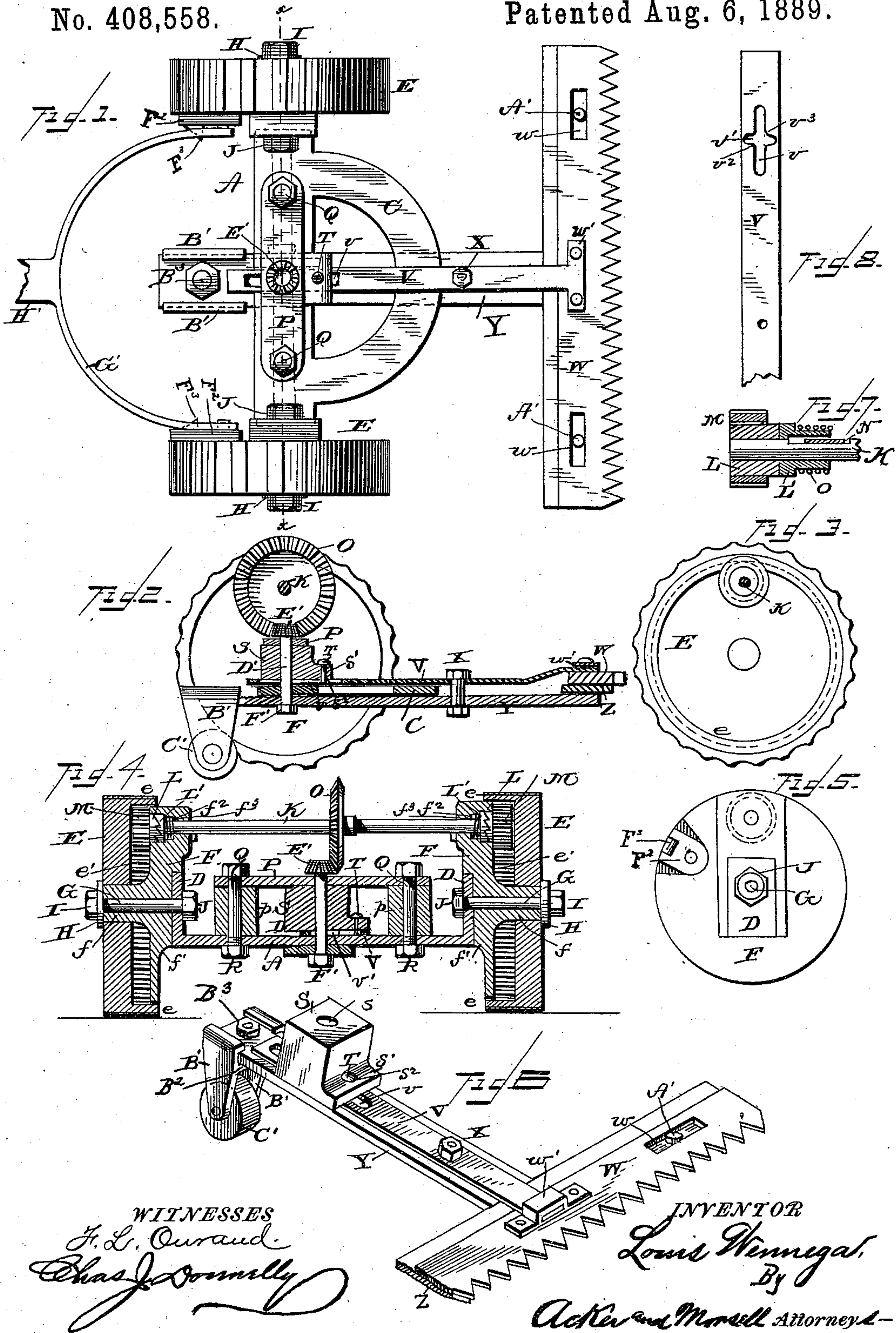


(No Model.)

L. WENNEGA.  
LAWN MOWER.

No. 408,558.

Patented Aug. 6, 1889.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

LOUIS WENNEGA, OF PRESTON, MINNESOTA.

