

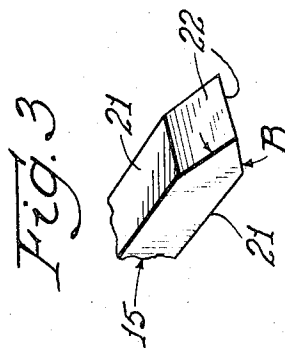
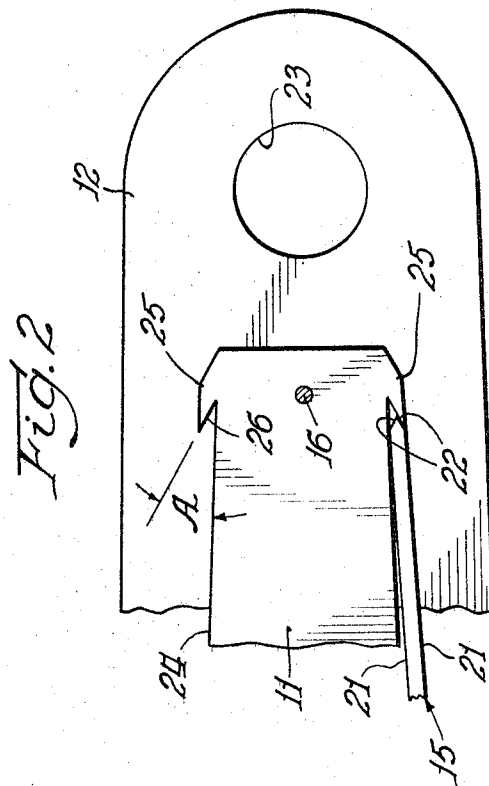
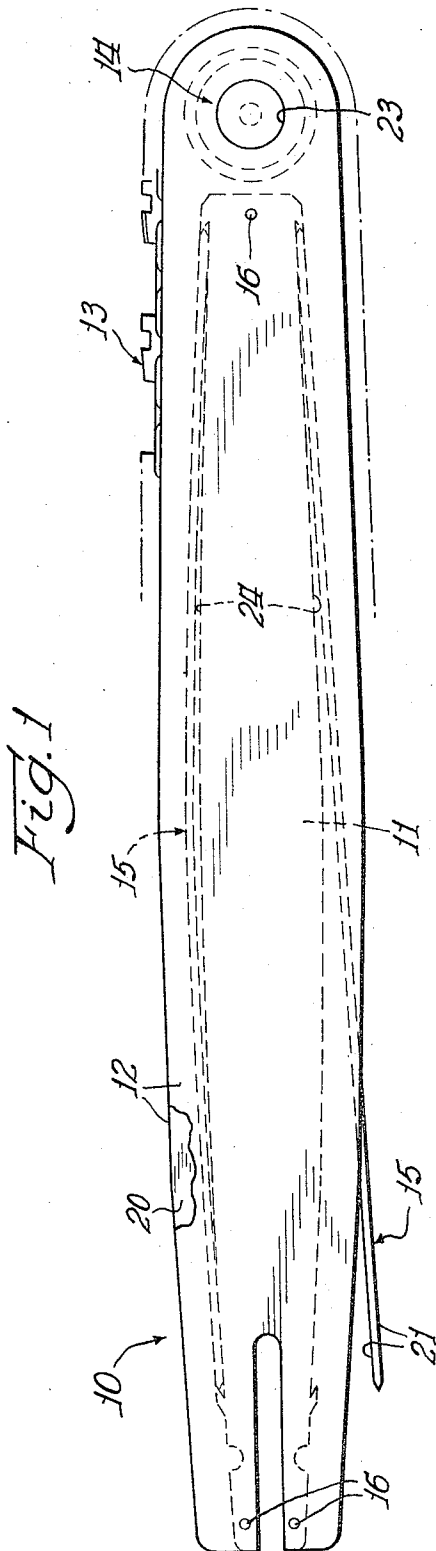
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CHAIN SAW BAR

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CHAIN SAW BAR

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4 Claims. (Cl. 143—32)

This invention relates to an improved chain saw bar and more particularly, to a chain saw bar having an improved chain supporting structure.

In the past it has been the common practice in the chain saw art to provide chain saw bars with a removable chain supporting wear strips within the groove of the bar. However, the typical type of removable wear strip used for this purpose is usually preshaped in some multiplane or multicurved relation to complementally engage a similarly shaped bottom in the chain saw bar groove to support the chain passing thereover. The multiplane and multicurved wear strip and complementary chain saw bar supporting surface therefor are relatively expensive and complicated to manufacture, use and maintain due to the complicated configuration thereof. Also, by virtue of the preshaped configuration of the wear strip, only one side surface of the strip is capable of supporting the moving chain and therefore must be discarded when that one surface becomes worn.

