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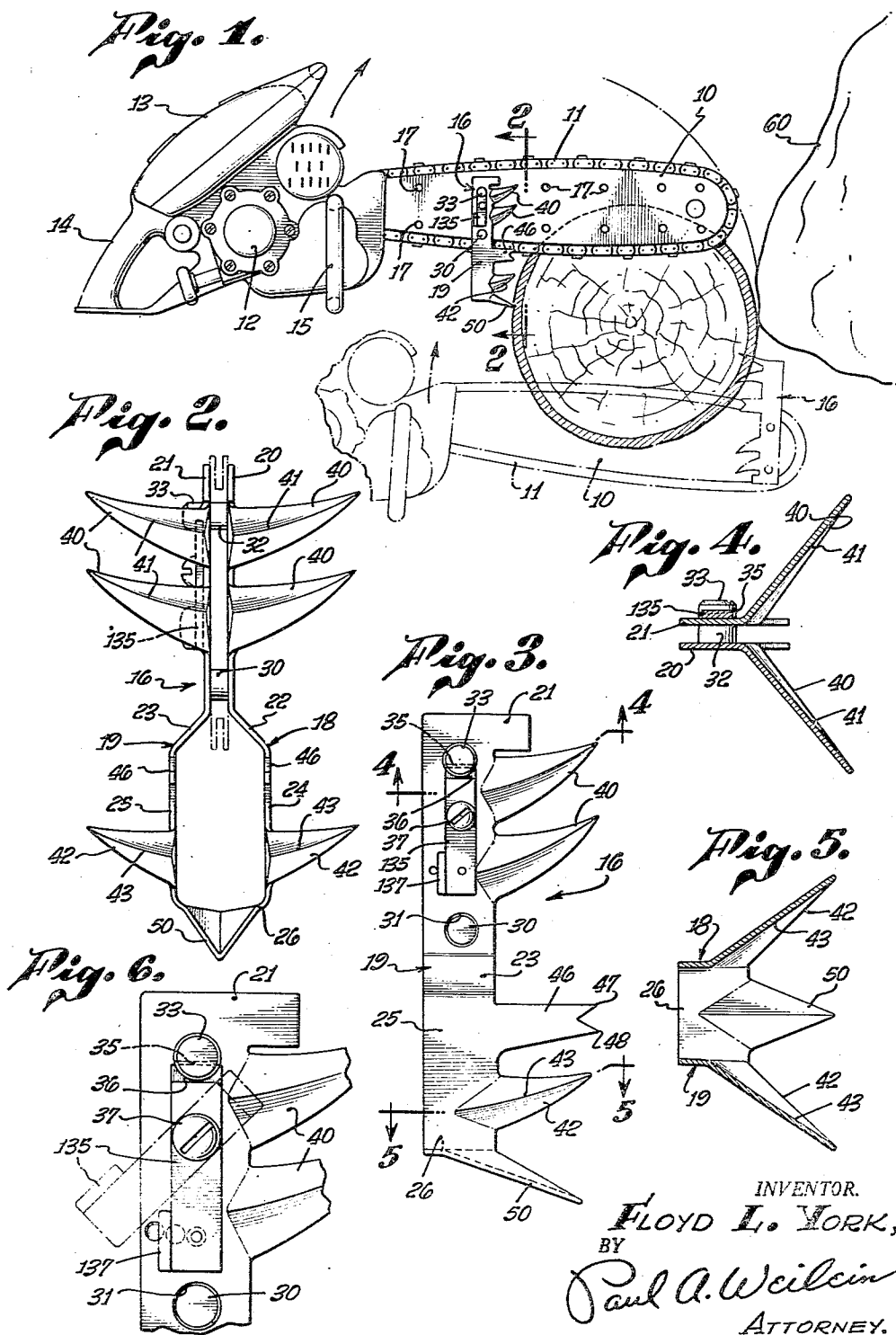
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2,821,213

POWER CHAIN SAW HOOK ATTACHMENT

Filed June 29, 1953

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Fig. 7.

