

G. E. BURT.
Lawn-Mower.

No. 220,120.

Patented Sept. 30, 1879.

Fig. 1.

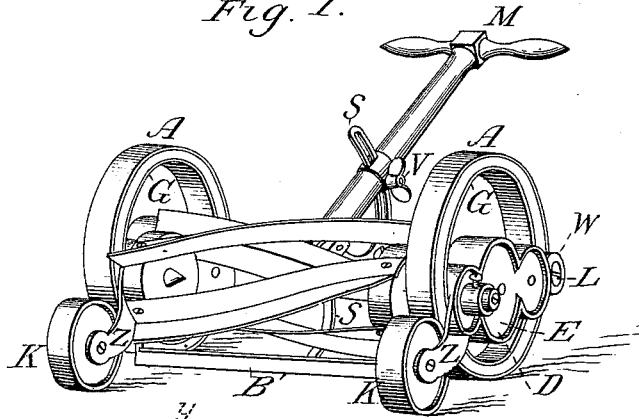


Fig. 2.

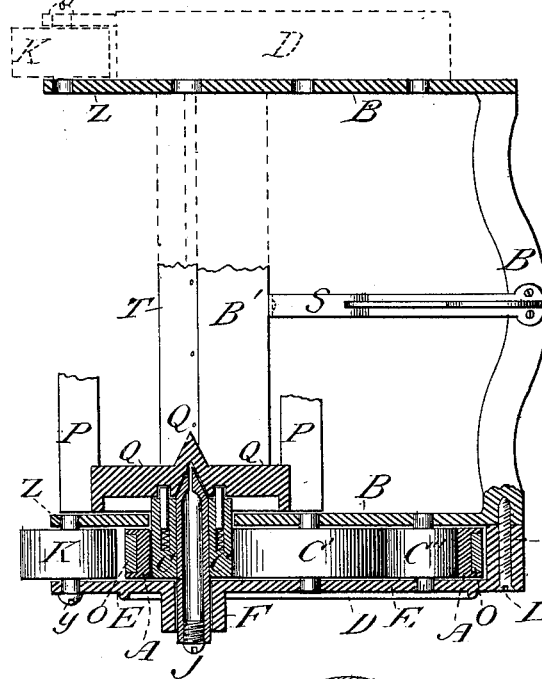
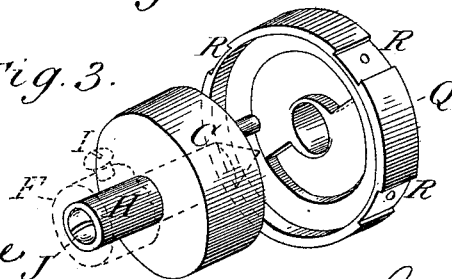


Fig. 4.



Fig. 3.



Attest:

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GEORGE E. BURT, OF HARVARD, MASSACHUSETTS.

IMPROVEMENT IN LAWN-MOWERS.

Specification forming part of Letters Patent No. **220,120**, dated September 30, 1879; application filed April 12, 1879.

To all whom it may concern:

Be it known that I, GEORGE EDWARD BURT, of Harvard, in the county of Worcester, State of Massachusetts, have invented a new and useful Improvement in Lawn-Mowers, of which the following is a specification.

The invention relates to the arrangement and combination of supporting and propelling mechanism and protecting-guards, and a device for supporting and adjusting the revolving cutter of lawn-mowers.

Heretofore lawn-mowers have been supported by wheels having axles to hold them in position, and the cutting mechanism has been propelled by cogs or chain, and such gearing has been protected by disks or plates covering the entire area of the supporting-wheels. When the gearing is within the wheels, if independent gearing is used, it requires extra boxing and supporting-wheels. These methods of construction are expensive, and a large amount of power is consumed in transmitting the force applied by the operator in propelling the mower.

In the accompanying drawings, in which similar letters of reference indicate like parts, Figure 1 is a perspective view of a lawn-mower with my device. Fig. 2 is a horizontal longitudinal section of the same through the center of one of the transmitting-rolls and the head of the revolving cutter, the stationary step, chill-hardened step-seat, oil-chamber, &c. Fig. 3 is a detail view of the eccentric step, revolving-cutter head, and the device by which the step is held firmly in position. Fig. 4 is a view of the eccentric step H.

The main frame B is cast in one piece and mounted on two supporting and propelling rings, A A, which are held in position by the transmitting-rolls C C' C'' and guard-case E.

On the main frame B, I cast projecting flanges D. These strengthen the frame and serve as guards to cover and protect the lower internal section of the ring A. The guard-case E is constructed with flanges to cover the transmitting-rolls C C' C''; also with the arcs G, to cover and protect the upper internal section of the ring A.

