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AUSTRALIA
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602781

Form 1
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APPLICATION FOR A STANDARD PATENT

I/We JARVIS ROGERS FUSS, ERIC WILLIAM FUSS, ROY MULLER FUSS and ROGER DEAN FUSS

respectively of, of 143 Tourist Road, Toowoomba, 3 Heller Street, Toowoomba, 21 Leslie Street, Toowoomba and Mail Service 1497, Anzac Avenue, Toowoomba, all in the State of Queensland, Commonwealth of Australia

hereby apply for the grant of a ~~Patent of Addition~~ Standard Patent for an invention entitled

"GRASS EDGER"

FEE STAMP TO VALUE OF $ 60 ATTACHED
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which is described in the accompanying ~~complete~~ provisional specification.

For a Convention application — details of basic application(s) —

NUMBER	COUNTRY	DATE OF APPLICATION
–	–	–

Our
~~My~~ address for service is COLLISON & CO., Patent Attorneys, 117 King William Street, Adelaide, South Australia, 5000.

Dated this 31st day of July, 19 87

JARVIS ROGERS FUSS,
ERIC WILLIAM FUSS,
ROY MULLER FUSS and
ROGER DEAN FUSS
By their Patent Attorneys
COLLISON & CO

(Signature)
J. C. SCHMIDT

SPECIFICATION ACCEPTED AND AMENDMENTS
ALLOWED 7-8-90

To:

THE COMMISSIONER OF PATENTS

This form must be accompanied by either a provisional specification (Form 9 and true copy) or by a complete specification (Form 10 and true copy).

‡ 56908

Form 7

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Patents Act 1952

DECLARATION IN SUPPORT OF AN APPLICATION FOR A PATENT ~~OR PATENT OF ADDITION~~

INSTRUCTIONS

(a) Insert FULL names of applicant(s)

In support of the Application made by
(a) JARVIS ROGERS FUSS, ERIC WILLIAM FUSS, ROY MULLER FUSS and ROGER DEAN FUSS

(b) Insert "of addition" if applicable

(hereinafter called "applicant(s)" for a patent (b)

for an invention entitled

(c) Insert TITLE of invention

(c) "GRASS EDGER"

(d) Insert FULL name and address(es) of declarant(s) (See Note 1)

~~I/~~We (d) JARVIS ROGERS FUSS, of 143 Tourist Road, Toowoomba 4350,
ERIC WILLIAM FUSS, of 3 Heller Street, Toowoomba 4350,
ROY MULLER FUSS, of 21 Leslie Street, Toowoomba 4350, and
ROGER DEAN FUSS, of Mail Service 1497, Anzac Avenue, Toowoomba 4350,
all in the State of Queensland, Australia

do solemnly and sincerely declare as follows:

1. ~~I~~/We are the applicant(s)
(or, in the case of an application by a body corporate)
~~1. I am/We are authorized to make this declaration on behalf of the applicant(s).~~
2. ~~I~~/We are the actual inventor(s) of the invention.
~~*(or, where the applicant(s) is/are not the actual inventor(s))*~~
~~2. (e)~~

(e) Insert FULL names and addresses of actual inventor(s)

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22 JUL 1988
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~~is/are the actual inventor(s) of the invention and the facts upon which the applicant(s) is/are entitled to make the application are as follows:~~

(f) Recite manner in which applicant(s) derive(s) title from actual inventor(s) (See Note 2)

(f)

(g) Insert PLACE of signing

Declared at (g) TOOWOOMBA QLD

(h) Insert DATE of signing

Dated (h) 18/7/88

(i) Signature(s) of declarant(s)

(i) .....

.....

.....

.....