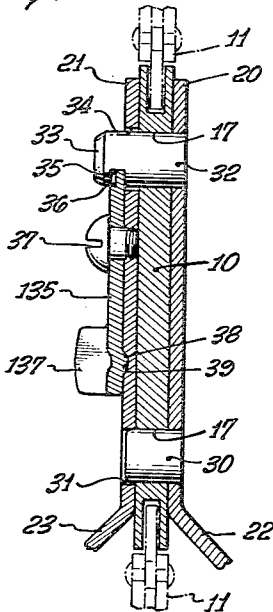


Fig. 8.

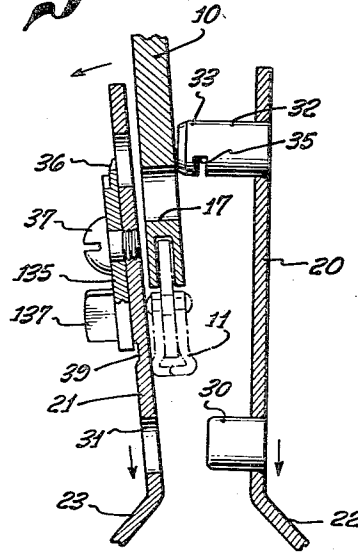


Fig. 9.

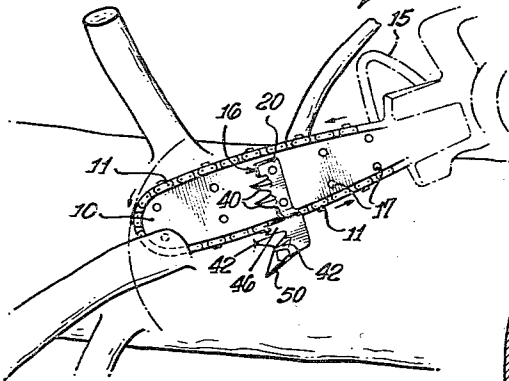


Fig. 10.

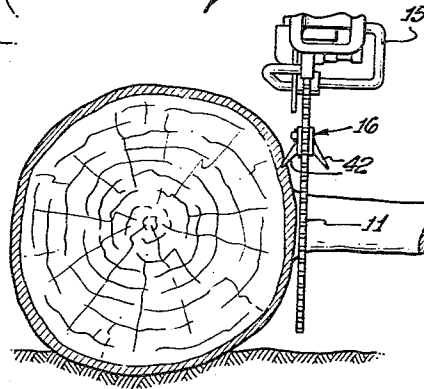
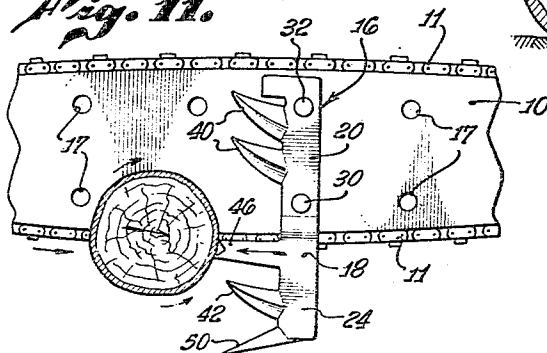


Fig. 11.



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POWER CHAIN SAW HOOK ATTACHMENT

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10 Claims. (Cl. 143—32)

The present invention relates to power saws and is particularly concerned with attachments for power saws of the chain type such as used in tree felling, limbing, trimming and like lumbering operations. More specifically, the attachment of the present invention is designed to provide a hook which may be used as a fulcrum, a guard, stop, holding claw, bucking spike, bumper shoe and support or the like for hand manipulated power driven chain saws.

It is among the primary objects of the invention to provide a hook of the character set forth which may be readily applied to and removed from the chain supporting blade of a power driven chain saw and which may be adjustably mounted longitudinally of the blade in appropriate selective locations to facilitate the handling of the saw in various sawing operations.

