

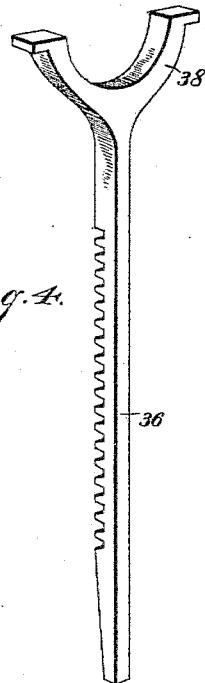
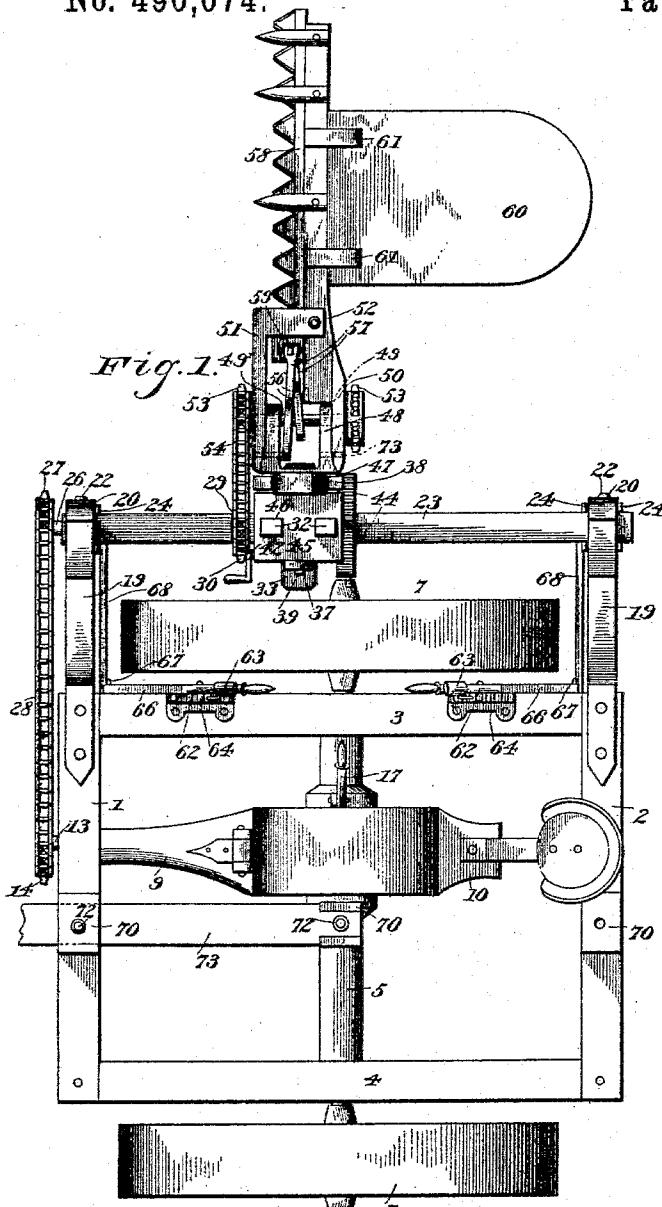
(No Model.)

3 Sheets—Sheet 1.

J. L. JACKSON.
HEDGE TRIMMER.

No. 490,074.

Patented Jan. 17, 1893.



Witnesses:

Wm. J. Diggers,
J. W. Diggers,
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By his Attorneys,

Inventor,
Joseph L. Jackson,

Cash & Co.

(No Model.)

