J. H. BERRYMAN.

LUMBER TRIMMER.

APPLICATION FILED APR. 19, 1920.

1,410,156. Patented Mar. 21, 1922.

3 SHEETS—SHEET 1.

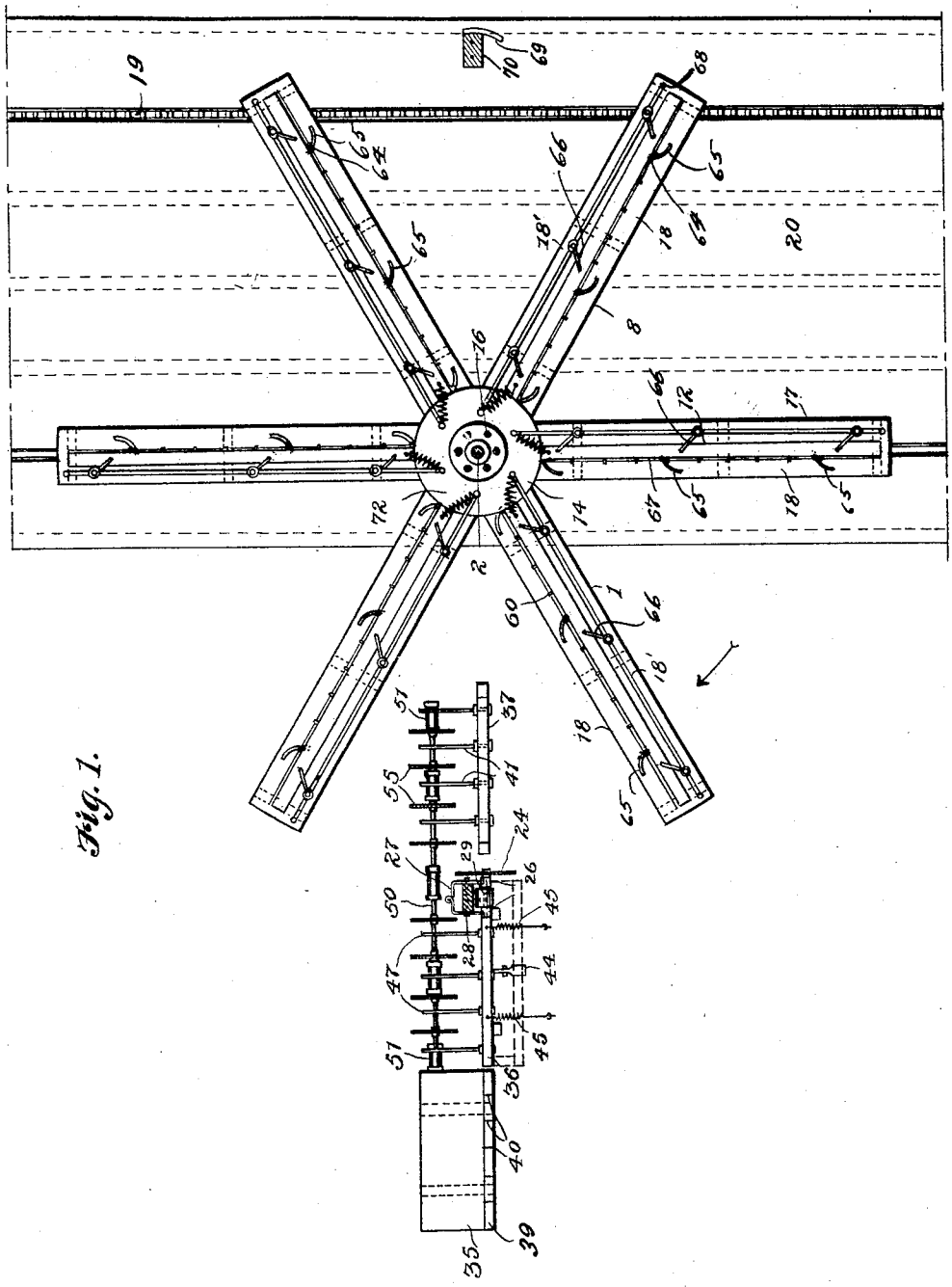

Fig. 1.

