United States Patent

Robinson

[15] **3,680,607**

[45] **Aug. 1, 1972**

[54] **CHAIN SAW GUIDE**

[72] Inventor: **Vernon S. Robinson,** 433 Linden Dr., Lewiston, Idaho 83501

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[52] **U.S. Cl.** .....**143/32 F,** 143/157
[51] **Int. Cl.** **B27b 17/02**
[58] **Field of Search**.....143/32, 32 F, 32 M, 157

[56] **References Cited**

UNITED STATES PATENTS

2,797,717 7/1957 Budd.....143/32 F

Primary Examiner—Donald R. Schran
Attorney—Wells, St. John & Roberts

[57] **ABSTRACT**

A chain saw guide comprising a rigid prong fixed to the outer end of the center bar along which the chain teeth are entrained. The prong includes a center base and an offset extension having an inner edge that overlaps the path of the teeth adjacent to the outer end of the center bar. The prong extends substantially parallel to the sides of the center bar so as to extend outwardly a minimum amount beyond the normal chain saw width. A second form of the attachment is disclosed using two prongs having a common U-shaped inner edge spanning both sides of the center bar at its outer end.

5 Claims, 10 Drawing Figures

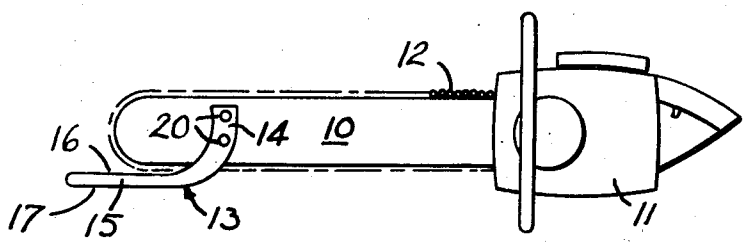


FIG. 1

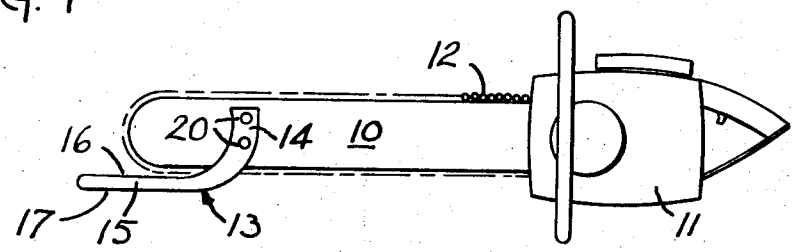


FIG. 2

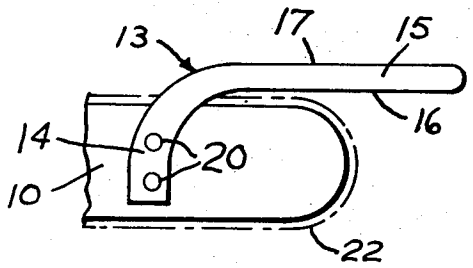


FIG. 3

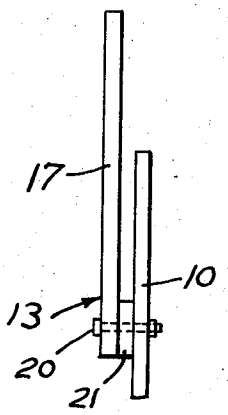


FIG. 4

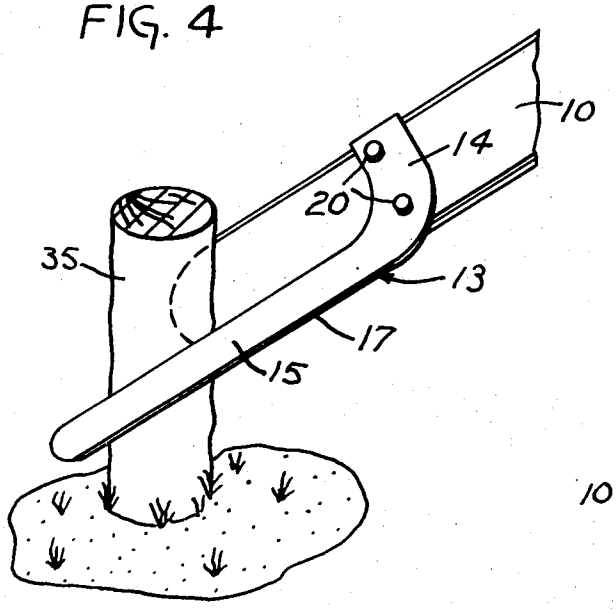
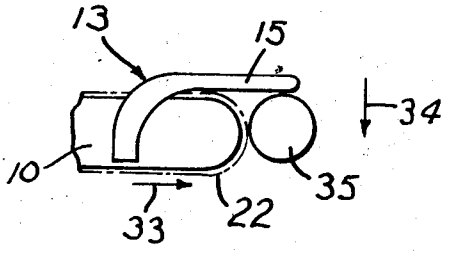


FIG. 5



INVENTOR.
VERNON S. ROBINSON
BY
Wells, St. John & Roberts
ATTYS.

FIG. 6

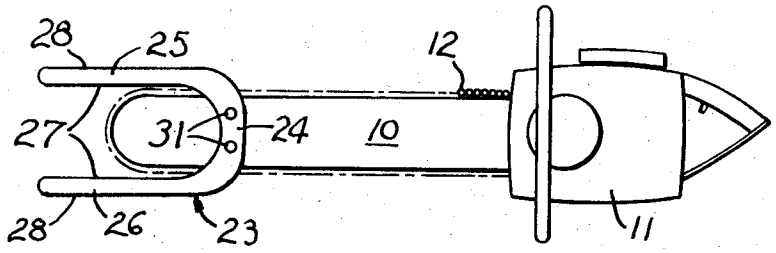


FIG. 7

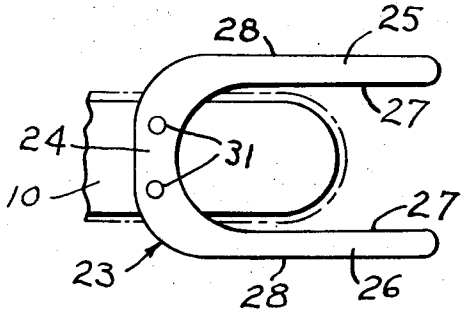


FIG. 8

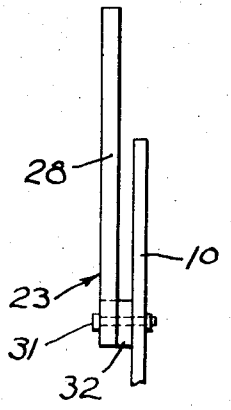


FIG. 9

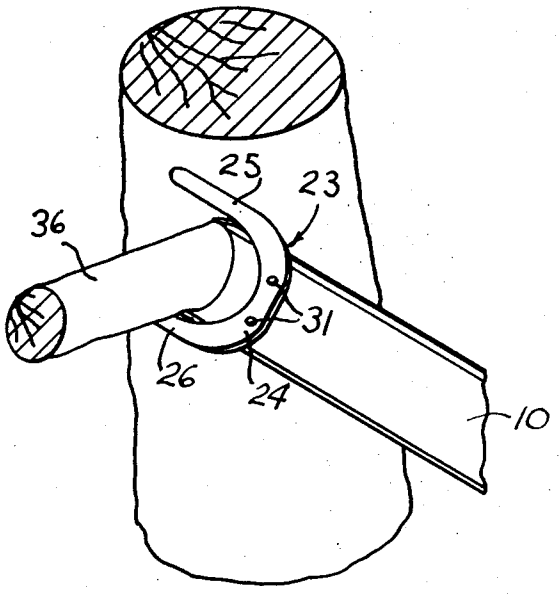
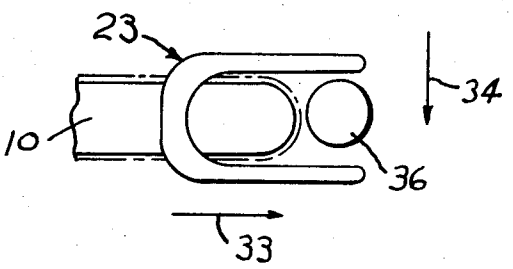


FIG. 10



INVENTOR.
VERNON S. ROBINSON

BY

Wells, St. John & Roberts

ATTYS.

