This invention relates to a protective device or guard for covering the cutting elements of a saw chain extending outwardly of the chain saw frame and engine. Chain saws typically used by the logging industry for cutting trees usually have a portable gas engine from which extends a flat bar on which the saw chain travels as it is driven by the engine. The saw chains have cutting elements which are sharpened during manufacture and are intermittently sharpened after use to maintain an efficient cutting mechanism. To protect the sharp cutting elements of the saw chain after manufacture and after sharpening, and also to protect objects with which the saw chain might come into contact while being transported or stored, it is desirable that the chain be covered by a guard which is easily fitted onto the chain and which also frictionally engages the bar, the chain, or both.

It is an object of the invention to provide a saw chain guard that is resilient and easy to place on and to remove from the chain.

It is another object of the invention to provide a saw chain guard of simple construction that is inexpensive to manufacture.

It is still another object of the invention to provide a saw chain guard that is easy to slip onto the chain without the aid of special tools or without excessive manipulation of the guard and chain saw.

It is a further object of the invention to provide a chain saw guard which may be easily stored when not on the saw.

It is still another object of the invention to provide a saw chain guard that will easily slip onto the chain, yet will frictionally engage the saw chain and/or bar to snugly hold the guard in its protective position without the aid of additional holding means.

Further objects and advantages of the invention may be brought out in the following part of the specification wherein small details have been described for the competence of disclosure, without intending to limit the scope of the invention which is set forth in the appended claims.

Referring to the accompanying drawings which is for illustrative purposes only:

FIG. 1 is an elevational view of a chain saw bar and saw chain with the saw chain protector in place, according to the present invention;

FIG. 2 is a transverse sectional view taken as indicated on the line 2—2 of FIG. 1;

FIG. 3 is an enlarged transverse sectional view of a saw chain protector according to the present invention;

FIG. 4 is a cross-sectional view of another form of the invention;

FIG. 5 is a cross-sectional view of still another form of a chain saw protector;

FIG. 6 is a sectional view taken as indicated along the line 6—6 in FIG. 7; and

FIG. 7 is a perspective view of a chain saw, illustrating the installation of one form of the invention on the saw chain.

Referring again to the drawing, there is illustrated in FIG. 8 a chain saw having an engine frame 10 from which outwardly extends a saw bar or blade 11. On the bar a saw chain 12 is fitted to travel as it is driven by the engine driven sprocket 13. The saw chain 12 as shown has inwardly extending projections which engage the sprocket and which ride in a groove in the periphery of the saw bar 11. The chain also may be typically of a type which has oppositely disposed, inwardly extending projections which straddle a peripheral tongue extending outwardly from the bar.

As best seen in FIGS. 2 and 8, the chain has outwardly extending allochiral alternate left and right-hand cutting elements 15 and 16 which are shown to extend laterally outwardly of the body of the chain.

According to the invention, a chain saw protector or guard 17 is formed of a single piece of resilient material, such as rubber, neoprene or a plastic. As best seen in FIGS. 1 and 8, the guard has an elongated U-shaped or hairpin configuration having a substantially semicircular nose portion 18 which fits over the outer end or nose of the saw chain and bar and which at the ends of portion 18 are two elongated spaced, coextensive portions 19 for fitting over the main body of the exposed saw chain.

As best seen in FIGS. 2 and 3, the guard 17 has an approximately channel-shaped cross-section having an outer wall or web 21 and biased, converging inwardly directed side walls 22. The walls 22, when the guard is not on the saw chain, terminate and make contact with each other, as shown in FIG. 3, at their innermost transverse surfaces 23. Extending from the surfaces 23 are vertically inwardly and laterally diverging flanges or webs 24 having beads 25 at their ends.

The walls 24 diverge angularly and laterally outwardly so that their ends are spaced apart a distance at least as great as the transverse width of the saw chain as defined by the lateral extremes of the left and right-hand cutting elements 15 and 16. Thus, when the guard is placed over the chain, pressure on the wall 21, as indicated in FIG. 8, causes the resilient walls 24 to move laterally outwardly, and since they are spaced apart a distance at least the width of the widest part of the chain, there is no obstruction to the movement of the guard 17 onto the saw chain. The downward movement, as indicated in FIG. 8, thus results in an outward lateral movement of the contact surfaces 23 so that they are spaced from each other, and as the web portion 21 is moved inwardly to contact the outer surfaces of the chain, depending upon the relative height of the chain and its cutters and that of the distance between the web 21 and the surfaces 23, the latter surfaces frictionally engage the saw chain or the saw bar or both, as shown in FIG. 2. After the guard 17 is started onto the saw chain, as indicated in FIG. 8, then, by guiding the hand around the periphery of the guard, saw chain and bar, and at the same time pressing the guard toward the bar, it is easily and quickly installed. The frictional grip, provided by the action of the biased, resilient walls 22 so as to cause contact at surfaces 23, holds the guard properly in place when the chain saw is being transported or in storage. It, thus, protects both the sharpened cutting elements and any surfaces with which they might otherwise come into contact. By designing the guard 17 for a particular size of saw chain and bar, the nose 18 makes a proper snug fit on the nose of the bar and chain.