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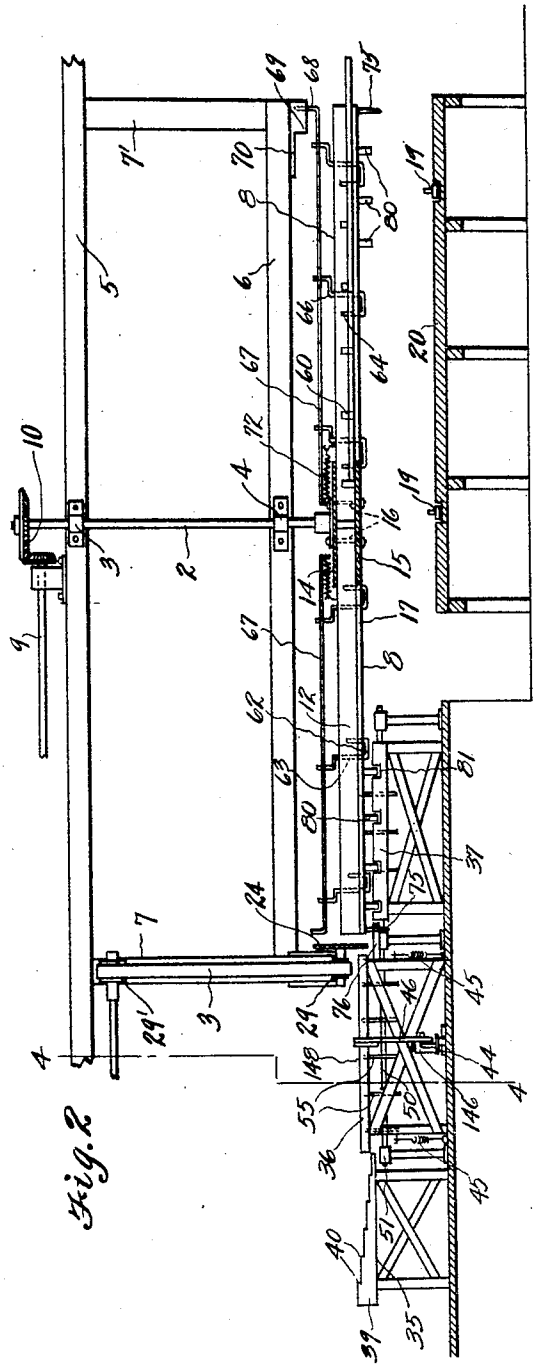

Fig. 2

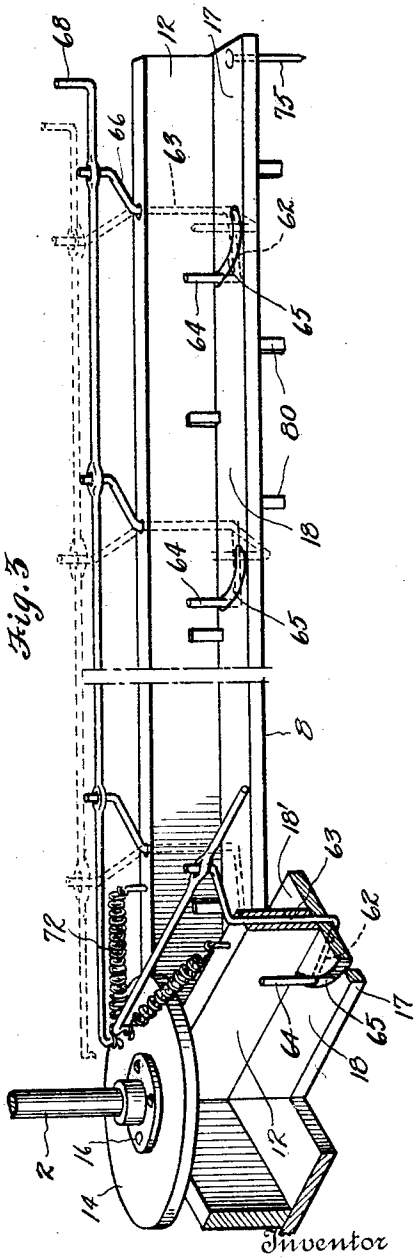

Fig. 3

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3 SHEETS—SHEET 3.

