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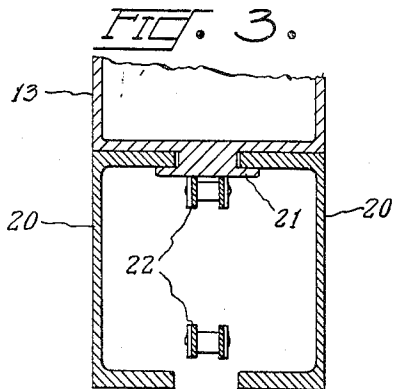
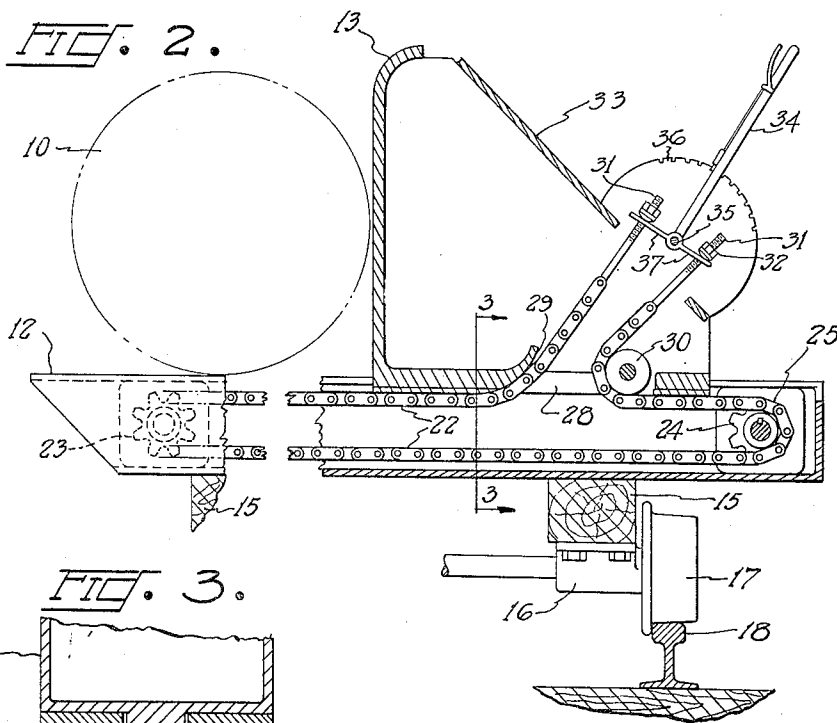
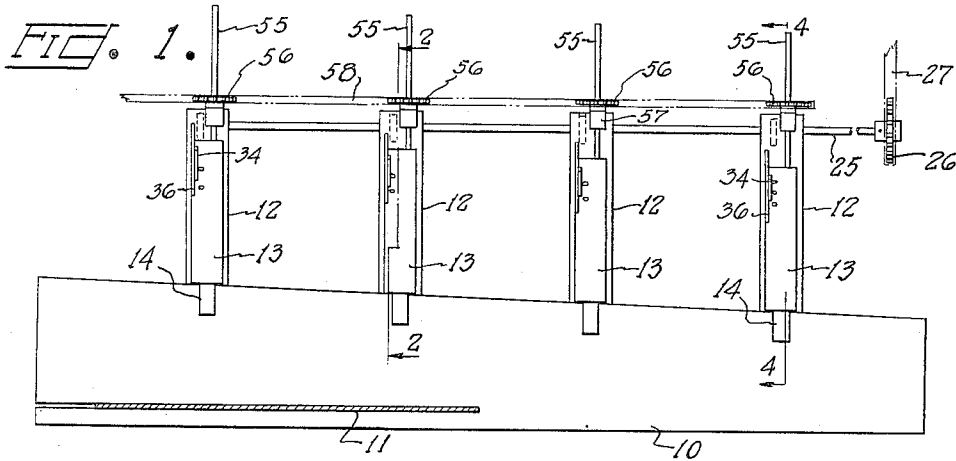
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HEADBLOCK KNEES ON LUMBER MILL CARRIAGE

