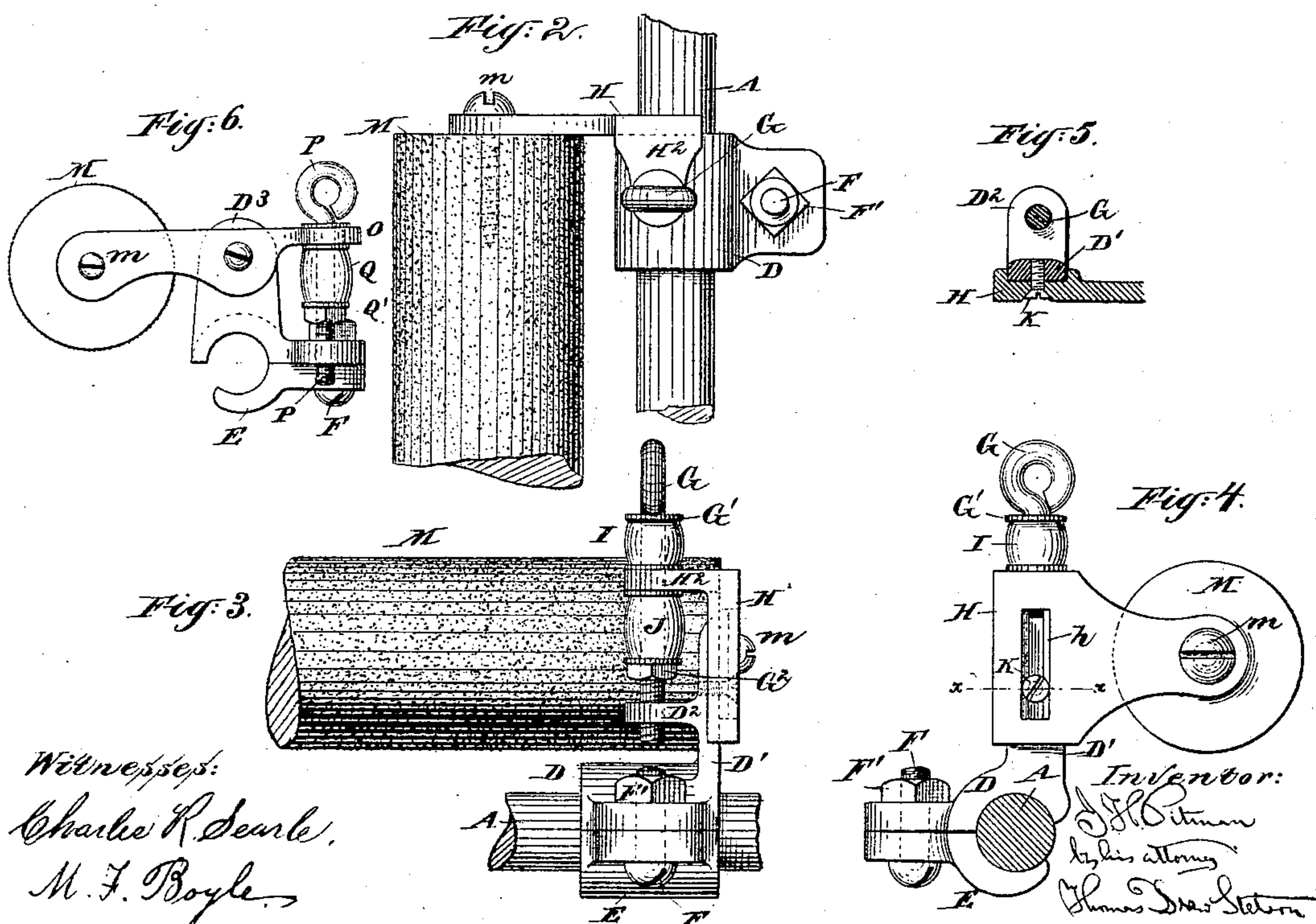
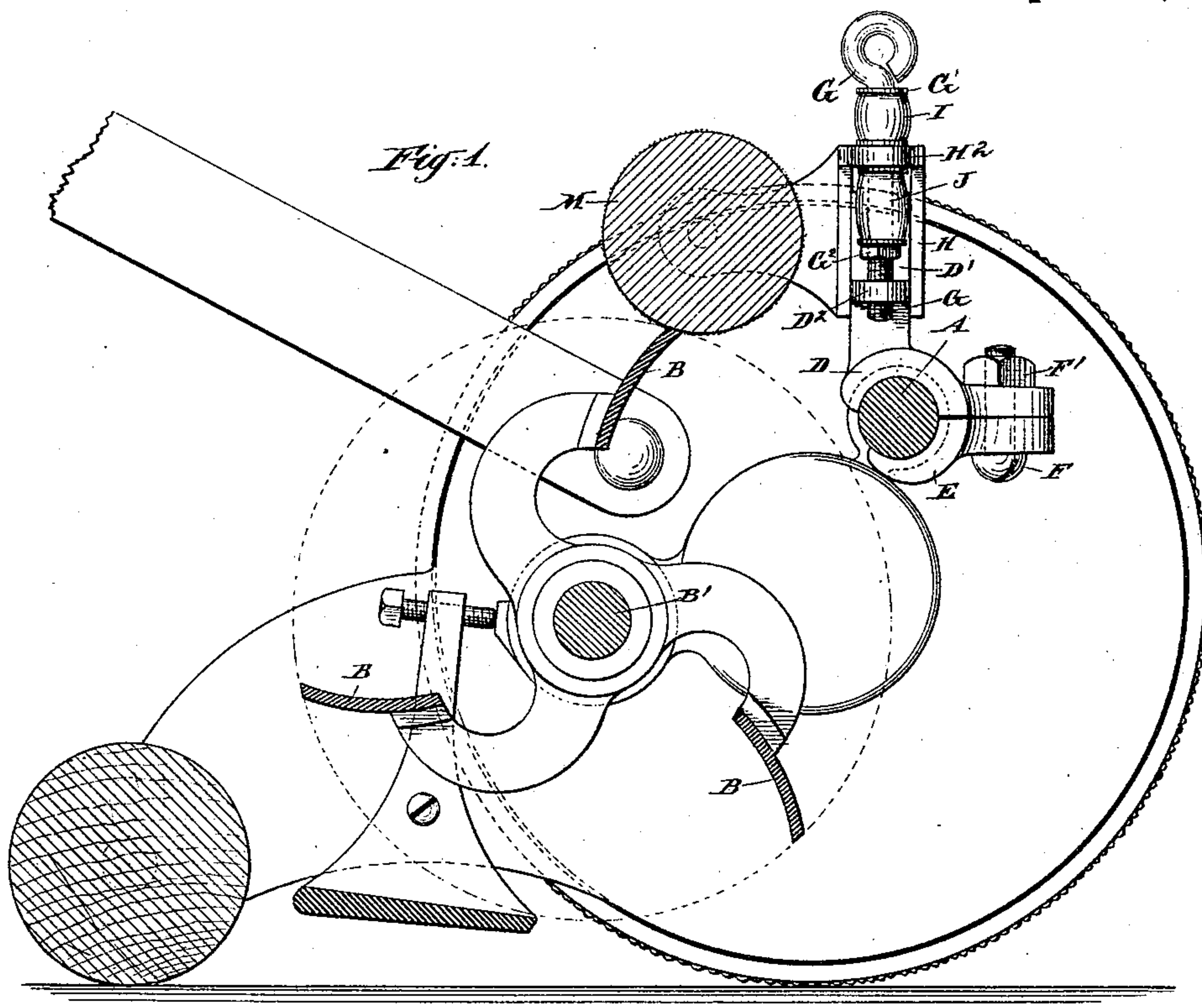


