No. 612,820. Patented Oct. 25, 1898.

Z. T. BUSH.

LAWN MOWER SHARPENER.

(Application filed Sept. 19, 1895.)

(No Model.)

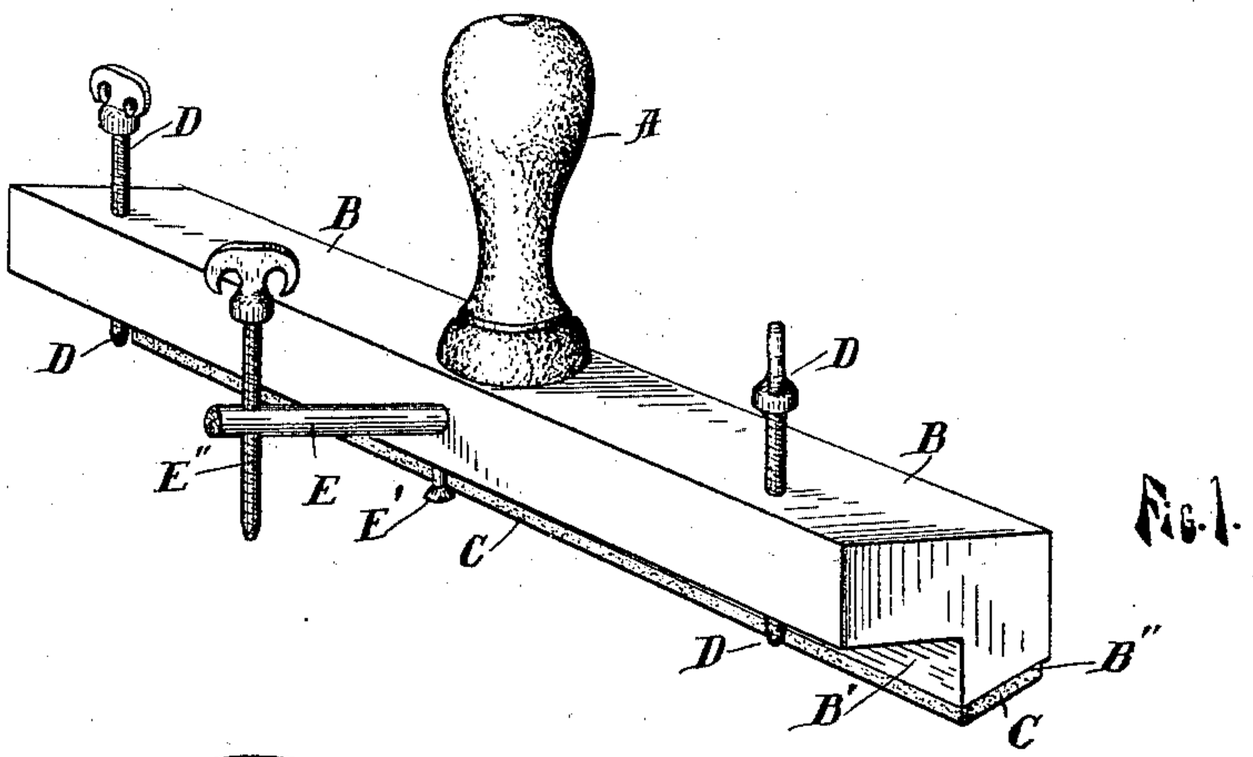

Fig. 1.