Filed Oct. 21, 1946

2 Sheets-Sheet 1



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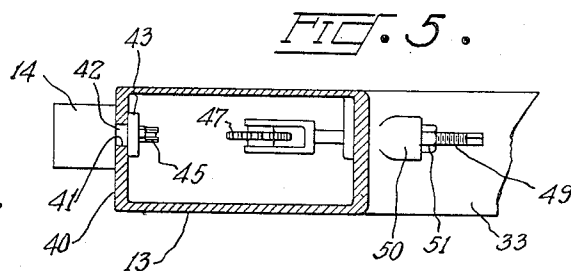
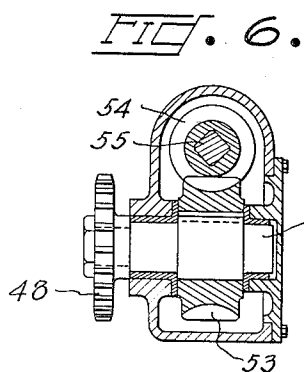
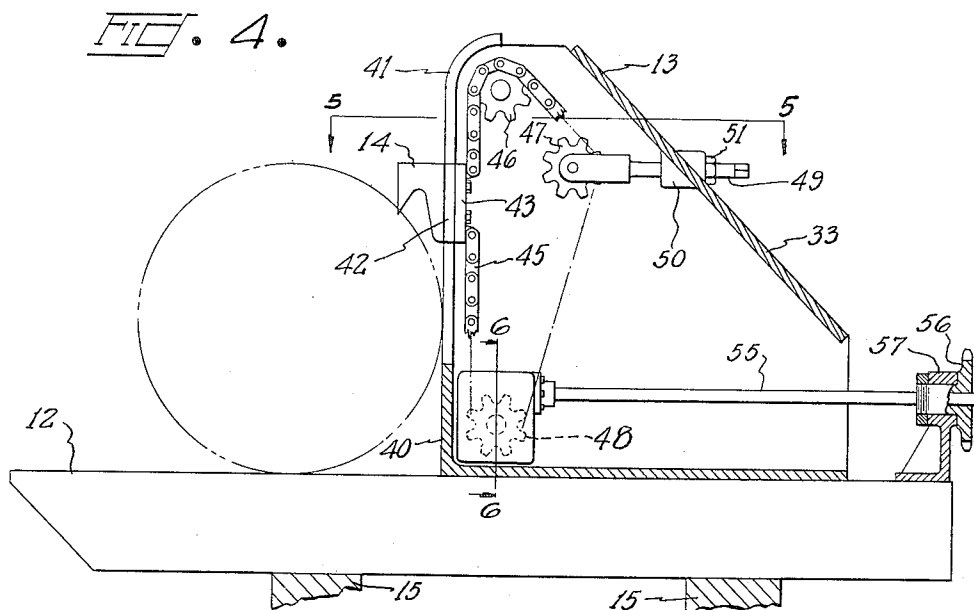
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HEADBLOCK KNEES ON LUMBER MILL CARRIAGE

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UNITED STATES PATENT OFFICE

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HEADBLOCK KNEES ON LUMBER MILL
CARRIAGE

William R. Coote, Dallas, Oreg.

Application October 21, 1946, Serial No. 704,752

6 Claims. (Cl. 143—120)

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This invention relates to improvements in a lumber mill carriage for carrying logs through a saw.

The invention is concerned with a lumber mill carriage of the type adapted to hold a log in fixed positions for successive longitudinal movements past a vertical saw in the process of cutting logs into cants and lumber. Auxiliary means are ordinarily associated with such a carriage for turning the log through 90 degrees after one or more parallel cuts have been made, to present successively four sides of the log to the saw to make the cuts most advantageously for obtaining the sizes of lumber desired. The usual log carriage for this purpose comprises a plurality of horizontal headblocks mounted on wheels to roll on a track extending parallel with the log, so that the latter may be moved endwise through the saw to cut off slabs and planks extending the full length of the log. The individual headblocks carry adjustable knees for moving the log sidewise to the proper position in relation to the saw to make the desired cut.

One object of the present invention is to provide a novel and improved mechanism for adjustably positioning the knees on the headblocks to compensate for the taper of the log so that the maximum amount of rectangular lumber may be cut from a round, tapering log. Other objects are to provide novel and improved log engaging dogs on the knees, and to provide novel operating mechanism for such dogs which will accommodate independent movements of the individual knees properly to align a tapered log.

These general objects are attained through the provision of a sliding knee attached to an endless chain on sprocket wheels in each headblock, which sprockets may be rotated by a common shaft to move all the knees in unison and wherein the knees may be adjusted individually on their respective chains to vary the position of each knee in accordance with the diameter of the log at that point. Each knee is also provided with a vertically sliding log engaging dog attached to another endless chain on sprocket wheels which may be rotated simultaneously in all the knees, regardless of the relative positions of the different knees on their respective headblocks.

Other objects and advantages will become apparent from the following specification taken in connection with the accompanying drawings illustrating a preferred embodiment of the invention. The present drawings and descriptions

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are for the purpose of illustrating the principles of the invention and not for the purpose of limiting the invention, the same including all variations and modifications within the scope of the appended claims.

