C. E. CLEVELAND.

APPARATUS FOR HANDLING LUMBER.

APPLICATION FILED APR. 27, 1908.

922,854. Patented May 25, 1909.

2 SHEETS—SHEET 1.

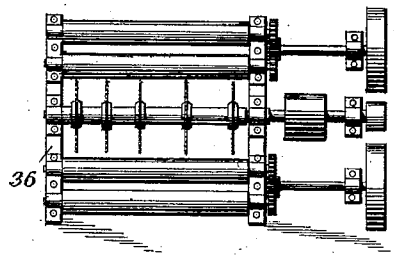


Fig. 1.

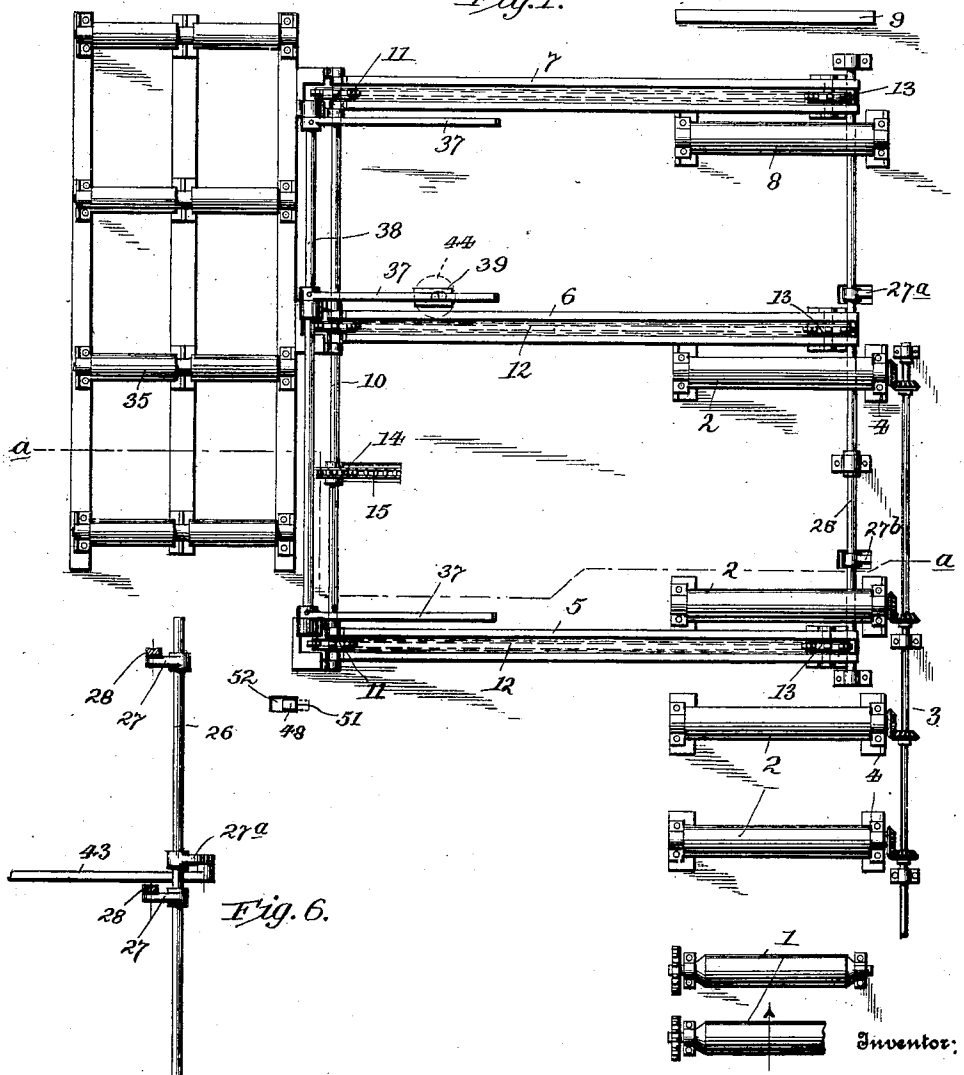
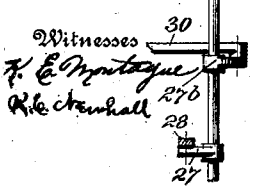


Fig. 6.



