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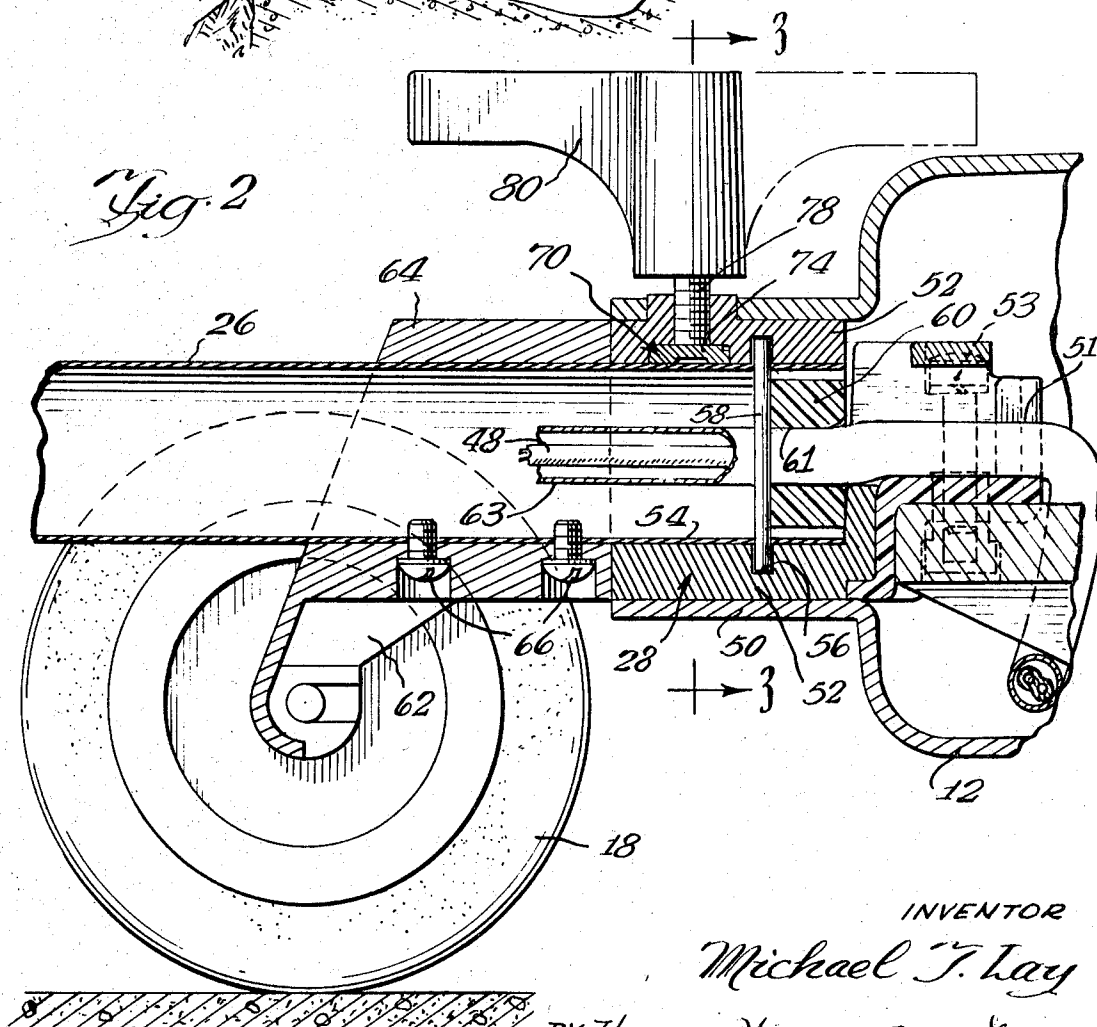
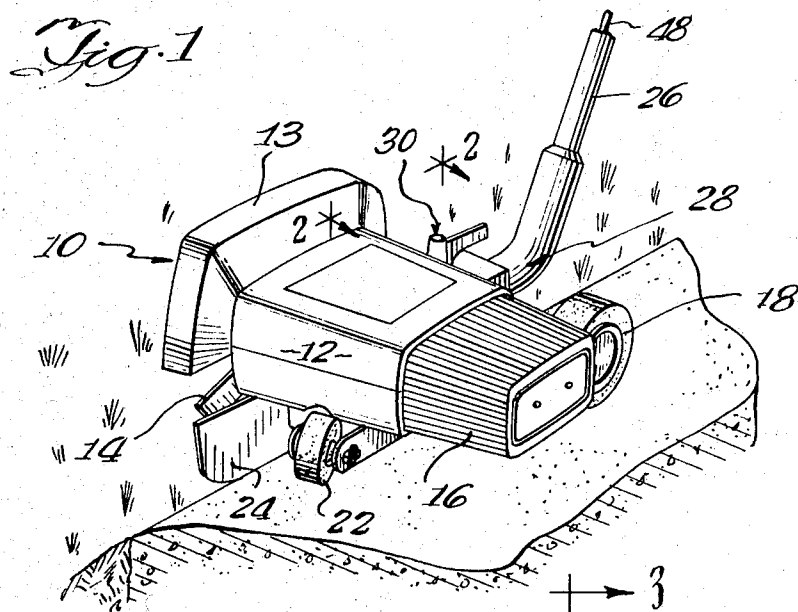
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3,561,199

