No. 783,052. PATENTED FEB. 21, 1905.

A. LAKE.

LAWN MOWER.

APPLICATION FILED JULY 19, 1904.

2 SHEETS—SHEET 1.

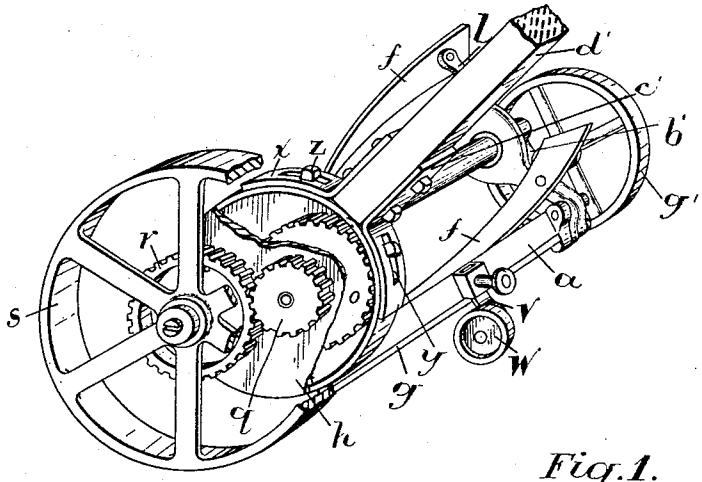


Fig. 1.

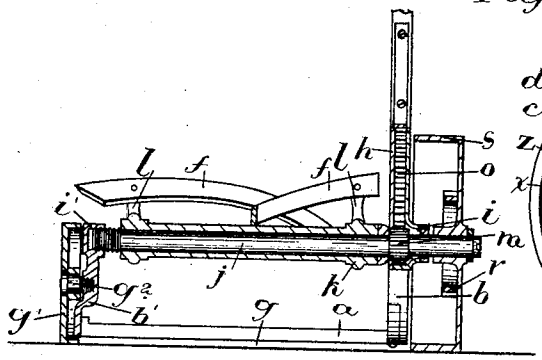


Fig. 2.

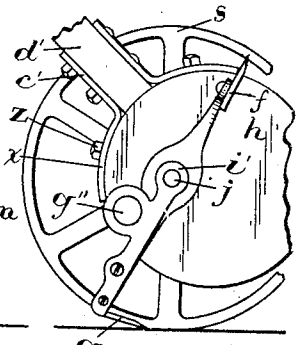


Fig. 6.

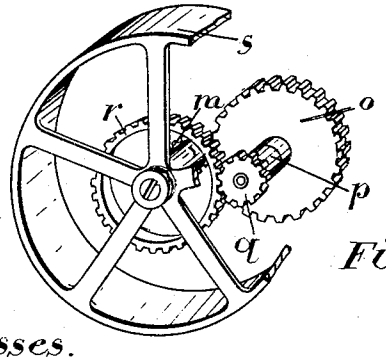


Fig. 3.

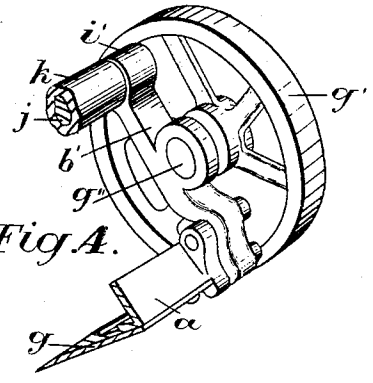


Fig. 4.

Witnesses.
H. L. Trimble.
W. H. Smith

Inventor.
Archibald Lake
by Chas. H. Riches
his Attorney.

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2 SHEETS—SHEET 2.

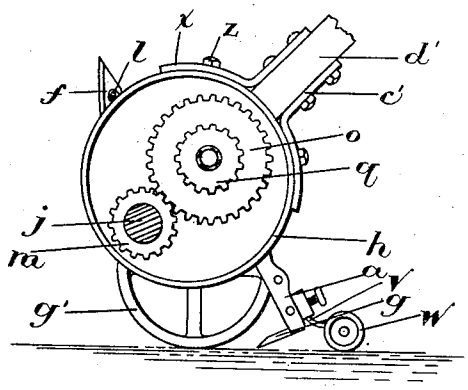


Fig. 5.

Witnesses.
H. L. Trimble
L. C. Hurlburt.

Inventor.
Archibald Lake
by Chas. A. Rich.
his Attorney

No. 783,052. Patented February 21, 1905.

UNITED STATES PATENT OFFICE.

ARCHIBALD LAKE, OF GALT, CANADA.

LAWN-MOWER.

SPECIFICATION forming part of Letters Patent No. 783,052, dated February 21, 1905.

Application filed July 19, 1904. Serial No. 217,155.

To all whom it may concern:

Be it known that I, ARCHIBALD LAKE, of the city of Galt, county of Waterloo, and Province of Ontario, Canada, have invented certain new and useful Improvements in Lawn-Mowers; and I hereby declare that the following is a full, clear, and exact description of the same.

