Dec. 30, 1930. W. THALER 1,786,679

WOODGRINDER

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Fig. 1.

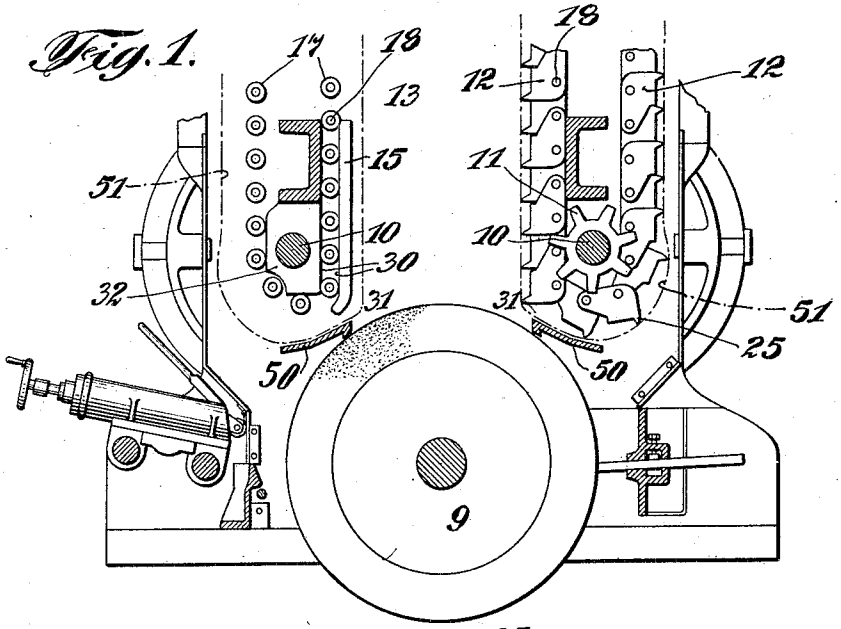


Fig. 2.

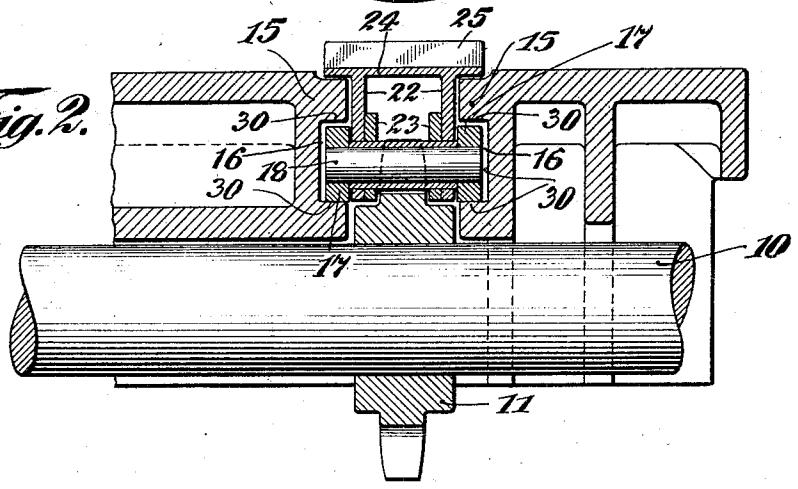
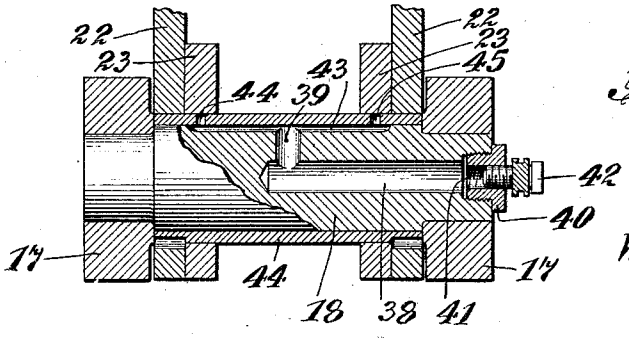


Fig. 3.



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Fig. 4.

