AN ACCIDENT PREVENTION DEVICE FOR EDGE TRIMMERS
UNFALLVERHÜTUNGSVORRICHTUNG FÜR KANTENTRIMMER
DISPOSITIF DE PREVENTION DES ACCIDENTS CAUSES PAR DES DEBROUSSAILLEUSES

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Proprietor: S.L.A.M.- S.R.L.
63040 Montegallo (IT)

Inventor: SEBASTIANI, Luciano
I-63040 Montegallo (IT)

Representative: Baldi, Claudio
Piazza Ghislieri, 3
60035 Jesi (Ancona) (IT)

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US-A- 4 823 464

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Description

[0001] This patent application concerns an accident prevention device for edge trimmers.

[0002] Current edge trimmers available on the market are all constructed on the same principle whereby the cutting tool is fixed on a chuck housed in a head positioned at the base of a long tubular rod in which the shaft operating the chuck is fitted and rotates, driven by a small combustion engine mounted at the other end of the rod.

[0003] The worker holds the edge trimmer from a handle fitted halfway along the rod which, when used is held in a slanted position so that the chuck-holder head positioned vertically or slightly sub-vertically - brushes against the ground at a certain distance from the feet of the worker.

[0004] Generally, said edge trimmers are supplied with two different cutting tools which can be mounted on the edge trimmer chuck; the first is a small disk from which a fishing line projects which spins to cut grass and tender shrubs; the second consists of a knife which is fixed to the centre of the chuck providing a pair of diametrically opposed cutting blades.

[0005] Both the fishing line disk and the knife are generally not protected by a cover so that there is a very high risk of accidental cuts to the worker when using these trimmers.

[0006] The parts of the body most exposed to the accidents are obviously the legs which may get in the way of the cutting tool or be hit by stones or other objects hurted by the cutting tool.

[0007] Over and above this, if the trimmer knife strikes stones or other hard objects, the blade may break and, due to the absence of a protecting cover, the pieces spinning at a very high speed will be flung to become dangerous missiles which can very seriously hurt the persons or property they strike.

[0008] Due to the above, protection screens have recently been designed consisting of a sheet plate bell-shaped cover installed on the chuck-holder head and housing the cutting tool whose axis of rotation is coincident with the axis of symmetry of the bell-shaped cover.

[0009] US patent No. 4823464 describes a trimmer provided with a cutting element which rotates into a bell-shaped protection cover featuring a big central hole through which the chuck of the motor can be fitted into said bell-shaped cover.

[0010] The motor housing features a flanged portion provided with periphery holes for the bolts to be fitted and used to secure said bell-shaped cover under the flanged portion.

[0011] It is obvious that said bell-shaped cover features, all around the big central hole, smaller holes for the bolts to be fitted.

[0012] However the chuck of the motor can be fitted only through said big central hole.

[0013] The device according to the invention is provided with a bell-shaped cover realised in sheet plate or other plastic materials characterised by two holes, a centre hole and an eccentric hole, at which the chuck-holder head of the trimmer may be fitted when required.

[0020] When the chuck-holder head is fitted to the centre hole, the cutting tool is perfectly centred in the bell-shaped cover therefore providing a high level of safety to the operator should the tool break or stones and other objects be flung by the tool.

[0022] If the chuck-holder head is fitted into the eccentric hole of the bell-shaped cover, one of the ends of the cutting tool projects beyond the outer edge of the bell-shaped cover, whose axis intersects that of the chuck-holder head.

In this operating position, the cover in question acts as a protection screen for the operator for only a span of the semi-circumference; this reduced degree of protection however increases the versatility and efficiency of the edge trimmer which can also be used to cut shrubs and high grass, to prune trees and trim hedges, thanks to the fact that the cutting tool be-
With particular reference to figure 1, the accident prevention device according to the invention consists of a bell-shaped cover (1) having two identical holes, one at the centre (1a) and the other eccentric (1b) into which the threaded pin (2a) is fitted at the top of the casing (2) designed to house the chuck-holder head (3) of the trimmer, may be fitted as required.

