No. 617,584. Patented Jan. 10, 1899.

W. P. LESHURE.

LAWN MOWER.

(Application filed Mar. 29, 1898.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

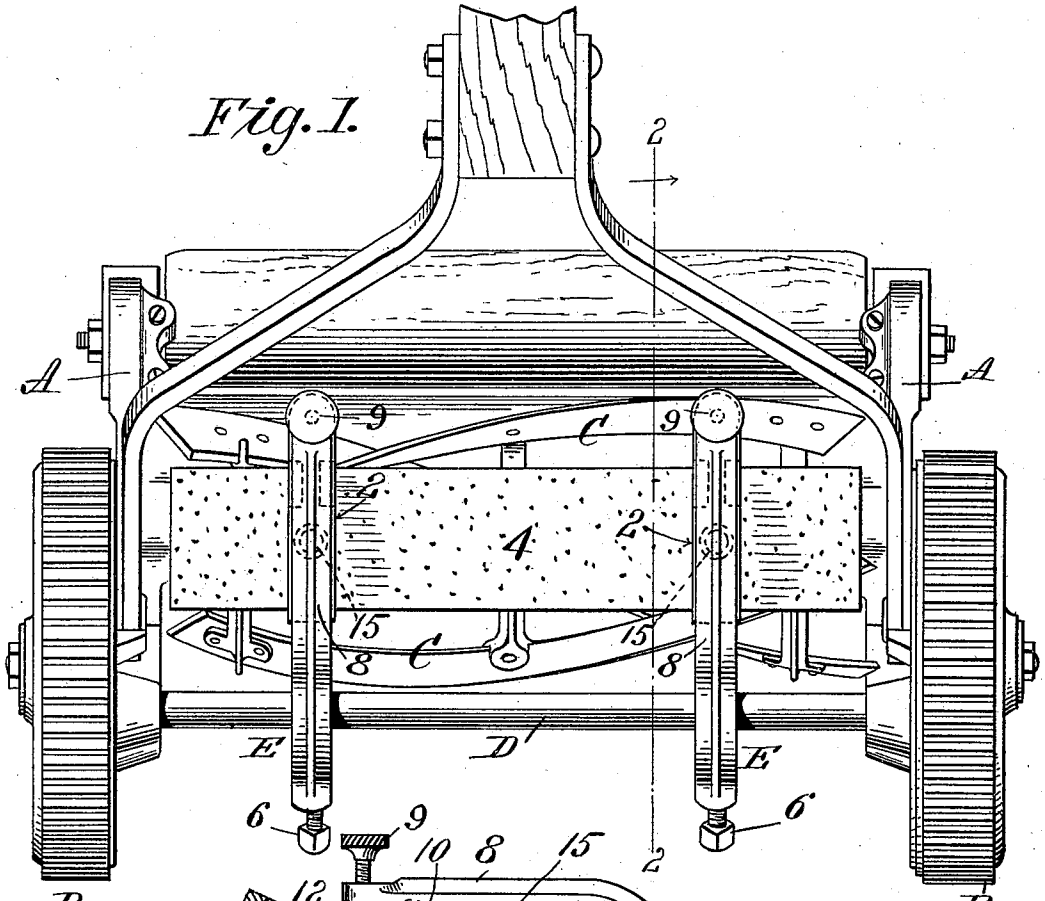


Fig. 2.

Witnesses:
J. D. Sanford
K. D. Clemons

Inventor
Willard P. Leshure,
by Chapin & Co
Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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Fig. 3.