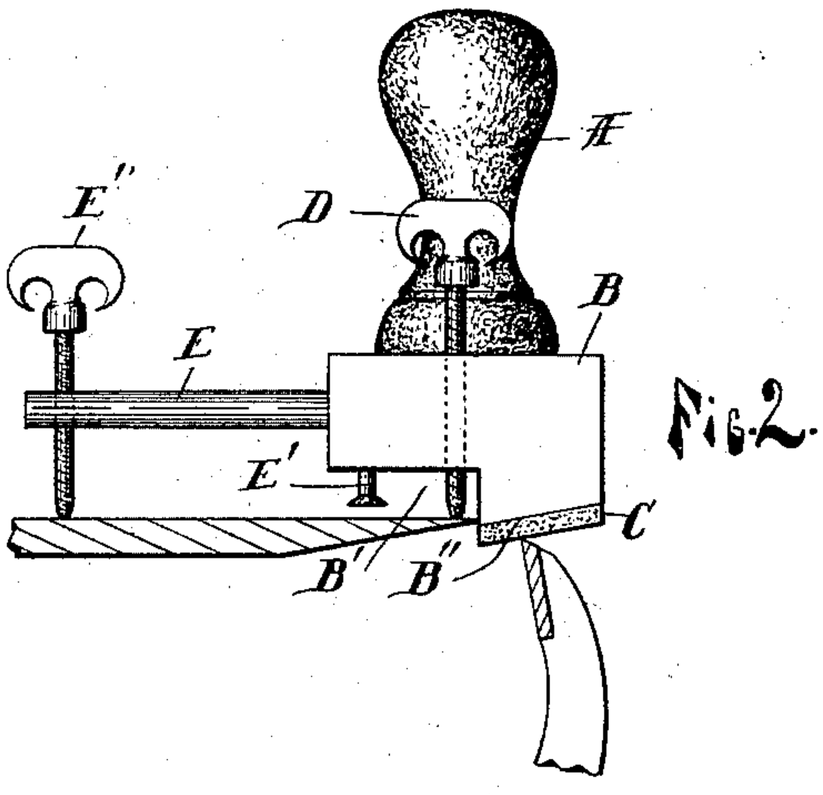

Fig. 2.

WITNESSES:

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ZACHARIAH T. BUSH, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR OF ONE-HALF TO MATTHEW BUSH, OF CORUNNA, MICHIGAN.

LAWN-MOWER SHARPENER.

SPECIFICATION forming part of Letters Patent No. 612,820, dated October 25, 1898.

Application filed September 19, 1895. Serial No. 562,997. (No model.)

To all whom it may concern:

Be it known that I, ZACHARIAH T. BUSH, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Lawn-Mower Sharpeners; 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 appertains to make and use the same.

My invention relates to improvements in devices for sharpening the rotary blades of lawn-mowers without requiring the removal of the blades from the mowing-machine; and the object that I have in view is to provide an improved implement which may be applied to the mower-machine to have the pitch of the gage adjusted in angular operative relation to the mower-blades, thus making the implement applicable to lawn-mowers of different sizes.

With this end in view the invention consists in the combination, with a sharpener-bar having an abrading-surface and adjustable supports mounted in said bar, of an arm extending outwardly from the bar and an adjustable support carried by said projecting arm and adapted to be moved to adjust the abrading-surface at the proper pitch or angle with relation to the path of the rotary mower-blades; and the invention further consists in the construction and novel combination and arrangement of parts, as will be hereinafter more fully described and claimed.

To enable others to understand my invention, I have illustrated the same in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a perspective view of the improved sharpener implement. Fig. 2 is an end view illustrating the implement applied in operative relation to the shear-plate and one of the rotary blades of a lawn-mowing machine.

Like letters of reference denote like parts in each of the figures.

The implement constructed in accordance with my invention consists of a bar B, a handle A, attached centrally to the bar, an abrading-surface C, adjustable supports D, attached to said bar B, a horizontal arm E, extending outwardly from said bar, and an adjustable support E″, carried by said projecting arm.

The bar B is made, preferably, of hard wood of suitable dimensions, although the particular material and size of the bar are not important. On the inner lower side of the bar is formed a longitudinal recesss B′, the vertical face of which constitutes a rest or holder for the shear-plate of the mowing-machine to bear against when the instrument is in use. Forward of this recess is a downwardly-projecting flange, which forms the front wall of the recess, and the lower edge of this flange is inclined upwardly and produces the inclined face B″, to which is securely fastened the abrading-plate C. This abrading-plate is of suitable material for sharpening steel blades, preferably a hard gritty substance, such as emery, and said abrading-plate is fastened to the inclined face B″ of the sharpener-bar in any suitable way, so that the said plate C partakes of the inclination or pitch of the flange on the lower side of the sharpener-bar.

The handle A is attached centrally in a suitable way to the upper side of the sharpener-bar B, and on opposite sides of this handle and near the ends of the sharpener-bar the adjustable supports D are provided to work in suitable openings in the sharpener-bar B. These adjustable supports D consist, preferably, of adjusting-screws, which are provided with suitable heads at their upper ends for convenient manipulation by hand, and the lower ends of said adjusting-screws extend into the longitudinal recess B′ of the sharpener-bar B.

