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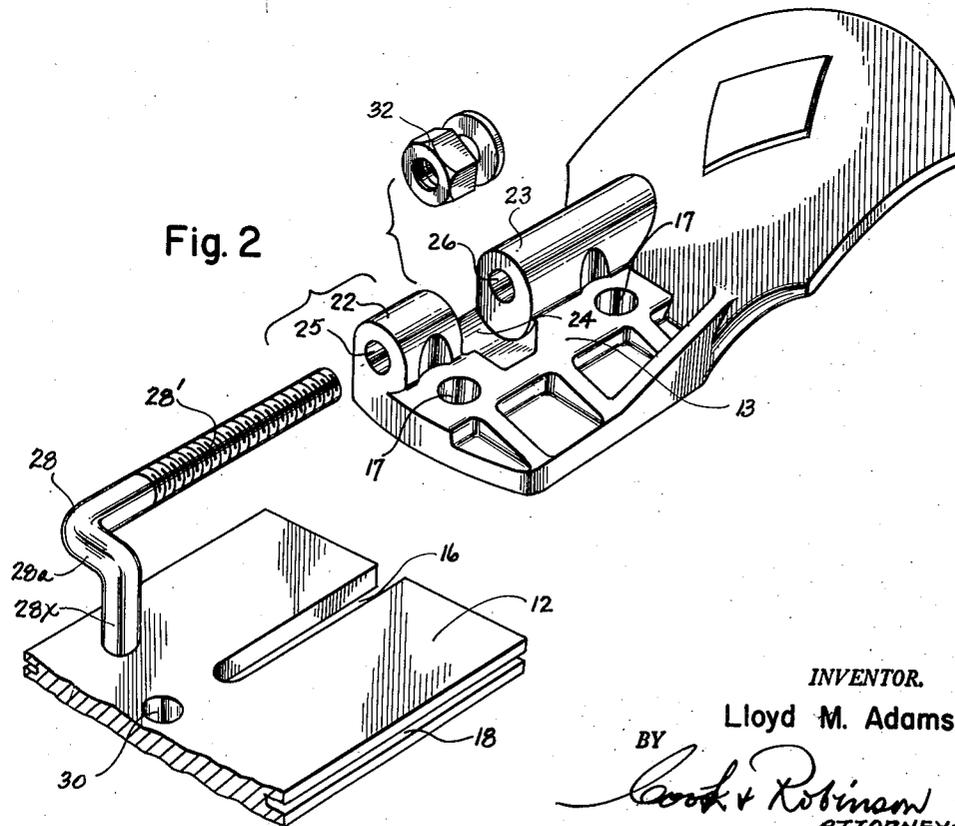
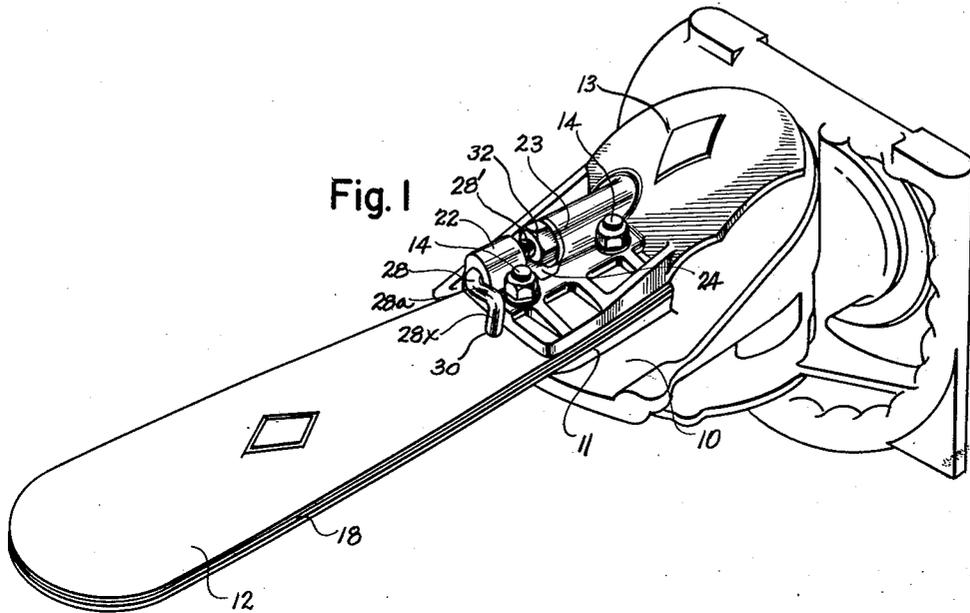
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CHAIN TIGHTENER FOR POWERED CHAIN SAW

