

Nov. 24, 1931.

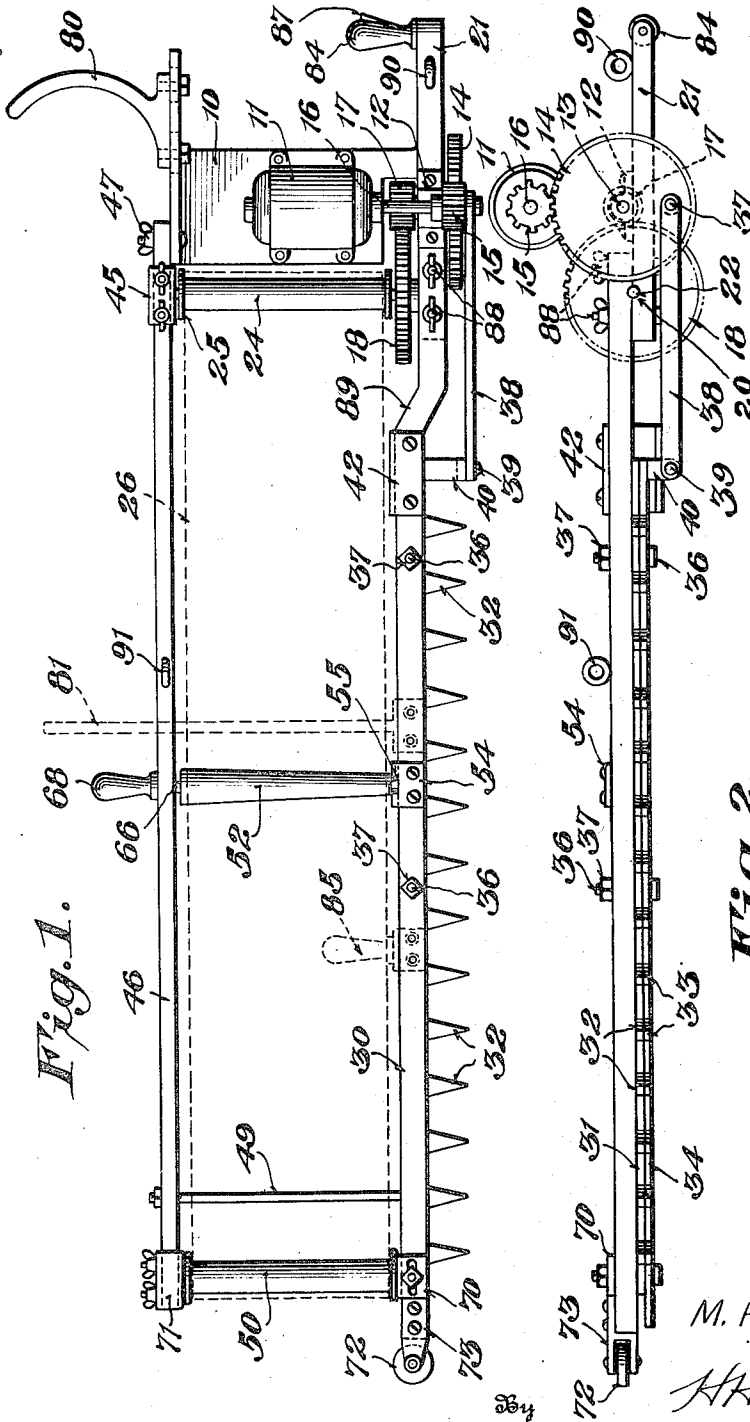
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1,833,246

HEDGE TRIMMER

Filed July 21, 1928

2 Sheets-Sheet 1



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Fig. 3.

