April 2, 1946. B. E. KENNEY, JR 2,397,490

APPARATUS FOR REMOVING BARK FROM SLABS

Filed Jan. 31, 1944 3 Sheets-Sheet 1

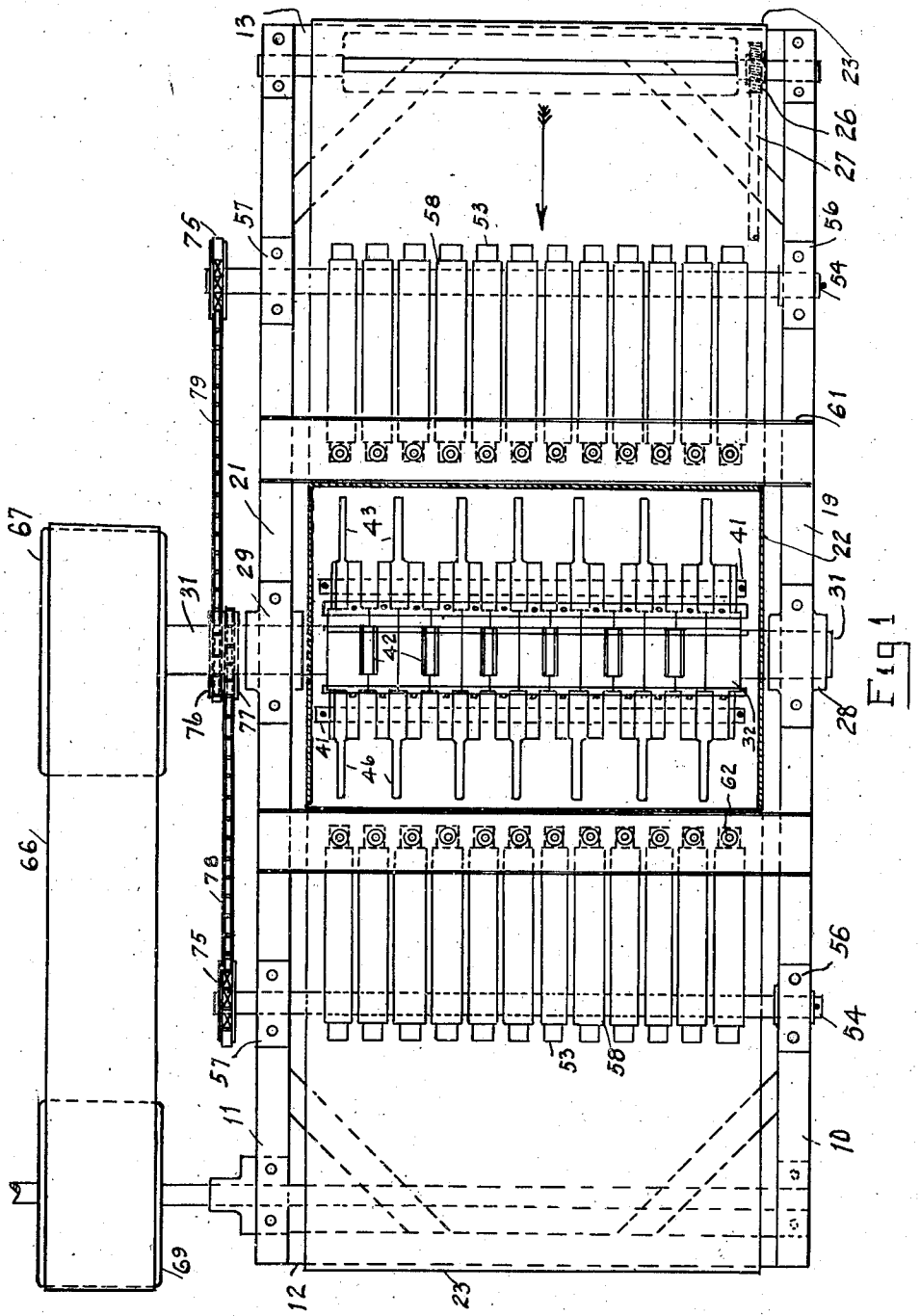


Fig 1

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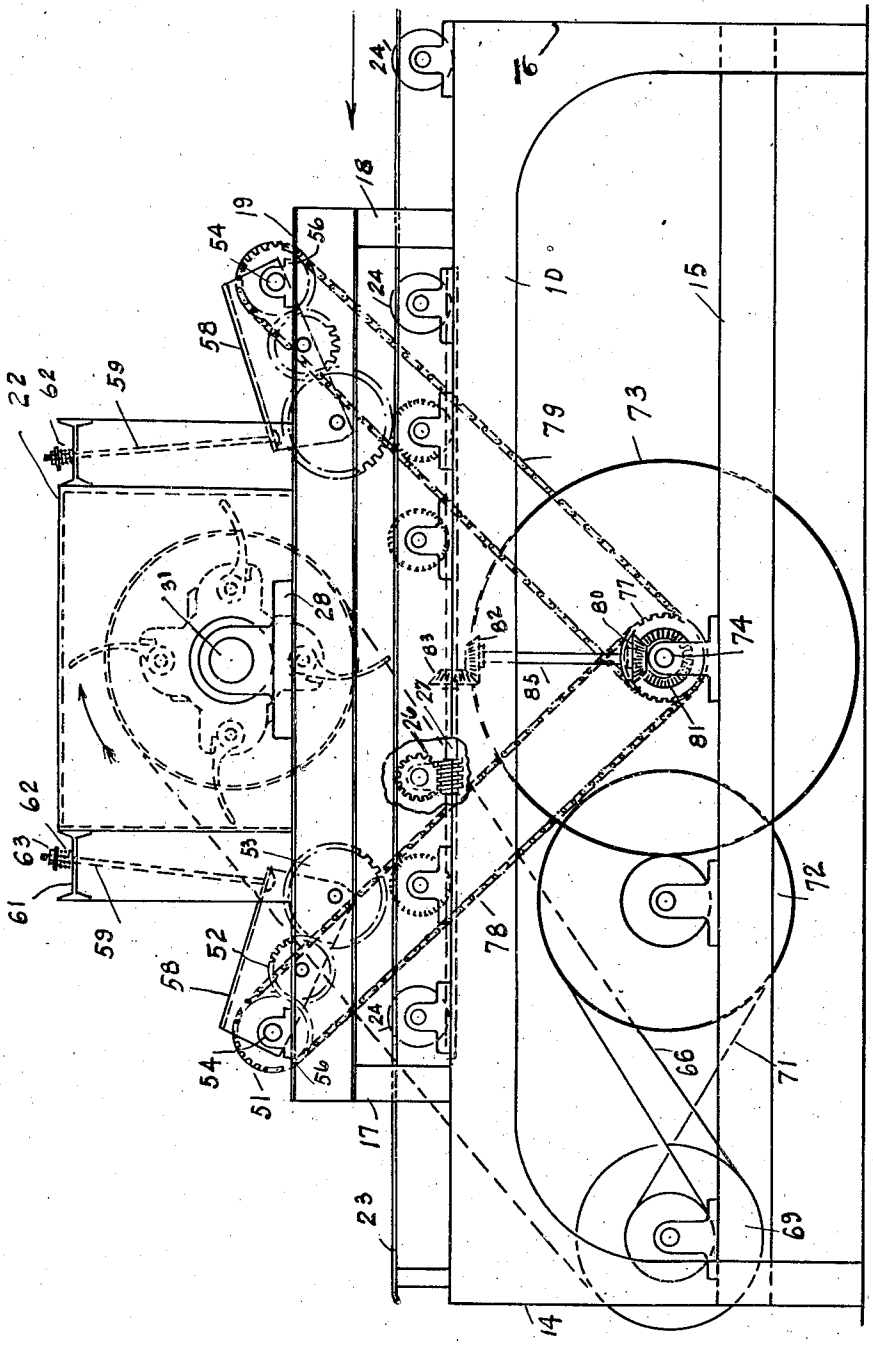