Another object of the present invention is to provide an attachment of the character set forth by which hook teeth or spikes are disposed on both sides of the saw chain so as to permit engagement of the saw with a tree or the like regardless of whether the appropriate engagement point is on the right or left side of the chain.

Another object of the present invention is to provide an attachment such as described which is engageable with the work to serve as a fulcrum facilitating the manipulation of the saw in the various cutting operations.

Another object is to provide a hook for chain saws which encircles at least one flight of the endless saw chain so as to extend therebeyond and provide an encircling guard therefor on both sides of the chain and around the chain below the chain supporting blades.

It is also an object of the present invention to provide a hook structure formed from a single piece of sheet material from which the prongs or teeth may be stamped with an angular formation providing a longitudinal reinforcing rib therein.

It is also an object of the invention to provide a novel and improved arrangement of teeth, prongs, spikes, or like elements for a chain saw hook by which a wide variety of work engagement positions may be achieved with a single hook and which includes as one of such elements a prong adapted for engagement with the work in direct alignment with the thrust of the saw so as to act as a stabilizing means during the sawing operation.

It is another object of this invention to provide a hook such as described which may be attached to a power saw so as to extend upwardly from the outer end thereof to facilitate what is known as an "underbucking" operation. In this operation the saw is positioned beneath the log to be sawed, so that the hook may be engaged with the log to support the saw and provide a fulcrum whereby the saw may be freely swung upwardly to advance the saw chain through the log. Moreover when the hook is mounted to extend above the saw as above noted, the saw may be used to advantage in cutting brush in which operation the hook provides for an effective purchase with the brush making it easy to manipulate the saw.

Numerous other objects and features of the present in-

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vention will be apparent from a consideration of the following specification taken in conjunction with the accompanying drawings in which:

Fig. 1 is a side elevation of a conventional manually manipulated power chain saw showing the hook of the present invention attached thereto and operatively engaging a log being transversely cut by the saw, also showing in dot-dash lines how the hook is mounted and applied for an "underbucking" operation;

Fig. 2 is a front view of the hook, taken on the line 2—2 of Fig. 1;

Fig. 3 is a detailed side elevation of the hook;

Fig. 4 is a sectional view, taken on the arcuate line 4—4 of Fig. 3;

Fig. 5 is a similar sectional view, taken on line 5—5 of Fig. 3;

Fig. 6 is an enlarged detailed view, illustrating the securing latch for the hook and its manner of operation;

Fig. 7 is a detailed sectional view through the hook and its latching means when applied to the saw blade;

Fig. 8 is a similar detailed view illustrating the hook being detached from the blade;

Fig. 9 is a side elevation illustrating the use of a hook in a limbing operation;

Fig. 10 is an end elevation showing the hook applied during a similar limbing operation; and

Fig. 11 is a side elevation illustrating the function of the intermediate bucking spikes of the present hook.

Referring to Fig. 1 of the drawings, numeral 10 is used to indicate the conventional elongate blade of a power chain saw over the periphery of which the endless saw chain 11 is caused to travel by suitable drive mechanism (not shown) coupled with the motor 12. In that form of conventional device here chosen for illustration, the motor assembly includes a fuel tank 13 and manual grip extension 14. Side handles 15 are also provided by which the operator can apply and guide the saw in its cutting operations.

To accommodate the hook of the present invention (generally identified by the numeral 16) at various selected longitudinally spaced positions along the blade 10, pairs of vertically spaced apertures 17 are provided through the blade body. By this arrangement it will be seen that the utility of the hook is multiplied since at each location certain new and different characteristics of usefulness are present. For instance, by locating the hook at a position on the blade inwardly from its end a distance commensurate with the diameter of the log to be sawn, as in Fig. 1, the hook may act as a fulcrum and gauge precluding extension of the chain beyond the log whereby it might engage and be injured by rocks, dirt or other materials against which the log is resting.