NOTE:
No legalization or other witness required

TO: The Commissioner of Patents

(12) PATENT ABRIDGMENT (11) Document No. AU-B-19298/88
(19) AUSTRALIAN PATENT OFFICE (10) Acceptance No. 607781

(54) Title
GRASS EDGER

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ROGER DEAN FUSS; JARVIS ROGERS FUSS; ERIC WILLIAM FUSS; ROY MULLER FUSS

(74) Attorney or Agent
COLLISON & CO, 117 King William Street, ADELAIDE SA 5000

(56) Prior Art Documents
AU 70220/74 32.21
AU 39179/72 32.21
AU 39566/68 32.21

(57) Claim

1. An edge cutter comprising a cutting member and support means therefor adapted to be moved to cut along a guide such as the edge of a path, characterized by support means to attach the cutting member (8) on transport means (1) to allow the cutting member (8) to move laterally with respect to the direction of movement of the transport means (1) and to urge the cutter member (8) to move toward the guide, and means on the support means to allow the cutting member (8) to caster to align with the guide.

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COMPLETE SPECIFICATION

(ORIGINAL)

FOR OFFICE USE: 602781

Class

Int. Class

Application Number :
Lodged :

Complete Application No. :
Specification Lodged :
Published :

Priority:

Related art:

TO BE COMPLETED BY APPLICANT

Name of Applicant:s: JARVIS ROGERS FUSS, ERIC WILLIAM FUSS, ROY MULLER FUSS and ROGER DEAN FUSS

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Actual Inventor:s: JARVIS ROGERS FUSS, ERIC WILLIAM FUSS, ROY MULLER FUSS and ROGER DEAN FUSS

Address for Service: COLLISON & CO., Patent Attorneys, 117 King William Street, Adelaide, South Australia, 5000.

Complete Specification for the invention entitled: GRASS EDGER

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The following statement is a full description of this invention, including the best method of performing it known to ~~me~~US:

A000236 22/07/88

This invention relates to a grass edger and in particular it relates to an edger of the type in which a cutting member is adapted to be moved against the edge of a path or the like and is controlled in its position by a depth-control flange projecting from one side of the cutting member.

Apparatus of this type has in the past usually consisted of a flanged cutting disc mounted on an arm pivotally connected to support means such as a tractor and provided with pressure means to maintain the free end of the arm which carries the cutting member at the correct operating depth, the depth being limited by the depth-control flange.

It was necessary with the known devices for the operator to drive the tractor or other towing means along the path at a regulated position to maintain the cutting member at all times in the correct position in contact with the edge of the path, thus necessitating careful driving to maintain correct operation. In some known devices the operator has to adjust the position of the cutting member.

It is an object of the present invention to provide an improved form of grass edger in which the cutting member will accurately follow the edge of the path without the tractor or other towing device having to be maintained at a selected distance from the edge of the path.

It is a further object to provide an arrangement which will position the cutting member at the correct angle.

It is a still further object to so construct the device that a pair of such devices can be operated on both edges of the path at the same time where this is required.

The edger according to this invention comprises means connecting it to the tractor or other towing device and carrying the cutting member in a manner such that the cutting member can move both vertically and horizontally in relation to support means and the cutting member can compensate in angle to maintain its correct cutting position irrespective of the lateral position of the cutting member in relation to the support means, means being included to urge the cutting member against the edge of the path or other guide where the cut is to be effected.

The invention thus comprises an edge cutter which is characterized by support means to attach the cutting member on transport means to allow the cutting member to move laterally with respect to the direction of movement of the transport means and to urge the cutter member to move toward the guide, and means on the support means to allow the cutting member to caster to align with the guide.

In order however that the nature of the invention can be more fully understood an embodiment will be described with reference to the accompanying drawings which are by way of explanation only and are not to be taken as limiting the invention to the specific form shown.

