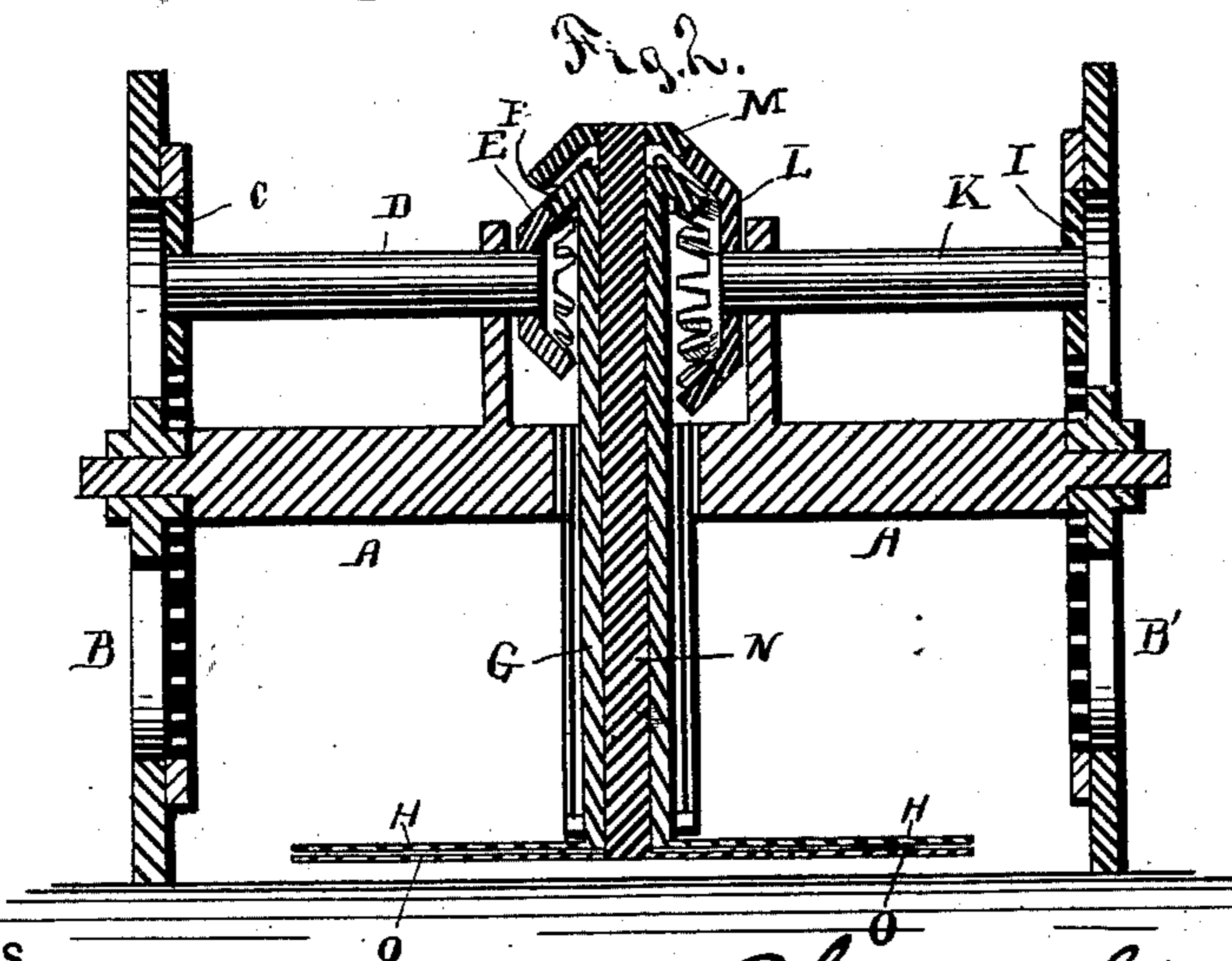
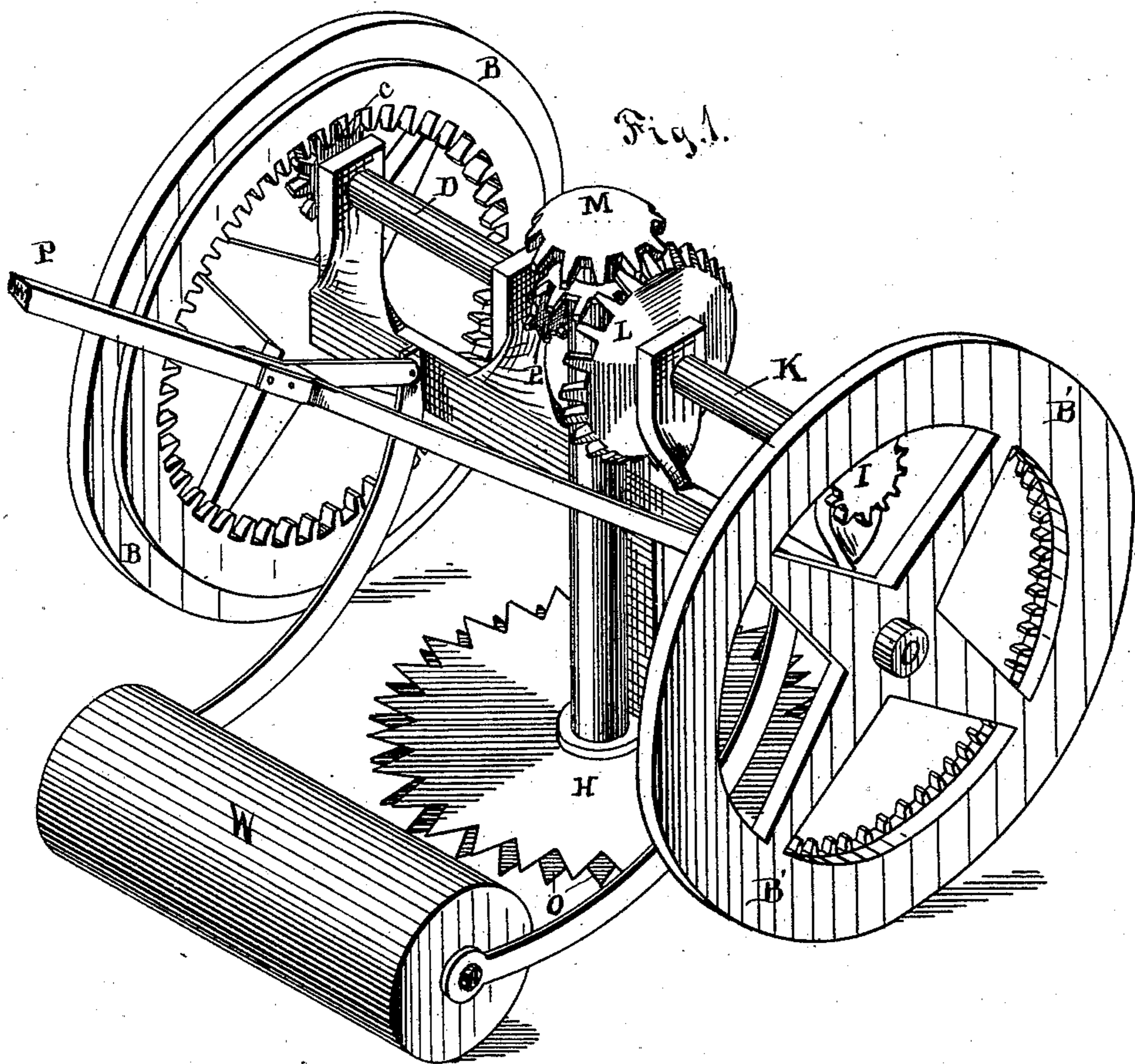