Witnesses
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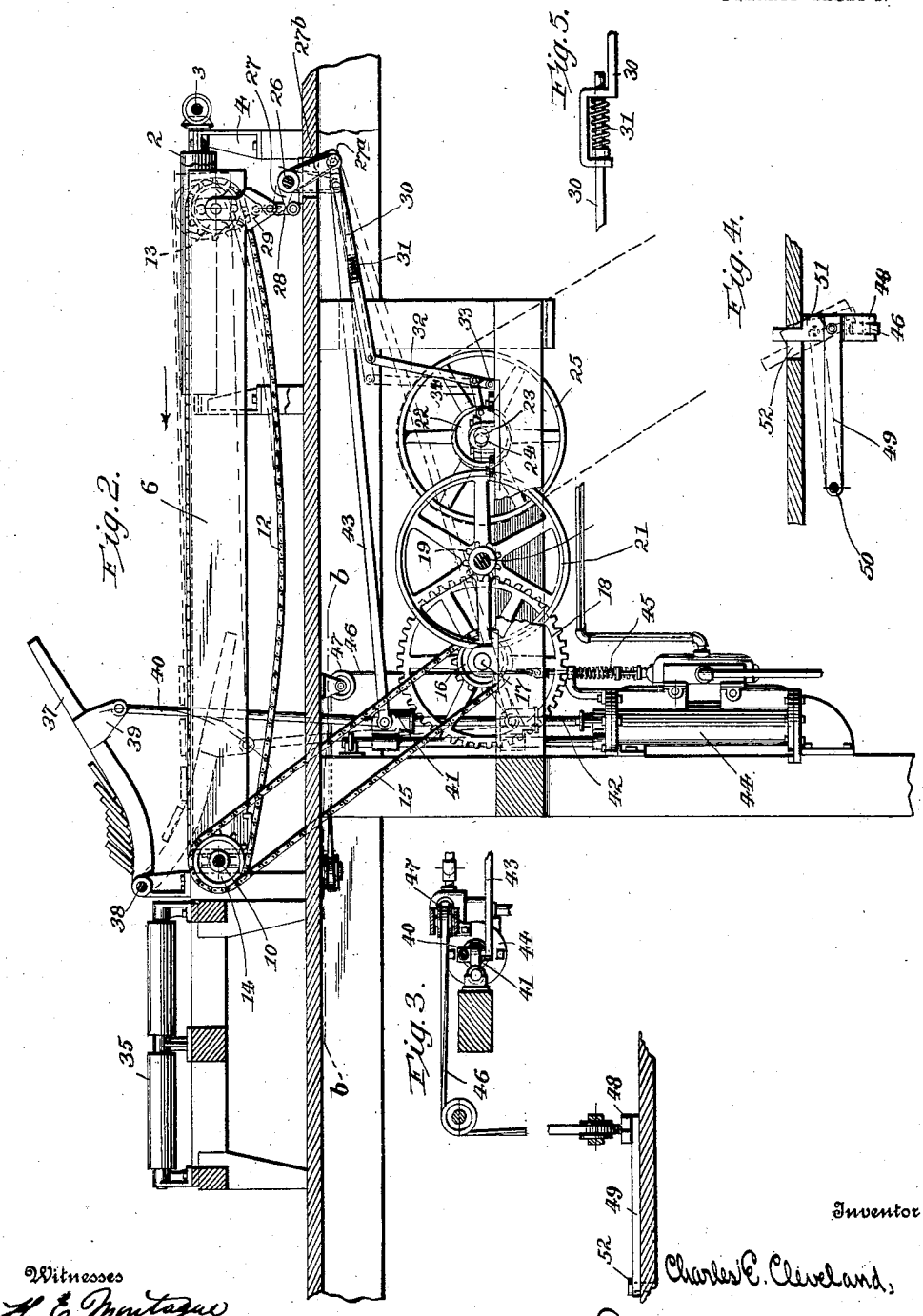
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2 SHEETS—SHEET 2.



Witnesses

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UNITED STATES PATENT OFFICE.

CHARLES E. CLEVELAND, OF FOND DU LAC, WISCONSIN.

APPARATUS FOR HANDLING LUMBER.

No. 922,854. Specification of Letters Patent. Patented May 25, 1909.

Application filed April 27, 1908. Serial No. 429,561.

To all whom it may concern:

Be it known that I, CHARLES E. CLEVELAND, a citizen of the United States, residing at Fond du Lac, in the county of Fond du Lac and State of Wisconsin, have invented certain new and useful Improvements in Apparatus for Handling Lumber, of which the following is a specification.

My present invention pertains to improvements in plants for transferring lumber from one portion of a mill to another, or more specifically from a gang-saw to an edger.