In the drawings,

FIG. 1 is a schematic plan showing the preferred operating form of the improved grass edger, the arrow A showing the direction of movement, the arrow B indicating the inward urging of the cutting member due to the offset C, the arrow D indicating the caster action of the cutting member, E indicating the edge of the path or a guide,

FIG. 2 is side elevation of a particular form of the invention depicting the cutting member as a disc rotationally carried on an axle pivoted support arm, showing the cutting member offset from the line of travel of the means which support the pivoted arm so as to urge the cutting member against the guide formed for instance by the edge of a path, and showing the cutting member mounted to caster to align with the guide, the cutting member and arm being shown in cutting position,

FIG. 3 is a view similar to FIG. 2 but showing the support arm positioned to raise the cutting member from its cutting position,

FIG. 4 is a plan of FIG. 2,

FIG. 5 is a sectional plan showing the mounting of the cutting member, showing how the cutting member is mounted to caster, and

FIG. 6 is a section side elevation taken as on line 6-6 of FIG. 5.

In the drawings an implement frame bar, which forms what we term the transport means 1, is shown having fitted to it a slideable bracket 2, which can be positioned along the implement frame bar and held by a lock pin 3 to hold it in a selected position, the slideable support bracket 2 carrying a vertical pivot pin 4 which engages a pivoting bracket 5 which in turn has attached to it by a horizontal pivot pin 6, the support arm 7 which extends from the horizontal pivot pin 6 and at the other end carries mounting means for the cutting disc which forms the cutting member 8 of this form of the invention.

The cutting member 8 is mounted towards one side of the support arm 7 by means of a bracket 9 on the support arm 7 which has at its ends a vertical orientation pin 10 connecting a bearing housing 11 to the bracket 9 on the support arm 7, this bearing housing 11 supporting an axle 12 on which is mounted the cutting member 8. The cutting member 8 has extending from it a depth-control rim 13. The axle 12 of the cutting member 8 is disposed rearwardly of the vertical orientation pin 10 which connects the bracket 9 on the support arm 7 to the bearing housing 11.

In this way the cutting member 8 casters in relation to the bracket 9 on the support arm 7 and can take up an alignment with the edge of the path or other guide along which the cut is being made so that it is in fact guided by the edge of the path or other guide in its correct cutting angle and location.

Because the forward end of the support arm 7 is pivoted to the pivoting bracket 5 by the horizontal pivot pin 6, the rear of the support arm 7 can move horizontally, that is transverse to the direction of travel, but because the cutting member 8 is offset outwardly from the support arm 7, tends to swing inward toward the tractor or other support vehicle and thus is urged against the edge of the path along which it is guided.

The cutting member 8 is downwardly loaded by extension of a hydraulic ram 14 interposed between an extension 15 on the pivoting bracket 5 at the forward end of the arm support 7 and a rear bracket 16 at the free end of the support arm 7, the hydraulic ram 14 being attached at its one end by means of a pivot pin 17 to the extension 15 and at its other end to a pivot plate 18 carried from the support arm 7 on a pivot pin 19 which supports the pivot

plate 18 between a pair of side plates 20 secured to the support arm 7 but allows it to move under influence of the hydraulic ram 14, this pivot plate 18 having attached to it by means of a pin 21 a spring assembly comprising a rod 22 which moves through an aperture in the bracket 16 at the rear end of the support arm 7 but is encircled by a spring 23 and has stop means 24 to cause the spring 23 to urge the free end of the support arm 7, and thus the cutting member 8, downwardly to in turn cause the depth-control rim 13 to be held in contact with the surface of the path at the edge where the cutting member 8 operates. The rear end of the hydraulic ram 14 is connected to the pivot plate 18 by a pin 25.

In this way the assembly can be pivotally supported from a tractor or other towing support, but the end of the support arm 7 carrying the cutting member 8 can move in and out to accommodate itself to changes in the position of the tractor in relation to the edge of the path, or guide, and also by using left and right units of this type attached one on each side of the tractor or the towing support it is possible to cause the grass edger to operate simultaneously on two sides of the path which is being traversed by the tractor or other towing support.

The cutting member 8 can be raised from its spring held working position by the hydraulic ram 14 because the pivot plate 18 has on it a flat 26 which contacts the support arm 7 when the hydraulic ram 14 is sufficiently retracted and then locks the pivot plate 18 against further movement relative to the support arm 7, further retraction of the hydraulic ram 14 then tilting the support arm 7 to move its rear end upward and carry the cutting member 8 out of working position as shown in Fig. 3.