Fig. 2

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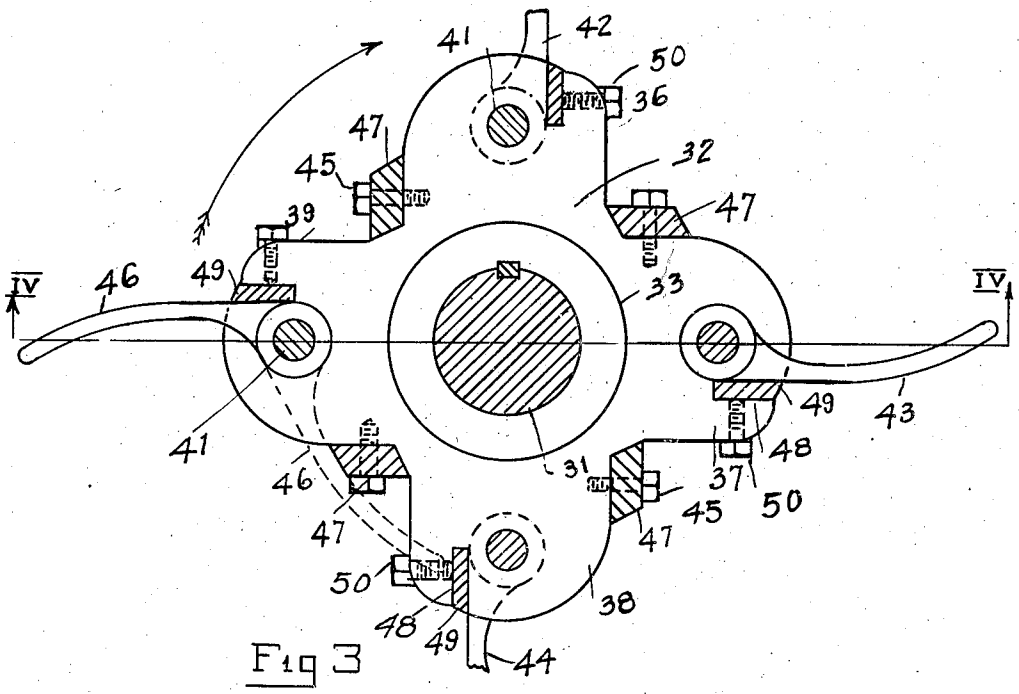


Fig 3

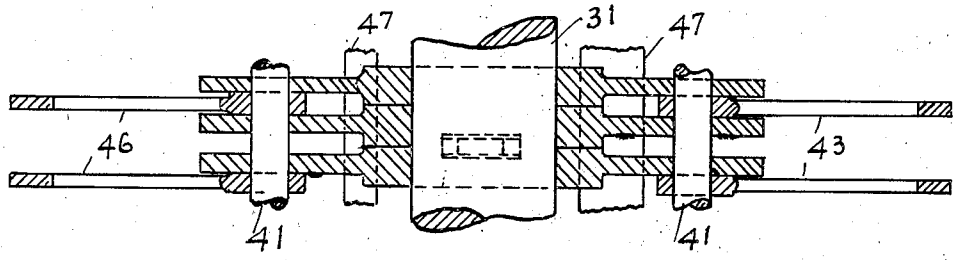


Fig 4

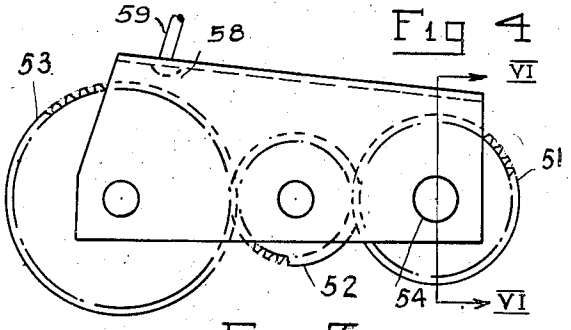


Fig 5

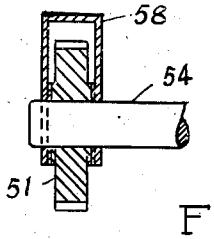


Fig 6

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UNITED STATES PATENT OFFICE

2,397,490

APPARATUS FOR REMOVING BARK FROM SLABS

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Application January 31, 1944, Serial No. 520,433

3 Claims. (Cl. 144—208)

This invention relates to apparatus for removing bark from slabs of the type which includes beaters for pounding and thus loosening the bark, and has for its objects the provision of apparatus of the character designated which shall embody improved beaters and improved feeding means for the slabs to the beaters.