This invention relates to a lawn-mower in which the cylinder or rotary knife is driven by an intermediate gear from a single drive-wheel located at one end of the stationary knife-bar, the object of this invention being to so construct and arrange the various parts of the mower that it can be employed not only for cutting the surface of the lawn, but also for trimming its edges or borders.

For a full understanding of the invention reference is to be had to the following description and to the accompanying drawings, in which—

Figure 1 is a perspective view of the lawn-mower with the handle broken away. Fig. 2 is a longitudinal section through the same. Fig. 3 is a perspective view of the driving-gear for the cylinder or rotary knife. Fig. 4 is a perspective view of the outer end of the knife-bar, ground-wheel, and supports therefor. Fig. 5 is an end view of the lawn-mower with the drive-wheel removed and the casing for the driving-gear broken away, and Fig. 6 is a similar view from the opposite end with the ground-wheel removed.

Like letters of reference refer to like parts throughout the specification and drawings.

At the ends of the knife-bar *a* are vertical arms *b b'*, and to the under surface of the knife-bar *a* is fastened the stationary knife *g*. The vertical arm *b* at one end of the knife-bar *a* terminates in a gear-case *h*, having a bearing *i* alining with a bearing *i'* at the upper end of the vertical arm *b'*, and mounted in the bearings *i* and *i'* is a stationary shaft *j*, upon which is loosely mounted between the bearings *i* and *i'* the sleeve or hub *k* of the cylinder-arms *l*, to which are connected the blades *f*; and to reduce the friction of the revolution of the sleeve or hub *k* around the stationary shaft *j* antifriction-bearings may be interposed between the shaft and the inner surface of the hub. Mounted upon the sleeve or hub *k* is a pinion *m*, which meshes with the gear-wheel *o*, contained within the gear-case *h*. The stud or shaft *p* of the gear-wheel *o* projects beyond the bearings to receive the driving-pinion *q*, which meshes with the gear-wheel *r*, connected to the driving-wheel *s*. The driving-wheel is loosely mounted upon the stationary shaft *j*, projecting beyond the outer side of the gear-case *h*, and during the forward movement of the lawn-mower the gear-wheel *r* revolving with the drive-wheel *s* causes the revolution of the drive-pinion *q*, which imparts a rotary motion through the stud or shaft *p* to the gear-wheel *o*. The revolution of the gear-wheel *o* causes the revolution of the pinion *m* and the sleeve or hub *k* of the cylinder or rotary knife, the blades of which during their revolution pass across the cutting edge of the stationary knife *g*.

To support the outer end of the lawn-mower and to guard the ends of the cylinder or knife-blades, a ground-wheel *g'* is loosely mounted upon a stud *g''*, projecting from the outer face of the vertical arm *b'* between the bearing *i'* and its connection with the adjacent end of the knife-bar. This ground-wheel has no other function to perform than that of supporting the outer end of the cylinder and guarding the knives, and consequently the operator can during the progress of the lawn-mower throw the weight of the cylinder upon the drive-wheel by raising the ground-wheel from the sod without straining the load upon the handle or impairing the driving qualities of the driving-gear. This is of particular advantage when trimming the edge of a walk, border, or driveway, when no surface is presented for the ground-wheel to travel upon. To support the outer end of the cylinder when projecting beyond such an edge, I find it advisable to detachably connect to the knife-bar between the middle and outer end an inturned arm *v*, to the free end of which is fastened a follower-wheel *w* to follow along in rear of the knife-bar between the gear-case and the middle of the knife-bar. The arm *v* is of sufficient strength and rigidity to sustain the entire weight of the lawn-mower, and by using the follower-wheel it is possible to allow over one-half of the cylinder or rotary knife to project beyond

the edge or border during the progress of the machine.

To propel the machine, the outer surface of the gear-case is embraced by a substantially semicircular-shaped divided strap *x*, having elongated slots *y*, through which pass the fastening-bolts *z* to enter the screw-threaded bolt-apertures in the adjacent surface of the gear-case. The adjacent ends of the strap *x* are outturned to form two projecting arms *c'*, between which is bolted the handle *d'*. By means of the bolts *z* and slots *y* the angle of the handle *d'* to the knife-bar can be varied, and by making the lawn-mower in the manner outlined above it is possible to dispense with the usual wooden roller, to reduce the weight of the machine, and to enable the operator to easily manipulate it either when cutting with both wheels on a level surface or with one wheel removed therefrom.

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

1. In a lawn-mower the combination of the knife-bar, vertically-disposed arms rigidly connected to the knife-bar, bearings connected to the arms, a shaft journaled in the bearings having one end projecting beyond the adjacent arm, a rotary knife the hub of which is mounted upon the shaft between the vertically-disposed arms, a drive-wheel mounted upon the projecting end of the shaft, a gear-wheel rotatable with the drive-wheel, a second gear-wheel the shaft of which is journaled in a bearing supported by the adjacent arm, a pinion mounted upon the gear-wheel shaft meshing with the gear-wheel rotated by the drive-wheel and a pinion mounted upon the hub of the rotary knife meshing with the second-mentioned gear-wheel.

