Device for Sharpening Chain Saw Chains

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My invention relates to a device for sharpening chain saw chains.

An object of my invention is to provide a device which can be readily and conveniently clamped to a chain saw directly or to a vise if desired, so that the cutting portions of the saw can be readily sharpened, and accurately sharpened to the required accuracy.

A further object of my invention is to provide an arrangement which is adjustable so that the device can be adjusted to sharpen the cutting elements to desired angles.

A further object of my invention is to provide a quickly detachable means whereby the unit can be detached from a chain saw.

With these and other objects in view, my invention consists in the construction, arrangement, and combination of the various parts of my device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claim, and illustrated in the accompanying drawings, in which:

Figure 1 is a plan view of the device,
Figure 2 is a forward elevation of Figure 1,
Figure 3 is a sectional view taken along the lines 3—3 of Figure 2, and
Figure 4 is a detail sectional view showing the clamp arrangement as used against a chain saw.

The present application is an improvement on my co-pending application on a Device For Sharpening Chain Saw Chains, Serial No. 583,842, filed May 9, 1956, now Patent No. 2,859,642.

The character 10 to designate a horizontally positioned bar through the ends of which bar pass the vertical posts 11 secured by the nuts 12, the further nuts 13 securing the post 11 to a further bar 14 which is parallel to the bar 10, the bar 14 extending into the vertical positioned portion 15 having the slots 16, whereby if desired, the arrangement can be attached to a vise or by means of suitable bolts to any other surface.

Also, securely attached by means of the nuts 13 are the horizontal flanges 17 of angle shaped members having the vertical portions 18, and formed in the portions 18 are the curved semi-circular portions 19 which portions 19 receive the rod 20, the rod 20 having the bent portion 21 medially thereof.

Also clamped against the bar 14 is a semi-circular plate 22 having the angle markings 23 thereon (see Fig. 1).

Formed integrally with the bar 10 are a pair of downwardly extending bosses 24 which bosses receive the angularly positioned lock screws 25, the lock screws being threadably engaged with the bosses 24 and including the lock nuts 26 attached thereto.

The bar 10 includes a circular portion 27 including a suitable opening through which passes the vertically positioned threaded stud 28 which threadably engages the upper circular knob 29 and threadably engaged the stud 28 also in the lower knob 30, the lower end of the stud 28 being securely attached at 31 to the horizontal piece 32, and formed integrally from the piece 32 is a vertically positioned integral portion 33 which slidably receives a horizontal rod 34 which is also slidably received in a further opening 35 in the further vertical portion 36 which is formed integrally from the member 32, the portion 36 extending into an upper portion 37 which is adapted to bear against the ends of either of the lock screws 25, and threadably engaged with the portion 37 is a wing nut 38 which is adapted to tightly secure the member 32, etc., at the desired angle.

The end of the rod 34 is tightly retained at 39 within the vertically positioned member 40 which extends into the element 41 having the handle portion 42, the element 41 having an opening in which is received the end of a circular file 43 which is secured by means of the wing nut 44, the other end of the file 43 being received with an opening 45 within the lower end of the curved portion 46 of the rod 34.

Extending from the rod 20 is the outwardly bent portion 47 which acts as a handle for rotating the rod 20.

The device is operated in the following manner. When it is desired to attach the arrangement directly to a chain saw, the horizontally positioned plate which forms one of the principal parts of the chain saw, and which is indicated by the character 48 is inserted between the chamber 15 and the flanges 18, and as shown clearly in Figure 4.

The bent handle portion 47 is then rotated which rotates the bar 20 and carries the offset portion 21 against the member 48, whereby the lower portion of the member 48 will abut against the lower portion of member 15, thereby securely holding the saw unit in place.

The links which travel about the edges of the plate 48 are indicated generally by the character 49, certain of these links being also shown in Figure 2 by dotted lines. These links include integral portions such as the portion 50 which must be cut at a predetermined angle, and this angle is set by setting the bar 34 in alignment with the desired angle at 23, whereupon the thumb screw 38 is tightened against the knob 30.