3 Sheets—Sheet 2.

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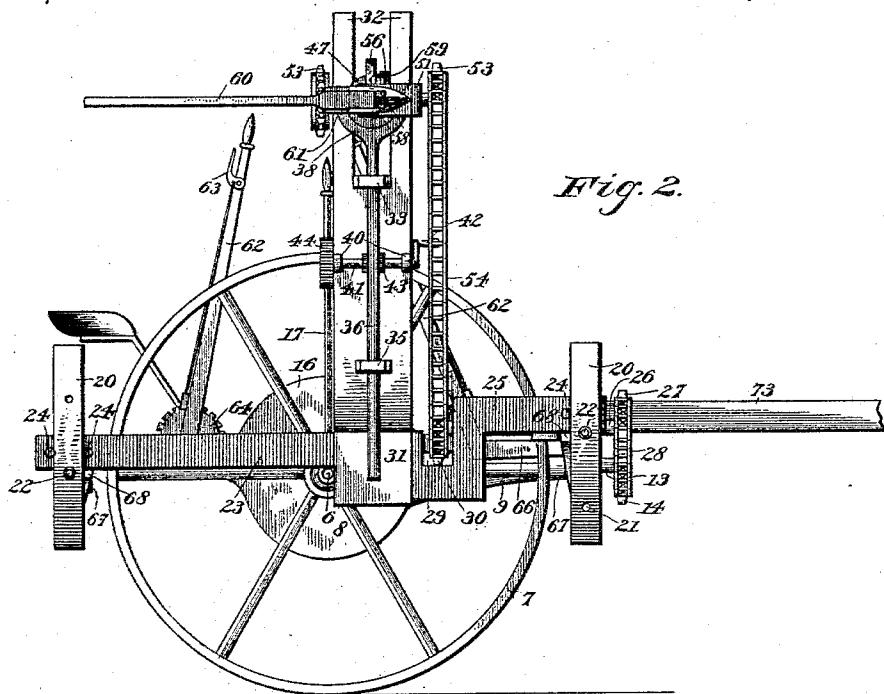
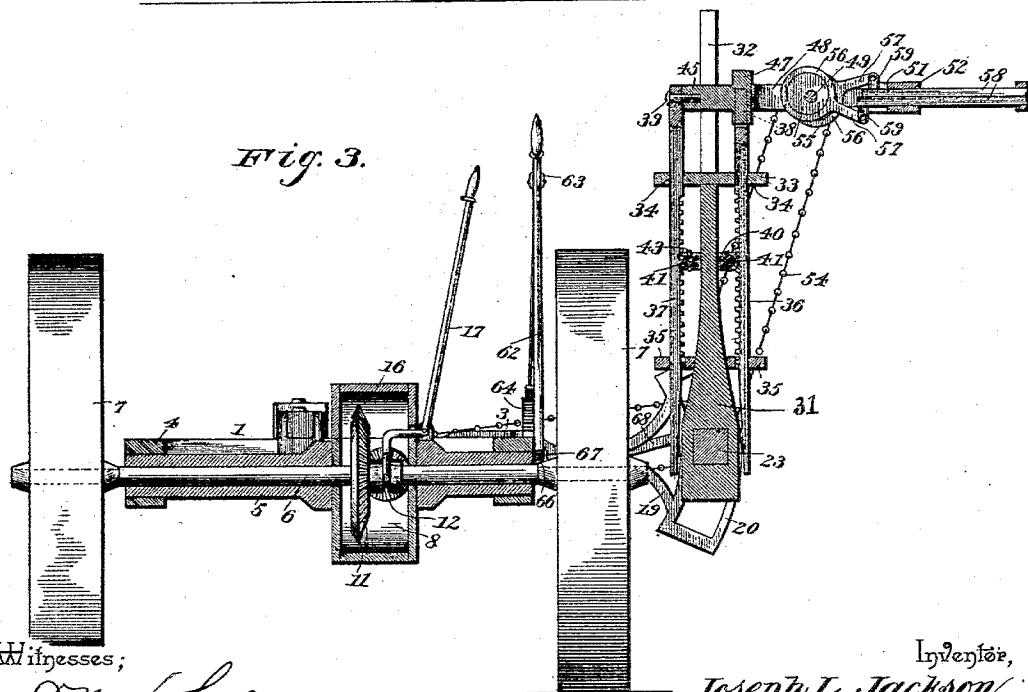


Fig. 3.



Witnesses;

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C. A. Snow & Co.

(No Model.)

