ATTACHABLE TOE GUARD FOR A SHOE
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ABSTRACT OF THE DISCLOSURE

A pair of cap members are shaped to fit over the toe portion of a shoe, and the lower edges (preferably serrated) project inwardly to engage the bottom portion of the shoe. Clamp means is provided to clamp the cap members to a shoe, and a heel strap assists in holding the assembly in place. Advantageously an upwardly extending projection is provided to inhibit movement of a shoe under machine guards and the like.

Background of the invention

Rotary lawn mowers are known to be dangerous, and require care in use. One danger is the possibility of the operator's foot slipping under the housing and being seriously injured by the rapidly revolving cutting blades. Despite care in designing the housing to shield the blades, accidents still occur.

Frequently operators wear shoes with thin leather or canvas uppers which provide little or no protection against injury to the foot. Even heavy work shoes are not immune to substantial damage.

The present invention provides an attachable toe guard for a shoe which markedly reduces the likelihood of injury, or the severity thereof, in case of accidental contact with the blades. Also, in the preferred form, the toe guard protects against inadvertent passage of the toe of a shoe too far under the mower housing, thereby preventing the wearer's toes from reaching a dangerous position.

Although the toe guard of the invention is particularly designed and adapted to protect against injuries from rotary lawn mowers, it may also be used to protect against other types of machinery where injury to the toes is possible.

Summary of the invention

In accordance with the invention, a pair of cap members are shaped to fit over the toe portion of a shoe and conform approximately thereto when in attached position. The cap members are of relatively strong rigid material, preferably metal such as steel, so as to provide substantial protection against injury. The lower edges of the cap members project inwardly for engaging the bottom portion of a shoe, and preferably are serrated. Clamp means are provided for clamping the cap members to a shoe, and a heel strap is attached to the cap members and adapted to extend around the heel portion of a shoe to assist in holding the cap assembly in place.

Preferably an upwardly extending projection of at least one of the cap members is provided so that movement of the shoe under machine guards and the like, for example under the housing of a rotary lawn mower, is inhibited. In the preferred embodiment, upwardly extending projections are provided on each of the cap members, and adjustable means such as bolts and wing nuts are provided to draw the projecting portions together, thereby serving as the clamp means. The projecting portions may be heavy metal strips formed separately of the cap members, and having downwardly extending portions affixed to and reinforcing the cap members, respectively.

FIG. 1 shows a side view of the toe guard affixed to a shoe:

FIG. 2 is a cross-section along the line 2—2 of FIG. 1; and
FIG. 3 is a perspective view showing the toe guard in place on a shoe; and
FIG. 4 is a cross-section along the line 4—4 of FIG. 2.

Description of the preferred embodiment

Referring to the drawings, a pair of steel cap members 10 are shaped to fit over the toe portion of shoe 11 and conform approximately thereto when in attached position. The lower edges 12 project inwardly for engaging the bottom portion of a shoe, and are serrated to provide teeth which will grip the shoe. Steel strips 13 have lower portions conforming to the curvature of the caps and affixed thereto, as by spot welding. The upper portions 13' project upwardly from the cap members and are drilled to receive a pair of bolts 14, equipped with wing nuts 15. Portions 13' and bolts 14 serve as a clamp means for clamping the cap members 10 to the shoe. A tubular spacer 18 around the upper bolt holds the upper ends of strips 13 separated as the clamp is tightened.

By placing the toe caps in position on the toe portion of the shoe, and tightening wing nuts 15, the two members may be clamped securely to the toe of the shoe. A heel strap 16 is attached at its ends to respective cap members 10 and extends around the heel portion of the shoe so as to assist in holding the cap assembly in place. Strap 16 may be of elastic material, with or without an adjusting buckle 17, depending on the range of shoe sizes to be accommodated.

The separation of the portions 13' is selected with a view to the range of toe widths to be accommodated. Several spacers 18 of different length may be provided to this end.

As illustrated in FIG. 1, the upwardly extending projections 13' prevent the foot from slipping under the housing of a rotary mower indicated generally at 18. The lower portions 13 reinforce the cap members 10 as well as providing a suitable area for affixing the cap members thereto. The upper portions serve both for protection and as part of the clamp means.

As shown, the tip of the toe could go a short distance under the mower housing before movement is stopped by projections 13'. Normally there is some clearance between the blade tips and the housing, and the user's toes will of course be somewhat back from the outside tip of the shoe and toe guard. If desired, the strips forming projections 13' may be moved farther forward, or widened, as meets practical requirements. Also, the projections 13' could be designed to tilt somewhat in the forward direction.

In this description the term "shoe" is used to apply generally to footwear used in outside activities such as lawn mowing and the like. Many types of shoes, particularly those with leather soles and uppers, have an indentation where the uppers are attached to the soles, and the inwardly projecting serrated lower edges 12 of the cap members may be inserted in this space to insure a firm attachment to the shoe when the clamp is tightened, the heel strap 16 serving to retain the cap assembly from forward movement. In types of shoes such as those with rubber soles and canvas uppers wherein the indented portion above the sole may not be present, the serrations in the inwardly projecting edges 12 serve to grip the sole, or the canvas immediately thereabove, so as to facilitate a secure attachment. Even with an indentation present, the cap members may be affixed with the teeth gripping the sole of the shoe.

Shoes of course vary considerably in size and in the shape of the toe. It would be commercially unfeasible for
a manufacturer to make, or a retailer to stock, toe guards in a sufficient variety to exactly fit the toe portion of all shoes likely to be worn. Hence, while exact conformance as illustrated in FIG. 2 would be desirable, only approximate conformance is likely in practice. However, by shaping the cap members 10 to extend substantially around the tip of the shoe, and with the adjustability provided by the clamp means shown, together with an elastic or adjustable heel strap, a secure attachment can be obtained despite lack of precise conformance of the cap members 10 with the toe of the wearer’s shoe. Thus only a limited number of basic sizes will suffice.

Variations in design details from the embodiment shown are possible. For example, a hinge could be employed instead of the upper bolt 14 and spacer 18. Or, naps may be placed on the upper bolt between projections 13’. Or, a different type of clamp could be employed if desired. Also, each cap member and associated strip 13 could be made in one piece if desired.

I claim:

1. An attachable toe guard for a shoe which comprises:
   a pair of cap members shaped to fit over the toe portion of a shoe and conform approximately thereto when in attached position,
   said cap members being of relatively strong rigid material for providing substantial protection against injury, the lower edges of said cap members projecting inwardly for engaging the bottom portion of a shoe,
   an upwardly extending projection on each of said cap members whereby movement of a shoe under machine guards and the like is inhibited, adjustable means for drawing said projections together for clamping said cap members to a shoe, and heel strap means attached to said cap members and adapted to extend around the heel portion of a shoe.

2. A toe guard according to claim 1 in which said cap members and upwardly extending projections are of metal and said inwardly projecting lower edges of the cap members are serrated.

3. A toe guard according to claim 2 comprising metal strips formed separately of said cap members and rigidly affixed thereto, said metal strips having upwardly extending portions forming said upwardly extending projections and downwardly extending portions reinforcing the cap members, respectively.

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