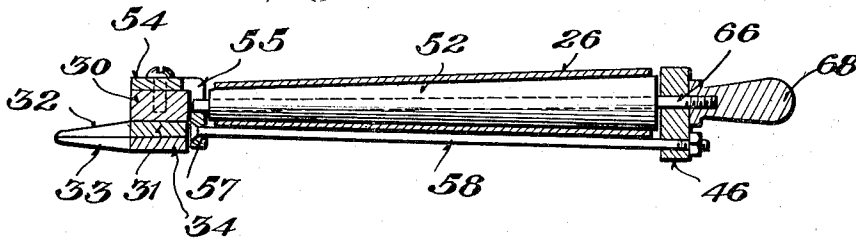


Fig. 4.

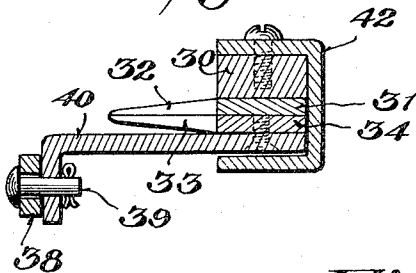


Fig. 5.

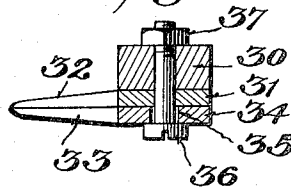


Fig. 6.

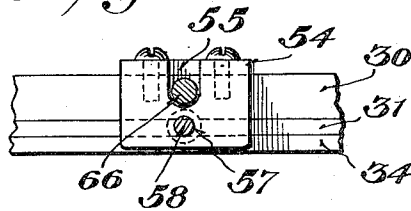
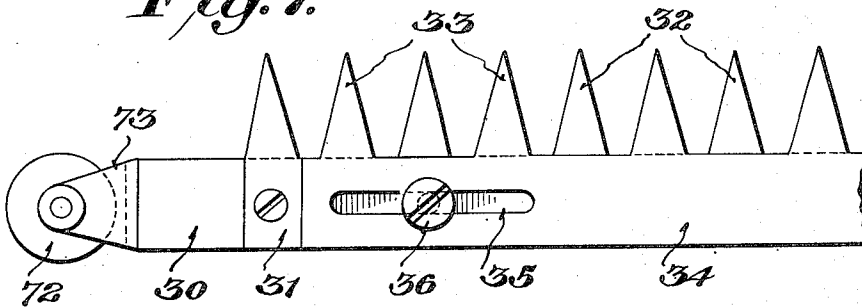


Fig. 7.



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UNITED STATES PATENT OFFICE

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HEDGE TRIMMER

Application filed July 21, 1928. Serial No. 294,469.

This invention relates to hedge trimmers and has for its principal object the provision of a simple and efficient, portable trimmer in which the frame-work is formed in sections so that different sizes of cutters may be employed and in which the endless belt for conveying away the cuttings from the top of the hedge may readily be disconnected when it is desired to trim the two sides of the hedge.

A further object of the invention concerns the provision of means whereby the endless belt may be brought quite close to the line of the reciprocating teeth. A still further object of the invention concerns the provision and positioning of handle, shoulder, and body engaging means for rendering more convenient the use of the device.

In the drawings:

Figure 1 is a top plan view.

Figure 2 is a side elevation looking toward the cutting edge.

Figure 3 is a vertical section thru the center roller.

Figure 4 is a vertical section thru the link which connects the reciprocating cutter with the crank.

Figure 5 is a vertical section thru one of the reciprocating cutter sustaining bolts.

Figure 6 is a detail showing the preferred method of hanging the center roller.

Figure 7 is a fragmentary bottom plan view of the ends of the cutter bars.

In its preferred form the device consists of three separate sections: one, the base carrying the motor and part of the gearing; another, carrying the cutters; and the third, an auxiliary frame readily attachable to and detachable from the other two portions, and carrying the endless belt or conveyer which latter element is used only when the top of a hedge is being trimmed. The base 10 is preferably an aluminum casting to which is permanently secured an electric motor 11 of proper size and a bearing 12 for a shaft 13 having on the outside of the base frame or rail a gear 14 meshing with a pinion 15 on the armature shaft 16 of the motor, and having on the inside of the base frame or rail a pinion 17 meshing with a gear 18. A bearing

20 detachably secured to the base rail 21 at the bottom supports a shaft 22 to which is secured both the gear 18 and a driving roll 24 the latter preferably having circular side flanges 25, the more accurately to position and control the location of the endless belt 26 which receives the hedge cuttings and conveys them laterally to the far side of the device, that is, away from the motor, dropping these cuttings over the side of the hedge.