It is therefore highly desirable to provide a chain saw bar having a removable wear strip which is improved so that the wear strip need not be extensively preshaped in various multiplane or multicurved configurations and instead is normally a straight piece. Likewise, it is highly desirable to provide a chain saw bar within the wear strip supporting surface in the bottom of the bar groove is a single bowed arcuate surface terminating in dovetail anchoring means which is used in conjunction with the straight wear strip to provide an economical and relatively simple structure having a space between the wear strip and the bowed surface to anchor the wear strip and yet allow it to flex a limited amount in its support of the saw chain. It is further highly desirable to provide a relatively simple straight wear strip which is adapted with two alternative chain supporting surfaces which may be selectively utilized to provide more wear surface than conventional wear strips and which will naturally correspondingly provide longer wear strip life.

It is the primary object of this invention to provide a chain saw bar having an improved wear strip chain supporting structure which is relatively more simple and economical to manufacture, use and maintain than are the presently known types of wear strip chain supporting structures.

A more particular object of this invention is to provide an improved chain saw bar wear strip supporting structure wherein the wear strip supporting surface is a generally bowed single arcuate surface.

Another more particular object of this invention is to provide an improved chain saw bar wear strip supporting structure wherein the wear strips are resilient and formed in a normally straight configuration so that the wear strips are maintained in a bowed configuration on the bowed bar supporting surface when the ends of the strips are anchored against movement.

Another more particular object of this invention is to provide an improved chain saw bar wear strip supporting structure wherein improved wear strips having normally straight resilient configurations are positioned in substantially spaced apart bowed relation with the bowed wear strip supporting surface of the bar with only the end portions of the wear strips in normal engagement with the supporting surface.

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Another particular object of this invention is to provide an improved chain saw bar wear strip supporting structure wherein the wear strips are symmetrically constructed with dihedral end surfaces for alternate selective engagement with dovetail anchoring means adjacent the ends of the bowed supporting surfaces whereby the wear strips may be placed in more than one selective supporting engagement position with respect to the chain to be supported thereby.

A further more particular object of this invention is to provide an improved chain saw bar wear strip supporting structure wherein the wear strips are symmetrical and are provided with symmetrically tapered end surfaces so that the wear strips may be selectively placed in any one of several selective positions to provide more than one wear strip supporting surface for engagement with the chain.

Another more particular object of this invention is to provide an improved chain saw bar wear strip supporting structure wherein the wear strips may be cylindrical or rod-like and may be provided with conical end portions in engagement with complementary means on the bar so that the various portions of the cylindrical surface of the wear strip are available for supporting engagement with the saw chain moving in the groove.

Other objects, advantages and novel aspects of the invention will become apparent upon consideration of the following detailed description, in conjunction with the accompanying drawings wherein:

FIG. 1 is a side view of a chain saw bar showing the relative position of the part thereof including the novel wear strip chain supporting structure.

FIG. 2 is a partial side view of the bar showing the anchoring chain supporting wear strip structures pertinent to the subject invention.

FIG. 3 is a partial isometric view of the end of one end of the wear strip showing the basic shape thereof.

Referring to the drawings, there is illustrated a chain saw bar generally designated by the numeral 10 which is adapted at the left (FIG. 1) to be secured to the chain saw drive assembly (not shown). The chain saw bar 10 includes generally, a center spacer member 11, outer guide plates 12, a saw chain 13, a typical chain supporting bearing assembly 14 and wear strips 15.

The guide plates 12 are respectively secured to the sides of the spacer 11 by rivets, bolts or similar securing means 16 and are larger than the spacer 11 so that a groove 20 is formed adjacent a periphery of the spacer 11 and between the plates 12. A bearing assembly 14 is secured between the right or outer end portions of the guide plates 12 (FIG. 1) in a bearing retainer aperture 23 formed in the plates 12. The bearing assembly 14 is adapted to receive the chain 13 to guide the chain around the outer or end of the bar 10. The spacer 11 is provided with generally bowed arcuate surfaces 24 over which the wear strips 15 are to be positioned in bowed arched relation thereto for slidably supporting the saw chain 13 in the groove 20.

The wear strips 15 are made of resilient material and normally substantially straight in form (lower strip 15 FIG. 1). The wear strips 15 are provided with opposed lateral wear surfaces 21 and dihedral end surfaces 22 intersecting at an angle B. The strips 15 are bowed and anchored to the bar within the groove 20 by anchor retaining structures 25. The structures 25 extend into the groove 20 and are provided with a retaining surface 26 which intersects the bowed surface 24 of the spacer 11 at a dovetail angle A which is substantially equal to the angle B. The inventor has found through experimentation with working examples of the invention that the most reliable results were obtained when the angles A and B were in a twenty-five to thirty-five degree range.