The height of the file can be adjusted by turning the knobs 29 and 30 and thence tightening these knobs against the boss 27, and then by virtue of the tightening of the thumb screw 38, the entire structure will be set at the predetermined angle.

The handle 42 is then grasped and the rod or bar portion 34 is reciprocated through the opening 35, and through the opening in the portion 33, thereby providing the necessary cut on to the cutting elements 50, the file 43 as viewed in Figure 2 being ahead of one of the elements and behind the other.

The section shown in Figure 3 shows the bar 34 etc., at a position directly at right angles to the bar 20 for clarity.

It will be noted further that the file 43 can be swung out of the cutting position by merely twisting the handle 42 to rotate the bar 34 within the openings. The successive links to be sharpened can be advanced to the cutting position, or if desired, the cam arrangement 21 can be operated to bring the unit to the cutting position for the successive links.

The vertical adjustment for changing the vertical position of the carriage 32 etc. is especially desirable for use with varying sizes of the links 49. The angular positioning by means of the markings 23 is usually required at both sides of the arrangement, since the alternate teeth 50 are usually pitched at opposed angles so that by merely loosening the thumb screw 38, the arrangement can be swung from one side to the other side for the opposite pitch, the screws 25 being previously adjusted to give the correct angle at each abutment of the portions 37 against the ends of the screws.

I also provide the threaded opening 51 in the member 15 so that if desired, ordinary machine screws can be screwed inwardly from the other side of the member 15.
to bear against the plate 48, it being noted that this arrangement thereby provides means for clamping directly to the saw itself without the necessity of using a separate vise and the like or can be used with a vise. However, it will be noted especially that the device is more conveniently used for the means of sharpening a chain saw without removing the chain itself from the saw.

It will now be noted that I have provided the advantages mentioned in the objects of my invention with further advantages being apparent.

Some changes may be made in the construction and arrangement of the parts of my invention without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claim any modified forms of structure or use of mechanical equivalents which may be reasonably included with their scope.

I claim as my invention:

A device for sharpening chain saw chains comprising a framework, a further framework spaced from said framework, said framework and said further framework adapted to receive a chain saw portion therebetween, a cam adapted to bear against said chain saw portion to tighten the same against said framework, said cam being mounted on said further framework, a filing member arranged for slidable movement with respect to said framework for filing the cutting teeth of said chains, said filing member including a carriage for slidably receiving said filing member, means for positioning said carriage at desired angles, means for adjustably positioning said carriage vertically, said angle positioning means including a substantially semi-circular plate extending from said framework including angle markings at either side thereof, adjustably limiting means for limiting said carriage angularly, and whereby said carriage can be swung from one side to the other to provide filing of chain saw teeth which have opposite pitches, said framework including a downwardly extending portion having slots therein for providing attachment to a vise when desired, said cam including a lengthened rod having a medially bent portion to provide said cam, a handle attached to said rod for rotating the same.

References Cited in the file of this patent

UNITED STATES PATENTS

<table>
<thead>
<tr>
<th>Patent Number</th>
<th>Inventor</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>424,724</td>
<td>Penrose</td>
<td>Apr. 1, 1890</td>
</tr>
<tr>
<td>813,036</td>
<td>Cardwell</td>
<td>Feb. 20, 1906</td>
</tr>
<tr>
<td>1,314,912</td>
<td>Stewart</td>
<td>Sept. 2, 1919</td>
</tr>
<tr>
<td>1,457,880</td>
<td>Masow</td>
<td>June 5, 1923</td>
</tr>
<tr>
<td>2,019,330</td>
<td>Altman</td>
<td>Oct. 29, 1935</td>
</tr>
<tr>
<td>2,762,241</td>
<td>Nielson</td>
<td>Sept. 11, 1956</td>
</tr>
<tr>
<td>2,818,752</td>
<td>Granberg</td>
<td>Jan. 7, 1958</td>
</tr>
<tr>
<td>2,833,165</td>
<td>Irwin et al.</td>
<td>May 6, 1958</td>
</tr>
</tbody>
</table>