CHAIN SAW GUIDE

BACKGROUND OF THE INVENTION

Common tasks such as clearing land, thinning closely spaced trees, and cutting limbs often makes desirable the use of a chain saw by pushing it longitudinally along the outer end or tip of the saw. Cutting brush and selective thinning requires that the chain be pushed endwise into the work so as to not contact adjacent limbs, trees or brush. The endwise use of a chain saw is also desirable for cutting close to the ground, thereby minimizing the stooping necessary by the user.

Portable chain saws used for cutting trees and general sawing purposes comprise a power unit and a chain guide or center bar. The center bar is mounted on the power unit and projects outwardly therefrom. A cutting chain runs along the edges of the guide or center bar and is driven by the power unit. The present attachment is designed specifically for those types of saws which have an elongated flat plate as a center bar. The plate has approximately parallel sides and a round outer end along which the cutting chain is entrained.

To facilitate the cutting of brush and small trees or limbs at the outer end of the center bar, a prong attachment described herein is rigidly secured to the center bar. It includes an extension protruding beyond the outer end of the chain saw. The extension presents an inner guiding edge that gently overlaps the path of the cutting chain along the side edge of the center bar toward which the chain moves across its outer end.

Prongs of various types, sizes and shapes have been previously developed for mounting on chain saws. Examples are shown in U.S. Pat. Nos. 3,925,105 and 2,797,717. However, such prongs have been mounted so as to protrude laterally from the center bar. In actual use they present difficulties when attempting to work a narrow chain saw into cutting locations which are closely bounded by material which is not to be engaged by the saw. In contrast, the present device provides a chain saw guide attachment that adds little to the effective width of the chain saw and which facilitates endwise cutting at the outer end or tip of the chain saw.

SUMMARY OF THE INVENTION

The invention comprises an attachment for a chain saw of the type having a rigid center bar with substantially parallel side edges. The attachment is in the form of a rigid prong having a base that is centrally mounted on the center bar adjacent to its outer end and an offset longitudinal extension integral with the base. This extension overlaps and protrudes longitudinally beyond the outer end of one side edge of the center bar.

In a second form of the invention, a second extension is also formed integrally with the base in a generally U-shaped configuration so as to provide a fixed guiding edge at each side of the center bar.

It is one object of this invention to provide an effective guide attachment for a chain saw to facilitate direct endwise cutting by the chain saw teeth.

Another object of this invention is to provide an effective guide of the type described, wherein the guide minimizes wedging or jamming of material between the guide and the cutting teeth.

Another object of this invention is to provide a guide for the end of a chain saw which does not project laterally from the path of the teeth, but rather extends substantially parallel to such path.

These and further objects will be evident from the following disclosure, taken also with the accompanying drawings which illustrate two preferred forms of the invention. It is to be understood that the invention itself is not to be limited by such disclosure, and is defined in the appended claims.

DESCRIPTION OF THE DRAWINGS

FIG. **1** is a side elevation of a chain saw equipped with the present attachment;

FIG. **2** is an enlarged fragmentary side view showing the outer end of the center bar and the attachment;

FIG. **3** is an edge view of the structure shown in FIG. **2**;

FIG. **4** is a fragmentary perspective view showing a small stump being cut by the saw;

FIG. **5** is a schematic view illustrating the forces on the saw and attachment;

FIG. **6** is a side elevation of a chain saw equipped with the second embodiment of the invention;

FIG. **7** is an enlarged fragmentary side view showing the outer end of the center bar and the attachment;

FIG. **8** is an edge view of the structure shown in FIG. **7**;

FIG. **9** is a fragmentary perspective view showing use of the second embodiment;

FIG. **10** is a schematic view illustrating the forces directed to the saw.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present disclosure relates to a chain saw thinning attachment in the form of a rigid prong having one or two extensions that protrude outwardly substantially parallel to the side edges of a center bar. It is designed for use with chain saws of the type having solid center bars or guides with substantially parallel side edges and a rounded outer end along which the cutting chain is entrained.