SYSTEM FOR CONVERTING EDGER-TRIMMER DEVICE

Filed July 17, 1969

2 Sheets-Sheet 1



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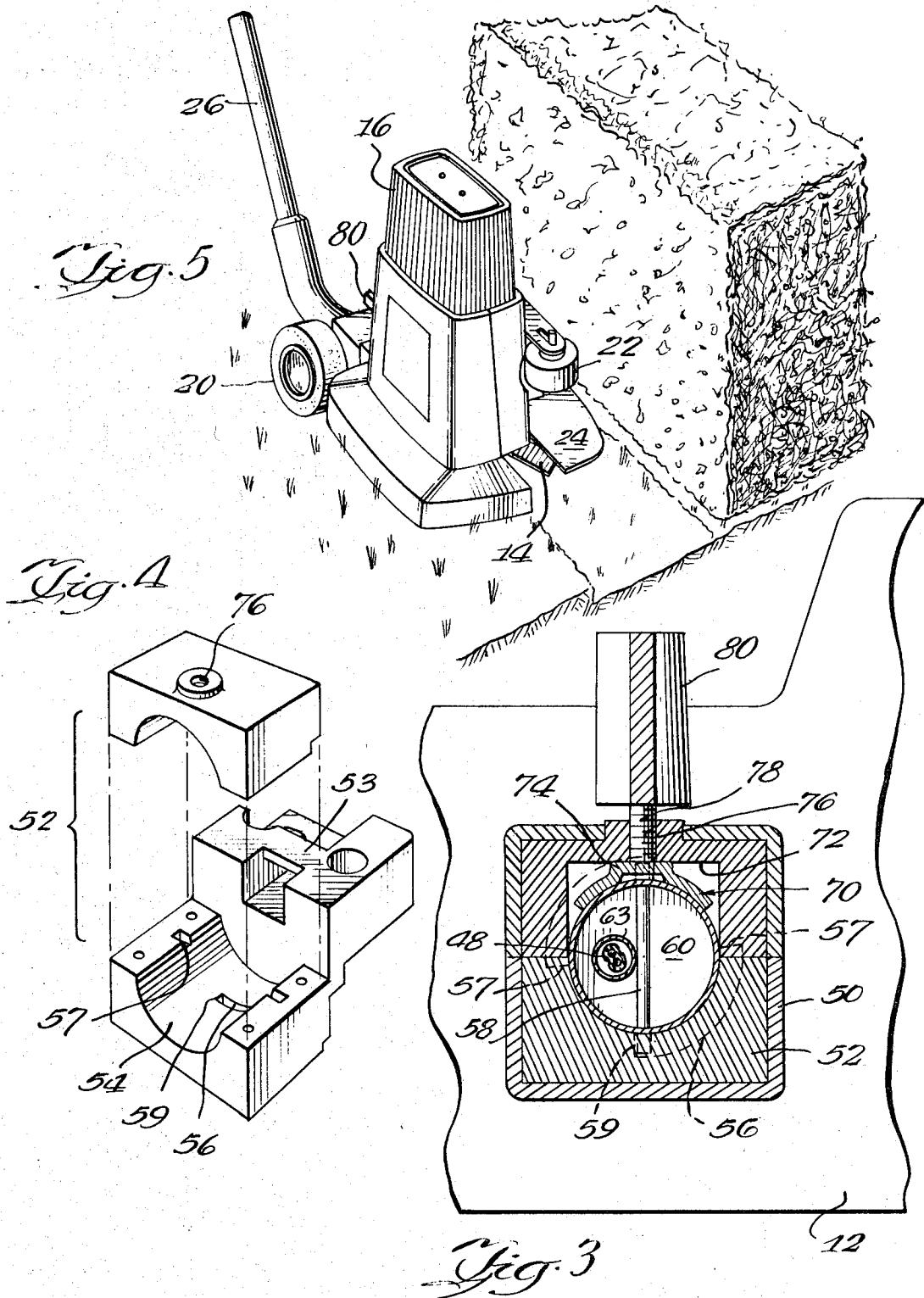
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SYSTEM FOR CONVERTING EDGER-TRIMMER DEVICE