The invention is illustrated in the annexed drawings, wherein:

Figure 1 is a plan view of the apparatus; Fig. 2 a sectional elevation, taken on the line *a*—*a* of Fig. 1; Fig. 3 a horizontal sectional view, taken on the line *b*—*b* of Fig. 2, showing the mechanism whereby the steam valve is manually controlled; Fig. 4 a detail view of a portion of such apparatus; Fig. 5 a detail view; and Fig. 6 a detail view of the rocker-shaft employed in conjunction with the skid-ways.

The main object of the present invention is to provide a system for transferring cants from a gang to a position in which they may be fed to an edger, and while the system is shown as applied specifically to these two machines, it is, of course, conceivable that in a generic sense the stock-lifter may be employed in conjunction with various forms or styles of machines.

A further object of the invention is to provide means whereby the driving mechanism of the chain-race or skids will remain stationary after the material has been passed onto the stock-lifter.

Another object of the invention is to provide means whereby the operator, who sees that the material is properly fed to the gang-edger, may by the manipulation of a foot-lever or the like, automatically position the valve that controls the passage of steam to the cylinder which operates the stock-lifter.

A still further object of the invention is to provide connections between the stock-lifter and the driving mechanism for the chain-race or skids, whereby as the lifter is lowered the driving mechanism for the chains will be brought into operation and the stock or cants which have been fed thereto by the live rolls will be carried forwardly and onto the stock-lifter, which at that time is in a depressed position.

Referring to Fig. 1, 1 denotes the gang or the feed-rolls thereof, and 2 a series of live rolls arranged in line with each other upon the gang, said rolls being driven from a shaft 3 common to all of the rolls. The rolls are mounted in bearings carried by suitable standards or brackets 4, and two or more of the rolls will be located between the pair of chain-races or skids 5 and 6. A third chain-race or skid 7 is likewise employed, and a dead roll 8 is located adjacent thereto in line with the live rolls 2. A stop plate 9 is placed upon the opposite side of the chain-race or skid 7, to prevent the cants from being projected too far beyond said chain-race or skid by the live rolls 2.

The chain-races or skids are fulcrumed upon a shaft 10, rotatably mounted in suitable bearings secured to the framing of the machine, as clearly shown in Fig. 2. The shaft has secured to it a series of sprocket-wheels 11, one in line with each skid or chain raceway, and chains 12 pass about said sprockets and about sprockets 13 mounted at the outer end of each skid. The upper face of each chain in the upper run thereof stands slightly above the upper face of the skid, so that the cants or lumber which rests thereon while the chain is in motion will be fed forwardly in the direction of the arrow, Fig. 2.

The driving shaft 10 has likewise secured to it a sprocket-wheel 14, about which passes a driving chain 15, the chain also passing around a sprocket-wheel 16, mounted upon a shaft 17, which has secured to it a gear-wheel 18. Said gear meshes with a pinion 19, mounted upon a shaft 20, which carries a friction driving wheel 21. Said driving wheel coacts with a driving pulley 22, preferably formed of paper or the like, which is mounted upon a shaft 23, that has its bearings in a sliding box 24, so that the pulley may be moved into and out of contact with the wheel 21 as desired.

Motion is imparted to the shaft 23 by a band-wheel 25 driven from any suitable source of power.

A rocker-shaft 26 is located beneath the outer or free ends of the chain-races or skids, and a series of levers or arms 27 is secured to said shaft, one for each of the skid-ways. Each lever is connected by a link 28 to a bracket or casting 29, extending downwardly from the overlying skid-way.

The parts are so proportioned that when the skids are lowered the chains will lie below

the upper faces of the live rolls 2, and the dead roll 8, so that no lumber will be removed from said rolls even though the chains be moving.

A lever 27^b, secured to the rock-shaft 26, is pivotally connected to a two-part link or arm 30, provided with a spring 31 (see Fig. 5) which permits the link to yield and thus prevent too great pressure being placed upon the paper friction and its coacting wheel 21. The link is pivotally connected to a lever 32, the lower end of which has a fixed fulcrum 33, and a link 34 is pivotally connected to the lever above its fulcrum and to the sliding box 24. Thus it will be seen that if a rocking movement be imparted to the rocker-shaft 26 the skids or chain-races will be raised or lowered as the case may be, and the sliding box moved so as to throw the paper pulley into operative relation with its coacting wheel 21, or out of contact therewith so as to stop the movement of the chains.

While this is the preferred form of the apparatus, it is conceivable that the chains may be constantly driven, and the raising and lowering of the skid-ways made absolutely independent of the driving of the chains. The construction described, however, has the advantage that the chains are moved only when it is absolutely necessary that they should be moving and thus much wear is prevented and the expense of keeping the chains in repair is materially reduced.