## LAWN-MOWER.

SPECIFICATION forming part of Letters Patent No. 408,558, dated August 6, 1889.

Application filed February 23, 1889. Serial No. 300,861. (No model.)

*To all whom it may concern:*

Be it known that I, LOUIS WENNEGA, a citizen of the United States, residing at Preston, in the county of Fillmore and State of Minnesota, have invented certain new and useful Improvements in Lawn-Mowers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

Figure 1 is a top-plan view of the machine, showing the upper shaft K in dotted lines. Fig. 2 is a longitudinal vertical sectional view. Fig. 3 is a detail view of the inner face of one of the drive-wheels. Fig. 4 is a cross-sectional view on the line  $x x$ , Fig. 1, showing the shouldered or flanged portion of the cross-head as occupying a side position. Fig. 5 is a detail view of the inner face of the circular plate or disk. Fig. 6 is a perspective view of the rotating cross-head, sickle-bar, and wheel, omitting the main bar A between the operating-bar and sickle-bar. Fig. 7 is a detail view, in section, of the horizontal shaft, showing the gear thereon meshing with the movable portion of the clutch; and Fig. 8 is a detail view of a portion of the operating-bar, showing the slots therein.

Like letters of reference indicate corresponding parts throughout the several views. My invention relates to improvements in lawn-mowing machines; and it consists more particularly in providing a machine of this character having a movable and stationary cutter or sickle, the former adapted to be reciprocated, through the medium of suitable gearings, in the manner hereinafter more fully pointed out and described.

Among the objects of my invention are to provide a machine which will cut or mow the grass a uniform distance from the ground. Furthermore, in providing a device which shall be exceedingly light in weight, thereby lessening the actual labor of the operator and enabling him to accomplish a large amount of work with the least possible exertion.

In the accompanying drawings, the letter

A represents the main cross piece or bar of the machine, which is formed or provided with the circular forwardly-extending portion C and with upwardly-extending end flanges D D.

The drive-wheels are represented by the letters E E, and are provided with inwardly-flanged portions  $e e$ , provided with suitable cogs  $e' e'$ .

An inner stationary plate or disk F is arranged to fit near the ends of the flanges of the drive-wheels, but not close enough to contact therewith and interfere with the free movement of the wheels, and each of said stationary disks is provided with central-apertured hubs  $f f$ , which pass through the central openings of the drive-wheels, and through each of these apertured hubs passes a bolt G, having a suitable washer and locking-nut H and I, respectively, bearing upon the outer faces of the drive-wheels. These bolts serve to secure the upwardly-extending flanges D D of the cross-piece A, which latter bears against the central inwardly-bulged portion  $f'$  of the disk F, and is secured thereto by means of locking-nuts J J. The upper portions of these inner disks are bulged inwardly a greater distance than their central portion, and have formed within these bulged portions recesses  $f^2 f^2$ , having inner shouldered  $f^3 f^3$ .

The ends of an upper transverse shaft K pass through these upper bulged portions of the disks in and beneath the flange of the drive-wheels, said shaft being provided on each end with half of a clutch L L, also to which are keyed pinions or gears M M, both the pinions and sections of clutch being mounted loosely upon the shaft. The inner portions or other half-clutches L' L' are feathered on the shaft K and located within the chambers or recesses  $f^2 f^2$ , and when it is desired to give motion to the shaft these portions of the clutches sliding on the feathers N, fixed in the shaft, are thrust into gear by means of coiled springs bearing against the ends of the recesses and against the inner portion of the clutches. It will thus be seen that when a forward movement is given to the machine the pressure of the springs will force the innermost half of the clutches into



engagement with the other portions thereof, and as the drive-wheels revolve the inner cogs thereof mesh with the cogs of the pinions M M, which, being keyed to the halves of the clutches L, likewise impart motion thereto, which in turn imparts motion to the inner halves of the clutches in engagement therewith, thereby giving motion to the shaft. On the backward movement of the machine, however, by reason of the inclined cogs of the two sections of clutch, the pressure of the springs is overcome and the innermost clutches are forced out of engagement, thereby preventing the horizontal shaft from being driven. This shaft K has also secured thereto at or near its center a bevel-gear O. A transverse bar or plate P is arranged beneath shaft K, and is provided under each end thereof with blocks *p*, which rest upon the main cross-plate A and are secured thereto by suitable bolts Q Q, provided with screw-threaded lower ends for the reception of locking-nuts R R.