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11 Claims

ABSTRACT OF THE DISCLOSURE

An edger-trimmer device which has a cutting blade mounted on a casing, a handle secured to a carriage and in which the casing is pivotal relative to the handle and carriage combination. The interconnection between casing and carriage includes a tubular extension from the carriage pivotally received in a cylindrical receiver in the casing and restrained by a pin and groove arrangement from axial movement relative thereto. The casing can be pivoted 90° relative to the carriage to dispose the blade horizontally for trimming or vertically for edging. A locking device is provided for locking the casing in both positions as well as any intermediate position. The locking device includes a brake shoe engaging the tubular extension of the carriage and a handle with a threaded shank received in a threaded bore in the casing and having its inner end engaging the shoe for pressing the shoe against the tubular extension to lock the casing against pivotal movement. When the handle is loosened the shoe is released and the casing can be pivoted.

BACKGROUND OF THE INVENTION

Field of the invention

This invention relates to an edger-trimmer device and more particularly to a system for converting the device for either edging or trimming use.

BRIEF DESCRIPTION OF THE PRIOR ART

Although edger-trimmer devices which are convertible for either edging or trimming use have previously been provided, the prior devices have usually involved complicated conversion systems. Typical of such devices make use of ratchet arrangements, ball and detent arrangements and similar arrangements which generally results in non-positive locking action or in inefficient retention action.

SUMMARY OF THE INVENTION

The present invention provides a system for converting an edger-trimmer for either edging or trimming use. The device includes a casing having a driven cutting blade and a carriage having a handle. The carriage and casing are interconnected by a round extension received in a cylindrical receiver. The casing is pivotal relative to the handle and carriage between a position having the blade disposed horizontally and a position having the blade disposed vertically. The casing is locked in either position by a locking system including a shoe in the receiver which engages the outer surface of the round extension and means for engaging and pressing the shoe tightly against the outer surface to hold the tubular member against pivotal movement relative to the receiver. The engaging means is movable to release pressure on the shoe and permit relative pivotal movement of the casing between the two positions.

