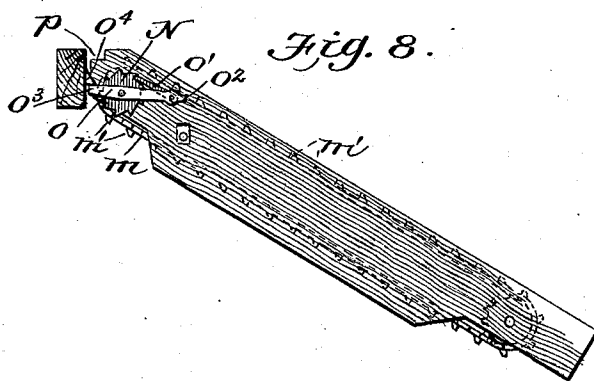
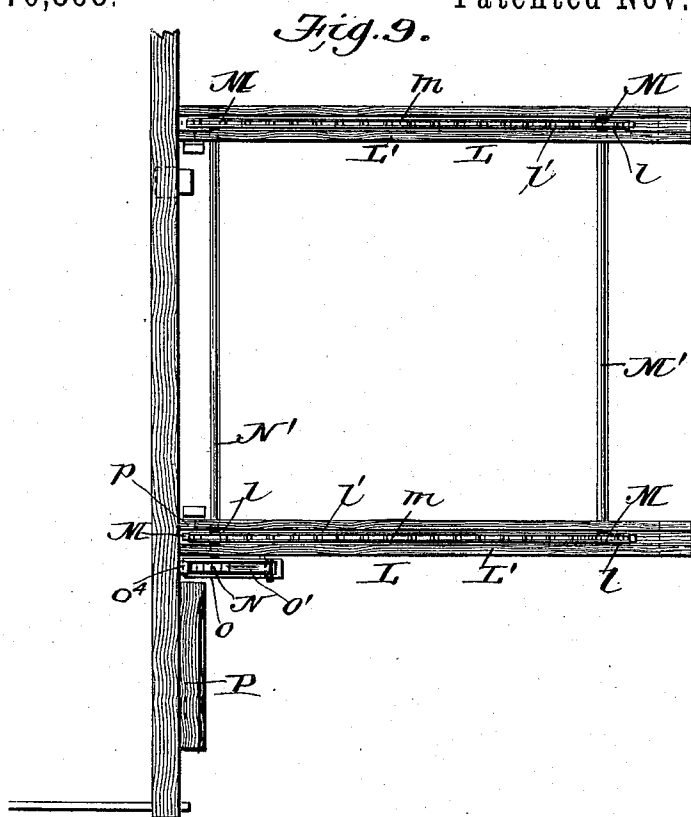
(No Model.)

5 Sheets—Sheet 4.

H. DANIELS.
LUMBER PILING MACHINE.

No. 570,868.

Patented Nov. 3, 1896.



WITNESSES:
M. D. Blondel
P. B. Surpin

INVENTOR
Howard Daniels.
BY *Munn & Co.*
ATTORNEYS.

(No Model.)