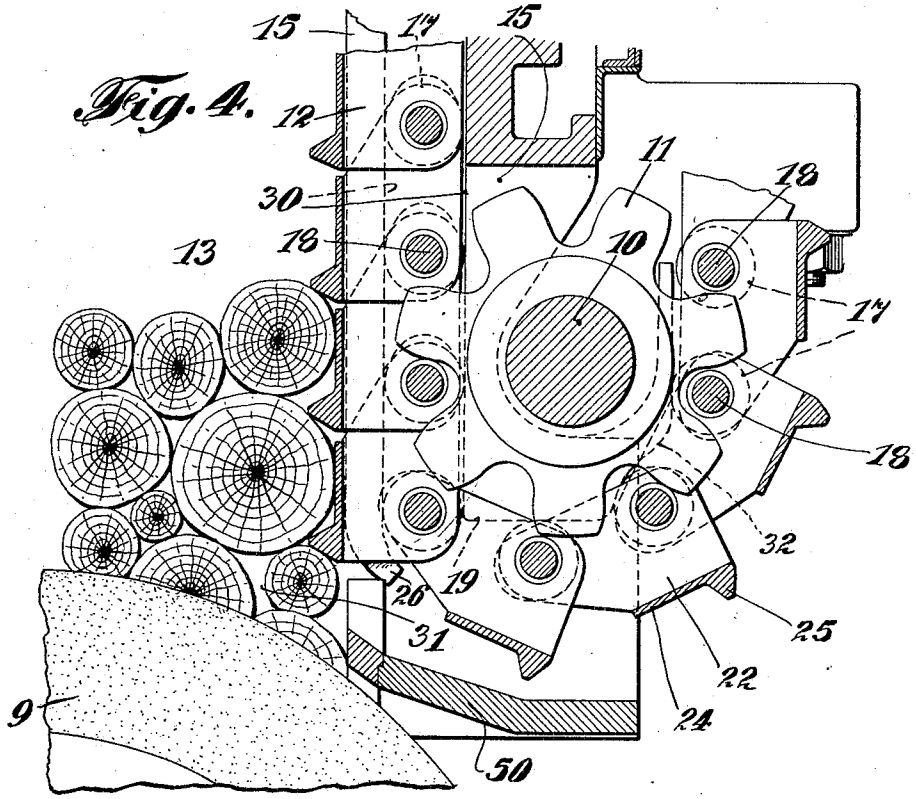


Fig. 5.

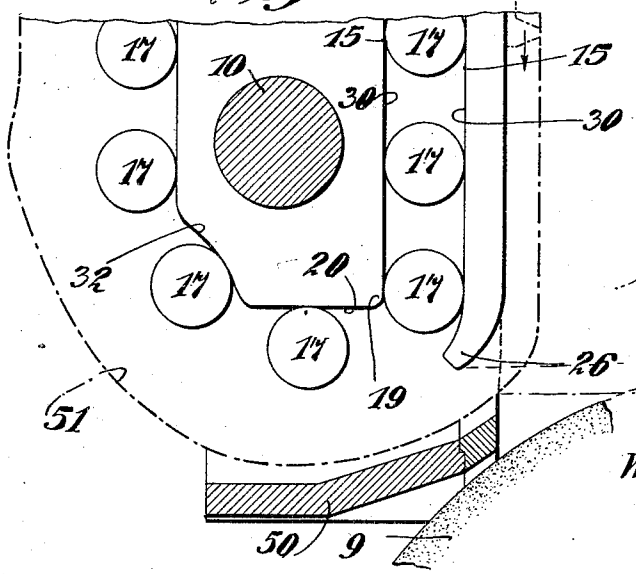
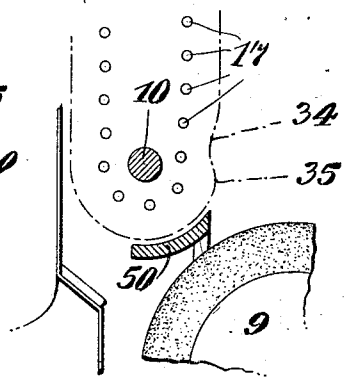


Fig. 6.



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UNITED STATES PATENT OFFICE

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WOOD GRINDER

Application filed January 21, 1926. Serial No. 82,649.

This invention relates to woodgrinders and more particularly to chain guiding means utilized therein and has for its object to provide means whereby the effective operation of the chains of woodgrinders can be brought closer to the grindstone than heretofore. A further object is to provide improvements in the guiding means for the chains, and in the chains themselves.

Heretofore, the lower ends of the continuous chains were guided by the sprocket wheels in such a manner that the effective operation of the chains on the logs terminated some distance above the grindstone, so that the logs from the time of their leaving the chains until reaching the grindstone were free from the direct effect of the chains, though compacted indirectly against the grindstone. In the grinders heretofore proposed, the chain would move with the sprocket outwardly from the substantially vertical straight magazine wall and follow its contour, until it vertically returns in its upward movement. By this turning of the chain along the sprocket, the chain would be deflected in such a manner that the space between the opposite chains would be first increased and then again decreased. This increase of the width of the effective magazine space had the disadvantage of decreasing the pressure upon the logs at a point where most highly desirable. A further objection was that the chain could not, due to the required large diameter of the sprocket, be brought close enough to the stone.