3 Sheets—Sheet 3.

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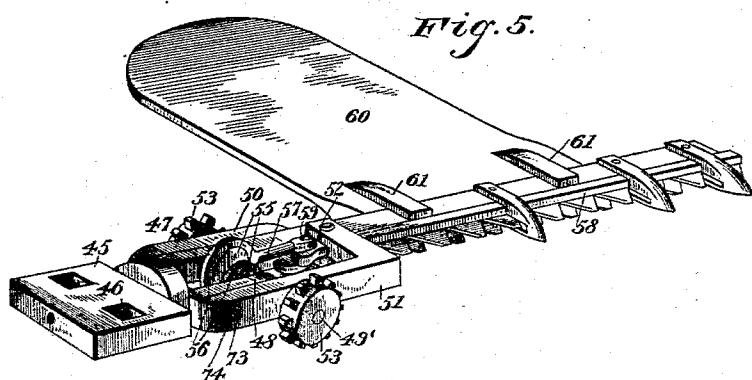


Fig. 6.

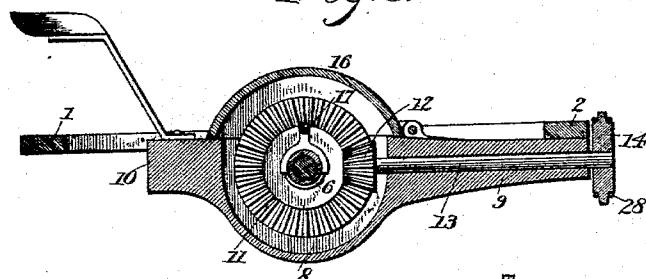


Fig. 7.

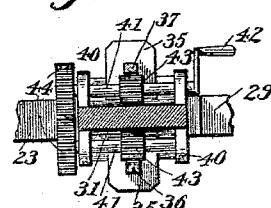
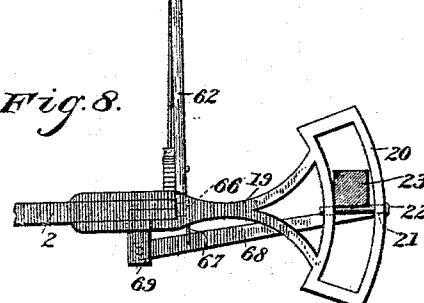


Fig. 8.



Witnesses;

J. W. Giddens
J. H. Giddens.

By his Attorneys,

Inventor,
Joseph L. Jackson

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UNITED STATES PATENT OFFICE.

JOSEPH L. JACKSON, OF COLUMBUS, KANSAS.

HEDGE-TRIMMER.

SPECIFICATION forming part of Letters Patent No. 490,074, dated January 17, 1893.

Application filed April 15, 1892. Serial No. 429,329. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH L. JACKSON, a citizen of the United States, residing at Columbus, in the county of Cherokee and State 5 of Kansas, have invented a new and useful Hedge-Trimmer, of which the following is a specification.

My invention relates to hedge-trimmers; the objects in view being to provide a machine that may be driven along the sides of hedges, and will uniformly and accurately trim the tops or sides of the same.

A further object is to provide means for adjusting the cutting mechanism, and to so arrange the parts as to render said cutting mechanism reversible, whereby it may cut or operate at one side of a hedge regardless of the direction of travel of the machine.

Other objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings:—Figure 1 is a plan view of a machine constructed in accordance with my invention. Fig. 2 is a side elevation thereof. Fig. 3 is an end elevation. Fig. 4 is a detail in perspective of the vertically-reciprocating rack-bar for supporting the cutting mechanism. Fig. 5 is a detail in perspective of the reversible cutting mechanism. Fig. 6 is a transverse section through the axle. Fig. 7 is a transverse horizontal section through the standard 31 and the cutter-mechanism supporting rack-bars. Fig. 8 35 is a transverse section through the bar 23, the supports for the same being shown in elevation.

Like numerals of reference indicate like parts in all the figures of the drawings.