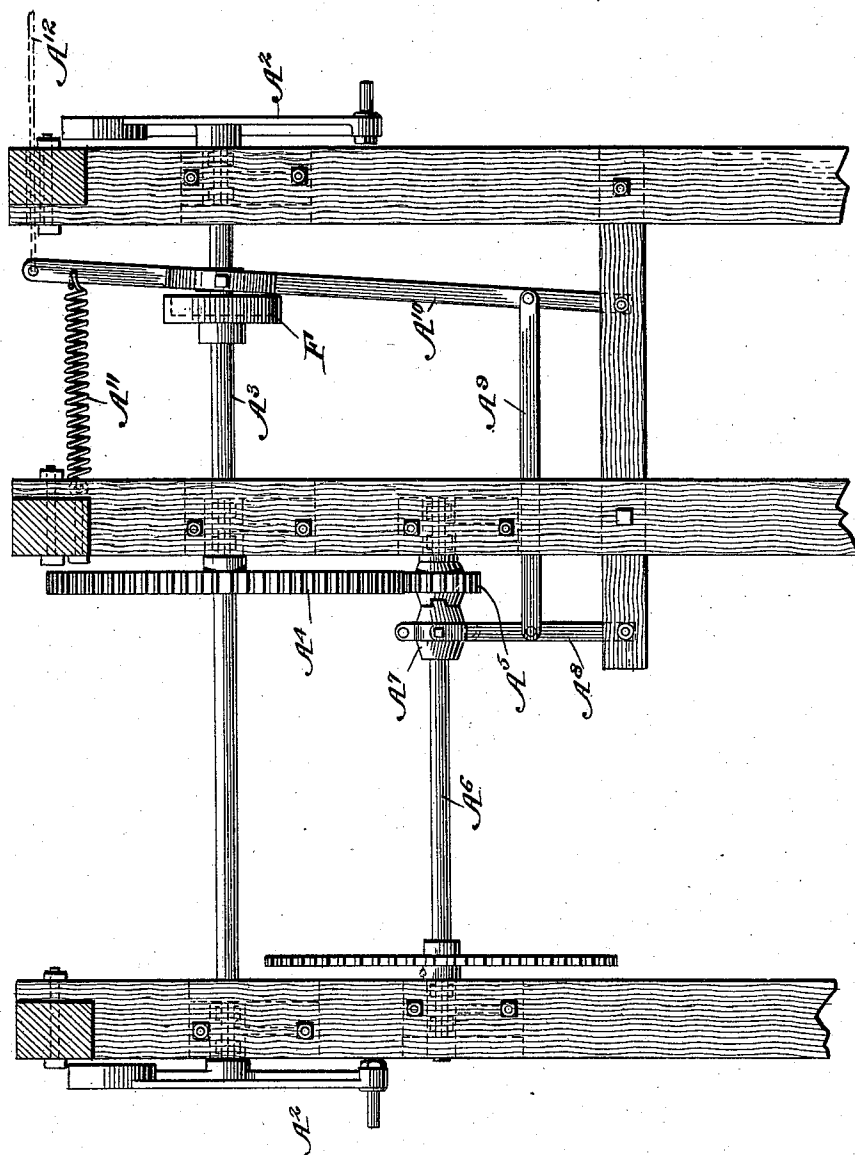
5 Sheets—Sheet 5.

H. DANIELS.
LUMBER PILING MACHINE.

No. 570,868.

Patented Nov. 3, 1896.

Fig. 11.



WITNESSES:

W. S. Cloudell
P. B. Turpin,

INVENTOR

Howard Daniels.

BY Munroe & Co.

ATTORNEYS.

UNITED STATES PATENT OFFICE.

HOWARD DANIELS, OF ATLANTA, GEORGIA, ASSIGNOR OF ONE-HALF TO
JAMES H. SIMONSON, OF FORT WAYNE, INDIANA.

LUMBER-PILING MACHINE.

SPECIFICATION forming part of Letters Patent No. 570,868, dated November 3, 1896.

Application filed September 10, 1895. Serial No. 562,066. (No model.)

To all whom it may concern:

Be it known that I, HOWARD DANIELS, of Atlanta, in the county of Fulton and State of Georgia, have invented a new and useful Improvement in Lumber-Piling Machines, of which the following is a specification.

My invention is an improved lumber-piling machine, and relates particularly to that class of such machines wherein the lumber is piled on edge, and the present invention is an improvement upon the machine covered in my former patent, No. 500,861, dated July 4, 1893; and the invention consists in certain novel constructions, combinations, and arrangements of parts, as will be hereinafter described, and pointed out in the claims.