Said casing (2) is for this purpose provided with a notch (2b) designed to house the nosepiece (3a) projecting from a side of the chuck-holder head (3) into which the rod handle (M) of the trimmer is fitted. In this regard it should be noted that the hole of the bell-shaped cover (1) not occupied by the threaded pin (2a) of the casing (2) is crossed by said handle (M) as shown in figs. 2 and 3.

The pin (2a) is stopped in one of the two holes (1a or 1b) by a nut (4a) and a counter-nut (4b), both screwed to said pin (2a), one fitted in the bell-shaped cover (1) and the other fitted outside the bell-shaped cover (1) which is therefore fixed between the nut (4a) and counter-nut (4b).

The chuck-holder head (3) is stopped in the casing (2) by a clamp (5) wound tightly around the edge of the casing (2) base.

The device in question also includes a knife (6) fixed above a support disk (7) by means of bolts (8) fitted into holes (6a) on knife (6) and through corresponding holes (7a) on disk (7).

The connection of the disk (7) to the chuck-holder head (3) is by means of a washer (10) positioned under the disk (7) and provided on its upper face with a collar (10a) housing precisely in the centre hole (7b) of disk (7) and the centre hole (6b) of knife (6).

A bolt (11) fitting into wash (10) and screwed to the chuck-holder head (3) fixes the disk (7) against the chuck-holder head.

Disk (7) is provided with perimeter holes (7c) into which bolts (12) are fitted and whose head (12a) remains between disk (7) and knife (6) so as to warp knife (6) so that the same may, during rotation, produce an active or passive lift, according to how the operator positions said bolts (12).

Claims

1. "An edge trimmer of the type comprising:
   - a cutting blade (6);
   - a rod handle (M) terminating with a chuck-holder head (3);
   - an accident protection device consisting of a bell-shaped protection cover (1) designed to house said blade (6) and featuring two identical holes, one at the centre (1a) and the other eccentric (1b);
   - a casing (2) designed to house the chuck-holder head (3) and terminating at the top with a threaded pin (2a) designed to be fitted as re-
quired into one of the aforementioned holes (1a and 1b), and on which a nut (4a) and a counter-nut (4b) are screwed, so as to ensure the fixing of the cover (1) on the casing (2), while the rod handle (M) is fitted into the other hole;

- a clamp (5) for stopping said chuck-holder head (3) in the casing (2)∗.

2. An edge trimmer according to the previous claim, characterised in that said blade (6) is fixed on a support disk (7) by means of bolts (8) fitted into holes (6a) on the blade (6) and through the corresponding holes (7a) on the disk (7); it being provided that the disk (7) is connected to the chuck-holder head (3) by means of a bolt (11) which is screwed to the chuck after being fitted into a washer (10), placed under the disk (7) and provided on its upper surface with a collar (10a) which is precisely housed in the centre hole (7b) of the disk (7) and the centre hole (6b) of the blade (6).

3. An edge trimmer according to claim 2 characterised in that the disk (7) is provided, in addition to holes (6a), with perimeter holes (7c) into which bolts (12) are fitted and whose head is positioned between disk (7) and blade (6) so as to warp the blade (6).

4. An edge trimmer according to the previous claims characterised in that the blade (6) features blades whose profiles are curved backwards with respect to the rotation direction of the knife.

Patentansprüche

1. Abbusschergerät, bestehend aus:

- einem Messer (6)
- einem Stiel (M), an dessen Ende sich ein Spindelträgerkopf (3) befindet;
- einer Unfallverhütungsvorrichtung, bestehend aus:
  - einer glockenförmigen Schutzabdeckung (1), die dazu bestimmt ist, ein Messer (6) aufzunehmen und zwei identische Löcher (1a und 1b) aufweist, wovon das eine mittig und das andere exzentrisch angeordnet ist;
  - einer Haube (2), die dazu bestimmt ist, den Spindelträgerkopf (3) aufzunehmen und an der Spitze in einem Gewindestift (2a) endet, der alternativ in einer der beiden zuvor genannten Löcher (1a und 1b) eingesteckt wird und auf welchen eine Mutter (4a) sowie eine Gegenmutter (4b) aufgeschraubt wird, welche zur Befestigung des Deckels (1) auf der Haube (2) dienen, während der Stiel (M) in das andere