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2 Sheets-Sheet 1



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Fig. 3

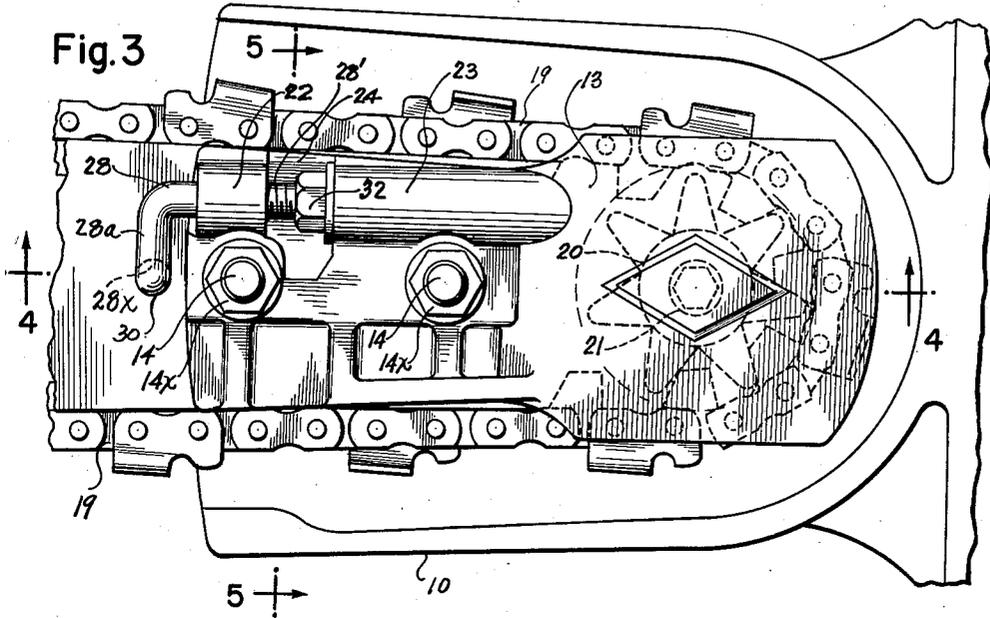


Fig. 4

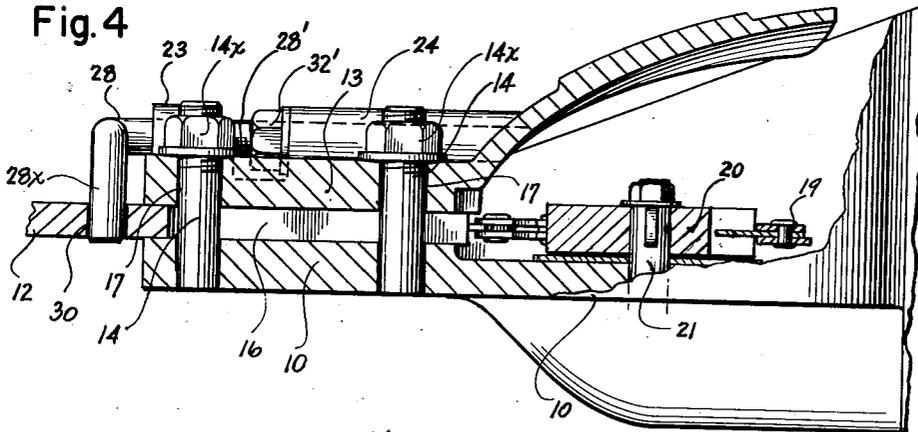
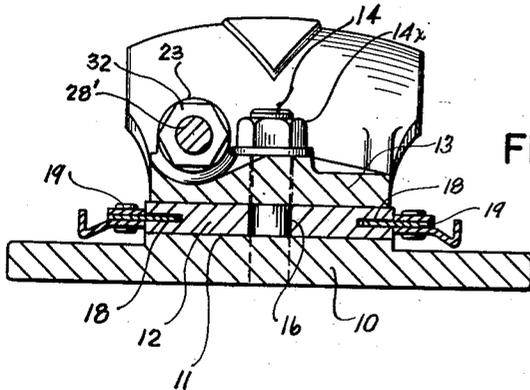