While an illustrative embodiment of the invention is shown in the drawings and will be described in detail herein, the invention is susceptible of embodiment in many different forms and it should be understood that the present disclosure is to be considered as an exemplification

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of the principles of the invention and is not intended to limit the invention to the embodiment illustrated.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of an edger-trimmer embodying one form of the present invention shown in edging position;

FIG. 2 is an enlarged fragmentary section along line 2—2 of FIG. 1;

FIG. 3 is a section along line 3—3 of FIG. 2;

FIG. 4 is an exploded perspective view of a receiver portion of the device shown in FIG. 3; and

FIG. 5 is a perspective view of the device of FIG. 1 in trimming position.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Turning first to FIG. 1, an embodiment of the edger and trimmer of this invention is shown generally at 10. Edger-trimmer 10 has a metal or plastic casing 12 including a blade guard portion 13 for guarding a metal cutting blade 14 and a vented portion 16 containing an electric motor. Casing 12 is supported on two rear wheels 18 and 20 (FIGS. 1, 2 and 5) and a front wheel 22 (FIG. 1) which is preferably turned at an angle away from the blade during forward travel of the device in the manner described in my copending application Ser. No. 842,597. A metal or plastic guide plate 24 is mounted on the casing 12 for guiding along the edge of a pavement during lawn edging operation. During trimming operation, plate 24 not only protects against objects which may be thrown by blade 14, but also limits the exposure of the blade to the rear of the casing 12. A preferred manner of mounting guide plate 24 on casing 12 is shown in my copending application Ser. No. 842,596. The carriage on which wheels 18 and 20 are mounted includes tubular metal handle 26 and is connected to casing 12 through a pivotal connection as at 28, provided with a locking device 30. Pivotal connection 28 permits pivoting of the casing between positions 90° apart from each other for reorienting the device between edger and trimmer operating positions. The locking device 30 secures the casing in either position.

An electric motor in vented casing portion 16 and a drive train in casing 12 drives blade 14 through an electrically insulating slip clutch of the type described in my copending application Ser. No. 842,602. The isolated electric cord 48 for supplying electrical energy for the motor is contained within handle 26 and extends from handle 26 at the upper end thereof in a normal manner for plugging into a suitable electric outlet.

In operation of the device thus far shown, the motor is turned on by a suitable switch (not shown) adjacent the upper end of handle 26 and, in the position shown in FIG. 1, the device is used for edging pavements and the like. Plate 24 guides along an edge of the pavement in the manner shown in FIG. 1 while blade 14 rotates to dig and cut adjacent to plate 24 to produce a neatly edged lawn along the pavement. The device can be converted to a trimmer for trimming around trees, shrubs, and the like, by loosening locking device 30 and rotating casing 12 counterclockwise 90° relative to the handle 26 as viewed in FIG. 1 to the position shown in FIG. 5 and retightening locking device 30. Rear wheels 18 and 20 are part of a carriage secured to handle 26 and which stays fixed with handle 26 when the casing is rotated. When operating as an edger, the angularly disposed front wheel 22 advantageously helps keep guide plate 24 against the edge of the pavement. When operating as a trimmer, front wheel 22, which is mounted on casing 12, is rendered inoperative since it has been moved 90° relative to wheels 18 and 20 with casing 12 and does not engage the ground.

The pivotal connection 26 is more particularly shown in FIGS. 2, 4 and 5. Casing 12 is provided with a rearwardly extending square tubular portion 50 in which a handle receiver frame 52 is mounted and secured. The frame 52 is secured to the insulating barrier 51 and then to the motor mounting in the casing 12 by suitable screws 53. The connection of the insulating barrier 51 to the motor mounting and the related insulating advantages forms the subject matter of my copending application Ser. No. 842,596. As seen in FIG. 4, frame 52 can be conveniently formed of two pieces. Frame 52 has a cylindrical receiver portion 54 for receiving the end of handle 26. An internal annular groove 56 having blocking stops 57 and 59 therein is provided in receiver 54 and a pin 58 extends through bores in handle 26 along a diameter of handle 26 with the ends of pin 58 received in groove 56 with one end between stops 57 and 59. Stops 57 and 59 are disposed slightly more than 90° from each other in groove 56 to limit the travel of pin 58 in groove 56 to 90°. The end of handle 26 beyond pin 58 is appropriately plugged with insulator member 60 which has a bore 61 in which is fixed one end of insulating tube 63 for passage of power cord 48 therethrough. It will be seen that as thus far described receiver 54 is pivotal about handle 26 approximately 90° as permitted by stops 57 and 59 and is blocked against axial movement by pin 58 in grooves 56.