In the drawings, Figure 1 is a perspective view of my improved machine. Fig. 2 is a side view thereof. Fig. 3 is a detail view illustrating the devices for binding the load. Fig. 4 is a detail view of the mechanism for holding the stakes up to the load. Fig. 5 is a detail view of one of the hooked stake-rings. Fig. 6 is cross-sectional view of the machine. Fig. 7 is a detail view thereof. Figs. 8 and 9 are detail views of the stake-feeder. Fig. 10 is a detail view of the cam, and Fig. 11 is a partial vertical cross-section of the apparatus.

The framing may be similar to that employed in my said former patent. The swinging conveyer-frame A is hinged at *a*, and is arranged to lower to position to receive the lumber from the chute B and to lift the courses of such lumber successively to position upon the truck C, which truck may in general respects be similar to that employed in my said former patent.

The connection between the swinging frame and its operating gearing is joined to said frame at a point above the pivot-point of such frame, because it affords a stiff and effective arrangement of the parts.

In operating the said frame I connect it by pitmen A' with cranks A² on a shaft A³. This shaft, as shown most clearly in Fig. 11, supports the notched or cam pulley F and has a gear-wheel A⁴ on a drive-shaft A⁶, such shaft having a clutch-section A⁷, by which the pinion A⁵ may be keyed to the shaft or freed at will. This clutch is operated by a swinging

arm A⁸, connected by a link A⁹ with a swinging arm A¹⁰, which is pressed against the cam F and into the notches *f* thereof by a spring A¹¹.

In operation, the shaft A⁶ turning continuously, the arm A¹⁰ when in the position shown in Fig. 11 will, by parts A⁸ and A⁹, hold the clutch A⁷ in engagement with the pinion A⁵, and the shaft A³ will be caused to turn so long as the arm A¹⁰ remains in the position shown in Fig. 11, which will be until one of the notches *f* comes in line with the arm A¹⁰, when the latter will be drawn by the spring A¹¹ into the notch and the shaft A³ will cease revolving until the arm A¹⁰ is again adjusted to set the clutch A⁷ into engagement with the pinion. This may be effected by the pull-cord A¹², which may extend within convenient reach of the operator, so that when the shaft A³ and the swinging frame A are at rest with the frame A in either its upper or lower position the operator may set the shaft A³ in motion by drawing upon the cord A¹².

The parts A⁸, A⁹, and A¹⁰ and the cord A¹² may be similar to corresponding parts in my former patent, but in the present case I make the cam with two notches, so the frame A can be stopped in both positions.

The retarding-timbers D operate similarly to the corresponding parts of my former patent, but differ therefrom in form, being tapered or sloped at *d* above the chute to form a flaring inlet for the boards sliding down onto the conveyer-frame.

In the use of my patented machine it has been found that the separating-stakes are not always sufficient to hold the courses up in vertical position while the conveyer-frame is returning to receive another course.

To properly support the courses, I provide the pile-retaining bar E, which is movable into and out of position in rear of the lumber pile as the successive layers are applied, and to afford time for the movement of the bar E into operative position I provide the cam F with two throw-out notches *f*, diametrically opposite each other, so the clutches will disengage twice in each revolution, as will be understood from Fig. 11. By this means the swinging frame A comes to rest at the point where it is exactly vertical as well as at the

point where it is down in line with the chute. This holds the course of lumber in the vertical position until the traveling bar can be run up to hold the course while the next course is being collected. This bar E moves longitudinally in a vertical direction, being held at its lower end in suitable guides E', while its upper end moves through a guide-opening E² in the framing, such opening E² being elongated to permit a limited back-and-forth play, the upper end of the bar E resting back of a stop E³ when such bar is in its extreme uppermost position.

The bar E drops by gravity, and to properly set its upper end when lowered so it will on its next upward movement adjust properly alongside the last-applied course of the pile I provide a yielding presser G, which is arranged adjacent to the path of the bar and operates to deflect the same when moved downward from alongside one course to position to move alongside the next course when the latter has been applied. In the construction shown this presser G is preferably a lever pivoted at *g* between its ends, having a roller *g'* at one end to bear against the bar E and having a weight *g*² at its other end operating to set the roller against the bar E in such manner as to set the said bar in position to rise alongside the last-applied course.