The chain in accordance with my invention is guided immediately above and immediately below the lower sprocket in a guide, so that the chain in this guided part acts in effect as a rack. Thereby it is possible, to have the chain extend considerably below the center line of the sprocket, the sprocket acting as a pinion engaging the rack. The chain while subjected above the sprocket rack engaging teeth to a pulling action is subjected below the sprocket rack engaging teeth to a pressure action. The part of the chain acting as a rack, and extending below and beyond the sprocket rack engaging teeth in continuation of the vertical straightline effect of the major portion of the chain, extends close to the grindstone and translates its effective operation to the logs in close proximity to the grindstone. The links of the chain are then given an outward angular movement so that the effective disengagement of the spikes or wedges of the links of the chain out of the logs rapidly and efficiently takes place. In one embodiment this is accomplished by giving the chain guiding means an angular configuration to permit the angular rearward movement of the links away from the logs. To insure a secure conduct of the chain around the rather sharpened angular deflection, the ascending part of the chain is moved by the sprocket and that portion which is below the sprocket is guided by means of rollers, whereby the proper re-engagement of the teeth of the sprocket and the links of the chain is insured notwithstanding that the teeth of the sprocket and chain were disengaged for a time.

The invention comprises further the step in the art of having the lowermost horizontal line connecting opposite points of the chains at the lowermost effective operative points, in line with or below the horizontal tangent of the uppermost part of the grindstone, and maintaining this relation substantially throughout the operation of the grinder.

The invention will be more fully described hereinafter, embodiments shown in the drawings and finally pointed out in the claims.

Figure 1 is a sectional side view of the lower portion of a standard grinder having my improvements embodied therein.

Figure 2 is a horizontal section, enlarged, of the guiding means for the chain.

Figure 3 is an enlarged section of the rollers and shaft and lubricating means therefor,

Figure 4 is an enlarged view of one side of the magazine wall in respect to the grindstone, and showing the operation of my improved device.

Figure 5 is a diagrammatic view of the novel guiding means for the chain, and

Figure 6 is a diagrammatic view of the

old chain and its action during the operation of the grinder.

Similar letters of references indicate corresponding parts.

In the drawings, the sprocket shaft 10 with sprocket 11 and endless chains 12 disposed at opposite sides of a magazine 13 is well known.

At the lower sprockets 11, stationary abutments 15 having their magazine facing sides flush with the magazine wall, are provided, which extend a short distance above the sprocket and a short distance below the sprocket as shown in the left hand side of Figure 1. These abutments in the embodiments shown in the drawings have guide-grooves 16, for the reception of rollers 17 on the pins 18 of the chains. The sprocket facing side of each abutment 15, has a curved portion 19 forming a deflecting guideway 20 for the rollers. This is so arranged that the teeth 11 of the sprocket 10 properly engage the pins 18 of the chain after the teeth have been free of the chain for a time.

The pins 18 carry side links 22 and 23. The side links 22 extend outwardly and are provided with plates 24 upon which spikes 25 are arranged in a manner well known. Instead of spikes, wedges of desired shapes can be provided. These side links 22 and 23 and plates 24 form a novel chain.

The lower part of the abutment may also be provided with a curved guiding portion 26, as shown in Figure 5.

By guiding the links of the chain between the guideways 30 of the abutment 15, these links of the chain act in the nature of a rack, in that they are temporarily held rigid in respect to each other. The links above the sprocket teeth are pulled as heretofore, but the links below the sprocket teeth are pressed and thereby the pressure is translated to the spikes or wedges and hence to the logs. The extended rack action by virtue of the depending guide 19 below the sprockets enables the effective action of the chains to be brought down in closer proximity to the grindstone 9 than heretofore. The required strength and commensurate massiveness of the sprocket prevented a closer approach of the effective action of the chains to the grindstone heretofore, and the provision of the depending abutment guiding the chains makes this now possible.

While the effective action of the chains due to the use of sprockets merely was on a substantially horizontal line above a line corresponding to the horizontal tangent to the upper portion of the stone periphery, the effective action is now brought to a point in the magazine substantially in line with that of said horizontal tangent of the grindstone and preferably below the same.

