May 10, 1966 M. MERZ 3,250,304

CHAIN SAW BAR

Filed May 8, 1964

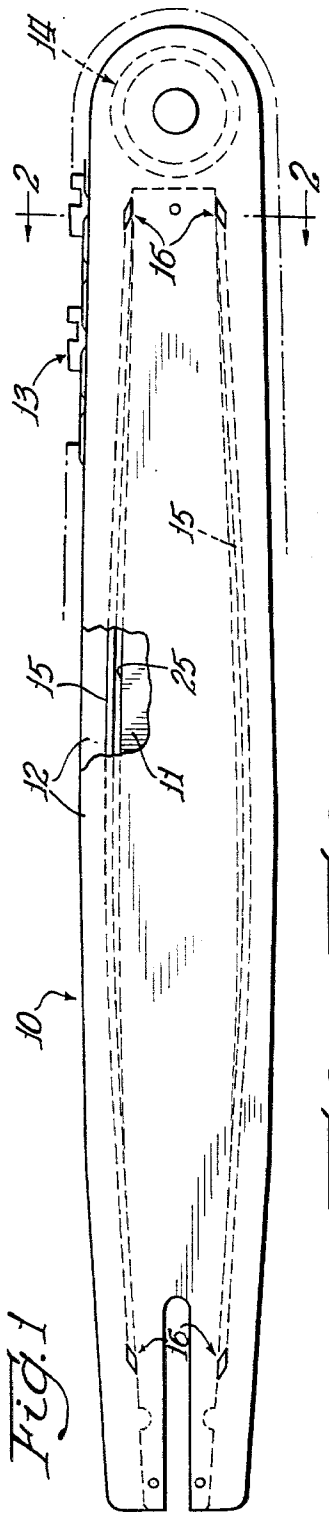

Fig. 1

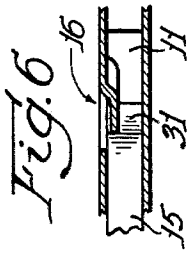

Fig. 6

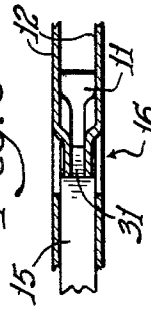

Fig. 5

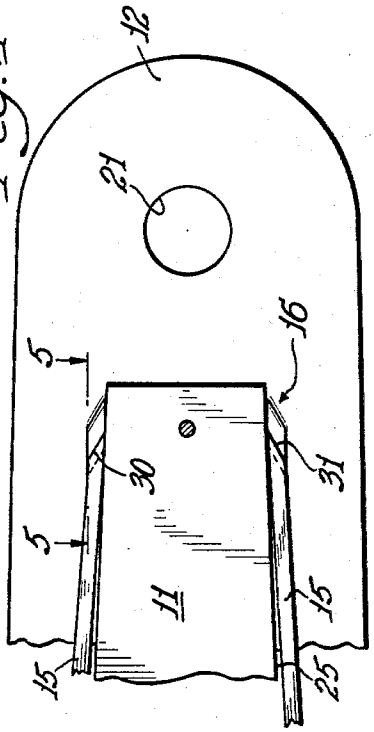

Fig. 4

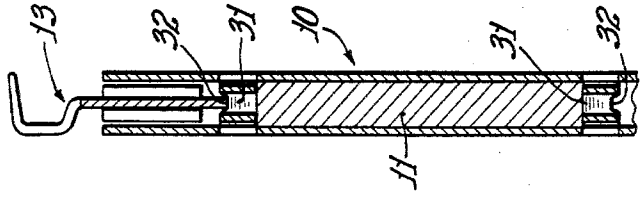

Fig. 3

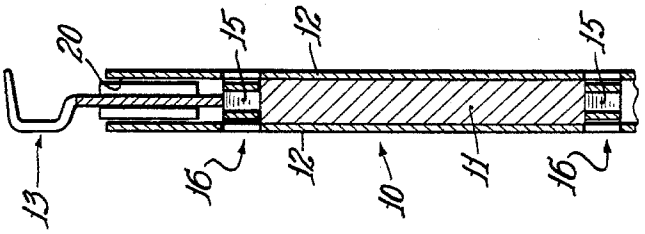

Fig. 2

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United States Patent Office 3,250,304 Patented May 10, 1966

3,250,304

CHAIN SAW BAR

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Filed May 8, 1964, Ser. No. 365,940
6 Claims. (Cl. 143—32)

This invention relates to an improved chain saw bar of the type utilizing insertable wear strips for supporting the chain saw and more particularly, to an improved chain saw bar and wear strip structure.