In the working position shown in Fig. 2, tilting of the pivot plate 18, by operation of the hydraulic ram 14, varies the pressure exerted by the spring 23 on the rear of the support arm 7 and thus allows the loading on the cutting member 8 and depth-control rim 13 to be varied.

The cutting member 8 could be an inclined slicing blade instead of the disc shown , or the support arm 7 could be replaced by other means to allow lateral movement of the cutter member 8 on the transport frame, or the offset construction could be replaced by a spring or other means to laterally urge the cutter member toward the guide.

From the foregoing it will be realized that a highly effective grass edger is provided which automatically adjusts to the correct position irrespective of reasonable deviation in the movement of the tractor or other towing support.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. An edge cutter comprising a cutting member and support means therefor adapted to be moved to cut along a guide such as the edge of a path, characterized by support means to attach the cutting member (8) on transport means (1) to allow the cutting member (8) to move laterally with respect to the direction of movement of the transport means (1) and to urge the cutter member (8) to move toward the guide, and means on the support means to allow the cutting member (8) to caster to align with the guide.

2. An edge cutter according to claim 1 wherein the support means for the cutting member include a support arm (7) carried on a vertical pivot pin (4) carried by the transport means (1) to trail from the pivot pin.

3. An edge cutter according to claim 2 wherein the means to urge the cutter member (8) laterally comprise a bracket (9) on the support arm (7) to offset the cutter member (8) from the line of travel of the vertical pivot (4) whereby to urge the cutting member (8) toward the line of travel of the vertical pivot pin (4).

4. An edge cutter according to claim 2 or 3 wherein the cutting member (8) is a disc supported to rotate about an axle (12) which in turn is mounted to caster about a vertical pivot pin (10) supported by a bracket (9) on the support arm (7).

5. An edge cutter according to claim 1 characterized by means engaging the support means to load the cutting member (8) downward into cutting position.

6. An edge cutter adapted to be moved to cut along a guide such as the edge of a path comprising a support bracket (2) adapted to be mounted on transport means (1), a pivoting bracket (5) carried by a vertical pivot pin (4) by the support bracket (2), a support arm (7) carried to project from a horizontal pivot pin (6) on the pivoting bracket (5), a bearing housing (11) adjacent to the projecting end of the support arm (7) carried by a vertical orientation pin (10) supported from the support arm (7), a cutting member (8) carried by an axle (12) supported by the bearing housing (11) to allow the cutting member to caster about the vertical orientation pin (10), means (14-25) to urge the cutting member (8) into cutting position against the guide, and means (13) on the cutting member to limit the depth of cut of the cutting member (8).

7. An edge cutter according to claim 6 wherein the means to urge the cutting member downward into cutting position comprises a spring (23) disposed between the pivoting bracket (5) and the support arm (7).

8. An edge cutter according to claim 7 wherein a hydraulic ram is disposed between the pivoted bracket (5) and the spring (23) to adjust the spring pressure urging the cutting member (8) downward into its cutting position.

9. An edge cutter according to claim 8 characterized by a pivot plate (18) connected to the support arm (7) by a pivot pin (19) and interposed between the hydraulic ram (14) and the spring (23), and by a flat (26) on the pivot plate (18) positioned to contact the support arm (7) when the hydraulic ram (14) is retracted whereby to lift the cutter member (8) from working position by operation of the hydraulic ram (14) when the flat (26) is in engagement with the support arm (7).

10. An edge cutter according to claim 6 wherein cutting member (8) is a disc mounted to rotate, and the means to limit the operating depth of cut of the cutting member (8) comprises a depth-control rim (13) projecting from the side of the disc to engage the guide.

Dated this 26th day of June 1990.