The hook itself comprises a pair of opposite and substantially identical side members 18 and 19. The upper flat legs 20 and 21 respectively of the side members 18 and 19 are designed to bear flush against the opposite sides of the blade 10 to which they are secured. At a point slightly above the lower edge of the blade and the point at which the chain 11 passes between the side members 18 and 19, outwardly turned intermediate portions 22 and 23 extend from the portions 20 and 21 to space lower side portions 24 and 25 respectively of the hook outwardly from the chain.

In the form of the invention here shown the hook is formed as a single piece of material having a U-shaped lower portion 26 joining the side members 18 and 19. Stiff but resilient steel material is contemplated whereby the sides 20 and 21 may be spread apart for engaging these sides against the blade 10. It is to be understood of course that the invention is by no means limited to this unitary construction and that the side members may be formed as separate elements either hingedly connected

at their lower edges or mounted without regard for inter-connection.

It will further be understood that the invention is not limited to the herein illustrated manner of securing the side members of the hook to the blade at longitudinally spaced selected points. Thus, while a simple bolting of the side members may be resorted to, or equivalent securing means employed, the present integral structure lends itself to the connecting means more particularly illustrated in Figs. 6, 7 and 8. The means therein shown comprises a lower, short, inwardly projecting cylindrical stud 30 adapted to pass through the lower aperture 17 of the blade and be received within a conforming aperture 31 in the opposite side member 21. Above the stud 13 the member 20 carries a longer similarly directed stud 32 adapted to pass through the upper aperture 17 of the pair selected for locating the hook. The upper stud 32 has an outer end 33 adapted to project beyond the blade 10 and through a conforming aperture 34 parallel with the aperture 31 in the side member 21. The end 33 is provided on its lower face with a transverse keeper slot 35. Pivotaly mounted on the outer face of the side 21 is a latch 135 having a beveled cam like latch end 36. A headed screw 37 extends through the latch 135 and into the portion 21 to provide for the pivotal mounting of the latch 135 and a finger plate 137 is struck out from the lower portion of the latch to facilitate pivotal movement thereof. For securing the latch in engaged position a dimple 38 may be formed thereon to be received within a securing recess 39 in the outer surface of the portion 21 to frictionally retain the latch in vertically engaged position.

By reference to Figs. 7 and 8 it will be seen that the hook of the present invention may be readily engaged in any selected pair of apertures 17 by first permitting the portions 20 and 21 to be separated under the influence of the spring action of the U-shaped connecting portion 26 and then inserting the blade therebetween, aligning the upper and lower selected aperture 17 with the stud 33 and stud 30 respectively. Thereafter the sides 20 and 21 may be forced together against the side of the blade 10 so that the end 33 of the stud 32 protrudes beyond the aperture 34 of the side 21 and the keeper slot 35 will be in registration with the path of movement of the latch end 36. The latch is then pivotaly moved to insert the end 36 within the recess 35 and its camming surface will act to tension the sides against the blade 10 to lock the hook securely in position.

Each of the side members 20 and 21 is provided with a pair of upwardly and outwardly directed hook teeth 40, which, as indicated in Fig. 4, are formed in angular cross section to provide a central axially extending reinforcing rib so as to enhance the strength of the tooth in comparison with the character of the steel from which the hook is made. In alignment with the teeth 40 similar teeth 42 are extended from the lower side portions 24 and 25, being constructed substantially in the manner of the teeth 40 and having reinforcing ribs 43 and being directed upwardly and outwardly from their point of emergence from the body of the side member.

Located directly above the hooks 42, the side members 24 and 25 are provided with bucking spikes 46 which extend directly forward from the body portions and are located at a point parallel with the path of travel of the saw chain. Each spike 46 terminates in a furcated end having spaced points 47 and 48. Since the lower flight of the chain 11 is slightly curved due to the slight curvature of the lower edge of the blade 10, the exact parallel location of the spikes 46 with respect to the cutting teeth 49 of the chain 11 will vary. However, the spacing of the points 48 and 49 is such as to embrace such variations, and thus, despite different adjusted positions of the hook along the blade one or the other of the points 47 or 48, will be in direct alignment with thrust of the

cutting teeth 49 or such thrust will be intermediate such points. Thus, the spikes 46 in certain sawing operations, will engage the work to stabilize the saw and effectively resist the surging forces exerted by the teeth of the saw chain.