2. In a lawn-mower the combination of the knife-bar, vertically-disposed arms rigidly connected to the knife-bar bearings connected to the arms, a shaft journaled in the bearings having one end projecting beyond the adjacent arm, a rotary knife the hub of which is mounted upon the shaft between the vertically-disposed arms, a drive-wheel mounted upon the projecting end of the shaft, a gear-wheel rotatable with the drive-wheel, a second gear-wheel the shaft of which is journaled in a bearing supported by the adjacent arm, a pinion mounted upon the gear-wheel shaft meshing with the gear-wheel rotated by the drive-wheel, a pinion mounted upon the hub of the rotary knife meshing with the second-mentioned gear-wheel, a ground-wheel at the opposite end of the knife-bar to the drive-wheel and a stud projecting from the adjacent arm upon which the ground-wheel is mounted.

3. In a lawn-mower the combination of the knife-bar, vertically-disposed arms rigidly connected to the knife-bar bearings connected to the arms, a shaft journaled in the bearings having one end projecting beyond the adjacent arm, a rotary knife the hub of which is mounted upon the shaft between the vertically-disposed arms, a drive-wheel mounted upon the projecting end of the shaft, a gear-wheel rotatable with the drive-wheel, a second gear-wheel the shaft of which is journaled in a bearing supported by the adjacent arm, a pinion mounted upon the gear-wheel shaft meshing with the gear-wheel rotated by the drive-wheel, a pinion mounted upon the hub of the rotary knife meshing with the second-mentioned gear-wheel, an arm detachably connected to and projecting from the rear of the knife-bar and a follower-wheel carried by the arm.

4. In a lawn-mower the combination of the knife-bar, outwardly-projecting arms connected to the knife-bar, bearings connected to the arms, a shaft journaled in the bearings having one end projecting beyond the adjacent arm, a gear-case supported by the last-mentioned arm, a gear-wheel contained therein having a stud projecting beyond the outer face of the gear-case, a pinion mounted upon the stud a drive-wheel mounted upon the projecting end of the shaft, a gear-wheel meshing with the pinion and rotatable with the drive-wheel, a rotary knife the hub of which is mounted upon the shaft between the outwardly-projecting arms, a pinion for the hub meshing with the first-mentioned gear-wheel, a handle-bar having a strap to embrace the gear-case with elongated slots in its opposite ends and set-screws passing through the elongated slots into the gear-case to adjustably connect the handle-bar thereto.

5. In a lawn-mower the combination of the knife-bar, outwardly-projecting arms connected to the knife-bar, bearings connected to the arms, a shaft journaled in the bearings having one end projecting beyond the adjacent arm, a gear-case supported by the last-mentioned arm, a gear-wheel contained therein having a stud projecting beyond the outer face of the gear-case, a pinion mounted upon the stud, a drive-wheel mounted upon the projecting end of the shaft, a gear-wheel meshing with the pinion and rotatable with the drive-wheel, a rotary knife the hub of which is mounted upon the shaft between the outwardly-projecting arms, a pinion for the hub meshing with the first-mentioned gear-wheel, a handle-bar having a strap to embrace the gear-case with elongated slots in its opposite ends, set-screws passing through the elongated slots into the gear-case to adjustably connect the handle-bar thereto, a ground-wheel at the opposite end of the knife-bar to the drive-wheel, and a stud projecting from the adjacent arm upon which the ground-wheel is mounted.

6. In a lawn-mower the combination of the knife-bar, outwardly-projecting arms connected to the knife-bar, bearings connected to the arms, a shaft journaled in the bearings having one end projecting beyond the adjacent

arm, a gear-case supported by the last-mentioned arm, a gear-wheel contained therein having a stud projecting beyond the outer face of the gear-case, a pinion mounted upon the stud, a drive-wheel mounted upon the projecting end of the shaft, a gear-wheel meshing with the pinion and rotatable with the drive-wheel, a rotary knife the hub of which is mounted upon the shaft between the outwardly-projecting arms, a pinion for the hub meshing with the first-mentioned gear-wheel, a handle-bar having a strap to embrace the gear-case with elongated slots in its opposite ends, set-screws passing through the elongated slots into the gear-case to adjustably connect the handle-bar thereto, a ground-wheel at the opposite end of the knife-bar to the drive-wheel, a stud projecting from the adjacent arm upon which the ground-wheel is mounted, an arm detachably connected to and projecting from the rear of the knife-bar and a follower-wheel carried by the arm.

Toronto, June 22, 1904.

ARCHIBALD LAKE.

In presence of—
C. H. RICHES,
L. F. BROCK.