JARVIS ROGERS FUSS,
ERIC WILLIAM FUSS,
ROY MULLER FUSS,
and ROGER DEAN FUSS
By their Patent Attorneys
COLLISON & CO

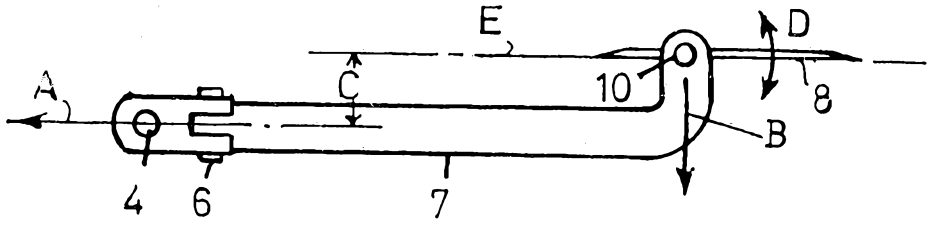

FIG. 1

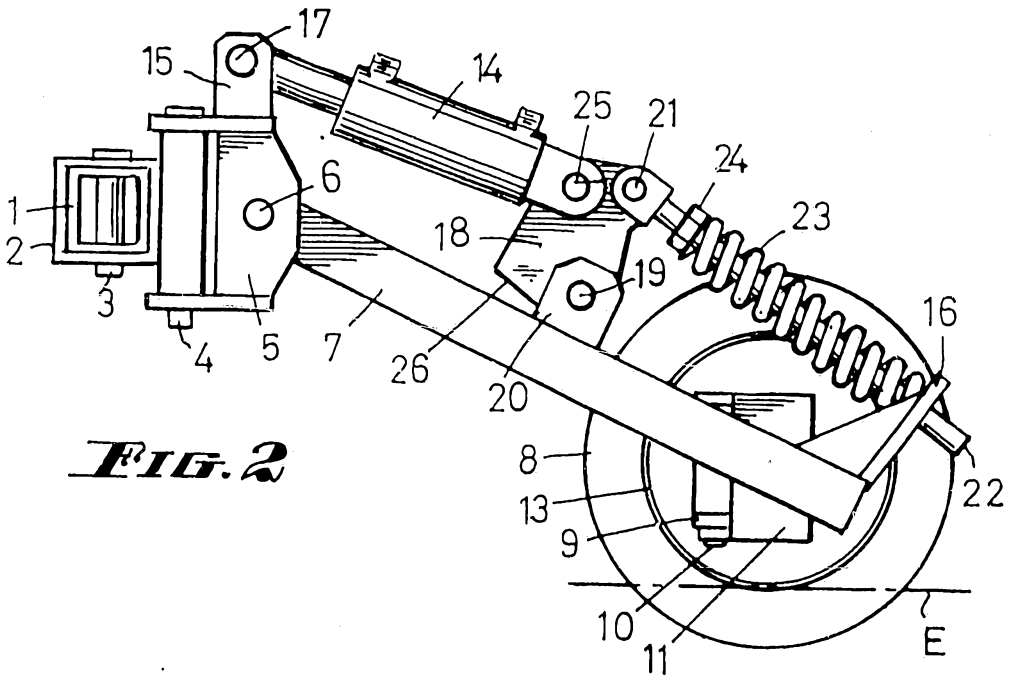