Rear wheels 18 and 20 are mounted on an axle of a carriage 62. Carriage 62 has a tubular sleeve portion 64 receiving handle 26 and is secured thereto by screws 66. The front part of sleeve portion 64 slidably abuts the rear end of frame 52 so that with carriage 62 connected to handle 26, the casing 12 and frame 52 can rotate relative thereto.

The locking device 30 includes a brake shoe member 70 received in a cavity 72 in the inside wall of receiver 54 with the inner surface of shoe member 70 engaging the outer surface of handle 26. Shoe member 70 is generally C-shaped with an inner diameter about the same as the outer diameter of handle 26 but includes a central raised platform portion 74. A female threaded bore 76 is provided through the wall of frame 52 in alignment with the top of platform portion 74 in cavity 72. Bore 76 receives a male threaded shank 78 of a handle member 80. It will be seen that tightening and loosening handle member 80 will increase and decrease pressure of shoe member 70 on the outer surface of handle 26 to lock handle 26 to the frame 52 and casing 12 against pivotal movement of the frame and casing or to release the grip so as to permit rotation of the frame and casing relative to said handle. Casing 12 can be unlocked and moved back and forth 90° as desired to convert the device from edger to trimmer or trimmer to edger. In trimming position (FIG. 5), wheel 22 does not engage the ground but the device is supported by wheels 18 and 20 and the blade is retained from contact with the ground by an integrally molded scalp guard on the upper portion of blade guard 13 on casing 12. The scalp guard maintains the blade spaced relative to the ground when the casing 12 is in the trimming position.

What is claimed is:

1. An edger-trimmer device comprising a wheeled carriage having an elongate handle secured thereto for manually moving said carriage on a support surface, a casing having a driven blade mounted thereon, a pivotal interconnection between said casing and carriage including a cylindrical receiver in one of said casing or carriage and a round extension on the other of said casing or carriage pivotally received in said receiver, shoe means in said receiver for pressing against said extension to hold said extension against pivotal movement relative to said receiver and means for engaging said shoe means to press and hold the extension and for releasing said shoe means for permitting pivotal movement of the casing relative to the carriage.

2. The device of claim 1 including means holding said extension against axial movement in said cylindrical receiver.

3. The device of claim 2 wherein said holding means comprises an annular slot in the wall of said receiver and a pin impaling said extension and having its ends received in said slot.

4. The device of claim 1 including means limiting pivotal movement of said casing relative to said carriage to 90°.

5. The device of claim 1 wherein said engaging means is means threaded through the wall of said receiver and contacting said shoe and including means accessible from the exterior of said receiver for turning said threaded means to press and release said shoe means.

6. The device of claim 1 wherein said shoe means is a C-shaped member having an inner arc radius approximately the same as the radius of the outer surface of said extension with the inner surface of said C-shaped shoe in contact with the outer surface of said extension.

7. The device of claim 6 wherein said C-shaped shoe member has a centrally disposed raised platform extending from its outer surface.

8. The device of claim 7 wherein the engaging means is a handle having a threaded shank and including a threaded bore in the wall of the cylindrical receiver exposing the platform of the C-shaped shoe, said shank being threaded in said bore for contacting said platform with its inner end.

9. The device of claim 1 wherein said receiver is in the casing and said extension is on the carriage.

10. The device of claim 9 wherein said extension is an extension of the handle through the casing.

11. The device of claim 1 wherein said casing and carriage have abutting surfaces at the interconnect.

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