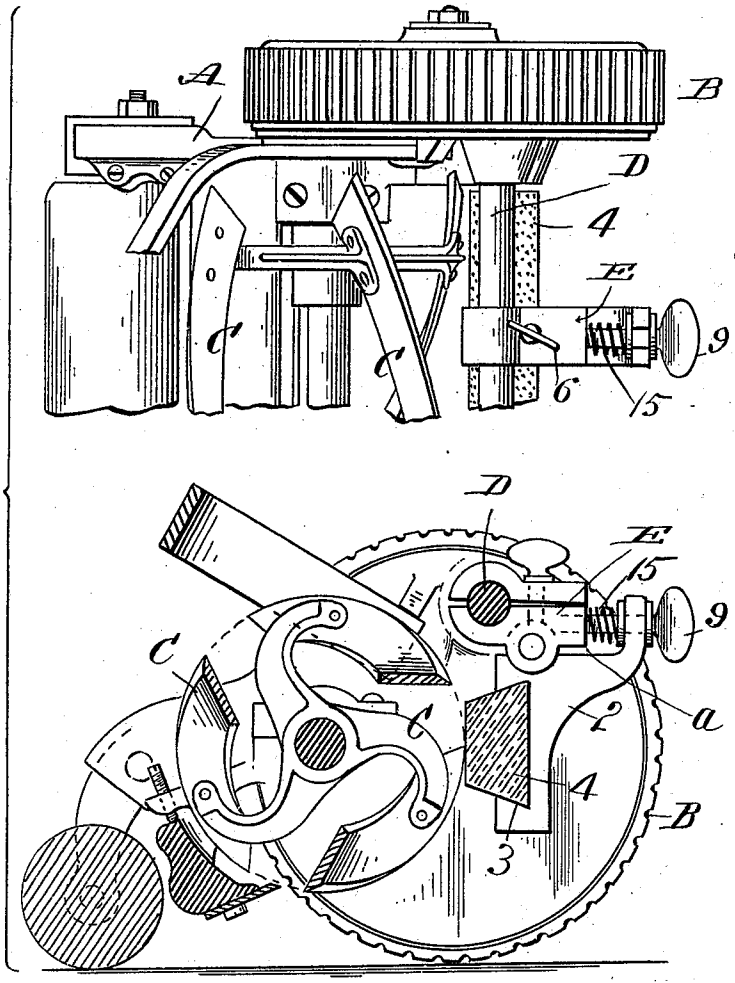
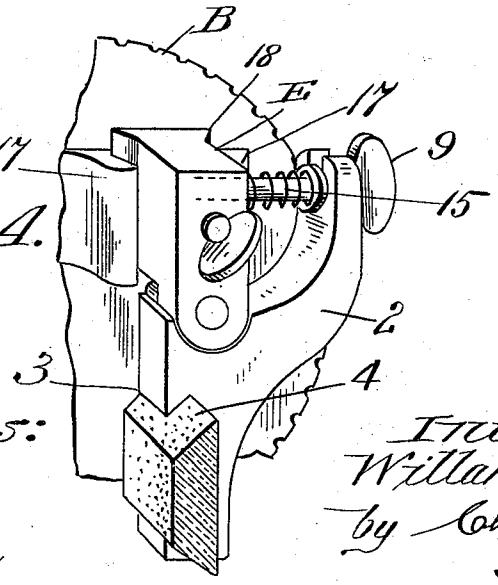


Fig. 4.



Witnesses:
J. D. Crosfield
H. D. Clemons

Inventor
Willard P. Leshure,
by Chapin & Co
Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLARD P. LESHURE, OF SPRINGFIELD, MASSACHUSETTS.

LAWN-MOWER.

SPECIFICATION forming part of Letters Patent No. 617,584, dated January 10, 1899.

Application filed March 29, 1898. Serial No. 675,555. (No model.)

To all whom it may concern:

Be it known that I, WILLARD P. LESHURE, a citizen of the United States of America, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Lawn-Mowers, of which the following is a specification.

This invention relates to devices for sharpening lawn-mowers and analogous machines of the type in which a rotary knife is used; and the object of the invention is to produce an improved sharpening device for the rotary knife of such machines which can be applied thereto and be used to sharpen the blades of the rotary knife while the machine is in operation and which can readily be adjusted out of contact with the knife as soon as the sharpening operation is completed.

The invention consists in the construction shown and described in the following drawings and specification and pointed out in the claims.

In the drawings forming part of this specification, Figure 1 represents a top plan view of a lawn-mower having my improved sharpening device applied thereto. Fig. 2 is a sectional elevation of a lawn-mower, taken on line 2 2, Fig. 1, and looking to the right of said line. Fig. 3 is a plan and end elevation of a lawn-mower having the knife-sharpening device applied in front thereof instead of on the top of the knife, and said figure shows a slightly different arrangement of the parts. Fig. 4 shows a modified construction of the screw-operated fastening device for supporting the sharpening device on lawn-mowers of a different construction to that shown in the other figures.

Referring to the drawings, A represents the frame of the lawn-mower, having the driving-wheels B and a rotary knife C supported and driven in the usual manner.

D represents the transverse brace-rod of the machine, to which may be secured the sharpening device which is the subject of this invention. Said sharpening device consists of two supports 2 2, having dovetailed transverse grooves 3 therein for the reception of a sharpening-stone 4, formed with beveled edges to correspond with the said dovetailed groove 3 in the said supports 2. Said stone fits snugly therein and is rigidly supported thereby in a position parallel with the axis of the rotary knife C. A screw-operated fastening device is provided, on which said supports 2 2 are pivotally supported, and said fastening device of necessity varies in form somewhat, according to the design of the lawn-mower or according to the location of the sharpening-stone 4 relative to the periphery of the rotary knife C. Figs. 1 and 2 show the stone applied to the top of the knife C, and Figs. 3 and 4 show the stone applied to the knife in front of it and at right angles to the position shown in Figs. 1 and 2. In either case the stone must be spring-held against said knife to insure the most effective operation thereof and to avoid injury to the knife, and these two positions being reversed, the one relative to the other, necessitates the application of the spring in one case on one side of the pivotal support of said supports 2 2 and in the other case on the opposite side of said pivotal support. Hence in the construction shown in Figs. 1 and 2 (which is the preferred construction) the screw-operated fastening device consists of a casting E, having the rigid jaws 5, and through one of said jaws a screw 6 passes whose inner end engages the brace-rod D of the lawn-mower, the jaws 5 opposite the end of said screw being slightly V-shaped, as shown at 7, to insure a firm grip on said brace-rod D of the screw 6. An arm or extension 8 of said casting E extends over said knife C horizontally at right angles to the axis thereof, and in the extreme end thereof is located the vertical adjusting-screw 9. Near said screw and between it and the screw 6 is a boss 10 on the under side of said arm 8, and an upstanding boss 12 on said support 2 is located near one end thereof. A pin 13, passing through said bosses 10 and 12, pivotally unites said support to said fastening device. The end 14 of said support is extended outward under said screw 9, whose end bears thereagainst, and a spring 15 on the opposite side of said pivotal support and compressed between the support 2 and the arm 8 of the fastening device serves to hold said end 14 of the support in contact with the end of the screw 9, whereby the manipulation of the latter moves said support