Disposed centrally between the bar or plate P and the main cross-bar of the machine is a solid rotating cross-head S, provided with a central vertical aperture or hole *s*, and with a lower shouldered or flanged portion *s'*, the latter being also provided with a suitable hole or aperture *s*<sup>2</sup>, through which a pin or stud T passes.

Located beneath the rotating cross-head is an operating bar V, provided in its rear end with an elongated opening or slot *v*, into which the pin or stud T passes. This slot *v* is intersected by a curved cross-slot *v'*, which latter, however, does not extend the entire width of the bar.

The letter W represents the upper cutter or sickle, provided with elongated openings or slots *w w*, and having a central keeper *w'* secured thereto on top for the reception of the front end of the operating-bar V, which latter, it will be noticed, fits snugly within the opening formed by the sleeve.

The operating-bar is pivoted at X to a bar Y, which has secured upon its forward end, upon the upper face thereof, the stationary cutter or sickle Z, said sickle being provided near each end with upwardly-extending studs or pins A' A', which work in the slots or openings *w* of the upper sickle or cutter and limit the reciprocating movement thereof.

Suitable hangers B' B' are secured to the rear end of this sickle-supporting bar, in which is secured a wheel C' to facilitate the movement of the machine. These hangers are connected near the top by a transverse piece B<sup>2</sup>, preferably formed integral therewith, which passes beneath the rear end of the sickle-supporting bar Y, while the upper ends are flanged or bent inwardly, so as to overlap said bar. A bolt or equivalent B<sup>3</sup> also passes vertically through the end of the bar Y into the cross-piece of the hangers, thus assisting in securely holding the same in place. A vertically-extending shaft D', carry-

ing on its upper end a bevel-gear E', passes through the plate P, the rotating cross-head, and through the slot *v* in the operating-bar, through the main bar A, and finally through the sickle-supporting bar Y. The end of this shaft is screw-threaded to receive a nut F', which serves to prevent the shaft from working out of place. The bevel-gear E' meshes with the gear O, located upon the shaft K, so that when motion is imparted to the latter a rotary motion will also be given to the vertical shaft, and as said shaft passes loosely through the bar or plate P, through the slots in the operating-bar, through the main cross-bar A, and finally the bar Y, while it is rigidly secured within the central perforation of the rotating cross-head, a rotary motion is imparted to the latter. To illustrate: Fig. 6 of the drawings shows the flanged or shouldered portion of the cross-head extending forward and resting upon the operating-bar. The moment the cross-head begins to rotate and the flanged portion is turned toward a side position the pin or stud T, working within the elongated slot *v* of the operating-bar, will cause the rear of said bar (by reason of its outward side pressure upon the side of the elongated slot) to be thrown to one side in one direction, while the forward end is thrown to one side in the opposite direction. In this manner it will be seen that the stud or pin by the continuous revolution of the cross-head is also made to describe a complete revolution, the intersecting slot *v'* of the bar V permitting the same to have a sufficient play. In other words, when the pin or bolt T impinges against the angle *v*<sup>2</sup>, formed by the crossed slot, the rear portion of the operating-bar starts laterally outward, while the forward end thereof is thrown in an opposite direction. It continues upon this movement until the pin or bolt reaches the angle *v*<sup>3</sup> of the crossed slot, when the oscillating bar V is given an opposite throw to that previously described, thereby imparting reciprocating motion to the sickle W by means of the front end of said operating-bar passing through the opening in the keeper located upon the upper face of said sickle.

I have also provided the device with a rearwardly-extending curved hound or strap G', suitably secured by bolts or other means to lugs or projections F<sup>2</sup> F<sup>2</sup>, extending from the inner faces of the stationary disks. I have shown these lugs as provided with catches F<sup>3</sup> F<sup>3</sup>, for more securely retaining the ends of the hound. This hound or strap is also provided with a rearwardly-extending handle H'.