Fig. 5

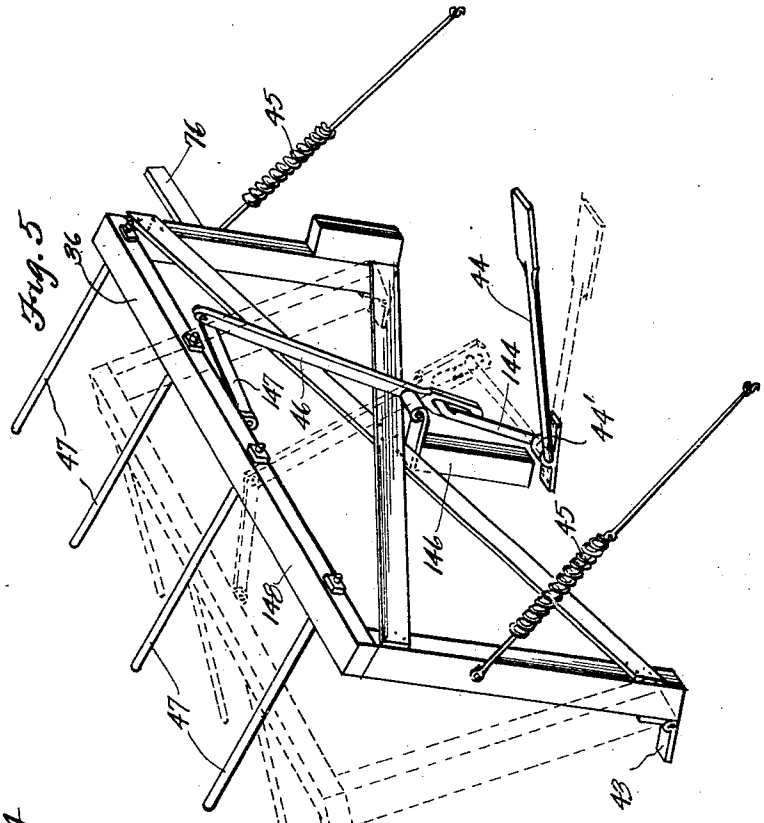
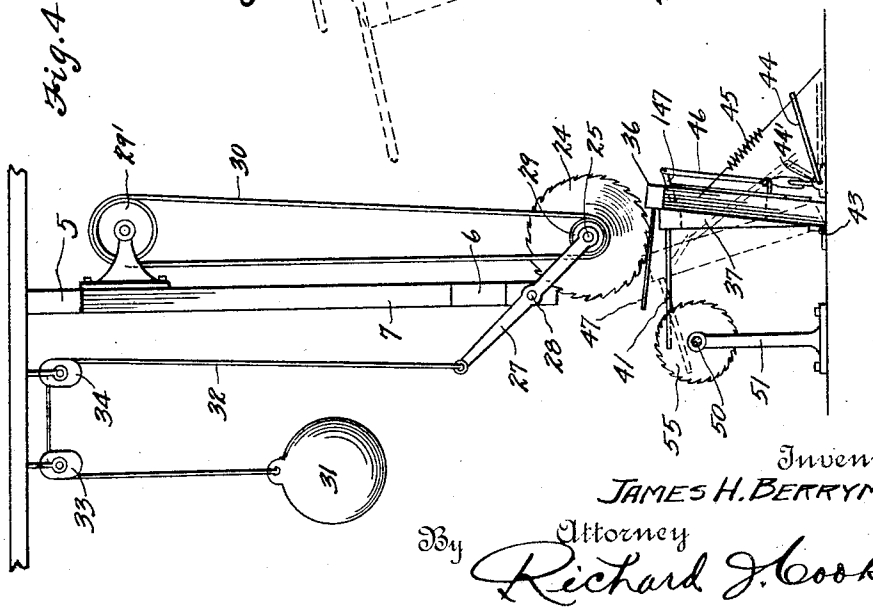


Fig. 4



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UNITED STATES PATENT OFFICE.

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LUMBER TRIMMER.

1,410,156. Specification of Letters Patent. Patented Mar. 21, 1922.