In FIG. 4, another form of the invention is shown in which a guard 17' has a substantially semicircular outer portion 28 from which depend two inwardly extending converging legs 29. Legs 29 are resiliently biased to make contact with surfaces 30 of each time it is on the saw chain and bar. Flanges 31 extend vertically inwardly from the surfaces 30, relative to a saw bar, and diverge angularly laterally outwardly so as to terminate in beads 32, which are spaced apart a distance at least as great as the transverse width of the cutting elements 15 and 16.
In FIG. 5, is another form of the invention shown in cross-section. Here the guard 17' is substantially trapezoidal, having a transversely curved outer web or wall 35 and from its ends extend inwardly directed and laterally converging walls 36 having shoulder portions 37 with ends 38 in abutment. Extending vertically downward from the shoulders 37 and their abutting surfaces 38 are inwardly directed and angularly diverging, curved flange portions 39, the ends of flanges 39 also being spaced apart a distance at least as great as the transverse width of the cutting elements. The surfaces 36, in the form of the invention shown in FIG. 4, and the surfaces 38, in the form shown in FIG. 5 are similarly provided to frictionally engage the saw chain and/or bar in the same manner as the surfaces 23 in FIG. 2.

In FIGS. 6 and 7, another embodiment of the nose portion of a guard is illustrated. Here, nose 18' has shortened walls 22' and each of them have spaced, outwardly folding pleats 41 extending inwardly from their inner circumferential surfaces. The pleats 41 provide relieved areas so that when the nose 18' is placed over the nose of a saw chain and bar, if the radius of the latter is somewhat less than that of the guard, the nose 18' can be snugly fitted on the saw chain, the pleats being foldable to reduce the radius of the inner circumferential surface of the nose. In addition, the pleats, when unfolded, effect larger nose radii to fit a variety of various sized chain saw bar nose portions.

It is clear that the guard, according to the present invention, may be made in various other forms without departing from the inventive principles disclosed herein, and relating to the fitting of the guard onto the saw chain in its protective position and to its means for snugly engaging the same. It is also clear that the flexible guard may be easily stowed in a pocket of the operator or in a knapsack when it is not in use on a chain saw.

I claim:

1. A chain saw guard comprising:
(a) an elongated, resilient body having a substantially semicircular end portion and two spaced elongated portions extending from said semicircular end portion;
(b) each of said elongated portions having an outer peripheral portion from which extends a pair of opposite, facing depending side walls;
(c) each of said side wall portions being spaced from each other so that a saw chain on a chain saw will fit snugly therebetween,
(d) said side wall portions having parts thereof converging and resiliently biased toward each other to frictionally engage a saw chain and bar upon which the chain travels; and
(e) flange portions extending angularly laterally outwardly from said converging parts to form an approximate V in cross section,
(f) said flange portions having inwardly facing sides,
(g) the inwardly facing sides of said flange portions being spaced from each other at the widest part of the V a distance approximately equal to that of the space between said side wall portions and at least equal to the width of the saw chain.

2. In a saw chain:
(a) a saw chain fitted on a saw bar and adapted to travel thereon;
(b) a resiliently elongated body having a substantially semicircular end portion and two spaced elongated portions extending therefrom,
(c) said spaced elongated portions each having an outer peripheral portion having a pair of opposite facing depending side wall portions extending inwardly from the peripheral portion,
(d) said side wall portions each having parts resiliently biased and converging toward each other,
(e) said peripheral portion having its inner face in outer peripheral contact with a substantial peripheral portion of said saw chain,
(f) each of said side wall portions being spaced from each other to be in contact with opposite sides of said saw chain,
(g) said semicircular portion of said body fitting over an outer end of said saw chain and bar,
(h) said inwardly converging parts frictionally engaging said saw chain and a marginal portion of said bar; and
(i) diverging flange portions extending angularly laterally outwardly from said converging parts inwardly away from said peripheral portion,
(j) said diverging flange portions forming an approximate V in cross section,
(k) said flange portions having inwardly facing sides,
(l) the inwardly facing sides of said flange portions, when said body is not on said saw chain and bar, being spaced from each other at the widest part of the V at a distance approximately equal to that of the space between said side wall portions and at least equal to the width of the saw chain.

References cited in this document:

United States Patents:
- 2,517,649 Frechtmann Aug. 8, 1950
- 2,756,790 Syndbad July 31, 1956
- 2,826,294 Nicodemus Mar. 11, 1958
- 2,954,118 Anderson Sept. 27, 1960

Foreign Patents:
- 13,751 Great Britain July 18, 1895