The hook also provides a central downwardly and forwardly projecting tooth 50 formed in similar angular cross section to that of teeth 42 and integral with the U-shaped joining portion 26 of the hook. It will of course be obvious that the hook 50 will provide locking and supporting engagement for the saw in a plain common to the blade thereof thus adding a type of work engagement and saw support distinct and independent of the type of engagement provided by the teeth 40 and 42.

In the operation of the device for a simple cross cut sawing operation where there are no problems of restricting the extension of the saw beyond the log being sawn, such as the problem depicted in full lines in Fig. 1, the hook may be utilized as a simple fulcrum and bucking device, guard member or bumper shoe. In such use the hook may be attached through the innermost pair of apertures 17 in the blade 10 closely adjacent the motor frame and the handles 15.

With the hook attached and applied for a straight cross cut, the tooth 50 only may be engaged with the log as the initial supporting means and fulcrum on which the saw may be swung to advance the saw chain through the log. As the saw chain advances through the log with the tilting of the saw about the fulcrum provided by the tooth 50, the teeth 42, spikes 46 and teeth 40 may be successively engaged with the log. The flaring teeth 42 as well as the spikes 46 and teeth 40 in being on both sides of the saw will prevent the saw from turning or tilting about the longitudinal axis thereof, thus steadying the saw and making it easier to manipulate the saw throughout the cutting operation. These spikes and teeth also resist the forward surging of the saw as effected by the rotary saw chain.

When the device is to be used as a stop or gauge to preclude projection of the saw beyond the work where it might be damaged by engagement with other logs, dirt, stones or a boulder such as that indicated at 60 in Fig. 1, the hook is selectively engaged with an appropriate intermediate pair of apertures 17 as shown in Fig. 1. By such intermediate engagement the saw is precluded from extending beyond the work piece, and the lower tooth 50 may engage the work as shown to support a major portion of the weight of the saw while the operator may use such engagement as a fulcrum point for rocking the saw in clockwise rotation to feed the blade into the log.

In a limbing operation such as shown in Figs. 9 and 10, the outwardly projecting hooks 40 or 42 may engage the periphery of the log body so as to support a major portion of the saw weight and provide a fulcrum point for tilting movement of the blade toward the limb as shown in Fig. 10. In limbing or small log sawing operations, as shown in Fig. 11, the bucking spikes 46 will act to engage the limb or small log to preclude jamming of the saw as well as hold the saw against twisting about the long axis thereof. The tooth 50 will act as a stop to prevent the chain from touching the ground.

As shown in dot-dash lines at the lower side of Fig. 1, the hook may be attached to the outer end of the saw blade so as to extend upwardly therefrom to facilitate an "underbucking" sawing operation. In this operation the saw is placed against the under side of a log with the hook engaged with the log. The tooth 50 and possibly the adjacent teeth 42, depending on the edge of the log, may be engaged with the log to support the saw and act as a fulcrum whereby the saw may be swung readily to advance the saw chain through the log. Moreover, with the hook positioned at the end of the saw so as to extend upwardly as shown in the dot-dash lines in Fig. 1, the saw may be easily manipulated to cut brush as the hook

may be readily engaged with the brush to provide a fulcrum and support during this operation.

It will of course be obvious that the multiple arrangement of teeth provide a fulcrum, guard, holding claw, gripper and bumper means operable in a wide variety of sawing operations. As pointed out, since the teeth extend on both sides of the blade they are equally effective in either right hand or left hand approach to the work. The encirclement of the lower run of the saw chain will preclude undesired contact therewith from below, and the ease of attachment, detachment and adjustment of the hook permits an easy adjustment thereof to meet the specific type of work undertaken.