on its pivot-pin 13, as desired, to effect the contact of the stone with the knife C to any degree within the range of the expansive power of the spring 15.

It is obvious that by the use of a stone of sufficient weight, together with the weight of the supports 2 2, in the construction shown in Fig. 1 the springs 15 might be dispensed with without destroying the efficiency of the sharpening device, as the weight of said stone and supports might be made sufficient to produce the desired abrading effect between the stone and the rotary knife. As much or as little of the weight of the stone could be allowed to rest upon the stone as might be desirable by the manipulation of the adjusting-screws 9. Thus the weight of the stone and its supports might be made to perform the functions of the said springs 15, and while the construction shown in said Fig. 1 is the preferred one the above-described construction would still be within the scope of this invention.

In Figs. 3 and 4, wherein the sharpening-stone 4 is shown applied to the front side of the rotary knife C, the parts constituting the sharpening device have the same functions as those shown in Figs. 1 and 2, and the difference in the two constructions lies only in certain apparent changes in the shape and location of the parts necessitated by the reversed position of the stone 4 relative to the knife and in using a slightly different construction of a fastening device.

There is no particular advantage in the fastening device shown in Figs. 1 and 2 over that shown in Fig. 3, and vice versa; but that shown in Figs. 1 and 2 is preferred because it is better adapted to be applied to brace-rods of varying diameters than is the device shown in Fig. 3. In Fig. 3 the arm 8 of Figs. 1 and 2 is shortened up, the location of the adjusting-screw 9 is different, and the spring 15 is placed on the adjusting-screw instead of directly between the casting E and the support 2. The spring might just as well be located between said support and said casting at the point *a*, where it would have the same action as in the location shown on the adjusting-screw.

In the construction shown in Fig. 4 a screw-operated fastening device is illustrated adapted to secure the sharpening device to a lawn-mower constructed without the usual brace-rod D, and this construction consists in casting two lugs 17 on the frame, the inner parallel faces of said lugs being undercut, as shown, for the reception of a casting having a V-shaped base 18, a screw passing through said casting against said frame serving to secure it in any desired position relative thereto. The said casting is thus seen to be but another form of the casting E shown in Figs. 1 and 2, and the support 2 in the form shown in Fig. 3 is pivotally secured to said casting, as shown.

Said modifications above described thus resolve themselves into mere variations in form only of the construction shown in Figs. 1 and 2, and as such come legitimately within the scope of this invention. It is obvious also that should one of the supports 2 be made of such form as to embrace enough of the stone 4 to afford it sufficiently rigid support on the smaller sizes of lawn-mowers one fastening device and one support could be used instead of two, if desired; but the better construction is that shown in said Figs. 1 and 2.

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

1. In combination with the frame of a lawn-mower, a sharpening device for the rotary knife thereof consisting of the supports 2, 2, a screw-operated fastening device for engagement with the frame of the machine, a hinge connection between said fastening device and said supports one side of the transverse center of the latter, adjusting-screws engaging said fastening device and supports, for moving the latter, and springs against the tension of which said supports are moved in one direction by said screws, substantially as described.

2. In combination with the frame of a lawn-mower, a sharpening device for the rotary knife thereof consisting of a support 2, a screw-operated fastening device for engagement with the frame of the machine, a hinge connection between said support and said fastening device, an adjusting-screw located on one side of said fastening device and engaging the latter and said support, a spring on the other side of said hinge connection and located between said support and a part of said fastening device, the tension of which spring holds said support in contact with said adjusting-screw, substantially as described.

3. In combination with the frame of a lawn-mower, a sharpening device for the rotary knife thereof consisting of the supports 2, 2, a screw-operated fastening device for engagement with the frame of the machine, a hinge connection between said supports and said fastening device on one side of the transverse center of the latter; adjusting-screws engaging said fastening device and said supports for imparting a swinging movement to said supports away from said rotary knife, whereby more or less of the weight of the sharpening-stone and its supports may be allowed to bear upon said knife, substantially as described.

WILLARD P. LESHURE.

Witnesses:
WM. H. CHAPIN,
K. I. CLEMONS.