(No Model.)

J. H. PITMAN.
SHARPENER FOR LAWN MOWERS.

No. 459,479.

Patented Sept. 15, 1891.



UNITED STATES PATENT OFFICE.

JOHN HANCOCK PITMAN, OF FALL RIVER, MASSACHUSETTS.

SHARPENER FOR LAWN-MOWERS.

SPECIFICATION forming part of Letters Patent No. 459,479, dated September 15, 1891.

Application filed May 16, 1891. Serial No. 392,960. (No model.)

To all whom it may concern:

Be it known that I, JOHN HANCOCK PITMAN, a citizen of the United States, residing at Fall River, Bristol county, in the State of Massachusetts, have invented a certain new and useful Improvement in Sharpeners for Lawn-Mowers, of which the following is a specification.

The invention applies to all those classes of lawn-mowers in which there is a revolving cylinder carrying cutters spirally or otherwise arranged with a stationary cross-bar extending across the machine. My mechanism is attached to such cross-bar and presents a grinding-surface extending along parallel to the axis of the grinding-cylinder and adapted to grind the edge of each of the several cutters as they are revolved past it. I provide for easily and rapidly detaching the grinder and laying it aside while the lawn-mower is in use. The grinder is attached at intervals, and the mower, with my grinder in position for use, is traversed over a walk or other convenient surface to revolve the cutters solely to effect the grinding. When sufficiently ground, my grinder is again removed and stored until again wanted. The grinding-surface is cylindrical. I provide for giving it a partial revolution, so as to present a new grinding-surface at short intervals.

The accompanying drawings form a part of the specification and represent what I consider the best means of carrying out the invention.