In cutting off small trees or limbs with a chain saw, it is more rapid and less strenuous to push the saw straight ahead in a longitudinal direction using the cutting teeth of the chain as they move across the outer end of the center bar. However, in a conventional saw, the force of the chain as it engages the work normally causes the bar to move to the side. The device described below prevents this movement due to reaction forces and allows a quick, clean cut to be made without strenuous manual effort being required to maintain the saw position.

Two embodiments of the attachment are shown: (1) a single-pronged attachment in FIGS. **1–5**; and (2) a two-pronged attachment in FIGS. **6–10**. Both types function similarly in cutting trees. The second embodiment has additional advantages when pruning limbs or cutting in upright planes.

The attachments are designed for thinning stands of small trees, pruning limbs from trees, cutting Christmas trees, clearing trails, clearing fire lines, clearing survey lines and for general purpose cutting where the work engaged is of relatively small dimension.

The drawings illustrate a typical chain saw of the type having a center bar **10** that includes substantially parallel side edges and a rounded outer end. A power unit **11** carries one end of the center bar **10** and powers an endless cutting chain **12** that is entrained along the edges of the center bar **10**.

The first form of the invention (FIGS. 1–5) is in the form of a prong generally designated at 13. The prong 13 is rigidly fixed to the outer end of the center bar 10. It is fastened at a base 14 located across the center bar 10. It includes an extension 15 that is laterally offset from the base 14 and which protrudes longitudinally beyond the outer end of the guide or center bar 10. The inner edge 16 along the extension 15 slightly overlaps the path of the chain teeth mounted on the center bar 10 as the teeth move over the end of bar 10 toward extension 15. The edge 16 is continuous with the inner edge 18 along base 14, and curves smoothly in a direction leading away from the outer end of bar 10. The outer edge 17 of the extension 15 is substantially parallel to its inner edge 16 and protrudes laterally a minimum amount beyond the normal width of the center bar and chain.

The prong 13 is secured by two bolts 20 which extend through base 14 and a spacer 21 interposed between center bar 10 and the base 14. The planar prong 13 is thereby spaced adjacent and parallel to the planar center bar 10 and closely overlaps the path of chain 12. For reference purposes, the outer edge of the cutting chain 12 is designated by a dashed line 22 in FIGS. 2 and 5.

In the second form of the invention (FIGS. 6–10) the prong 23 has a center base 24 and two extensions 25, 26 which are traversely spaced and substantially parallel to one another. The inner edges of prong 23 are designated at 27, and are in a continuous U-shaped configuration. The outer edges 28 along each extension 25, 26 are substantially parallel to the inner edges 27 and again present a minimum lateral extension beyond the normal chain saw width. The attachment is secured to the center bar 10 by bolts 31 and an interposed spacer 32.

The two forms of the device operate identically when cutting trees or operating in a substantially horizontal plane. As shown in FIG. 4, the end of the chain saw can engage a stump or tree 35 and be pushed longitudinally without danger of the saw jumping to the side. As shown in FIG. 5, the chain 12 moves along the center bar 10 in the direction indicated by arrow 33. This movement across the outer end of the center bar 10 tends to move the bar in the lateral direction indicated by arrow 34. However, engagement of the prong 13 by the stationary stump or tree 35 being cut prevents such movement. Instead, the chain saw can be smoothly worked through the stump or tree 35. Because the inner edge of prong 13 smoothly overlaps the path of chain 12, complete cutting of the engaged work is assured without "pinching" or jamming of any portion of the work between the chain 12 and the attachment.