In practicing my invention, I employ a rectangular frame, comprising opposite end-bars 1 and 2, and opposite side-bars 3 and 4, the ends of which are connected by the end-bars. This frame has its side-bars 3 and 4 provided 45 with bearings, which support a transverse bearing-sleeve 5, in which a transverse axle 6 is mounted for movement. The axle at opposite sides of the frame, carries ground-wheels 7 and between the side-bars 3 and 4 50 passes through the side-walls of a gear-box 8,

the front end of which is extended to form the bearing-arm 9, which is axially bored and is secured to the front cross-bar 1 of the frame. The rear end of the box forms a platform 10, for the accommodation of a seat for 55 the driver.

Within the box there is mounted on the axle 6 a large bevel-gear 11, and the same transmits motion through a small pinion 12, mounted on a shaft 13 located in the bearing-arm 9 and terminating in front of the cross-bar 1, where it carries a sprocket-wheel 14. A cover 16 is hinged over the gear-box, normally closing the same, and rendering it accessible. 65

Various means may be provided for throwing the gears 11 and 12 into and out of engagement with each other, and for such purpose I have in the present instance illustrated a lever 17, which may be manipulated by the 70 driver when perched upon the seat. Arms 19 project from corresponding ends of the bars 1 and 2, and terminate at their outer extremities in sector-shaped stirrups 20, arranged in front and in rear and extending beyond the 75 side of the ground-wheel 7 at that side of the machine. These stirrups are provided with pairs of opposite perforations 21, and removable rest-pins 22 occupy the same. Supported adjustably by the rest-pins is a longitudinal bar 23, preferably square in cross-section, and provided adjacent to the stirrups with pins 24, taking at opposite sides of the stirrups and preventing the bar from having longitudinal movement therein. At one side of 80 the center of the bar it is provided in its upper face with a longitudinally-disposed bearing 25, and a short shaft 26 is longitudinally-disposed and mounted therein. At its outer end the shaft carries a sprocket-wheel 27 90 which is engaged by a sprocket-chain 28, passing over the sprocket-wheel 14, by which means motion is conveyed from the axle to the shaft 13, and from thence to the shaft 26. The inner end of the latter shaft occurs over 95 a recess 29, formed in the bar 23, and upon said end within the recess a sprocket-wheel 30 is located. The bar 23 passes through or has otherwise secured to it a vertical standard 31, the upper end of which is bifurcated 100

to form guide-forks 32. At the base of the forks and seated within the bifurcation, a transverse guide-cleat 33 is located, and the same is provided adjacent its opposite ends with rectangular guide-eyes 34. Perforated guide-brackets 35 are located upon the sides of the standard, vertically below the perforations 34 of the cleat, and in the perforations of the brackets and cleat there is located for vertical movement an outer rack-bar 36, and an inner rack-bar 37, the teeth of which are upon the inner sides. The upper end of the rack-bar 36 is shaped to form a yoke 38, while the upper end of the rack-bar 37 is perforated, for the reception of a pin 39.

In a pair of transverse bearing-cleats, secured at the front and rear edges of the standard 31, near the middle thereof, and indicated as 40, an inner and outer shaft 41 is journaled. The inner shaft terminates at one end in a crank-handle, 42, and both shafts carry small gear-wheels 43, between their bearings, each of said wheels gearing with a rack-bar 36 or 37, in accordance with its position relative thereto. The corresponding ends of the two shafts have intermeshing gears 44, so that when the inner shaft is rotated by the crank 42, motion is also imparted to the outer shaft, and they serve through the medium of their small gear-wheels, to raise and lower the rack-bars 36 and 37 as will be obvious.

45 designates a rectangular head, provided with openings 46, which receive the upper ends of the bifurcations 32 of the standard 31. The inner end or side of this head 45 is provided with an opening, into which the inner end of the pin 39 takes. The outer side of the head is provided with a circular projection 47, and around this takes the yoke 38 formed on the upper end of the rack-bar 6. A pair of arms 48, having bearing openings, transversely opposite each other, project from the circular projection 47, at the outer side of the head 45, and in these bearing-openings 49 a shaft 49 is journaled. This shaft passes through the inner end of a finger-bar 50, and also through the inner end of an L-shaped bearing-arm 51, whereby the two become pivoted upon the head 45. The outer end of the arm 51 is bifurcated, as at 52, to embrace the finger-bar 50. The outer ends of the shaft 49 carry small sprocket-wheels 53, one of which through the medium of a chain 54, is connected with and operated by the sprocket-wheel 30 of the shaft 26. The shaft 49 between its bearings, is provided with a pair of oppositely-disposed eccentric disks 55, which are rigid therewith, and each has mounted thereon an eccentric ring 56, from each of which extends an arm 57, terminating in a socket. Mounted for movement upon the finger-bar is a pair of cutter-bars 58, which pass through the arm 51 and each terminates in a stud 59, which engages with the socket of an arm 57, so that the eccentric disks be-