To lift the bar E, I provide in connection with the drive-shaft H, from which the whole machine derives its motion, a paper friction-pulley H', below which is an iron friction-pulley I' on a shaft I², which shaft carries a spool I³, from which a chain or other connection I⁴ extends up over a sheave I⁵ and thence connects with the bar E near the lower end of the latter. When the shaft I² is turned by the bearing of its friction-pulley I' against the pulley H', the bar E will be raised, and when such pulleys H' I' are out of contact the bar will fall by gravity. To this end the shaft I is supported at its end adjacent to the pulley I' in a sliding box *i*, so the pulley I' can be set into or out of contact with pulley H', the movements of the shaft being effected by means of the lever J, connected with the operator's rod J'.

To hold the bar in elevated position until it is desired to lower it, a concave brake K, lined with leather or the like, is arranged beneath the pulley I', so that when released from bearing against pulley H' such pulley I' will drop into the brake and prevent the spool from unwinding and holds the bar E at any height desired. To let the bar drop, the pulley I' is raised out of the brake, but not enough to bring it into contact with the friction-pulley H'. In operation the bar E is left up with its top behind the stop E³ until a new course of lumber is brought up by the frame A. This pushes the truck ahead and the swinging frame stops. The bar E, being now between two courses, is dropped by the operator, is pressed by the yielding presser G

back so it will pass up back of the last course until its top sets back of the stop E³, as before, when the frame A can be lowered for another course. In this operation as each layer of boards is moved upward by the conveyer-frame the latter also moves up with it the stakes which separate such layer from the following one, and these stakes are held in place by the strain of the boards on the truck acting against the latch overhead and the rock-shaft on which the conveyer-frame is hung below. As the conveyer-frame rises to a perpendicular position the stakes carried up thereby work downward, so that their lower ends rest on the top of the truck which holds the load of lumber, and in reaching such position the lower ends of the stakes come in behind the said rock-shaft and their upper ends are caught by the latches. Then the strain of the boards holds them in place until the next course comes up. This strain is occasioned by the weight mechanism that tends to pull against the load at bottom and top.

The parts E⁴ serve as stops for engagement by the plate E⁵, secured to the bottom of the bar E to limit the upward movement of the said bar.

The stake-feeders L L are arranged one at each side of the swinging frame A, and comprise side beams L', which incline upward to the level of said frame A when the latter is in lowered position. These beams L' have mortises *l* to receive the sprocket-wheels M and grooves *l'* to receive the chains *m* running on said wheels. The chains *m* are carriers having lugs *m'* every second link. The wheels M are on shaft M', and on the lower end of the upper shaft N' is fixed a ratchet-wheel N. A pawl-carrier O turns on this shaft and has a pawl O' engaging the wheel N, a portion O² to engage a stop on the feeder-frame, and a point or portion O³ for engagement by the conveyer-frame, the latter preferably having a lug O⁴ to engage the portion O³, as shown. The spacing-strips being placed on the lugs of the chains, the movement of the frame A imparts a step-by-step motion to the said chains through the mechanism described, and the stakes are fed one at a time up to the tops of the feeders, where they pass through notches *p* into the rest-plates P, which latter may be similar to corresponding parts in my former patent and need not be described in detail. By this construction of feeder the stakes are fed positively to the swinging conveyer-frame.

In practice it has been found that the stanchions shrink more or less in going through the kiln, which gives them a little play and tends to allow the top of the pile to open in the process of loading and let boards get into the spaces so formed. To avoid this, I provide the tension devices consisting of the shafts Q and Q', having sprocket-chains, bearing-stops Q² to receive the ends of the truck-stanchions, and to the shaft Q' is fixed a spool,

from which a cord q , having a weight q' , is disposed over suitable guide-pulleys, so the stress of such weight will operate against the tops of the stanchions, keeping the load snug and tight all the time.