When it is desired to cut or mow the grass, the machine is moved forward, and as the drive-wheels revolve they will impart motion to the horizontal shaft by means of the end pinions and the connecting clutch mechanism. As this shaft is revolved the bevel-gear mounted thereon is likewise revolved, which gives motion to the bevel upon the upper end



of the vertical shaft, which, carrying the cross-head, rotates the latter, which in turn imparts an alternate curvilinear movement to the operating-bar through the medium of the wrist-pin working in the slotted portion of said bar. When the cutting of the grass is accomplished as far as desired in one row, the machine is moved backward for the next row, which, as previously fully pointed out, has the effect of throwing the clutch mechanism out of gear and preventing the turning of the shaft K.

It will readily be seen by the construction herein shown and described that the sickles or cutters are held in position a uniform distance from the ground, whereby an even cut of the grass may be effected. Furthermore, this construction of mower enables the same to cut up close to any object.

A further advantage consists in providing a machine which is comparatively simple in construction for the accomplishment of the purpose designed, and which at the same time will be less liable to get out of order than any device of a similar character. It will also be observed, however, that, owing to the several parts being made removable, ready access may be obtained to the interior for the purpose of repairing, cleaning, or lubricating.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a lawn-mower, in combination with the herein-described pivoted operating-bar provided with an elongated slot near its rear end and a slot intersecting the same centrally, the rotating cross-head provided with downwardly-projecting pin or stud, said pin or stud carried by the cross-head, and by this means imparting a reciprocating motion to the sickle-bar, and the vertical shaft passing centrally through the cross-head and imparting rotary motion thereto, substantially as set forth.

2. In a lawn-mower, the combination of the inwardly-flanged drive-wheels, said flanged portion being provided with inner cogs, circular plates or disks provided with apertured hubs adapted to pass through central openings in the drive-wheels, and also having upper bulged portions forming recesses or chambers, the transverse shaft, the outer half-clutches mounted loosely upon opposite ends of said shaft, pinions keyed to said half-clutches, inner half-clutches sliding upon feathers on the transverse shaft, and the springs, said springs and inner half-clutches located within the upper bulged portions of the disks, substantially as herein shown and described.

3. In a lawn-mower, the combination of the frame, the sickle-supporting stationary bar, the operating-bar oscillating thereon and provided in the rear end thereof with an elongated slot, and having a cross-slot intersecting said elongated slot centrally, the rotating cross-head provided with flanged portion, said flanged portion carrying a pin or stud, the latter describing a circle with the cross-head, and thereby imparting oscillating movement to the operating-bar, and the vertical-shaft passing centrally through the cross-head, substantially as set forth.

4. In a lawn-mower, the combination of the stationary sickle-supporting bar, the stationary sickle secured to the upper face of said bar and provided with upwardly-extending pins or bolts, the hangers secured to the rear end of the stationary sickle-supporting bar and having a wheel journaled therein, the operating-bar, and the upper sickle or cutter provided with elongated slots within which the pins or bolts work, and also having a central keeper for the reception of the end of the operating-bar, substantially as set forth.

5. The combination of the drive-wheels having inwardly-extending toothed flanges, the circular plates or disks provided with apertured hubs extending through the central openings of the drive-wheels and provided with the bulged portion and upper chambers or recesses, the main bar or plate provided with upwardly-extending flanges, the bolts for securing the latter to the circular plates or disks, the transverse shaft carrying the central bevel-gear, the clutch mechanism located on each end of the transverse shaft, the pinion keyed to the outer section of the clutch, the springs, the inner plate, the blocks disposed beneath each end of said plate, the bolts for securing the same to the main bar or plate, the vertical shaft carrying on its upper end the bevel-gear, the rotating cross-head provided with flanged portion, the pin or stud passing through said flanged portion into the slots of the operating-bar, the pivoted operating-bar provided in its rear end with an elongated slot, said slot intersected by a curved cross-slot, into which the vertical shaft passes, and on its forward end with a sickle or cutter, and the supporting-bar and sickle located beneath the main cross-bar of the machine, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

LOUIS WENNEGA.

Witnesses:

CARL KUETHE,  
J. D. MALONEY.