ing oppositely disposed, it will be seen that the cutter-bars will be simultaneously reciprocated in opposite directions.

60 designates a wing, which is secured to the rear side of the finger-bar, in any suitable manner, in this instance by pairs of clamping-fingers 61.

Upon the side-bar 3 there is fulcrumed a pair of levers 62, terminating at their upper ends in handles, to which are pivoted bell-cranks 63. Locking-standards 64 are located at the sides of the levers upon the bar 3, and reciprocating-bolts at the sides of the levers are thrown into and out of engagement with the standards by the bell-crank. The levers 62 are bell-crank levers, their lower branches 66 being connected by means of links 67 to pivoted levers 68, fulcrumed in bearings 69, depending from the under sides of the bars 1 and 2. The outer ends of the levers 68 project under and are therefore adapted when manipulated through the levers 62, to raise or permit the bars 23 to fall within the stirrups, as will be obvious.

Keepers 70 are mounted upon each of the bars 1 and 2, and bearing-sleeve 5; and the outer keepers, that is, of the bars 1 and 2, are provided with perforations into which pins 72 are passed. A draft-pole 73 has its butt-end introduced through either of the keepers 70, and terminates in either instance in the central keeper, and may be locked in position by the before-mentioned pin 72, that passes through the outer keepers 70. In this manner it will be seen that the machine may be drawn, either end first.

This completes the construction, and the operation is as follows:—If it is desired to trim the top of the hedge pins 73 are passed through perforations 74, formed in the inner end of the finger-bar, and arm 51, and through similar perforations formed in the bearing-arms 48 immediately in rear of the shaft 49. In this manner the cutting mechanism is maintained in a horizontal position, and it may be raised or lowered, as a whole, through the medium of the bell-crank levers 62, and may be supported in any of its adjusted positions through the medium of the pins passing through the stirrups in which the bar 23 is mounted. The foregoing description sufficiently mentions the manner of transmitting motion from the axle to the cutting mechanism, so that need not now be traced, but will be at once understood. The machine having been adjusted to cut the proper height, the same is drawn along and the tops of the hedge trimmed. When the end of the hedge has been reached, in order to cut on the return trip, it is simply necessary to disconnect the sprocket-chain from that one of the small sprocket-wheels 53, before in engagement therewith, and by rotating the crank 42 the rack-bars are fed upwardly in the manner heretofore described, so that the head 45 car-

rying the cutting mechanism, is elevated above the ends of the bifurcations 32, and when sufficiently far above the same, the two rack-bars serving as bearings, the cutting mechanism is by hand reversed, or turned bottom-side up, the belt re-connected, and the crank reversed to return the parts to their former position. The draft-pole is disconnected from the keepers, and inserted in that keeper which will now be the front of the machine on the return trip, and which was formerly the rear of the machine. The wing 60, resting upon the top of the hedge, serves to aid in the support of the outer end of the cutting mechanism, and also prevents said mechanism from dropping into depressions, openings, or any irregularities that may happen in the hedge.

Having described my invention, what I claim is:—

1. In a hedge trimmer, the combination with a frame, an axle, its wheels, a horizontal elevated cutter bar, a support for the same, and means for transmitting motion from the axle 25 to the bar, of a flat wing extending rearward from the bar, substantially as specified.