Fig. 5



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CHAIN TIGHTENER FOR POWERED CHAIN SAW

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5 Claims. (Cl. 143—32)

This invention relates to engine driven chain saws of those types wherein the saw chain is of continuous belt form and operates along the peripheral edges of a blade, or bar, that is fixed to the engine frame, and at the inner end of the blade or bar operates about an engine driven sprocket wheel. More particularly, the present invention has reference to what has been designated as a "chain tightener assembly" whereby adjustments of the bar relative to a sprocket wheel may be made as required to take up slack in the chain, that may be incident to wear or use, and whereby the tension of the chain may be adjusted to and maintained at that desired or required for most satisfactory operation.

It is the principal object of the present invention to provide a chain tightener assembly whereby adjustments of the bar can be easily and readily made and then positively retained.

It is a further object of the invention to combine the parts whereby adjustment of the chain carrying bar are made with a removable bar clamping plate, and to so arrange them that they are easily accessible for manipulation.

Still further objects of the invention are to be found in the details of construction and combination of parts and in their mode of use, as will hereinafter be fully described.

In accomplishing these and other objects of the invention, I have provided the improved details of construction, the preferred forms of which are illustrated in the accompanying drawings, wherein:

Fig. 1 is a perspective view of a portion of a chain saw equipped with the present chain tightener assembly.

Fig. 2 is a perspective view showing the parts comprising the present chain tightener assembly on the chain mounting bar in disassembled relationship for better illustration and for explanatory purposes.

Fig. 3 is a face view of the chain tightener assembly.

Fig. 4 is a vertical section taken on line 4—4 in Fig. 3.

Fig. 5 is a cross-section taken on line 5—5 in Fig. 3.

Referring more in detail to the drawings:

In Fig. 1, I have shown a part of the frame structure of a chain saw and a saw chain mounting blade as applied thereto. The frame structure includes the part 10, disclosed as a casting, and this is formed with a flat surfaced portion 11, against which the inner end portion of the chain carrier blade or bar 12 is secured by an overlying casting 13 and stud bolts 14—14 secured in the casting. It is well shown in Fig. 4 that the studs 14—14 extend upwardly from the flat surfaced portion of casting 10, through a longitudinal slot 16 formed in the inner end portion of the bar 12, and then through holes 17 in the overlying casting 13. Nuts 14x are applied to the threaded outer ends of the studs and are adapted to be tightened against the casting 13 to clamp the parts together, thus to hold the bar 12 secure.

The bar 12 is formed along its opposite edges and about its outer end, which is circularly rounded, with a continuous channel 18 which receives the guide lugs as

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formed on certain links of the saw chain designated by numeral 19, to guide the chain in its travel as is well understood in this art. The saw chain 19 which is of continuous belt form, has not been shown in Figs. 1 and 2 but is shown in part in Figs. 3 to 5. In Fig. 3, it is shown to extend about a sprocket wheel 20 on a driven shaft 21 which is rotatable in the frame member 10 and is operatively connected with the engine; the latter not herein being shown.

In the operation of such power driven chain saws, it is common for the chain to wear and in doing this, to elongate. It becomes necessary and desirable, therefore, that it be tightened to maintain its operating efficiency. The present invention, which deals primarily with the means for effecting and maintaining this tightening adjustment of the saw chain will now be described.

Formed on the casting 13, at one side of the alignment of holes that are formed therein and through which the studs 14—14 extend, are two upstanding bosses 22—23; these being spaced apart, as best shown in Fig. 2, to provide an intermediate open space, designated at 24. Formed through these lugs, in axial alignment and in a line parallel with the vertical plane of the two bolt holes 17—17 therein are holes 25—26 which slidably contain threaded shank 28' of a dog bolt 28. At its forward end, this bolt 28 has a laterally turned head 28a with a downturned toe 28x; this toe being fitted in and projected through a hole 30 that, as seen in Figs. 2 and 4, is formed in the bar 12 in alignment with and slightly spaced from the closed end of the bar slot 16.

