Jan. 19, 1943. C. WOLF 2,308,847

CHAIN SAW

Filed Sept. 10, 1938

FIG. 1.

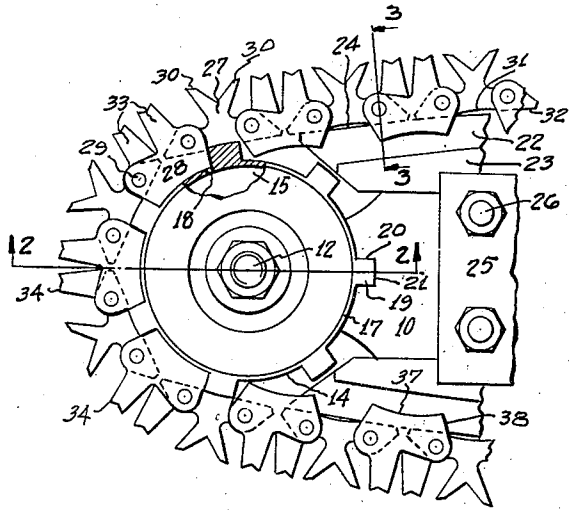


FIG. 6.

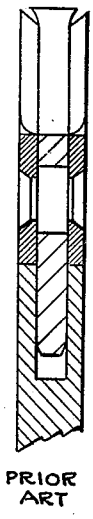


FIG. 3.

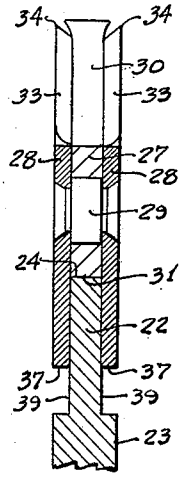


FIG. 2.

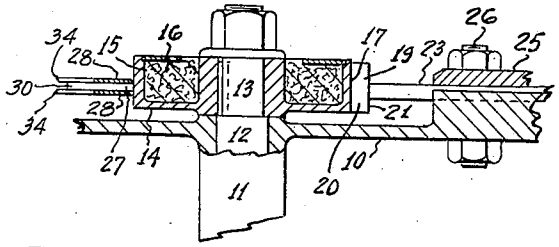


FIG. 5.

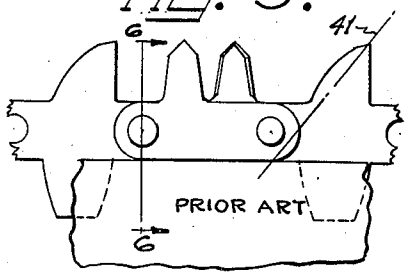
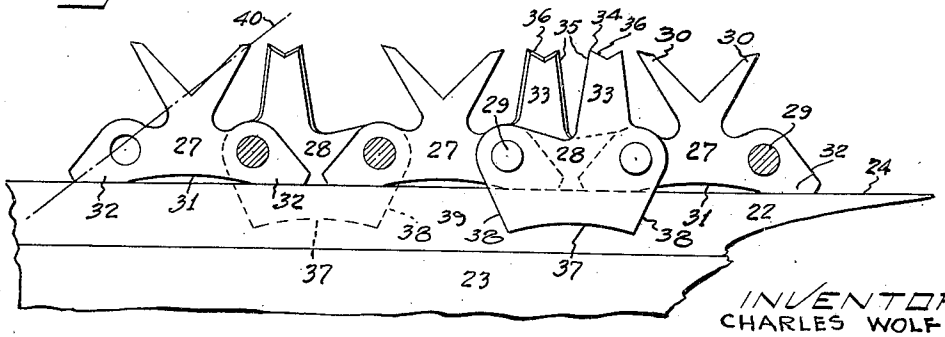


FIG. 4.



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CHAIN SAW

Charles Wolf, Portland, Oreg.

Application September 10, 1938, Serial No. 229,301

2 Claims. (Cl. 143—135)

This invention relates generally to saws, and particularly to a power driven chain saw.

The main object of this invention is to construct improved forms of raker and cutter teeth and a corresponding frame for a saw of the class described.

The second object is to construct a reversible double tooth in order to increase the life of the saw for a single sharpening and also that the teeth will remain sharp for a maximum period of time due to the self-sharpening action obtained therefrom.

The third object is to construct an improved form of sprocket wheel which is devoid of side walls or flanges and having no pockets in which sawdust can become lodged.

The fourth object is to incorporate an efficient oiling system in the sprocket wheel itself.

The fifth object is to provide an improved form of relationship between the saw chain and the saw frame by providing a groove within the saw chain instead of having the groove in the frame as has been ordinarily the case.

The sixth object is to construct a raker tooth whose base is greater than its pitch for the purpose of increasing the stability thereof and enabling it to resist the kinking action which is so detrimental to block chains in general.