Previous types of chain saw bar structures have utilized a dovetail groove in the longitudinal center portion of the bar to receive and anchor the wear strips within a longitudinal groove in the bar. This general approach provides an initially strong anchoring structure but is not without some relative disadvantages. In particular, this general structure is somewhat expensive to appropriately manufacture, and in addition thereto, tends to create undesirable concentrated stresses in the center portion adjacent the acute dovetail angle thereof. Further, the anchor structure portion provided for by the dovetail is subject to direct abrasion and destructive upsetting from the chain adjacent the ends of the bar due to the path that the chain tends to follow in that area of the bar. The abrasion and destructive upsetting of the anchor portion is amplified after the strips have become slightly worn from the sliding engagement of the chain therewith.

It would, therefore, be highly advantageous to provide an improved chain saw bar wherein a structural means is provided for retaining the wear strips in operating position in a relatively inexpensive simple manner and in a manner so as to avoid inducing undue stresses in the chain saw bar and to prevent direct abrasion and destructive upsetting of the wear strips from the action of the chain both during the initial operation of the chain and after the strips have become worn.

It is a general object of this invention to provide a chain saw bar having insertable wear strips and which is provided with an improved relatively simple, economical and uniquely effective bar and wear strip structure whereby the wear strips are retained in an efficient operational position with respect to the chain moving thereover.

It is a more particular object of this invention to provide a chain saw bar having an insertable wear strip provided with an improved structure for retaining the wear strip which will tend to prevent the formation of concentrated stresses in the center spacer portion of the chain saw bar.

Another object of this invention is to provide a chain saw bar having an insertable wear strip and an improved structure for retaining the wear strip so as to avoid direct abrasion and upsetting of the wear strip retaining structure from the action of the chain during the operation thereof and thereby providing a safe, effective and reliable wear strip and wear strip securing means.

With these and other objects in view, the present invention provides, among other things, a chain saw bar wherein guide plates are positioned on a center spacer member to provide a bar having a groove therein for slidably receiving a saw chain, and wherein a chain supporting wear strip is provided in the groove and is retained by structure extending from one or more of the guide plates into the groove.

Other objects, advantages and novel aspects of this 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 parts thereof including the novel wear strip retainers extending from the side plates into the groove of the bar.

FIG. 2 is a partial cross sectional view taken along line 2—2 of FIG. 1 showing the engagement of the saw chain with an unworn wear strip within the groove and the position of the wear strip retaining structure.

FIG. 3 is a partial cross sectional view similar to FIG. 2 showing the engagement of the saw chain with the wear strip which cause the wear strip to be worn from repeated engagement with aligned supporting links of the moving saw chain.

FIG. 4 is a side view of the right or outermost end portion of the chain saw bar with one side plate removed illustrating an appropriate position for the novel wear strip retaining structure.

FIG. 5 is a partial cross sectional view taken along line 5—5 of FIG. 4 showing a particularly shaped wear strip retaining structure utilized to illustrate the present invention.

FIG. 6 is a partial cross sectional view similar to FIG. 5 showing the employment of a single retainer.

Referring to the drawings, there is illustrated a chain saw bar, generally represented by the numeral **10**, which is adapted at the left (FIG. 1) to be secured to a chain saw drive assembly (not shown). The chain saw bar **10** is made to include generally a center spacer member **11** (FIGS. 1 and 5), outer guide plates **12**, a saw chain **13**, a typical bearing assembly **14**, wear strips **15** and wear strip retaining structures **16**.

The guide plates **12** are respectively secured to the sides of the spacer **11** and extend beyond the spacer **11** so as to form a groove **20**. The bearing assembly **14** is secured between the right or outer end portions of the guide plates **12** (FIGS. 1 and 5) in a bearing retainer aperture **21** formed in the plates **12**. The bearing assembly **14** is adapted to receive the chain **13** to guide the chain around the outer or right end of the bar **10**. The spacer **11** is provided with generally arcuate surfaces **25** against which the wear strips **15** are positioned in arched relation thereto for slidably and resiliently supporting the saw chain **13**. The wear strips **15** are held in their arched chain supporting position and against longitudinal movement with the chain **13** by the wear strip retaining structures **16**.

