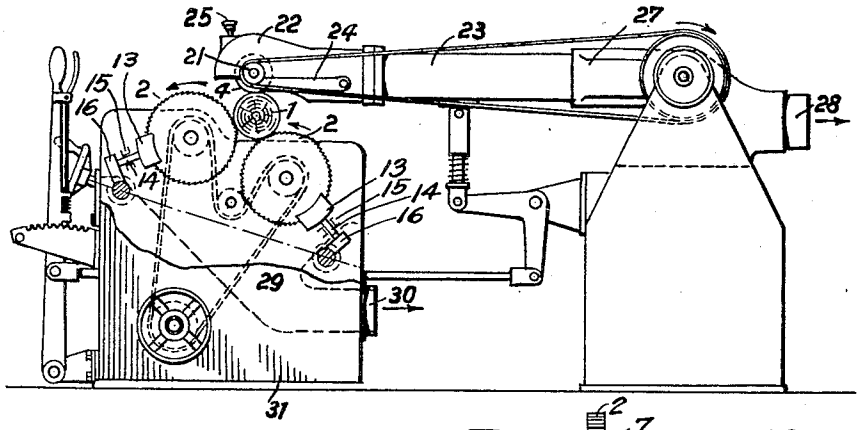
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DECORTICATING DEVICE FOR TIMBER

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Fig. 1.



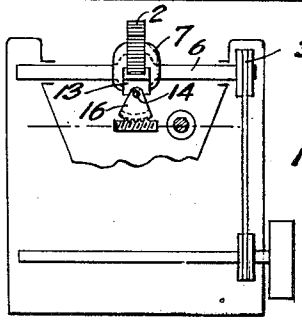
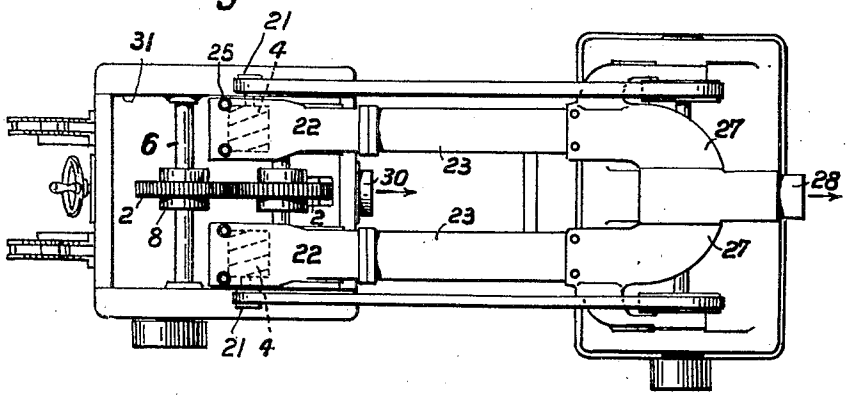


Fig. 1a.

Fig. 2.



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Fig.3.

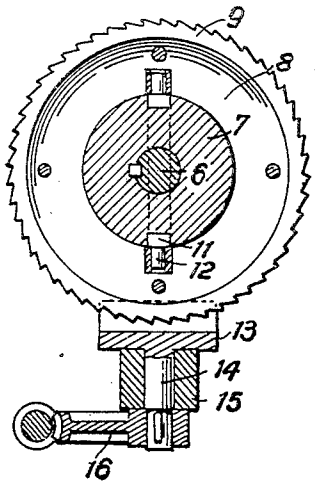
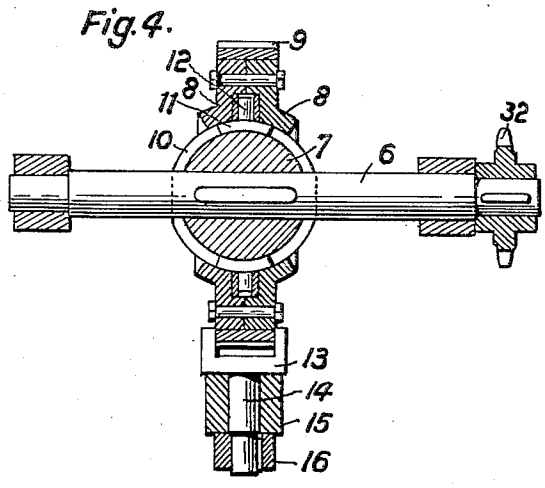


Fig.4.