It will of course be understood that the present invention is not limited nor restricted to the specific structural details here shown, the manner of forming the teeth or the integral relation of the two side members. Therefore numerous changes, modifications and the full use of equivalence may be resorted to in the practice of the present invention without departure from the spirit or scope of the appended claims.

I claim:

1. An attachment for a power driven chain saw including: a pair of side members; means for attaching said side members at the opposite sides of the cutting chain of the saw; a forwardly directed work engaging tooth mounted on each of said side members to buck the thrust of the saw toward the work; and a forwardly extending tooth joined to and disposed between said side members beneath the bucking teeth.

2. In a hook for a manually manipulated power driven chain saw: a U-shaped body; said body including a pair of side members adapted to be disposed on opposite sides of the cutting chain of the saw; and a work engaging tooth on each side member and the bight portion of said body respectively.

3. A hook for a manually manipulated power driven chain saw including: a substantially U-shaped body adapted to embrace the chain-supporting blade of the saw; means for mounting said body at selective points longitudinally of said blade; the lower portion of said body having laterally offset portions substantially parallel with said blade; said portions having bucking teeth thereon extending below said blade in a direction in opposition to the direction of the thrust of said saw.

4. A hook for a manually manipulated power operated chain saw comprising: a substantially U-shaped body having side portions adapted to be positioned on opposite sides of the chain-supporting blade of the saw; means for engaging said portions at selective points longitudinally of said blade; work-engaging teeth formed on said body having angularly related portions forming a central longitudinal reinforcing rib; said teeth being extended outwardly and upwardly with respect to the body; outwardly bowed portions joined to the lower ends of said side portions; and work-engaging teeth on said bowed portion extending therefrom in outwardly spaced relation on an edge of said blade.

5. In an attachment for a manually manipulated power driven chain saw having a perforate chain-supporting blade, the perforations of which constitute longitudinal spaced vertically arranged pairs; a substantially U-shaped hook member having legs engageable upon either side of the blade; projections on said hook member selectively

engageable with the perforations of the blade and teeth extending laterally outwardly from said legs, said teeth diverging laterally and outwardly from opposite sides of said blade.

6. A hook for a manually manipulated power driven chain saw having a perforate chain supporting blade, including a substantially U-shaped body having terminal portions adapted to engage opposite sides of said blade; projections on said portions selectively engageable with the perforations of said blade; releasable means for engaging said blade at selective points longitudinally of said blade; teeth formed on said body below said portions; said teeth extending outwardly and upwardly with respect to the body; outwardly bowed portions on said body below said portions; and bucking teeth on said bowed portions disposed in opposition to the direction of the thrust of said saw.

7. A hook for a power driven chain saw in which the chain is supported on a stationary blade including: a U-shaped body for embracing said blade; and a pointed work engaging element located at the return bend portion of the body and extending generally longitudinally of said blade and at an angle to said return bend portion.

8. A hook for a power driven chain saw including: a U-shaped saw chain embracing body; a pointed work engaging element located at the return bend portion of the body extending forwardly and downwardly therefrom; and work engaging teeth on opposite legs of said body selectively engageable with the work.

9. A hook for a power driven chain saw including: a U-shaped saw chain embracing body; a pointed work engaging element located at the return bend portion of the body and extending forwardly and downwardly therefrom; and work engaging teeth on opposite legs of said body selectively engageable with the work, said teeth being curved forwardly and upwardly from the joint thereof with said legs.

10. A hook for a power driven chain saw including: a U-shaped saw chain embracing body; a pointed work engaging element located at the return bend portion of the body and extending forwardly and downwardly therefrom; work engaging teeth on opposite legs of said body selectively engageable with the work, said teeth being curved forwardly and upwardly from the joint thereof with said legs; and additional teeth on said legs located between said element and said first named teeth and extending parallel with the adjacent portions of the cutting run of said chain.

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