Arranged adjacent to the pivoted ends of the skids is a series of rolls 35, said rolls having their axes arranged in line with the path of travel of the chains. Rolls 35 stand in alinement with a gang-edger, denoted by 36, and the stock or cants are transferred from the rolls by the attendant to the gang-edger. In order to effect the proper transfer of the stock from the chains or skid-ways onto the rolls, the latter being arranged at a point slightly higher than the skids, as shown in Fig. 2, I provide a stock-lifter, comprising a series of arms 37, secured to a shaft 38, which latter is mounted in brackets secured to the framing of the mill adjacent to the rolls 35. The arms are preferably of the form best shown in Fig. 2, and the central arm in the construction illustrated is provided with a downwardly-extending arm or bracket 39, which is pivotally connected to the upper end of a rod or link 40, the lower end of which is likewise connected to a slide 41, secured to the upper end of a piston-rod 42. A radius bar 43 is likewise pivotally connected to the slide 41, and to the lower end of an arm 27^a secured to the shaft 26.

The steam cylinder is designated by 44, and the valve controlling the passage of the steam into the cylinder above and below the piston working therein is normally held by a spring 45 in such position as to admit steam to the upper end of the cylinder above the piston, and consequently move the piston and its rod 42 downwardly and thereby bring the lower lifter arms 37 to the position shown in dotted lines in Fig. 2.

As the piston-rod is lowered, the radius bar 43 will be moved to the position shown in dotted lines in Fig. 2, and as a consequence the rocker-shaft 26 will be actuated and the skid-ways raised so as to bring the chains (which will then be automatically set in motion) into working relation with the stock resting upon the live rolls 2. The cants or stock will then be moved along the skidways and onto the curved lifter-arms 37.

When a sufficient number of cants has been stored upon the arms or rest upon the skid-ways over the arms, the operator will change the position of the valve controlling the admission of steam to the cylinder 44, so as to exhaust the steam from above the piston and admit steam to the lower end of the cylinder beneath the piston, thereby elevating the lifter-arms 37 to the position shown in full lines in Fig. 2, at the same time automatically throwing out the driving mechanism for the chains 12 and likewise lowering the outer ends of the skids beneath the level of the upper portion of the live rolls 2.

Any mechanism may be employed whereby the operator may, as desired, change the position of the valve which controls the admission and exhaust of steam to and from the cylinder 44. A simple arrangement is illustrated in the drawings, in which a strap or band 46 is connected to the upper end of the valve-stem, said band passing around pulleys 47 and connected at its opposite end to the lower end of a latch 48, pivotally mounted upon the outer end of a bar 49, fulcrumed at 50 at a point below the flooring of the mill. The latch 48 is provided with an offset or shoulder 51, the upper end of the latch being somewhat reduced and passing freely through an opening 52 formed in the floor of the mill. When it is desired to elevate the valve and consequently admit steam to the lower end of the cylinder, the operator will merely depress the latch with his foot and throw the same over so that the shoulder 51 engages the under face of the floor, as shown in Fig. 4, whereby the strap will be drawn upwardly and the spring compressed. The parts will remain in this position with the stop arms or lifters in an elevated position, the skids lowered and the chain-drive thrown out of gear, until such time as it may be necessary to again reload or replenish the stock upon the lifter, when the operator will merely release the latch and the parts will be automatically thrown into operation.

As will be seen upon reference to Fig. 2, the edgerman or attendant has simply to slide the boards off of the lower end of the

stock-lifter, which is slightly above the rolls 35. No considerable amount of handling of the boards or cants is necessary, and the boards stand in such position that the operator can readily reach the same and feed them to the gang-edger 36.

It is conceivable, of course, that the valve-positioning means may be located at the upper end of the stand of rolls 35, or at any other convenient point.

Having thus described my invention, what I claim is:

1. In an apparatus for feeding lumber, the combination of a plurality of skids; means for traversing the lumber along the same; and a stock-lifter pivoted adjacent to the discharge end of the skids and adapted to be lowered below the skids, whereby the stock may be moved onto and over the lifter.

2. In an apparatus for feeding lumber, the combination of a plurality of skids; means for traversing the lumber along the same; a stock-lifter pivoted adjacent to one end of the skids and at a point above the same; and means for raising and lowering the free end of the lifter so that it may be brought to a point below the skids and thereafter raised with the lumber thereon which has been fed onto and above it by the lumber-traversing means.