C. GATES.
Lawn-Mower.

No. 222,626.

Patented Dec. 16, 1879.



WITNESSES
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UNITED STATES PATENT OFFICE.

CHARLES GATES, OF BROOKLYN, OHIO.

IMPROVEMENT IN LAWN-MOWERS.

Specification forming part of Letters Patent No. **222,626**, dated December 16, 1879; application filed October 6, 1879.

To all whom it may concern:

Be it known that I, CHARLES GATES, of Brooklyn, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Lawn-Mowers; and I do hereby 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to mowing-machines. I do not limit myself as to its application for use; but for the present purpose I will describe my invention as applied to the class known as "lawn-mowers."

In the drawings, Figure 1 is a perspective view of my device, and Fig. 2 is a vertical sectional view of the same.

A represents the axle supporting the operating parts of my device; B B', the wheels supporting and turning on the axle A.

The wheels B B' are provided, as shown, with internally-toothed spur-gear. The gear on the wheel B operates the pinion C on the shaft D. On the other end of the shaft D, and permanently attached to it, is the bevel-gear E, which, in its turn, meshes in the bevel-gear F, permanently attached to the hollow shaft or sleeve G. Upon the lower end of this hollow shaft or sleeve G is attached the revolving cutter H. This revolving cutter H is made to revolve at any required speed by varying the size of the gearing connecting it with the wheel B.

The gear on the wheel B' turns the pinion I, permanently attached to the shaft K. The shaft K, in turn, operates the bevel-gear L, permanently attached to its opposite end. This bevel-gear L meshes into bevel-gear M, permanently attached to the upright shaft N. On the lower end of the upright shaft N is permanently attached the circular serrated cutter O. The shaft N revolves within the hollow shaft G, and in an opposite direction.

The circular serrated cutters H and O may be constructed in a variety of ways. I have found, however, by experiment that the bet-

ter and cheaper way is to make the disks of cast-iron, and attach the steel cutting-teeth by rivets or bolts. The outer edge of the teeth in both disks are beveled, so as to bring the cutting-edges of the same in close contact, thereby forming a shearing-edge. Both edges of the teeth being sharpened, my device is equally able to cut whether it be moved forward or backward.

W is a roller that may be attached to the axle or other part of the device, and, while acting as a support to keep the cutters in a proper position for presentation to the grass, may at the same time fulfill the office of a roller and perform the well-known function of the same when attached to lawn-mowers.

The operation of my device is apparent from its construction. The power may be applied at P, and the machine moved in either direction, from or toward the power, and will be found to operate equally well in either direction. The grass falls and is cut between the teeth of the upper and lower circular cutters as they are made to revolve rapidly in opposite directions by moving the machine.

What I claim is—

In a mowing-machine, the combination, with the two ground-wheels B B', having their inner sides provided with internal gears, upright tubular shaft G, located centrally between the wheels, and independent shaft N, fitted within the tubular shaft, of the two transverse shafts D K, whose outer extremities have pinions meshing with the wheel-gears, and whose inner extremities have pinions meshing with gear-wheels secured, respectively, to the upper extremities of the tubular and internal shafts, the lower extremities of the latter being provided with blades H O, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES GATES.

Witnesses:

JNO. CROWELL, Jr.,

W. E. DONNELLY.