Figure 1 is a central vertical section through the entire machine, showing clearly the relation of my grinder-cylinder to the several revolving cutters. The remaining figures show details detached. Fig. 2 is a plan view of a portion. Fig. 3 is a rear elevation of the same parts. Fig. 4 is an elevation of a portion, showing the opposite side to that presented in Fig. 1, and Fig. 5 is a horizontal section on the line xx in Fig. 4. Fig. 6 represents a modification. It is a side view of a portion.

Similar letters of reference indicate corresponding parts in all the figures where they appear.

A is the fixed cross-bar of the lawn-mower, a cylindrical rod stiffly held in the framing of the machine and extending across horizontally just outside of the path of the revolving

cutters B B B, which, it will be understood, are mounted on the shaft B' and strongly revolved by gearing as the machine is pushed over the lawn.

D E are the two parts of sufficiently-strong clamps drawn together by a bolt F and nut F', operated at will to attach and release my grinding mechanism, which latter is connected to the upper part D of the clamp by sliding on an arm D'. There are two of these clamping devices and their attachments, counterparts one of the other, and arranged one to support one end and the other to support the other end of my grinder. A description of one will suffice for both.

M is a cylinder of wood coated with emery. It is important that it shall not warp, to avoid which it may be first well seasoned and afterward saturated with oil. It is held by the aid of long wood-screws m , inserted in the line of the axis at the ends, respectively. These screws serve as pivots on which it may turn; but they are to be set up so tightly that their heads bind the supporting-arm against the grinder at each end with so much force that the grinder can only revolve with difficulty. The screws may be slackened or tightened, as required. It is not difficult to so set them that they will hold the grinder reliably against the slight force impressed by the several cutters as they come into forcible contact with it in being ground, but will yield when the grinder is strongly grasped by the hands and allow it to be revolved a little, so as to present successively new lines of grinding-surface to treat the cutters.

On the upright arm D' is a horizontal projection or lug D², which is tapped to receive a right-handed screw-bolt G. The upright arm D' serves as a support and guide for a slide H, which performs the important functions of carrying the grinding-roller M and being adjusted upward and downward to determine the height of the grinder by turning the screw-bolt G, which extends loosely through the arm H². A washer of soft vulcanized rubber I lies between the lug H² and the washer G' under the head of the screw G. The edges of the cutters B as they are revolved are brought successively into grinding contact with the under surface of the grinder M and are ground, the grinder being adjusted

nicely upward and downward by turning the screw. If the grinder is set so low that it is struck too forcibly by a cutter, it can yield upward a little by the elasticity of the spring I.

5 J is another spring of vulcanized rubber set on the same screw-bolt below the lug H² and acting expansively between it and a nut G², set adjustably on the screw G. This spring sustains the weight of its proper end of the grinding-cylinder M and the attached slide
10 H. These parts ride on this spring, and can yield downward by its elastic compression when required.

K is a screw inserted through a vertical slot h in the slide H and tapped tightly into the upright arm D'. It holds the slide H loosely in fair and easy contact with the arm and allows vertical motion of the parts.

20 Modifications may be made by any good mechanic without departing from the principle or sacrificing the advantages of the invention.

Fig. 6 shows a provision for mounting the grinder on levers pivoted on the uprights D³ and adjusted by a left-handed screw P. With this arrangement the spring Q is under the lever O and acts between it and a nut Q', set adjustably on the screw P. The grinder is raised and lowered by simply turning the
30 screw P. The tension of the spring Q is increased or diminished by holding the screw stationary and partially turning the nut Q' in one direction or the other. There may, in this form of the invention, be a spring over
35 the lever O, between it and the washer which lies under the head of the screw; but this is not material. So, also, the spring J may be omitted in the form of the invention first shown.

My grinder is connected and disconnected 40 from the machine with little labor, and its proper adjustment and operation require but little skill. Its use will keep a mower in good order for an indefinite period.

I claim as my invention— 45

1. In a lawn-mower, a grinding device having a grinder of cylindrical form adapted to be partially revolved at intervals, means for adjusting its position, a spring to allow its retreat, and provisions for conveniently at- 50 taching and detaching, as herein specified.

2. In a lawn-mower having a cylindrical cross-bar A, the clamps D E, with means F F' for attaching and detaching at will, the grinder M, supporting means H, means G G' G² for 55 adjusting its position on the clamp, and the two springs I and J, the spring I pressing the grinder toward the cutters and the spring J holding the grinder up or away from the cutters, the two springs opposing each other and 60 holding the cutter in position with a yielding force, all arranged for joint operation substantially as herein specified.

3. The attachment for lawn-mowers described, composed of the clamps D E, confining-bolt F, cylindrical grinder M, pivot-screw m, supporting means H, and adjusting-screw G, in combination with each other and with the spring I, adapted to yield when required, as herein specified. 70

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

JOHN HANCOCK PITMAN.

Witnesses:

FRANCIS M. ADAMS,
THOMAS S. BAYLIES.