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To all whom it may concern:

Be it known that I, JAMES H. BERRYMAN, a citizen of the United States, and resident of Snoqualmie Falls, county of King, State of Washington, have invented certain new and useful Improvements in Lumber Trimmers, of which the following is a specification.

My invention relates to improvements in lumber trimmers, and more particularly to a device of that character wherein a horizontally suspended rack, comprising a plurality of radially extending carriers whereon lumber may be placed for trimming, is driven rotatively to bring the boards successively into engagement with a continuously driven trimming saw.

The principal object of the invention is to improve upon machines now generally in use for doing this work, by the provision of a relatively inexpensive machine, which may be operated at a comparatively small cost, which will greatly expedite the passing of lumber to the trimming saw, which will provide for quick and accurate placing of the lumber so that it will be trimmed in the clear at standardized lengths and which includes means whereby defective parts trimmed from the boards may be cut into suitable lengths for stove use.

It is also an object of the invention to provide in connection with the rotating rack, a tripping means whereby the boards may be automatically discharged onto a conveyer after their ends have been trimmed, and carried from the trimming room. Also to provide means for yieldingly holding the trimming saw in functional position and serving as a safety appliance that will permit the saw to disengage itself from the lumber when occasion is necessary to prevent choking.

In accomplishing these and other objects of the invention, I have provided the improved details of construction, the preferred forms of which are illustrated in the accompanying drawings, wherein:

Figure 1 is a plan view of a rotary rack trimmer constructed according to the present invention.

Figure 2 is a side elevation of the same.

Figure 3 is a detail perspective view of one of the carrier arms, particularly illustrating the tripping mechanism for discharging boards therefrom onto the conveyer after their ends have been trimmed.

Figure 4 is a vertical section taken substantially on the line 4—4 in Figure 2, illustrating the manner of mounting the trimming saw.

Figure 5 is a detail perspective view of the tiltable rack and its actuating means.

Referring more in detail to the several views of the drawings—

1 designates the rotary rack as a whole. This is suspended and revolubly driven by means of a driving shaft 2 that is fixed revolubly within vertically alined bearings 3 and 4 fixed to supporting beams 5 and 6 respectively; the beam 6 preferably being suspended from the beam 5 by means of hangers 7 and 7′ at its opposite ends.

The rack 1 comprises a plurality of carriers 8 that extend radially as the spokes of a wheel from the hub portion of the rack, and are adapted to be revolved in a horizontal plane by means of the shaft 2 which is driven from a motor driven shaft 9 through connecting gears as indicated at 10.

In its preferred construction the rack 1 consists of six of the carriers 8. These are equally spaced apart and each consists of a plank 12 that is fixed, at its inner end, edgewise between circular, horizontally spaced hub plates 14 and 15 that are secured together, and to a hub casting wherein the shaft 2 is fixed, by means of a series of bolts 16. Fixed longitudinally to the lower edges of the planks 12 are other planks 17 which project at opposite sides of the planks 12 to form shelves 18 and 18′ whereon boards may be placed to be carried to and from the trimming saw as is presently described.

The rotating rack is supported clear of the floor, and operating thereunder at one side, is a conveyer comprising chains 19 which are actuated along a supporting structure 20 to first bring the boards to be trimmed to the trimming rack, and after they have been trimmed thereby, to carry the clear pieces from the trimming room. In a device of this character, the person employed to put the boards onto the rotating rack, more commonly known as the "spotter" stands at the right of the conveyer and close to the rack as it is shown in Figure 1.

At the side of the rack opposite the place where the boards are loaded thereon, is a

cut off or trimming saw 24, which in this case is of the circular type and is fixed on a shaft 25 that is carried by bearings 26 provided at the outer ends of a U shaped hanger arm 27 that is pivotally fixed by a bolt 28 to the lower end of the hanger timber 7; the saw being suspended in such manner that it may be moved vertically in an arc about the bolt 28.

A pulley 29 is fixed on the shaft 25 between the supporting bearings and a driven pulley 29′ is mounted adjacent the upper end of the hanger timber 7 over which a belt 30 operates to drive the saw. A weight 31 is suspended by a cable 32 that extends downwardly from the weight, over pulleys 33 and 34 and then downwardly and is attached at its lower end to the inner end of the pivotally mounted hanger 27, in such manner that the weight causes a driving tension to be placed on the belt and the saw to be yieldingly held against the piece being trimmed.