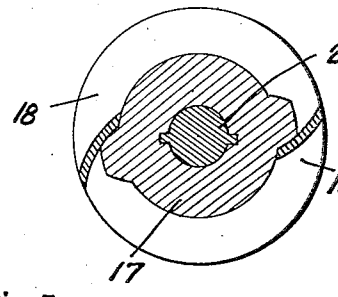


Fig.7.

Fig.5.

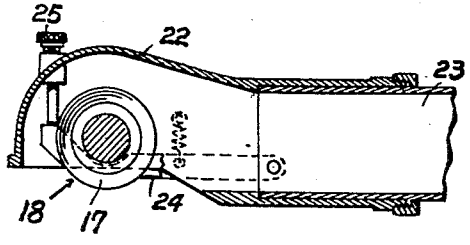
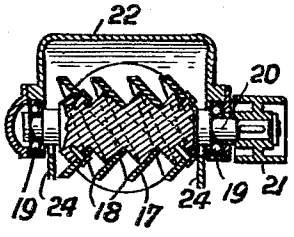


Fig.6.



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UNITED STATES PATENT OFFICE

1,921,904

DECORTICATING DEVICE FOR TIMBER

Albert Bezner, Ravensburg, Germany

Application November 22, 1930, Serial No. 497,549, and in Germany November 23, 1929

5 Claims. (Cl. 144—221)

The present invention relates to decorticating or barking machines for round timber, tree trunks, masts, and the like, and particularly to that class of machines, in which the timber to be decorticated is turned during the barking process by means of rotatable tappet wheels and, by placing the tappet wheels in an angular position, simultaneously moved forward relative to the barking tool so that the timber can be decorticated by being turned only once.

According to the invention, the tool used for the barking operation resembles a cylindrical cutter with helical cutting edge formed by one or several sheet metal units helically wound upon a supporting element, the sheet metal unit or units being wound upon the basic element in a single or multiplex thread. This arrangement insures a long, continuous edge on the cutter body and a drawing, shockless cut at greatest possible saving of the edge; moreover, the sheet metal cutting edge wound upon the body of the cutter can be separately exchanged, removed and reground.

The barking tool according to the invention is carried by a hollow oscillatory arm serving also for drawing off the shavings.

The tappet or sprocket wheels on which the timber to be decorticated is positioned are disposed on their shafts in a manner such as to permit oscillation about their diameters and can thus be adjusted according to the varying diameters of the timber to be treated. For this purpose the tappet wheel axles are provided with spherical bearing units on which the tappet wheels consisting of one or several parts and being hollow and spherical inside are guided oscillatorily. Therefore, the tappet wheels can carry out any swinging motion relative to the shaft while the position of the latter remains unaltered.

One form of the invention is illustrated in the accompanying drawings, in which Figure 1 is a side view of a decorticating machine according to the invention; Fig. 1*a* is a front view of the ratchet wheel mounting, a portion of the same being cut away; Fig. 2, a top view thereof; Figures 3 and 4 are, respectively, a cross and longitudinal section of a tappet wheel; Figs. 5 and 6, respectively, a cross and longitudinal section of the new helical cutter with its support; and Fig. 7 is an enlarged cross section of the cutter.

Referring to the drawings, the mast 1 to be decorticated rests on the driven tappet wheels 2 which are arranged oscillatorily and when turned around their diameters in opposite directions out of a vertical plane, turn the mast 1 during the barking process while moving it forward in axial direction. The mast 1 is worked by the helical cutter 4 rotatably disposed on the free end of the tubular pendulum 22, 23 and driven, for instance, by the belt indicated. In Fig. 2, two pendulums 22, 23 are shown which are rotatably interconnected by means of the curved piece 27 provided with the discharge pipe 28 and each of which carries at its free end a helical cutter 4. Pendulums having one arm or more than two may be employed also.