As is well known in the art to which my invention relates, the slabs resulting from squaring up logs in a saw mill contain considerable valuable wood fiber, but the slabs are usually burned or sold for fuel at an extremely low price due to the difficulty of removing the bark therefrom. It has heretofore been proposed to remove such bark by a pounding action in a machine through which the slabs are fed, but as the slabs are of a thickness varying from two to six inches or more, it has been found difficult to feed slabs of various thicknesses through the machine at the same time. It is also difficult to hold such slabs firmly while the pounding action is taking place.

In order to provide for a positive feed of the slabs and for holding the slabs while in the machine, I provide a presser roller assembly at the front and rear of the machine each of which includes a plurality of relatively narrow gear trains disposed side by side across the machine, pivotally mounted to bear on the slabs by gravity as they are fed through the machine. Each of the gear trains is mounted in a housing having the form in cross section of an inverted U with smooth sides whereby the separate gear trains may rise and fall independently of each other and without interference. Another important feature of my invention is the construction of the rotor and the resilient beaters which are pivoted to the rotor and which act to pound the bark loose from the slabs.

Apparatus embodying features of my invention is illustrated in the accompanying drawings forming a part of this application in which:

Fig. 1 is a plan view of my improved machine with parts broken away;

Fig. 2 is a side elevation;

Fig. 3 is a sectional view of the rotor;

Fig. 4 is a sectional view along line IV—IV of Fig. 3;

Fig. 5 is a detail view showing one of the presser roller assemblies and one of the housings therefor; and

Fig. 6 is a sectional view taken along the line VI—VI of Fig. 5.

Referring to the drawings for a better understanding of my invention, I show a frame embodying side members 10 and 11 and end members 12 and 13. The frame members are supported by suitable vertical supports 14 and 16, only two being shown, which are joined by a lower rail 15. Mounted on the side members 10 and 11 by means of vertical supports 17 and 18 is an upper frame including side members 19 and 21 upon which is mounted a suitable rotor housing 22.

The main frame carries a feed bed comprising a feed plate 23 which extends from end to end of the machine and through which project a plurality of spiked feed rolls 24. The feed rolls are all driven in unison in the same direction by means of worm gears 26 from a worm shaft 27 which, in turn is driven in a manner to be described later.

Mounted in bearings 28 and 29 on the upper frame side members 19 and 21 is a rotor shaft 31. Mounted on the rotor shaft 31 are a plurality of disks 32 each having an enlarged hub portion 33 and four reduced radial arms 36, 37, 38 and 39. The disks are secured to the shaft, and bolts 41 extend through the outer radial arms from end to end of the rotor. Beaters 42, 43, 44 and 46 are pivotally mounted on the bolts 41 and as the rotor rotates, maintain a radial position responsive to centrifugal force and strike any slabs on the feed bed 23. The beaters 43 and 46, as may be seen in Fig. 4, are diametrically opposite each other on one side of a disk while the beaters 42 and 44 are diametrically opposite each other but between the next pair of disks. This mounting in staggered relation insures that the entire surface of a slab will be pounded by the beaters. The beaters are preferably made of resilient spring steel and have a working portion substantially one-half inch square in cross section. I have found this dimension affords the necessary pounding force together with sufficient resiliency. At the rear of each of the beaters, considered in the direction of rotation as shown by the arrow in Fig. 3, I detachably secure a bar 47 to the disks, as by means of cap screws 45, the full length of the rotor, which bar serves as a limiting stop for the rearward swing of the beaters, as shown by the dotted position of one of the beaters 46 in Fig. 3. The bar 47 also aids in holding the disks 32 in assembled relation. Ahead of each of the beaters, I provide a notch 48 in each of the disks and detachably secure a bar 49 in the notch the full length of the rotor as by means of cap screws 50. The bar 49 acts as a stop to prevent excessive forward swing of the beaters as well

as adds further strength to the rotor. When the bars 47 or 49 become worn, they may be taken off and reversed. The feature of detachably mounting the bars for reversal thus greatly prolongs their periods of service.