When in normal position the saw is suspended so that the outer ends of the carriers will pass close thereto and the ends of the boards carried by and projecting beyond the ends of the carriers will be trimmed off by the saw as they are advanced to the cutting point.

At the side of the rack 1 opposite the conveyer are receiving racks 35, 36 and 37; the racks 36 and 37 being placed at opposite sides of the cut-off saw and the rack 35 being at the outside of the rack 36. This latter rack comprises a top rail 39 which is stepped to provide a series of stops 40 against which the ends of boards may be placed in order to gauge their lengths when being trimmed off at their opposite ends. The rack 37 is so located that the ends of the carriers 8 pass thereover as the rack 1 revolves and it comprises a stationary frame structure having a horizontal top rail from which bars 41 are extended to catch trimmed off pieces as is presently described.

The central rack 36 comprises a framework that is fixed to the floor by means of hinges as shown at 43, in such manner that its upper portion may be moved transversely of the row of racks. This movement is effected by means of a foot pedal 44 that is mounted at one end in a floor plate 44′. The pedal has an upwardly turned end portion 144 that is connected slidably at its upper end to the lower end of a lever 46 which in turn is pivotally mounted upon a post 146 secured to the floor. A link 147 connects the upper end of the lever with the upper rail 148 of the rack 36 in such manner that pressing downwardly on the outer end of the pedal 44 will cause the rack to be actuated toward the saw 24 and boards that may be placed upon the bars 47 will be carried against the saw 24. Normally the rack 36 is held out of alinement with the racks 35 and 37 and in position that it may catch the ends trimmed from boards carried on the rack 1 by the saw 24, by means of springs 45 which are fixed to the floor and to the side rails of the rack as is shown best in Figure 5.

A driven shaft 50 is supported revolubly in bearings 51 alined with the racks 36 and 37 below the bars 47 and 41 thereof, whereon, at regular intervals, circular saws 55 are mounted and against which boards placed on the said bars may be moved to be cut into short lengths suitable for stove use.

In using the rack 1, assuming that it is being rotated in the direction indicated by the arrow in Figure 1, boards brought in by the conveyer chains 19 are taken up by the "spotter" and placed on the shelves 18 at the forward sides of the carriers, and in order that they may be cut at standardized lengths, their inner ends are placed adjacent one of a plurality of properly located stops 60 that are secured to and extend outwardly from the forward faces of the planks 12, so that the outer ends of the boards extend beyond the end of the carriers.

As the rack 1 rotates, the extending ends of boards placed by the "spotter" on the carriers are brought into contact with the trimming saw 24, and the waste ends are cut therefrom and are dropped onto the cross bars 47 of the rack 36, while the clear part of the boards left on the carriers are carried on around toward the starting point and are delivered as will now be described onto the conveyer and carried from the room.

The tripping mechanism for discharging the boards from the carriers onto the conveyer comprises a series of arcuately swinging arms 62 that extend laterally from the lower ends of vertical rods 63 that are revolubly supported at spaced apart intervals along the length of the planks 12. The arms 62 have upturned portions 64 at their outer ends which extend upwardly through arcuate slots 65 in the planks 17 and are adapted to swing outwardly, when the shafts 63 are revolved, to engage boards that may be on the shelves 18, to push the latter from the carriers. At their upper ends each of the shafts 63 has a laterally extending crank arm 66 and the arms of each carrier are connected by rods 67 whereby they may be actuated simultaneously. At its outer end each rod 67 has an upturned end portion 68 which is adapted to be brought into engagement, by the revolving of the rack, with an inwardly directed flange 69 of a plate 70 secured to the under side of the beam 6 at its end opposite the cut-off saw, so that the rods will be actuated inwardly to revolve the rods 63 and cause the boards to be discharged onto the conveyer at this point. As soon as a carrier has passed the plate 70, the

arms 62 are all moved back to normal position by the tension of springs 72 which are fixed to the inner ends of the rods 67 and to the beams 12 in such manner that the rods are urged outwardly at all times and the ends 64 of the arms 62 are normally retained adjacent the plank 12.