Threaded onto that portion of the shaft of the dog bolt 28 that is between the lugs 22 and 23 on casting 13 is a nut 32, and when this nut is seated against the flat face of the lug 23, and is turned in such direction as to tighten it against the lug, the bolt 28 will be shifted outwardly. Thus, assuming that the casting securing nuts 14x have been slightly loosened, preparatory to making an adjustment of the chain bar 12, to adjust tension of the saw chain, it will be understood that the outward shifting of the bolt 28 will shift the bar accordingly and in this way will effect the tightening of the chain.

After an adjustment of the bar has thus been made, the nuts 14x are drawn tight, and the bar thus tightly clamped against movement between the castings 10 and 13. If it is desired, a lock nut, can be applied to bolt 28 for use in conjunction with nut 32 to secure the adjustment as effected by dog bolt 28.

The present device is effective, easy to use, readily accessible for making adjustments, relatively simple and is relatively inexpensive. It is to be understood that certain details of construction may be altered without departing from my invention. For example, if desired or required three studs may be employed to secure the casting in position. Also, the position of bosses 22—23 may be altered to avoid interference in tightening of the nut 32. Further, the bar slot 16 may be elongated and adapted to receive the toe 28x in lieu of the hole 30. These are only a few contemplated modifications and others may be necessary so as to adapt the invention to various requirements or types of chain saws.

Having thus described my invention, what I claim to be new therein and desire to secure by Letters Patent is:

1. In a chain saw of the character described having a frame member formed with a flat, bar seating surface, and a plurality of studs fixed in the said frame member and extended from said surface, a chain mounting bar having an end portion thereof applied flatly against the said bar seating surface of the frame member and formed with a longitudinal slot through which said studs extend to retain the alignment of bar and frame member while permitting endwise adjustments of the bar, a clamping plate overlying the said end portion of the bar and

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formed with holes through which the said studs extend, and nuts applied to the studs for clamping the plate against the bar; said clamping plate having two bosses formed thereon in spaced relationship and aligned in the direction of the bar slot, and said bosses having holes therethrough in axial alignment and parallel with the said bar slot, a dogging bolt slidably contained in said holes of said bosses, said bolt having an end portion holdingly engaged with the bar for chain tightening adjustments thereof and a nut threaded on the dogging bolt, between the bosses, and adapted to be tightened against one of the bosses to effect the shifting of the bolt for a chain tightening adjustment of the bar.

2. A combination of parts as recited in claim 1 wherein the chain mounting bar has a hole therethrough adjacent its mounting end portion, and said dogging bolt has a laterally bent end portion thereof projected into said hole and effecting the holding connection therewith.

3. A combination of parts as recited in claim 1 wherein the chain mounting bar has a hole therethrough adjacent the mounting end portion thereof and in alignment with the longitudinal slot of the bar, and said slot is open at one end to the mounting end of the bar, and said dogging bolt has a laterally bent end portion extended into said hole and thereby effecting the adjusting connection between bar and bolt.

4. A combination as recited in claim 3 wherein the aligned bosses are offset in their relationship to the bar slot, and said dogging bolt has an end portion bent laterally thereof and this portion terminates in a laterally bent toe that is projected into said bar hole to effect an

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adjusting connection between bolt and bar; said bolt being disengageable from the bar by axial rotative adjustment, and said bar then being removable from the frame upon loosening the clamp plate securing nuts to loosen the pressure of the clamp plate thereagainst.

5. In a chain saw of the character described having a bar supporting frame, a saw chain carrying bar movably mounted on said frame, a clamping plate secured in fixed relationship to the frame and in engagement with the outer surface of the bar, said plate including spaced apart bolt mounting means, a partially threaded dogging bolt movably supported in said mounting means with an end portion thereof extending beyond one end of the plate, said extended portion of the bolt being angularly bent relative to the threaded portion whereby the bent portion engages said bar for effecting a bar adjusting connection therewith, and a nut threaded on the bolt between the mounting means for adjustment along the bolt and engagement with one of the bolt mounting means to effect an endwise adjustment of the bolt and a chain tightening adjustment of the bar.

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