As can be seen with particular clearness in Fig. 6, the helical cutter 4 consists of the body 17 firmly positioned on the shaft 20 guided in the two bearings 19 and driven, for example, by the pulley 21 and of the sheet metal band 18 helically applied to the body 17. In Fig. 6 two steel bands 18 are wound in double thread on the body 17, but it is also possible to provide one or several steel bands in one or multiple threads. The circumference of the body 17 is correspondingly shaped to receive and secure the helical steel bands 18 and provided with fastening surfaces therefor, the bands 18 being preferably exchangeably secured to the body by means of screws. At its outer border the steel band 18 is made into a cutting edge. It will be apparent from the drawing and especially from Figure 6 thereof, that the helical cutter is mounted at an angle less than 90 degrees with respect to the central axis of the body 17. Because of this particular arrangement, the cutter engages the bark more positively and effects a planing rather than a scraping action, thus resulting in a smoother and cleaner cut.

The cutter shaft 20 is carried by the light metal casing 22 which can be rotated, but not longitudinally displaced, on the pendulum steel tube 23. In the double pendulum arrangement shown the two pendulum tubes 23 are connected by a curved member 27 with the joint suction discharge 28.

As clearly appears from Figures 2, 5 and 6, the depth of penetration is controlled by levers 24 pivoted at 24*a* on the head 22, one of these levers being arranged on each side of the cutting roll in each cutting head. Adjusting screws 25 limit the upward movement of the outer free ends of these levers. The levers have portions extending below the casing 22 (Fig. 6) which engage the surface of the timber and limit the downward cutting action of the cutter roll and its penetration into the timber.

The tappet wheel bracket 31 is provided with a suction discharging device 30 for shavings, and

the like, comprising a hollow space 29 disposed below the tappet wheels 2 and shaped so that the dropping shavings and the like accumulate at one point where they can be drawn off by the piping 30.

The tappet wheels 2 are oscillatorily disposed on their axes of rotation 6, and for this purpose the shafts 6, which may be driven, for example, by the sprocket 32 or in any other suitable manner, are provided with the keyed-on spherical units 7 (Figs. 3 and 4) carrying the tappet wheels 2. The latter consist of the two portions 8 connected by screws or other suitable means, the said portions being hollow and spherical inside and adapted to receive on their outside the rim 9. To facilitate their guidance on the spherical unit 7 the tappet wheels are fitted with the sliding pieces 11 which turn about the bolts 12 and can be displaced in the grooves 10 of the spherical unit 7.

The adjusting member 13 for the tappets 2 can be rotated in the bearing 15 by the bolt 14 and may be turned by means of the worm wheel segment 16 or any other suitable device, such as levers, and the like.

The band 18 wound helically on the body 17 may consist also of sheet iron welded together with high grade steel at the cutting surfaces.

I claim:—

1. A device for decorticating timber comprising a cylindrical body having a continuous helical recess on its peripheral surface, one wall of said recess being cross sectionally inclined in relation to the longitudinal axis of said body, and a continuous cutting band helically wound in said recess and secured to the inclined wall thereof by engagement with the body.

2. A device for decorticating timber, comprising a cylindrical body, a cutting band wound helically about said body and disposed in cross sectionally inclined relation to the longitudinal axis of the latter, a support rotatably suspending said body with the cutting band thereon, means movably arranged on said support to adjust the body with the cutting band thereon in relation to the timber to be decorticated, and setting means associated with said adjusting means.

3. A device for decorticating timber comprising a cylindrical body having a continuous helical recess on its peripheral surface, one wall of said recess being cross sectionally inclined with relation to the longitudinal axis of said body, a continuous cutting band helically wound in said recess and secured to the inclined wall thereof by engagement with the body, a support rotatably suspending said body with the cutting band thereon, and means to adjust said body with the cutting band thereon in relation to the timber to be decorticated.

4. A device for decorticating timber comprising a cylindrical body, a cutting band wound helically about said body and disposed thereon cross sectionally inclined at an angle less than 90 degrees with respect to the central axis of said body.

5. A device for decorticating timber comprising a cylindrical body having a helical recess on its peripheral surface, a cutting band received in said recess and secured therein by engagement with the body, and said cutting band disposed cross sectionally inclined at an angle less than 90 degrees with respect to the central axis of said body.

ALBERT BEZNER.