The wear strip retainer structures **16** are extruded from the guide plates **12**. The retainers **16** are provided with a retaining surface **30** which is adapted to complementally engage a surface **31** formed on the end of the wear strip. It should be noted that a single retaining structure **16** (FIG. 6) could be provided to independently retain each end of the wear strip without having a similar opposed retaining structure in the manner illustrated in FIG. 5. The retainers **16** are shown (FIGS. 1–5) in opposite opposed pairs to illustrate the most desirable structure example thereof.

When an unworn wear strip **15** is used in conjunction with the chain **13** in the bar, aligned supporting links of the chain (center links in FIGS. 2 and 3) will ride on the center of the wear strip **15** in a manner illustrated in FIG. 2. Further, as the wear strip is used in conjunction with the chain **13**, the wear strip **15** will wear adjacent the center supporting links from the action of the center links and will develop a groove **32** (FIG. 3). The retainers **16** extend inwardly from the respective side plates **12** a spaced apart distance and thereby do not engage the strips **15** beneath the aligned center supporting links of the chain. Therefore, wear, abrasion, or upsetting caused by the coaction of the chain **13** moving on the strips **15** in the groove **20** will be totally absorbed by strips **15** resulting in a groove **32**, to the exclusion of the retainers **16**. Thus the retainers **16** will remain undamaged during the normal use of the chain saw bar **10** and provide safe, continuous and reliable retention of the wear strips

15 by the retainers 16 even though the wear strips 15 have been worn at 32 by the saw chain 13.

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, a guide plate positioned on each side of said spacer and extending beyond said spacer to provide a groove on the periphery of the spacer between the plates for receiving a saw chain, a wear strip positioned within the groove for slidably supporting the saw chain, and retaining means extending from one of said guide plates into the groove for retaining said strip against movement with the chain.

2. A chain saw bar comprising a center spacer member, a pair of guide plates respectively positioned on the sides of said spacer and extending beyond said spacer to provide a groove on the periphery of the spacer between the plates for slidably receiving a saw chain therein, and a wear strip positioned within the groove for slidably supporting the saw chain, said guide plates having opposed portions thereof extended inwardly into the groove and adapted to engage said strip for retaining the strip against movement with the chain.

3. A chain saw bar comprising a center spacer member, a pair of guide plates respectively positioned on the sides of said spacer and extending beyond said spacer to provide a groove on the periphery of the spacer between the plates for slidably receiving a saw chain, a wear strip positioned within the groove for slidably supporting the saw chain, and pairs of opposed retaining members extending from said plates into the groove for retaining the ends of the strip to hold the strips against movement with the chain within the groove.

4. A chain saw bar comprising a center spacer member, a pair of guide plates respectively positioned on the sides of said spacer and extending beyond said spacer to provide a longitudinal groove on the periphery of said spacer between said plates for slidably receiving a saw chain, wear strips positioned longitudinally within the groove for slidably supporting the saw chain, said wear strips having oppositely tapered ends, a pair of laterally opposed retaining members extending from said plates into the groove adjacent the ends of said strips and adapted to complementally engage respective ends of said strips to retain said strips in the groove against movement with said chain.

5. A chain saw bar of the type used in conjunction with a chain saw chain having aligned center supporting links comprising a center spacer member, a pair of guide plates respectively positioned on the sides of said spacer and extending beyond said spacer to provide a longitudinal groove on the perhiphery of said spacer between said plates for slidably receiving a saw chain, a wear strip positioned within the groove for engagement with the aligned supporting links of a saw chain from beneath the chain to slidably support the chain by supporting said links, and wear strip retainer members extending inwardly from said plates into the groove in engagement with said strip beneath the unsupported chain links for retaining said strips.

6. A chain saw bar of the type used in conjunction with a chain saw chain having aligned center supporting links comprising a center spacer member slightly wider than the saw chain to be received therein, a pair of guide plates respectively positioned on the sides of said spacer and extending beyond said spacer to provide a longitudinal groove on the periphery of said spacer between said plates for slidably receiving the saw chain, a wear strip positioned within the groove for engagement with the aligned supporting links of the chain to slidably support the chain, and laterally opposed retainer members extending inwardly from said plates into the groove and spaced apart a distance sufficiently greater than the thickness of the supported center links of the chain so that said strips are not supported beneath the supporting link of said chain.

No references cited.

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