F is a hollow boss on the case E, which makes the seat for the step H. I is a set-screw holding the step in place.

Cases E and frame B are constructed with seats or boxes for the pivots of the transmitting-rolls to revolve in. K is the gage-wheel, held by screw Y in the projecting arm Z on the main frame B and case E. Screw L passes through the rearward projection W on the case E, securely and firmly attaching the case and rolls C C' C'' to the main frame B. (Shown in Fig. 1.)

The supporting-rings A are constructed with recesses in their periphery for a seat to rubber bands O. (Shown in Fig. 2.) P is revolving cutter, which I make with independent heads, having chill-hardened tapering seats, which revolve inside of the main frame B on steps H, which are made eccentric, having an oil-chamber, with a small outlet in the point of the taper eccentric to lubricate the bearing of the revolving cutter; also a small outlet near the center of the bearing of the transmitting-rolls C. The outer end of the chamber is closed by the screw J. These steps are firmly held in any position in the hollow boss F by the set-screw I, as shown in Fig. 3. P P are revolving cutters, constructed of angle-iron.

I make the revolving heads Q with seats R, which form a firm bed for the cutters to rest in, and are securely fixed to the revolving heads. B' is the cutter-bar, cast on and making part of the main frame B. T is the cutting-blade, made of steel or any good cutting material, and fastened to the cutter-bar B'. M is the handle, secured to the main frame by the projecting standard S, fastened to center of the cutter-bar and cross-bar of the main frame. The standard is made with a slot, so that by means of a thumb-nut the handle can be firmly held at any angle desirable. The propelling-roll C revolves on the step H. The revolving heads Q Q are constructed to form ratchets by means of teeth cast on the heads, and spring-starts made to work in slots parallel with the periphery of the transmitting-rolls, and are actuated by spiral springs in the rear of the starts.

Operation: When the operator pushes the mower he presses down on the handle M on the main frame, which rests on the pivots of the transmitting-rolls C C'. Their periphery rests on the arcs of the ring A, which rests on the ground. It will be seen that the weight of the main frame, rolls, and cutter all rest on

the transmitting-rolls C C', and they rest on the arcs of the ring A. This causes the transmitting-rolls C C' to press against roll C' and each other with force sufficient to propel the revolving cutter; and as this force acts on both sides of the propelling-roll C, the effective force of the operator on the cutter is more than when transmitted through either internal or external cogs, as have been heretofore employed.

It will be seen by constructing the frame of one casting it can be made lighter and save the expense of putting the parts together; and by the use of rubber bands the traction on the grass when in operation is much greater. The gage-wheel gages the cutter-bar to the right height. By loosening the set-screw I and turning the step H, which is made eccentric, the cutter-blades of the revolving reel can be very quickly and nicely adjusted with reference to the stationary cutter-blade T. This is a cheap and effective method to compensate for the wear and grinding away of the cutting-edges of the revolving cutter and blade.

When the boxes and journals to the revolving cutter of the mower become worn they do not operate, as it lets the cutting-edges apart. To overcome this difficulty I use the device of a tapering step, constructed to move endwise. Thus the wear of the bearings or pivots of the revolving cutter can be easily taken up by loosening the set-screw I and moving the step H endwise. Then, turning down the screw I, all the parts are firmly held in position, and the looseness caused by the wear is taken up, leaving the cutter perfectly free to revolve. This is a very simple operation, and the operative parts are cheaper to make than the common boxes, bearings, and bolts.

The chill hardened seats and eccentrics or steps are very durable. The standard S being attached to the cutter-bar and main frame makes them very firm. The seats in the heads of revolving cutter form shoulders for the angle-iron cutters to rest against, and hold both heads of the reel so it cannot twist by the force of the propelling-rings, for by means of the ratchet either of the rings can propel the revolving cutter. The internal face of the ring A is completely covered by the arc G and flange D and case E. The transmitting-rolls C C' C'' are also covered by the case E and the main frame, so that nothing like grass, stubble, or stones can choke or injure them, still leaving the face of the ring open and light.

What I claim is—

1. In a lawn-mower, the combination, with the revolving cutters, of the supporting-rings A A' and intermediate transmitting-rollers, adapted to communicate motion to the cutter from the rings, substantially as described.
2. As a means for adjusting the revolving cutter of a lawn-mower, the combination of the cutter, having bearings at its ends, with the eccentric supporting-step and means for turning and holding said step, substantially as described, for the purpose set forth.
3. In a lawn-mower, the combination of the guard-case E, the arc G, the flange D, and the main frame B, constructed and arranged to protect the internal surface of the ring A and cover the transmitting-rolls, substantially as described.

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Witnesses:

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