The arm E occupies a horizontal position substantially at right angles to the length of the sharpener-bar B, and this arm E is fitted loosely in a socket or opening provided in the rear side of the sharpener-bar B, so that the horizontally-projecting arm is adjustable in said bar and is extensible in relation thereto. Said projecting arm is designed to be clamped rigidly and adjustably in place by a set-screw E′, which finds a bearing in a suitable threaded aperture in the bar B and has its inner end arranged to impinge against the arm E. This horizontally projecting and adjustable

arm is provided near its outer end with a vertical threaded opening to receive the threaded shank of the adjusting-screw E″, which constitutes the adjustable support carried by the arm E.

It will be seen by reference to Fig. 1 that the ends of the three adjusting-screws are placed at the points of a triangle and that the instrument rests on the points of the screws, the latter thus forming racks for the support of the device when in use. By the employment of the adjusting-screw E″ at the apex of the triangle formed by the three screws D, D, and E″ the instrument may be adjusted on the points of the screws D D for the purpose of raising or lowering the bar B and the plate C thereon, whereby the faces B″ and C may be adjusted vertically, more or less, as may be desired, to regulate the pitch of the abrasive surface C with relation to the path of the mower-blades.

To sharpen a lawn-mower with this instrument, I first invert the mower and place it in a box or other suitable support, leaving the traction-wheels of the machine free to revolve, after which the mower is set so that the rotary blades will revolve freely without touching the shear-plate, leaving plenty of room—say one-eighth of an inch—between the cutting edges of the blades and the edge of the shear-plate. The sharpener instrument is grasped by the handle A and placed on the bottom of the inverted shear-plate, so that the ends of the three set-screws rest on the end surface of the shear-plate, and the downwardly-projecting flange of the bar B abuts against the end edge of said shear-plate to have the abrading-plate C occupy a position substantially in the path of the mower-blades. After the implement has been thus applied the adjusting-screws are rotated to give the implement a proper elevation, so that the abrading-plate will just clear the rotary mower-blades, and by means of the adjusting-screw E″, I give the implement the proper pitch to bring the face of the abrading-plate C parallel to the cutting edges of the blades. When the pitch is so properly adjusted, the implement is lowered by adjusting the screws D, D, and E″ until the face of the abrading-plate C is brought into proper frictional contact with the cutting edges of the blades. The drive-wheels of the lawn-mower are now rotated to cause the blades thereof to rotate in front of and the faces of their cutting edges to brush frictionally against the face of the abrading-plate C, and at the same time I move the instrument resting on the points of the three screws longitudinally on the shear-plate from one end of the shear-plate to the other end thereof, the adjusting-screws serving as supports to the sharpener instrument and the vertical shoulder of the recess forming a guide against the edge of the shear-plate to properly direct the sharpener instrument in its endwise movements along the mower. In this relation the adjusting-screw E″ determines the gage of pitch of the abrading-plate C, thus causing the instrument to pass lengthwise of the rotary blades and grinding and sharpening their edges uniformly from one end to the other. By adjusting the set-screws as required the mower-blades may be ground more or less and the edges of the blades may be made as sharp as desired.

I am aware that slight changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having thus described my invention, what I claim is—

1. In a lawn-mower sharpener, the combination with a recessed bar carrying an abrading-plate and adjustable supports for said bar, of a rearwardly-projecting arm attached to said bar, and an adjustable support carried by said rearwardly-projecting arm, substantially as described, for the purposes set forth.

2. The combination with a sharpener-bar having frictionally-adjustable supports, of an arm extending outwardly from said bar, and an adjustable support carried by said arm, substantially as described, for the purposes set forth.

3. The combination with a sharpener-bar provided with an abrading-surface and adjustable supports mounted in said bar, of an adjustable arm fitted to the sharpener-bar to extend rearwardly therefrom, means for clamping said adjustable arm in fixed relation to said bar, and an adjustable support mounted in the arm and arranged in a position intermediate between the adjustable supports on the sharpener-bar, substantially as and for the purposes described.

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

ZACHARIAH T. BUSH.

Witnesses:

PORTER M. LATHROP,

DENNIS L. ROGERS.