The cutter bar assembly consists generally of a front or top bar 30 to which is secured the stationary cutter bar 31 having teeth 32 of usual type and the quite similar lower cutter bar 34 having teeth 33. The lower or reciprocating cutter bar is of standard type, slotted at intervals as at 35 which slots receive the sustaining and guiding bolts 36 passing thru the upper cutter bar, the carrier bar 30, and having nuts 37 at the top of the latter to secure these bolts in place. The gear 14 carries a crank pin 37 for the pitman 38 which has pivotal connection, for example, by the pin 39, with a lug piece 40 secured to the lower cutter bar 34 and resting on and being guided by a clip 42 secured to the top bar 30. The drive of the reciprocating cutter bar 34 is from the motor pinion 15 thru the gear 14, the pitman 38, and the link or lug piece 40.

The endless cutter assembly includes the driving roll 24 which has its rear bearing 45 in the back rail 46 which is detachably secured to the base 10 as by the thumb nuts 47 and is detachably secured to the main or forward bar 30 as by the spacer bar 49. At the far side or end, away from the motor, a small roller 50 is adjustably mounted between the parallel sides of the rail 46 and the front bar 30 and between this end roller 50 and the drive roller 24 I provide a center roller 52 best shown in Figure 3. To the forward or top bar 30 is secured an L-plate or hanger 54 slotted as at 55 to receive the shaft 66 of the roller 52 and having a circular perforation 57 to receive a spacing rod 58. This latter element is permanently secured to the rail 46 and in addition to giving correct spacing between the bar 30 and the rail 46 serves to support the lower reach of the belt 26 to keep

this portion of the conveyor from interfering with the hedge. While not essential I prefer either to tilt the roller shaft 66 or preferably to make the roller 52 slightly conical to provide greater clearance for the handle 68 which is tapped to receive the threaded end of the shaft 66 and thus serves as a lock nut to form a positive connection between the rail 46 and the shaft 66.

The end roller 50 is mounted in bearings 70 and 71 adjustably along the bar 30 and the rail 46 respectively in order that the slack may be taken out of the belt as it is desired that this endless cutting conveyor shall be taut when in use. The small roller 72 is optional but is very handy when cutting the sides as without this ground wheel there would be a tendency of the bar to strike and dig into the ground. In cutting the top, it is at times desirable to remove this ground wheel 72 and its bracket 73 and to substitute therefore a handle to be held by a second operator. This is desirable however, only in the larger sizes where the weight of the device might be a trifle too great for one man to make an absolutely level cut.

The bracket 80 which is preferably detachably secured to the base 10 is, in practice, an aluminum casting which rests upon the shoulder of the operator when cutting the side of a hedge and during this operation it is quite convenient to use the auxiliary bracket 81 which is detachably secured to the top cutter bar support and during side cutting engages the operator's body in the neighborhood of the waist at which time the operator's hands are in engagement with the permanent handle 84 at the motor end of the base rail 21 and with the handle 85 which is used only with side cutting. The handle 68 is not removed from the rail 46 and is used in top cutting only. I prefer to have the motor operation controlled by a trigger switch 87 pivoted at the side of the permanent handle 84.

When it is desired to change from a longer to a shorter cutter bar, or vice versa, assuming that the endless belt is not in place, it is merely necessary to unscrew the two thumb nuts 88 which release the top bar 30 carrying all of the cutter assembly, and to disconnect the pitman from the cutter bar lug. It will be noted that this top bar is slightly offset as at 89 in order that the rear edge of this bar shall be in line with the forward edge of the belt 26.