3. In an apparatus for feeding lumber, the combination of a plurality of skids pivoted at one end; a series of live rolls adjacent to the free ends of the skids; means for raising and lowering the skids; a stock-lifter arranged adjacent to the pivoted ends of the skids; and means for raising and lowering the lifter above and below the level of the skids, whereby the stock which is taken from the live rolls by the skids will be transferred from said skids to the stock-lifter.

4. In an apparatus for handling lumber, the combination of a plurality of skids pivoted at one end; a series of live rolls arranged adjacent to the opposite ends of the skids; means for raising and lowering the skids above and below the level of the rolls; a stock-lifter arranged adjacent to the pivoted ends of the skids; and means for depressing the stock-lifter and simultaneously elevating the skids, so that the skids may remove the lumber from the live rolls and pass the same over and onto the stock-lifter.

5. In an apparatus for handling lumber, the combination of a plurality of skids pivoted at one end; a series of live rolls arranged adjacent to the opposite ends of the skids; a stock-lifter located adjacent to the pivoted ends of the skids; conveying means for the lumber, working in conjunction with the skids; and means for simultaneously lowering the stock-lifter, elevating the skids, and throwing the conveying means into operation.

6. In an apparatus for handling lumber, the combination of a plurality of skids pivoted at one end; a series of live rolls arranged adjacent to the opposite ends of the skids; a stock-lifter pivotally supported adjacent to the pivoted ends of the skids; conveying means working in conjunction with the skids to transfer the lumber from the live rolls onto the stock-lifter; a power cylinder; and actuating connections operated by said cylinder for raising the skids and lowering the stock-lifter, and vice versa.

7. In an apparatus for handling lumber, the combination of a plurality of skids pivotally mounted at one end; a series of live rolls arranged adjacent to the free ends of the skids; a stock-lifter arranged adjacent to the pivoted ends of the skids; means for transferring the lumber from the live rolls along the skids and onto the stock-lifter when the latter is depressed; a power piston; actuating connections controlled by said piston for simultaneously raising the skids and lowering the stock-lifter, and vice versa; and means actuated by the raising and lowering of the skids to throw the transferring means into and out of operation.

8. In an apparatus for handling lumber, the combination of a plurality of skids pivotally mounted at one end; a series of live rolls arranged adjacent to the opposite ends of the skids; a rocker-shaft extending beneath the skids at their free ends; a plurality of arms mounted upon the rocker-shaft, one for each skid; connections between said arms and the skids; a plurality of stock-lifter arms arranged adjacent to the pivoted ends of the skids; a power piston; connections between said piston and the stock-lifter arms for lowering and raising the same below and above the skids; and connections between said power piston and the rocker-shaft, whereby, as the stock-lifter arms are raised the skids will be lowered, and vice versa.

9. In an apparatus for handling lumber, the combination of a series of skids pivotally mounted upon a common shaft; a series of sprocket-wheels, one for each of said skids, carried by the shaft; an idler sprocket carried at the opposite end of each of said skids; an endless chain passing about each pair of driven and idler sprockets; driving mechanism for said shaft; a series of live rolls arranged adjacent to the outer free ends of the skids; a rocker-shaft located beneath said skids at their outer free ends; connections between said shaft and each of the skids; a stock-lifter comprising a plurality of arms secured to a shaft pivotally mounted adjacent to the shaft upon which the skids are pivoted; a power piston; connections between said power piston and the stock-lifter for lowering and raising the same; connections between said power piston and the rocker-shaft for actuating said shaft to raise and lower the skids, the skids being raised as

the stock-lifter is lowered, and vice versa; and means actuated through the movement of the rocker-shaft for throwing the power shaft which drives the chains into and out of operation.

10. In an apparatus for handling lumber, the combination of a plurality of skids pivoted at one end; a series of arms fulcrumed at one end at a point above the skids; and means for raising and lowering the arms to bring the free ends thereof to a point below the skids, whereby the lumber may be passed along to the skids and onto and above the arms preparatory to an upward movement of the arms to carry the lumber free of the skids.

11. In an apparatus for handling lumber, the combination of a plurality of skids pivotally mounted at one end; means for raising and lowering the outer ends of the skids; a plurality of arms secured to a common shaft, said shaft being located at a point above the skids; means for raising and lowering the arms, so as to carry their free ends above and below the skids; and means under the control of the operator for positioning the means for raising and lowering the arms.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES E. CLEVELAND.

Witnesses:

FRANK J. WOLFF,

H. G. DE SAMBRE.