2. Abbusschergerät gemäß dem vorstehenden Anspruch, dadurch gekennzeichnet, dass das besagte Messer (6) auf einer Trägerscheibe (7) mittels Bolzen (8) befestigt ist, welche durch die hierfür vorgesehenen Löcher (6a) des Messers (6) und durch die entsprechenden Löcher (7a) der Scheibe (7) gesteckt werden, wobei vorgesehen ist, dass die Verbindung der Scheibe (7) zum Spindelträgerkopf (3) mittels eines Bolzens (11) erfolgt, welcher auf die Spindel aufgeschraubt wird, nachdem er in eine Unterlegscheibe (10) eingeführt wurde, welche sich (10) unterhalb der Scheibe (7) befindet und auf der Oberseite mit einem Bund (10a) versehen ist, welcher exakt in das mittlere Loch (7b) der Scheibe (7) und das mittlere Loch (6b) des Messers (6) passt.

3. Abbusschergerät gemäß Anspruch 2, dadurch gekennzeichnet, dass sich auf der Scheibe (7) außer den besagten Löchern (6a) weitere, peripher angeordnete Löcher (7c) befinden, in welche kleine Bolzen (12) eingesteckt werden, deren Kopf (12a) sich zwischen der Scheibe (7) und dem Messer (6) befindet, um eine Verwindung des Messers (6) zu bewirken.


Revendications

1. Débroussailleuse du type comprenant :

- un couteau (6) ;
- un manche à bâton (M) se terminant par une tête porte-mandrin (3) ;
- un dispositif contre les accidents constitué d'un capot de protection en forme de cloche (1) destiné à loger un couteau (6e) et présentant deux trous identiques (1a et 1b), l'un central et l'autre excentrique ;
- une coiffe (2) destinée à loger la tête porte-mandrin (3) et se terminant à son sommet par un pivot fileté (2a) apte à être enfilé sélectivement dans l'un des susdits trous (1a et 1b) et sur lequel sont vissés un écrou (4a) et un contre-écrou (4b) qui assurent la fixation du capot (1) à la coiffe (2), tandis que le manche à bâton (M) est enfilé dans l'autre trou ;
- une bague (5) apte à assurer l'arrêt de ladite
tête porte-mandrin (3) à l’intérieur de la coiffe (2).

2. Débroussailleuse selon la revendication précédente, caractérisée en ce que ledit couteau (6) est fixé au-dessus d’un disque de support (7) à l’aide de boulons (8), enfilés à travers des trous (6a) prévus à cet effet sur le couteau (6) et à travers des trous correspondants (7a) prévus sur le disque (7); étant prévu que l’attache du disque (7) à la tête porte-mandrin (3) s’effectue à l’aide d’un boulon (11) que l’on visse au mandrin après l’avoir enfilé dans une rondelle (10), positionnée sous le disque (7), rondelle dotée sur la partie supérieure d’un collier (10a) qui se loge exactement dans le trou central (7b) du disque (7) et dans le trou central (6b) du couteau (6).

3. Débroussailleuse selon la revendication 2, caractérisée en ce que sur le disque (7) sont prévus, outre les susdits trous (6a), d’autres trous périphériques (7c) dans lesquels sont enfilés des petits boulons (12) dont la tête (12a) reste interposée entre le disque (7) et le couteau (6), de manière à déterminer le cambrage du couteau (6).

4. Débroussailleuse selon les revendications précédentes, caractérisée en ce que le couteau (6) présente les tranchants ayant un profil curviligne tourné vers l’arrière par rapport à la direction de rotation du couteau même.