In the drawings:

Figure 1 is a fragmentary plan view of a lumber mill carriage showing a preferred arrangement of headblocks and knees constructed according to the principles of the present invention;

Figure 2 is a sectional view through one of the headblocks and knees, taken substantially on the line 2—2 of Figure 1 to show the headblock adjustment;

Figure 3 is a cross sectional view taken through one of the headblocks on the line 3—3 of Figure 2;

Figure 4 is a sectional view through one of the headblocks and knees, taken substantially on the line 4—4 of Figure 1 and showing the mechanism for operating the log holding dog;

Figure 5 is a sectional view through the knee taken on the line 5—5 of Figure 4; and

Figure 6 is a sectional view taken on the line 6—6 of Figure 4.

In Figure 1 the numeral 10 designates a log which is being moved by a carriage into the path of the saw 11 to make a longitudinal cut parallel with previous cuts which have already been made in the same manner. The log 10 is resting on a plurality of horizontal headblocks 12 on the carriage, and the alignment of the log with respect to the saw is determined by the positions of the knees 13 on the headblocks

12. Each knee carries a dog 14 having a sharp prong adapted to engage the log and hold it against the knee. The mechanism for moving the knee on each headblock is shown in Figure 2 and the mechanism for moving the log engaging dog on each knee is shown in Figure 4.

In Figure 2 the knee 13 is retracted on the headblock 12 in a position to receive the log 10, it being understood that after the log has been engaged by the dog 14 to hold it securely against the knee the latter may be moved to the left to cause a portion of the log to project over the end of the headblock 12 in the plane of the saw in order to cut the desired thickness of slab or plank from the log when the carriage is traversed. The several headblocks 12 are secured to a pair of longitudinal timbers 15 having bearings 16 for the wheels 17 to provide rolling support for the carriage on a pair of track rails 18, only one of these wheels and rails being shown.

Each of the headblocks 12 on the carriage comprises a pair of steel channels 20 positioned on edge on the timbers 15 and slightly spaced so that the upper flanges of these channels form a slide for the knee 13 as shown in Figure 3. The underside of the knee is provided with a sliding guide flange 21 to keep the knee aligned and seated on the channels for movement thereon to different adjusted positions. Between the channels 20 a chain 22 is carried on a pair of sprocket wheels 23 and 24, the former being an idler sprocket and the latter being a driving sprocket keyed to a longitudinal shaft 25 extending through the various headblocks 12. The shaft 25 carries an external sprocket wheel 26 for rotation by a chain 27. The ends of the chain 22 pass upwardly between the channels 20 through an opening 28 in the underside of the knee. On one side of the opening 28 is a curved surface 29 forming a chain guide for one end of the chain, and on the other side of this opening is a roller 30 for the other end of the chain, the two chain ends terminating in threaded bolts 31.

These two bolts are anchored by nuts 32 to a pair of ears 37 on a lever 34. This lever is pivotally mounted at 35 on a notched sector plate 36 on a plate 33 on the knee to hold it in a plurality of adjusted positions. The ears 37 are disposed on opposite sides of the pivot 35 so that movement of the lever is effective to shorten one end of the chain and lengthen the other end to shift the position of the knee relative to the chain when the latter is held stationary by the gear 24. Each knee carries an individual adjustment of this type, as shown in Figure 2.

Thus it will be apparent that by rotating the shaft 25 the several knees 13 may be moved to the left in unison, as viewed in Figure 2, to cause a portion of the log to extend over the ends of the headblocks for a sawing operation. By shifting the levers 34 the individual knees may be adjusted on the chains to compensate for the different diameters of the log at each knee in order properly to align the log with the saw to get the maximum amount of lumber from a tapered log. It is, of course, understood that any other suitable mechanism may be provided for simultaneously tightening and loosening the opposite ends of the chain to effect such individual adjustment of the knees quickly and with a minimum of effort. Since the chains 22 all move in unison with the shaft 25, the individual adjustments of the knees on the chains will not be disturbed when the knees are all moved at once by this shaft.

The actuating mechanism for the dogs 14 is shown in Figures 4 to 6. Each of the knees has an upstanding vertical log engaging face 40 provided with a vertical slot 41 for receiving a narrow sliding guide block 42 on the rear side of the dog 14. A flange plate 43 is secured to the inner side of the guide block 42 to hold the dog in the slot which thereby forms a vertical guide track for the dog. The dog is raised and lowered in the slot 41 by means of a chain 45 having its ends attached to the plate 43 and its length trained over a series of sprocket wheels 46, 47 and 48. The sprocket 46 is an idler sprocket and the sprocket 47 is a chain tightening sprocket mounted on the end of a threaded bolt 49 passing through a guide boss 50 in the plate 33. This bolt may be secured in adjusted longitudinal position by means of the nut 51 to maintain a taut condition in the chain. The driving sprocket 48 is carried on the end of a short shaft 52 having

a worm gear 53 driven by a worm 54 on a squared shaft 55. The square shaft 55 is longitudinally slidable through a square hole in a sprocket wheel 56 journaled in a fixed bearing 57 mounted at the end of the headblock 12 beyond the range of movement of the knee. The gears 56 on the several headblocks are driven by a common chain 58 to move the log engaging dogs 14 in unison. Thus, when the knees are moved back and forth on the headblocks 12, either in unison or by individual adjustment, the squared shafts 55 may slide in and out of the sprocket wheels 56 whereby the mechanism for moving the dogs 14 and the mechanism for moving the headblocks do not interfere with each other.