Assuming that it is desired to trim a waste portion from near the center of a board, the latter is placed on a carrier of the rack 1 as it revolves, with the waste portion extending beyond the end of the carrier. As the rack revolves, the carrier moves the board against the cut-off saw 24 and the extending end portion is cut off and the part in the clear remains on the carrier to be later discharged onto the conveyer. The end of the board which has been cut off and dropped onto the rack 36 is then taken up by an operator, who stands at the side of the rack 36, and it is positioned on the rack for trimming out the waste and it is moved toward and against the cut-off saw, 55, by the inward movement of the table 36 effected by depression of the foot pedal 44. The waste piece trimmed out falls onto the rack 37 and the clear piece is then placed on an arm of the rotating rack and is delivered thereby onto the conveyer.

Where there is no clear lumber to be taken from the part cut off, the waste end is let fall onto the bars of the rack 36, and in order that these waste ends may be moved against the saws 55 to be cut into short lengths, I have extended spikes 75 downwardly through the outer ends of each of the carrier planks 17 which will engage a stop 76 fixed to the rack 37 in a manner that will cause that rack to be moved inwardly against and the waste pieces thereon carried against the saws 55. Also on the under side of each carrier plank 12 are fixed depending fingers 80 which are adapted to pass through slots 81 in the upper frame rail of the rack 37 and to engage the waste ends that are supported by the bars 47 so that these pieces will also be moved by the saws 55 to be cut into the short, stove lengths.

It is apparent that by the use of a device of the character described, there is a great saving of labor, as two men can do what ordinarily is done by six to twelve men. It is further apparent that the simplicity of construction provides a relatively inexpensive device wherein all the desired qualities of machines of this character are incorporated in a manner which will facilitate and expedite the trimming of lumber to all the standardized lengths.

I claim—

1. A lumber trimming device of the character described comprising, a driven trimming saw, a rotatably mounted rack comprising a plurality of horizontally and radially extended carriers whereon boards may be placed for trimming, and means for rotating the rack to successively advance the carriers and boards thereon to the trimming saw.

2. A lumber trimming device comprising, a circular driven trimming saw, a rotatably suspended rack comprising a plurality of horizontally and radially extending carriers adapted to support boards longitudinally thereon in trimming position, length gauging members located at spaced intervals along the carriers and means for rotating the rack to advance the boards against the trimming saw.

3. A lumber trimming device of the character described comprising in combination, a driven trimming saw, a rotatably suspended rack having a plurality of carriers extending radially and horizontally therefrom whereon boards may be placed in position for trimming, means for rotating the rack to move the carriers successively past the trimming saw to effect the trimming of boards carried thereon and tripping means on the carriers for discharging the boards therefrom at a predetermined point after the trimming has been done.

4. A lumber trimming device of the character described comprising in combination, a horizontally moving conveyer, a driven trimming saw, a horizontally rotating rack comprising a plurality of radially extending carriers adapted to pass closely above the conveyer and their ends to pass closely to the trimming saw and being adapted to support lumber in position to be trimmed thereon, means for rotating the rack to advance the boards on the carriers against the trimming saw and tripping means for discharging the trimmed boards from the carriers onto the conveyer.

5. A device of the character described comprising in combination, a driven trimming saw, a rotatable rack at one side of said saw comprising a plurality of radially and horizontally extending carriers whereon lumber may be placed to be advanced against the trimming saw, stationary racks for receiving the ends cut from the boards advanced by the carriers, a plurality of closely spaced saws mounted adjacent the stationary racks and means mounted on the outer ends of the carriers for engaging said pieces of boards to move them against the said spaced saws for the purpose set forth.

6. A device of the character described comprising in combination, a driven trimming saw, a rotatable rack at one side of said saw comprising a plurality of radially extending carriers whereon boards may be placed to be advanced to the trimming saw, a tiltable table mounted at the opposite side of the cut-off saw for receiving the

ends cut from the boards, a saw shaft mounted below said table longitudinally therewith having saws closely spaced thereon, manual means for actuating the table toward the saws to cause the board ends to be cut into short lengths thereby, and means projecting from the ends of said carriers adapted to engage said tiltable table to automatically actuate the same toward the saws for the purpose set forth.

Signed at Seattle, Washington, this 7th day of April, 1920.

JAMES H. BERRYMAN.