I accomplish these and other objects in the manner set forth in the following specification as illustrated in the accompanying drawing, in which:

Fig. 1 is a fragmentary elevation showing the driving end of my chain saw.

Fig. 2 is a fragmentary section taken along the line 2—2 in Fig. 1.

Fig. 3 is a section taken along the line 3—3 in Fig. 1.

Fig. 4 is an enlarged side elevation showing a group of cutter and raker teeth and their effect upon a straight saw guide.

Fig. 5 is a side elevation showing a simple form of the prior art chain saw.

Fig. 6 is a transverse elevation taken along the line 6—6 in Fig. 5.

Similar numerals refer to similar parts throughout the several views.

Referring in detail to the drawing, there is shown in Figs. 1 to 4, inclusive, a portion of a frame 10 in whose bearing 11 journals a drive shaft 12. Any convenient means may be employed for rotating the shaft 12.

On the reduced end 13 of the shaft 12 is keyed a sprocket wheel 14 which is provided with a reservoir 15 in which is placed a quantity of oil retaining material 16. The rim 17 of the wheel 14 is provided with one or more perforations 18 through which the oil may escape slowly to the saw links.

Radiating from the rim 17 are the sprocket teeth 19. The sides 20 of the teeth 19 are substantially parallel while the outer faces 21 of the teeth 19 are concentric with the axis of the shaft 12.

The frame 10 has secured thereto a chain guide track 22 which is relatively thin and is supported by the heavier base 23 which equals in thickness the gage of the chain saw I am about to describe. The outermost edges 24 of the track 22 are tangent to the circle of which the sprocket teeth faces 21 form a part. The frame 10 is secured to the track 22 by means of a clamping plate 25 and the bolts 26.

The chain saw itself consists of two kinds of teeth, namely, the raker links 27 and the cutter links 28 which are united by means of the pins 29. Each raker link 27 is provided with a pair of oppositely turned raker teeth 30 while its inner side 31 is curved to conform with the faces 21 of the sprocket teeth 19. The base 32 of each raker link 27 is elongated beyond the pitch center of the link 27.

The cutter links 28 are provided with projections 33 which are nearer to one end of the link 28 than they are to the other end thereof. Each projection 33 is provided with a pair of oppositely turned cutter teeth 34 whose cutting edges 35 are relatively steep while the trailing edges 36 are more sloping. The inner side 37 of each cutter link 28 is curved to conform with the exterior of the rim 17. The links 28 are used in pairs and are spaced by the raker links 27. The edges 38 of the links 28 engage the sides 20 of the teeth 19 as the chain passes around the sprocket wheel 14.

The raker links 27 are substantially the same width as is the track 22, that is, the bases 32 of the raker links 27 ride on the edge 24 of the track 22 while the cutter links 28 engage the sides 39 of the track 22.

It will be observed that the base of each raker link 27 is substantially twice as great as its pitch distance, and there is shown in Fig. 4 a dotted line 40 which indicates the line of thrust, that is, the tendency of the sawing action to kink the chain and produce a vibrating and rough action therein. Furthermore, by forming the groove in the chain, that is, between the cutter links 28, the saw is self cleaning and has greater stability than are those saws which are in common use, an

example of which is shown in Figs. 5 and 6 wherein the supporting area of the tooth is substantially the same as the pitch distance and in this case the line of thrust is indicated by the dotted line 41 which forms a greater angle with relation to the line of travel of the saw than does the line 40 shown in Fig. 4.

A further advantage arising from my construction lies in the fact that it is possible to use lightweight alloys for stiffening purposes in the track base 23, and since the saw is of a portable nature, this is a decided feature in favor of this construction.

Attention is drawn to my co-pending application No. 153,361 issued July 11, 1939, as Patent No. 2,165,524 in which certain portions of this device are illustrated.

I claim:

1. In the chain saw of the class described a raker link having an elongated base adapted to ride upon a track having a high center, said base having opposite raker teeth formed thereon, said base having pin holes formed therein between the ends thereof spaced substantially as far apart as are said raker teeth, the opposite ends of the track engaging portion of said link being substantially twice as far apart as are the pin holes, each of said teeth being characterized by having a line which passes through the point of a raker tooth and the opposite end of the track engaging portion of the link lying at an angle of less than 45° in relation to said track.

2. A chain saw of the class described comprised of elongated block links adapted to ride on a track, said block links having a pair of transverse connecting pins spaced approximately half the length of the track engaging portion of said block, said block having a pair of oppositely turned raker teeth thereon approximately opposite said pins and a pair of side links connecting each adjacent pair of said block links by means of said pins, each of said side links being characterized by having two oppositely turned cutter teeth formed at one end thereof, the two cutter teeth in a given pair of side links being disposed at opposite ends of said pair of side links, said chain being flexible inwardly and outwardly in the plane of the cut formed thereon, said raker teeth being stabilized and held against said track by the inward thrust of the cutter teeth directed between the track engaging ends of the block link.

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