In order to hold the slabs on the feed bed while they are being pounded I provide identical presser roller assemblies at the entrance and at the exit ends of the feed bed. In accordance with my invention, each of the presser roller assemblies comprises a relatively narrow gear train including a driving gear 51, an idler gear 52, and a driven gear 53, which latter is adapted to bear on the slabs being fed through the machine. All the driving gears 51 are mounted on a common drive shaft 54 mounted in bearings 56 and 57 on the upper frame members 19 and 21. A housing 58 covers each of the trains of gears 52 and 53. The housings 58 present smooth outer sides to each other so that there is no interference one with the other due to relative vertical, or swinging movement of the housings as the gears ride on slabs of different thicknesses. The downward travel of the housings 58 is limited by means of rods 59 one of which is mounted in the lower end of each of the housings and extends upwardly through an I beam 61 secured to the housing 22. A spring 62 surrounds the upper end of each of the rods 59 and a nut 63 acts as an abutment for the spring. There is thus provided a yielding support which limits downward movement of the presser roller assemblies. As may be seen from a consideration of Figs. 1 and 2, the presser roller assemblies at the entrance and at the exit ends of the machine are identical, the forward assembly being mounted to project rearwardly and the rearward assembly being mounted to project forwardly, feed of the slabs being from left to right as seen in Fig. 1. In both assemblies, the driven gear 53 just clears the subjacent feed roll 24.

My improved machine may be driven in any suitable manner. In accordance with the modification herein illustrated, a pulley 69 suitably mounted on the lower rail 15, is driven from any suitable source of power, not shown, and a driven belt 66 leads from the pulley 69 to a pulley 67 mounted on the rotor shaft 31. A cross belt 71 drives a third pulley 72 in the opposite direction. A friction drive on the pulley 72 drives a larger pulley 73, mounted on a counter shaft 74. Sprocket wheels 76 and 77 mounted on the shaft 74 serve to drive the shafts 54 of the presser roller assemblies at a reduced speed through chains 78 and 79 and sprockets 75. Bevel gears 80 and 81 mounted on the shaft 74 drive the worm shaft 26 through vertical shaft 85 and upper bevel gears 82 and 83.

From the foregoing description, the operation of my improved apparatus will be readily understood. With the apparatus driven as just described, slabs are fed on the feed bed plate 23 at the right hand end of the machine, as viewed in Figs. 1 and 2, and are carried through the machine by action of the feed roll 24 and the driven presser rollers 53. As they pass beneath the rotor, bark upwards, the bark is pounded by the beaters on the rotor and is loosened and separated from the slabs. The presser rollers being free to swing vertically relative to each other, hold the slabs firmly down on the feed bed while the bark is being removed, regardless of the thickness of the slabs. There is thus no necessity of selecting slabs of uniform thickness in feeding them through the machine. It will accordingly be apparent that I have devised an improved apparatus of the character described which is extremely sturdy of design and reliable in operation.

While I have shown my invention in but one form, it will be obvious to those skilled in the art that it is not so limited, but is susceptible of various changes and modifications, without departing from the spirit thereof, and I desire, therefore, that only such limitations shall be placed thereupon as are specifically set forth in the appended claims.

What I claim is:

1. In apparatus of the character described, including a rotor, resilient beaters mounted in staggered relation in the rotor, a feed bed disposed under the rotor with feed rollers mounted to project upwardly therethrough, a plurality of relatively narrow presser gear trains pivotally mounted side by side to swing downwardly by gravity over the feed bed in advance of and beyond the rotor, a common drive shaft for all the gear trains and a housing for each of the gear trains supported at one end by the drive shaft and having smooth lateral outside surfaces in rubbing relation with adjacent housings.

2. In a slab barker, feeder means comprising a plurality of relatively narrow, closely spaced gear trains each including a driving gear, an idler gear and a driven gear adapted to bear on the slabs being fed through the machine, a common drive shaft for all the driving gears, and individual housings for the gear trains supported at one end from the drive shaft and adapted to oscillate on said shaft.

3. In a slab barker, feeder means comprising a plurality of relatively narrow, closely spaced gear trains each including a driving gear, an idler gear and a driven gear adapted to bear on the slabs being fed through the machine, a common drive shaft for all the driving gears, and a U shaped housing for each of the gear trains pivotally mounted at one end on the common drive shaft, said housings being in side by side relation with each other, and yieldable means supporting the other ends of the housings.

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