In Figure 1 it will be observed that the different knees are adjusted to different positions on their respective chains by means of the levers 34 to compensate for the taper of the log whereby the axis of the log is positioned parallel with the saw and the tracks rails 18, the dogs 14 being engaged with the log to hold it in such position firmly against the knees. The prongs on the dogs 14 are adapted to bite into the bark on the thick end of a log to sufficient depth to allow the dogs at the small end of the log to obtain a good grip thereon, without individual relative adjustment of the dogs on the different knees. By rotating the shaft 25 the log is shifted sidewise in parallel motion, first to slab off one side parallel with the log axis, and then to make further successive parallel cuts to form planks, if desired, the square shafts 55 sliding through the sprocket wheels 56 each time the knees are moved on the log supports. Figure 1 shows the log with the initial slab and several planks already cut off, while Figures 2 and 4 show the uncut log in loading position before it has been moved out into the line of action of the saw. The auxiliary mechanism for turning the log is not shown.

Certain variations in the construction and arrangement of the parts will occur to persons skilled in the art, and all such modifications within the scope of the appended claims are included in the invention.

Having now described my invention and in what manner the same may be used, what I claim as new and desire to protect by Letters Patent is:

1. A lumber mill carriage comprising a plurality of headblocks, a knee mounted for sliding movement on each of said headblocks, a sprocket wheel mounted on a bearing on each of said headblocks, a sliding dog on each of said knees for engaging a log on said headblocks, an endless chain in each knee connected with said dog for moving said dog, a shaft on each headblock in driving engagement with said sprocket wheel for driving said chain in different positions of the knee on the headblock, and a common driving means for all of said sprocket wheels.

2. In a lumber mill carriage, a plurality of knees mounted for sliding movement on respective headblocks, an individual chain for moving each knee, an anchor member in each knee for the chain ends, individual length adjustment means for securing said chain ends to said anchor member, means for adjusting the position of said anchor member to shorten one chain end and lengthen the other chain end relative to the knee, and a common shaft in the carriage having sprockets respectively engaging all said chains to move all the knees in unison.

3. In a lumber mill carriage, a plurality of knees mounted for sliding movement on respec-

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tive headblocks, an individual chain for moving each knee, an adjustable anchor for said chain ends pivotally mounted in the knee and having arms extending on opposite sides of the pivot for the respective chain ends, length adjustment means for securing said chain ends to said arms, a handle for rocking said anchor lever on its pivot to shorten one chain end and lengthen the other end relative to the knee to move one knee individually, and a common shaft in the carriage having sprockets respectively engaging all of said chains to move the knees in unison.

4. In a lumber mill carriage, a plurality of knees mounted on headblocks, an individual chain for moving each knee, anchor means in each knee for the chain ends, a common shaft in the carriage having sprockets engaging said chains to move the knees in unison, each anchor means comprising a lever connected with said chain ends on opposite sides of a pivot, and means to rock said lever on its pivot to shorten one chain end and lengthen the other end for moving said knee individually on its slide relative to said chain.

5. In a lumber mill carriage, a plurality of knees mounted on headblocks, an individual endless chain for moving each knee, anchor means for each chain in its knee, an adjusting member for each anchor means to move the knee individually on its headblock relatively to its chain, a series of sprockets engaging said chains to move all the knees in unison, a sliding dog on each knee, chain and sprocket means for moving said dogs, a rotatable driving member mounted on the carriage behind each knee, shafts connected with said chain and sprocket means in each knee and having sliding and driving engagement with said driving members,

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and a common driving means connected with all said driving members for moving said dogs in unison in different adjusted positions of the knees.

6. In a lumber mill carriage, a plurality of knees mounted for sliding movement on respective headblocks, a sliding dog on each knee, chain and sprocket means for moving each dog, a rotatable driving member mounted on the carriage behind each knee, a shaft connected with each chain and sprocket means in each knee and having sliding and driving engagement with the corresponding one of said driving members, and a common driving means connected with all of said driving members for moving said dogs in unison in different positions of the knees on the headblocks.

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