In operating the device to cut the top of a hedge a strap is secured to the eyelets 90 and 91, the former being closely adjacent the permanent handle 84 while the latter is at a convenient distance on the other side of the motor and on the rail since the principal weight of the device consists of the motor and the gears. This strap is adjustable in the usual way so as to center practically all the weight on the operator's shoulder leav-

ing his two hands free to guide the machine, one hand engaging the permanent handle 84 and the electric switch, while the other hand engages the handle 68 on the rail. The cutters are reciprocated thru the motor 11, the gear 14 and the crank 38 while the driving roll 24 is turned at a fairly slow rate thru the gears 18, 17, 14 and 15. I prefer that the length of the cutter bar shall be slightly greater than the length of the top reach of the conveyor. When the hedge top has been cut the rail and the belt elements are removed and the bracket 31 and the handle 85 are added. The shoulder strap is not used for cutting the side but instead the entire weight of the device is taken by the shoulder bracket 80, the operator's left hand holding the handle 84 so as to have control of the instrument as well as the switch 87.

While I have described my device in its preferred form it should be quite apparent to those skilled in the art that the device is capable of considerable change without departing from the spirit of the invention and that likewise altho specifically described as a hedge trimmer the cutter has other use, for example, in trimming and shaping ornamental evergreens.

What I claim is:

1. In a portable hedge trimmer, a base, a shoulder bracket attached to one side of said base, a conveyor bar detachably secured to the same side of but on the opposite corner of said base, a motor mounted on the base with its axis at right angles to said conveyor bar, a cutter bar detachably secured to the opposite side of the base so as to lie parallel with the conveyor bar, cutting mechanism carried by said bar, a conveyor carried by said bars, motor driven gearing on axes transverse to said bars for simultaneously driving the cutting mechanism and the conveyor, and manual guiding means on one of said bars.

2. In a hedge trimmer, a cutter frame, a pair of relatively movable cutter blades having cooperating teeth mounted on said frame, open journals mounted on one of said blades, a conveyor frame detachably secured to said cutter frame, journals in said conveyor frame, an endless belt, belt rollers for guiding and supporting said belt, mounted in said journals, one of said rollers adjustably carried by said conveyor frame at one end and by the cutter frame in one of said journals at the other end, and means detachably secured to both the cutter frame and the conveyor frame, for driving the endless belt and operating the cutter blades, whereby said means may be used to drive cutters and conveyors of various sizes.

3. In a portable hedge trimmer, two spaced parallel bars, cutting mechanism on one of said bars, rollers connecting the ends of said bars, and endless belt surrounding said rollers, a shaft substantially parallel to

the axes of the rollers and located between the midpoints of the bars one end of said shaft resting in an open journal on the cutting bar and the other end fitting in and projecting beyond the other bar and threads on the projecting end, a handle screwed on the projecting end, a conical roller on said shaft between the two bars for supporting the upper reach of said belt.

4. A portable hedge trimmer comprising a cutting and conveying mechanism and a motor for driving them, the cutting element being of the cutter bar type, the conveying mechanism consisting of a cutter bar carrier and an independent bar of the same length, means for mounting the said bar in spaced parallel relation to the carrier, said means comprising in part a base for said motor at one end and a rod near the other end and in part a detachable roller at each end, a gear on the shaft of the roller near the motor end, a gear and pinion journaled in the carrier at the motor and with the pinion in mesh with the roller gear, a pinion on the motor shaft in mesh with the gear of the gear and pinion, a pitman, means on the gear of the gear and pinion for connection to one end of the pitman and means on the cutter bar for connection to the other end of the pitman, an endless conveyor belt over said rollers, means at the motor base for quickly detaching either the carrier or the bar at will, the rollers being so mounted as to be lifted out when the bar and carrier are detached from each other.

In testimony whereof I affix my signature.

MARIANO FINOCCHIARO.