This is clearly seen by the line 31—31 in Figure 5 which substantially horizontally connects the two opposite points of the chains corresponding to the lowermost effective actions thereof; and this in Figure 1 is substantially the horizontal line tangential with the uppermost peripheral portion of the grindstone 9. As the grindstone wears away its diameter decreases and thus it enters more and more into the magazine shaft and thereby the tangential line is above the connecting line 31—31 of the lowermost effective actions of the chains.

Preferably I arrange the depending guiding member 19 in one piece with the abutment 15, as is seen in Figure 2 and preferably also I provide the member in the form shown in Figures 1 and 5; giving re-entrant angular configuration as shown at 32 in Figures 1 and 5. Preferably also I provide the part 19 as an end piece below the shaft.

In the right hand side of Figure 1 and in Figure 4 it will be seen that the sprocket teeth 11 below the sprocket shaft 10 do not engage the pins of the chains, as these are being pushed downwardly rackfashion between the guides 15, and the stress so obtained is utilized during this period of disengagement until the teeth again engage the chains at the rear of the sprockets. The configuration of the guiding plate 19—32 is such that an accurate re-meshing again takes place.

A suitable partition 50 forming the bottom and finger bar for the pocket is interposed between the lower line of the chain and grindstone. The line of movement of the points of the spikes or wedges is shown by the dash-dot-dash line 51 of Figure 5.

In Figure 6, I have shown diagrammatically the path of movement of the chains with the old sprockets without guiding means. It will be noted that the chain first goes in at 34 and then so much further out at 35. A loss in effective action results. This is overcome by the positive guiding means provided by my improvement.

In Figure 3, I have shown an improved means for lubricating the pins and chain links. The pin 18 having its rollers 17 has a central bore 38 with a right angled channel 39. A screw threaded cap 40 with hollow portion 41 and a screw threaded closure 42 is adapted to fill the bore 38 with lubricant. The pin 18 has a longitudinal groove 43 and the tubular member 44 has openings 45. The lubricant can thereby flow so as to be in contact with the bearing portions of the links 22 and 23.

I have shown an embodiment but it is clear that changes may be made therein without departing from the spirit of my invention as defined in the appended claims.

I claim as new:

1. In a continuous grinder having upper and lower chain sprocket wheels, chain guiding means, including a fixed guide member for guiding the chain in a substantially

straight line relation below the lower sprocket wheel and in close proximity to the grindstone.

2. In a continuous grinder having a chain, a sprocket for the chain, and a grindstone disposed below the axis of the sprocket; means extending below the periphery of the sprocket for guiding the chain in a straight line relation between the sprocket and grindstone.

3. In a continuous grinder having a chain, a sprocket for the chain, and a grindstone; means for guiding the chain between the sprocket and grindstone, said means comprising guideways for the chains extending above and below the sprocket, and rigidly forming the guided portion of the chains rackfashion to be pulled and pushed by the sprocket.

4. In a continuous grinder, chain guiding means comprising abutments forming guideways for the chains, said abutments extending above and below the lower sprocket, angular deflecting portions in said abutments shaped to permit the re-engagement of the teeth of the sprocket with the chain after temporary disengagement therefrom.

5. In a continuous grinder, chain guiding means formed of abutments having guideways for holding a portion of the chain relatively stiff during its travel along the lower sprocket and below the same.

6. In a continuous grinder, chains consisting of transverse pins, connecting links of wedge shape connecting said links at their outer ends, plates on said links and spikes on said plates.

7. In a continuous grinder, chains consisting of transverse pins, connecting links of wedge shape, plates connecting said links at their outer ends, spikes on said plates, and means for lubricating said pins and links.

8. In a continuous grinder, abutments in line with the inner walls of the magazine walls, guideways in said abutments substantially parallel with said magazine walls, and extending above and below the lowermost sprocket, angular deflecting guideways in said abutment, and roller chains guided by said guideways from above and below the sprocket.

9. In a continuous grinder, a grinding wheel, upper and lower sprockets, a chain trained over said sprockets, and means extending below said lower sprocket to rigidly sustain the chain in the form of a rack and in close proximity to the grinding wheel.

10. In a continuous grinder having upper and lower sprockets and chains to press the wood to be ground into contact with a grinding wheel, spikes on the chains adapted to engage the wood to be ground, and means to guide the chains extending below the lower chain sprocket into close proximity to the grinding wheel and to cause the spikes to be rapidly withdrawn from engagement with the wood immediately preceding its contact with the grinding wheel.

In testimony that I claim the foregoing as my invention, I have signed my name hereto.

WILHELM THALER.