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Thus it can be seen that the surfaces 26 of the retainers 25 form a dovetail retaining groove at the bottom of groove 20 and may be so spaced apart that when the wear strip 15 is bowed and inserted therebetween the wear strip will normally rest in a bowed spaced apart relation with respect to the bowed surface 24 of the spacer 11 and will engage the surface 24 only adjacent the end portions of the wear strips 15 (FIGS. 1 and 2). In this position, the outer dihedral surface 22 (away from the surface 24 of the spacer 11) will engage the substantially complementary surface 26 of the respective retainers and present an outer wear surface 21 for resiliently and slidably engaging the chain 13 in the groove 20.

The wear strip may be removed from the bar by enlarging the bowed thereof so as to shorten the bowed length thereof and by removing one end of the wear strip from engagement with the respective retainer 25. The strip 15 may then be rotated 180° and returned to the bar in an anchored supporting position as previously pointed out with the other chain supporting surface 21 in supporting engagement with the chain 13. Thus the chain supporting wear strip structure of this invention provides, among other things, more than one wear surface on each wear strip and thereby provides double wear strip life.

Further, it should be noted that the wear strips of the chain supporting wear strip structure of this invention are easily inserted and removed by bowing the wear strips. Also, the resilient wear strips 15, when in chain supporting position, are capable of flexing relative to the spacer 11 by virtue of the spaced apart bowed and arched relation therebetween. Further, it should be noted that the spacer 11 is provided with a relative simple wear strip supporting surface, namely, the single generally bowed surface 24 and does not require particular multi-curved or multisurface wear strip supporting surfaces. In addition, a cylindrical wear strip with conical or dihedral tapered ends could be utilized in this invention.

It is to be understood that the invention is not to be limited to the specific constructions and arrangements shown and described, except only insofar as the claims may be so limited, as it will be understood to those skilled in the art that changes may be made without departing from the principles of the invention.

What is claimed is:

1. A chain saw bar comprising a center spacer member having a peripheral wear strip supporting surface, side plates secured to said spacer member and extending beyond the peripheral surface of said spacer to form a groove for receiving a chain saw chain, retaining means secured to said spacer member adjacent the ends of said peripheral surface and having retaining surfaces respectively forming dovetail angles with said peripheral surface, and a resilient normally straight, elongated symmetrical wear strip having tapered dihedral ends, each of said ends having opposite inclined surfaces arranged symmetrically about the longitudinal center line of the wear strip adapted to respectively complementarily engage said retaining surfaces to hold said wear strip in bowed arched relation with respect to said supporting surface for resiliently and slidably supporting the chain saw chain in the groove.

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2. A chain saw bar comprising a center spacer member having a continuously arcuate peripheral surface, side plates secured to said spacer member and extending beyond the peripheral surface of said spacer to form a groove for receiving a chain saw chain, retaining means formed on said bar adjacent the ends of said arcuate surface and having retaining surfaces forming an acute angle with said arcuate surface, and a resilient normally straight, elongated and symmetrical wear strip having dihedral ends, each of said ends having opposite inclined surfaces arranged symmetrically about the longitudinal center line of the wear strip adapted to alternately complementarily engage said retaining surfaces to hold said wear strip in bowed arched relation with respect to said arcuate surface with the central portion of said wear strip spaced apart from said arcuate surface for resiliently and slidably supporting the chain saw chain in the groove.

3. A chain saw bar comprising a center spacer member having a continuously bowed arcuate peripheral surface, side plates secured to said spacer member and extending beyond the peripheral surface of said spacer to form a groove for receiving a chain saw chain, retaining means secured to said bar adjacent the end of said arcuate surface and having retaining surfaces forming an acute angle with said arcuate surface, and a normally straight, elongated symmetrical resilient wear strip having dihedral ends, each of said ends having opposite inclined surfaces arranged symmetrically about the longitudinal center line of the wear strip adapted to alternately complementarily engage said retaining surfaces to hold said wear strip in bowed arched relation with respect to said bowed surface for resiliently and slidably supporting the chain saw chain in the groove.

4. A chain saw bar comprising a center spacer member having a continuously bowed arcuate peripheral surface, side plates secured to said spacer member and extending beyond the peripheral surface of said spacer to form a groove for receiving a chain saw chain, retaining means formed on said bar adjacent the end of said arcuate surface and having retaining surfaces forming an acute angle with said arcuate surface, and a resilient normally straight, elongated and symmetrical wear strip having dihedral ends, each of said ends having opposite inclined surfaces arranged symmetrically about the longitudinal center line of the wear strip adapted to alternately complementarily engage said retaining surfaces to hold said wear strip in bowed arched relation with respect to said arcuate surface for resiliently and slidably supporting the chain saw chain in the groove.

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