As seen in FIG. 9 and 10, the second embodiment of the invention is particularly useful when pruning limbs or working at higher cutting positions. The upper extension can be rested on the limb 36 to guide the center bar 10 longitudinally until contact is made with chain 12. At that time, the chain forces will urge the center bar upwardly and the lower extension will prevent bar 10 from jumping upwardly in response to these cutting forces. This second embodiment of the invention works in the same manner as the first when cutting in substantially horizontal planes. The two extensions protect adjacent growth by preventing accidental chain contact with adjacent limbs or trees not intended to be cut.

The attachments described above can normally be maintained mounted to the chain saw, particularly when the saw is used for normal cutting purposes as well as thinning purposes. As seen in FIGS. 1 and 6, the bulk of the center bar 10 remains clear for normal cutting use along the longitudinal edges of the center bar. However, when it is necessary to utilize the full length of the center bar 10, the attachments are easily removed by releasing bolts 20 or 31.

The present attachments require no adjustment when mounted on the center bars. They are designed to be mounted substantially parallel to the side edges of the center bar and do not present more than a minimal lateral extension to the side of the unit. By providing a substantially stationary guide in a longitudinal direction, they facilitate endwise movement of the chain saw and eliminate even the slight turning motion necessary when using an angularly directed prong attachment.

Modifications might be made in the exact form of the structures shown, and it is to be understood that the illustrated features are presented herein only by way of example.

Having thus described my invention, I claim:

1. An attachment for a chain saw of the type comprising a rigid center bar having substantially parallel side edges along which a cutting tooth chain is entrained, comprising:

a rigid prong having a base at one end adapted to be secured to the center bar, and an offset longitudinal extension formed integrally therewith so as to overlap and protrude longitudinally beyond the outer end of one side of a center bar to which the base is secured;

said prong including a longitudinal inner edge of substantially straight configuration adapted to overlap the path of the cutting tooth chain of said one side edge;

said inneredge being continued across the base of said prong in a smooth curve leading away from the outer end of the center bar to which it is mounted.

2. An attachment for a chain saw of the type comprising a rigid center bar having substantially parallel side edges along which a cutting tooth chain is entrained, comprising:

a rigid prong having a base at one end adapted to be secured to the center bar, and an offset longitudinal extension formed integrally therewith so as to overlap and protrude longitudinally beyond the outer end of one side edge of a center bar to which the base is secured;

said prong further including a second offset longitudinal extension formed integrally with said base so as to overlap and protrude longitudinally beyond the outer end of the remaining side edges of a center bar to which the base is secured.

3. In combination with a chain saw including:

a substantially planar center bar having opposed side edges extending substantially parallel to one another;

a cutting tooth chain entrained along the edges of the center bar;

and means mounting the center bar and chain for selectively driving the chain relative to the center

bar in such fashion as to move the chain about the outer end of the center bar toward a first one of said side edges;

an attachment comprising:

a rigid prong having a base secured to the center bar and an integral extension overlapping and extending outward substantially parallel to said first side edge of the center bar;

said prong being extended outwardly beyond the outer end of said center bar;

said prong being located in a plane adjacent and substantially parallel to the plane of the center bar;

said prong including a continuous smooth inner edge of substantially straight configuration overlapping the path of teeth on said chain adjacent the outer end of the center bar along said first side edge thereof;

said inner edge being continued across the base of said prong in a smooth curve leading away from the outer end of the center bar.

4. In combination with a chain saw including:

a substantially planar center bar having opposed side edges extending substantially parallel to one another;

a cutting tooth chain entrained along the edges of the center bar;

and means mounting the center bar and chain for selectively driving the chain relative to the center bar in such fashion as to move the chain about the outer end of the center bar toward a first one of said side edges;

an attachment comprising:

a rigid prong having a base secured to the center bar and an integral extension overlapping and extending outward substantially parallel to said first side edge of the center bar;

said prong being extended outwardly beyond the outer end of said center bar;

said prong being located in a plane adjacent and substantially parallel to the plane of the center bar;

a second extension formed integrally with said base overlapping and extending outward substantially parallel to the remaining side edge of the center bar.

5. The attachment as set out in claim 4 wherein the inner edges of the base and extensions are in a U-shaped configuration spanning the outer end of the center bar.

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