FIG. 2

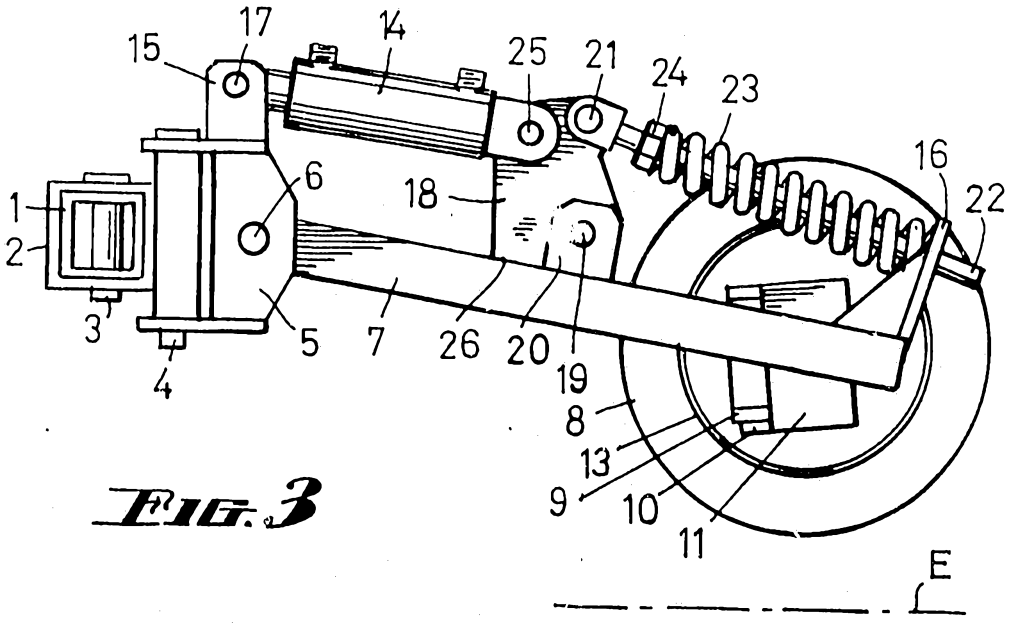

FIG. 3

19298/88

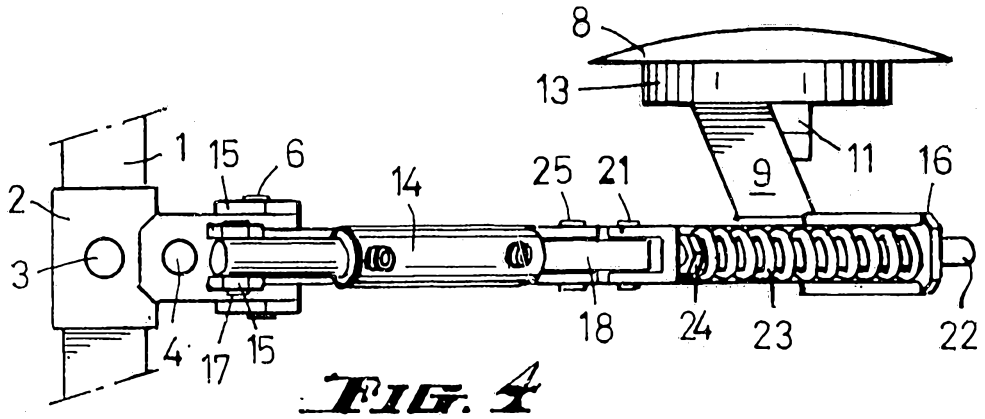

FIG. 4

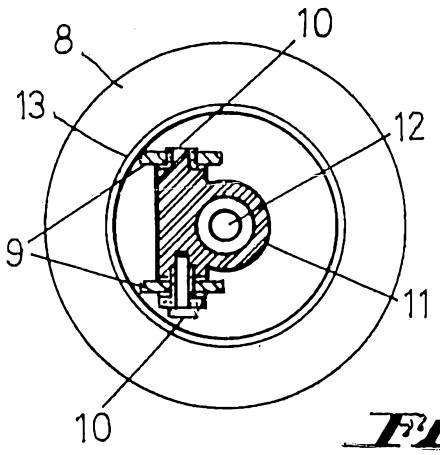

FIG. 6

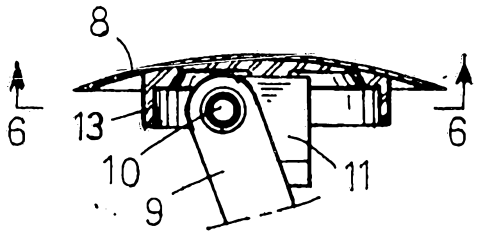

FIG. 5