2. In a hedge trimmer, the combination with the supporting frame-work, axle and ground wheels, of a standard, head 45, carried by said standard, and provided with parallel arms 48, a shaft 49 mounted in bearings in said arms, the finger-bar fulcrumed upon the shaft, an L-shaped bearing arm 51 fulcrumed upon the shaft and bifurcated at its outer end to embrace the finger bar, the cutter bars, eccentrics upon shaft 49, pitmen connecting the eccentrics to the cutter bars, and means for conveying motion from the axle to the shaft 49, substantially as specified.

3. In a hedge trimmer, the combination with the framework, the axle and ground wheels of the standard having a bifurcated upper end, a head perforated to receive the arms of such bifurcation, the finger bar revolvably mounted upon said head, the cutter bars, the parallel rack bars attached at their upper ends to the head, the connected pinions carried by the standard and engaging said rack bars, and means to convey motion from the 45 axle to the cutter bars, substantially as specified.

4. In a machine of the class described, the combination with the frame and the axle carrying traction wheels of the sector-shaped stirrups having perforations, pins passing through the perforations, bell-crank levers fulcrumed on the frame, means for locking the same, simple levers fulcrumed on the under side of the frame and having their free ends

extending to the sides of the sector-shaped stirrups, and links connecting the outer ends of the bell-cranks with said simple levers, of a longitudinally-disposed bar located above the simple levers in the stirrups, a standard 55 rising from the bar, cutting mechanism at the upper end of the standard, and means for

conveying motion from the axle to the cutting mechanism, substantially as specified.

5. In a machine of the class described, the combination with the supporting-frame, the standard rising therefrom, a head mounted on the standard and adapted for vertical reciprocation and for removal therefrom, and keepers located at opposite sides of the standard, of a cutting mechanism carried by the head, rack-bars mounted in the keepers and pivotally connected to the head, means for raising the rack-bars and projecting the head above the standard whereby it and the cutting mechanism may be inverted, and means for operating the cutting mechanism, substantially as specified.

6. In a machine of the class described, the combination with the framework, the standard rising therefrom and having its upper end bifurcated and provided at opposite sides with guides and at its front and rear edges with bearings, of shafts mounted in the bearings at the inner and outer sides of the standards, said shafts being provided with intermeshing gears and small pinions, a head having openings mounted for reciprocation on the bifurcations, said head being provided at its front side with a circular projection and beyond the same with forwardly-disposed bearing-arms having perforations, rack-bars mounted in the guides of the standard and engaged by the pinions of the short-shafts, a crank mounted on one of the short shafts, a yoke at the upper end of the outer rack-bar for engaging the circular projection, a pin for pivotally connecting the upper end of the remaining rack-bar with the head, cutting mechanism pivoted to the forwardly projecting arms of the head, and means for operating the same, substantially as specified.

7. In a hedge trimming machine, the combination with the frame-work, axle and ground-wheels, of a standard having a bifurcated upper end, a head perforated to slide upon the standard, parallel arms extending therefrom and bearing a shaft, the finger bar mounted upon said shaft, the cutter bars, the guide cleat 33 mounted in the bifurcation of the standard and having guide eyes 34, guide-brackets 35 having guide-eyes vertically aligned with those in the cleats, vertical rack-bars connected at their upper ends to the head, and arranged in said guide eyes, shafts 41 mounted upon the standard and geared together, pinions carried by said shafts to mesh with the rack bars, and means to convey motion from the axle to the cutter bars, substantially as specified.

8. In a hedge trimmer, the combination with the framework, the axle and ground-wheels, of the arms 19, provided at their terminals with sector shaped stirrups, the rest pins 22 fitting in opposite perforations in the stirrups, the bar 23 arranged in the stirrups and resting upon said pins, levers 68 fulcrumed beneath the framework and extending under the bar

23, bell-crank levers 63 connected to said levers, handles connected to the bell-crank levers, a standard carried by the bar 23, a head attached to said standard, means to elevate 5 and lower the head, a finger-bar fulcrumed upon the head, cutter bars, and means for conveying motion from the axle to the cutter bars, substantially as specified.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in the presence of two witnesses.

JOSEPH L. JACKSON.

Witnesses:

ASA LEA,
LOUIS H. WINTER.