To bind the pile when loaded, I provide malleable-iron rings R , adapted to fit the rounded ends of the stanchions and have projecting hook-like lugs R' .

Levers S are pivoted at S' on the overhead timbers directly over the truck and have connected chains S^2 , provided with hooks S^3 to grasp the stanchions. By this lever mechanism the stanchions may be drawn tightly together and secured by trace or other chains put across the top and linked to the hooks R' of the rings R .

To quickly run the load out of the machine, I provide in practice a shaft T , having a pulley T' , which can be set into contact with the pulley H' , and a spool T^2 , from which a line can be run over suitable guides and connected with the truck.

I do not desire to limit myself to the exact framing shown, as different locations may render changes necessary, and this applies to the location and connection of the workman's levers.

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

1. In a lumber-piling machine the combination with the swinging conveyer-frame and the operating-gears therefor of the connections between said gears and frame, said connections uniting with the frame at a point above the pivot or hinge thereof substantially as set forth.

2. In a lumber-piling machine the combination with the swinging conveyer-frame of the pile-retaining bar movable into and out of position in rear of the lumber pile as the successive courses are applied thereto substantially as set forth.

3. In a lumber-piling machine the combination with the swinging conveyer-frame and means for supplying the stakes thereto of the pile-retaining bar substantially as set forth.

4. In a lumber-piling machine a movable pile-retaining bar dropping by gravity out of position for use combined with means by which to positively move such bar into position for use substantially as set forth.

5. In a lumber-piling machine the combination of the swinging conveyer-frame means by which to operate said conveyer-frame including stop mechanism by which such frame may be stopped at the end of its feed stroke and the retaining-bar substantially as set forth.

6. In a lumber-piling machine, the combination of the pile-retaining bar, vertical guides in which said bar is longitudinally movable whereby it may return by gravity and gear-

ing by which said bar may be lifted substantially as set forth.

7. In a lumber-piling machine the combination with the pile-retaining bar of the yielding presser adjacent to the path of such bar whereby to deflect the same when moved from alongside one course to position to move alongside the next course substantially as set forth.

8. In a lumber-piling machine the combination with the longitudinally-movable retaining-bar of the yielding presser consisting of a pivoted bar having at one end a weight and at its other end a bearing pressing against the retaining-bar substantially as and for the purposes set forth.

9. In a lumber-piling machine the combination of the retaining-bar, the shaft having a drive friction-pulley, the counter-shaft having a spool connected with the retaining-bar and a pulley movable into and out of contact with the drive-pulley and a brake-seat with which the counter-shaft pulley may be engaged substantially as set forth.

10. In a lumber-piling machine the combination of the conveyer-frame, the stake-feeder consisting of an endless carrier and means whereby the movement of the conveyer-frame imparts movement to the stake-feeder substantially as set forth.

11. The combination of the conveyer-frame, the stake-feeder consisting of the endless carrier and devices whereby said carrier is given a step-by-step movement relative to the movement of the conveyer-frame substantially as set forth.

12. The combination of the stake-feeder comprising an endless carrier a ratchet-wheel connected with said carrier a pawl engaging said ratchet-wheel, a bar or carrier for said pawl, and the conveyer-frame movable into engagement with said pawl carrier or bar substantially as set forth.

13. The combination in a lumber-piling machine of the framing, the belt or chain having portions to engage the truck-stanchion, and a weight actuating said belt whereby to cause the same to exert a stress upon the truck-stanchion substantially as set forth.

14. The combination in a lumber-piling machine with the truck-stanchions of the rings fitted thereto and having hook-like portions for engagement by the binding-chains substantially as set forth.

15. The combination in a lumber-piling machine of the framing the load-pressing lever pivoted thereto and the chains or connections secured to said lever and having hooks by which to engage the truck-stanchions substantially as set forth.

HOWARD DANIELS.

Witnesses:

C. C. RODES, Jr.,
G. J. BRADLEY.