

(No Model.)

G. R. DAVIDSON.
LAWN MOWER SHARPENER.

No. 575,335.

Patented Jan. 19, 1897.

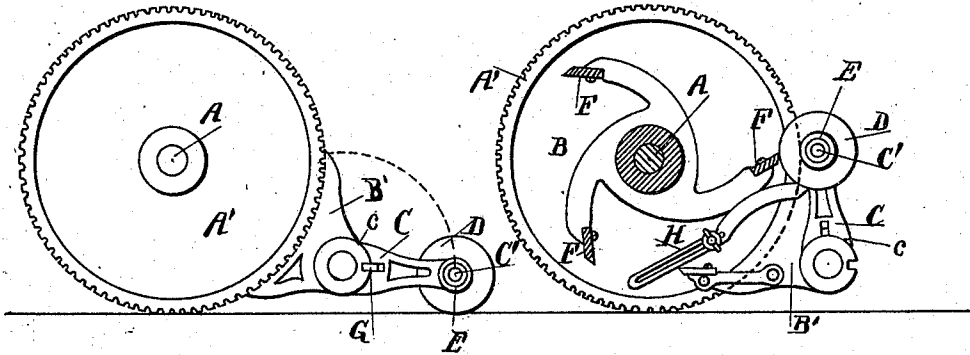


Fig. 1.

Fig. 3.

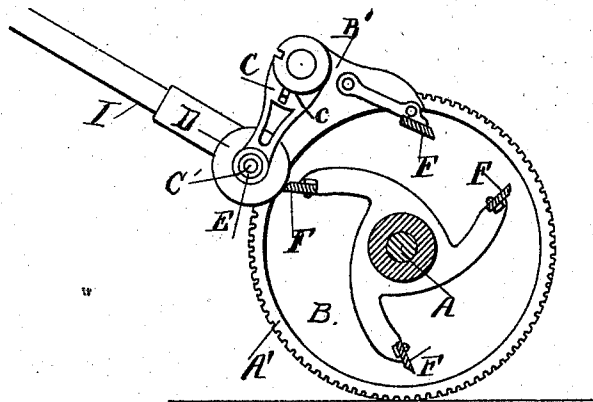


Fig. 2.

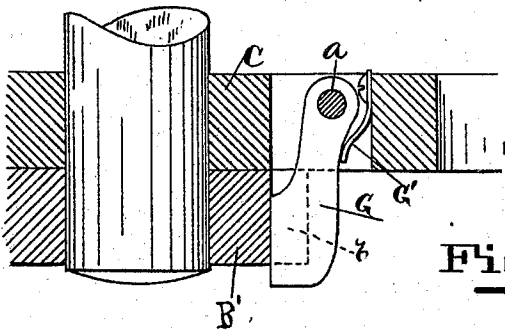


Fig. 4.

WITNESSES

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GEORGE R. DAVIDSON, OF PORT HURON, MICHIGAN.

LAWN-MOWER SHARPENER.

SPECIFICATION forming part of Letters Patent No. 575,335, dated January 19, 1897.

Application filed April 6, 1896. Serial No. 586,430. (No model.)

To all whom it may concern:

Be it known that I, GEORGE R. DAVIDSON, a citizen of the United States, residing at Port Huron, in the county of St. Clair 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, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to new and useful improvements in lawn-mower sharpeners; and it consists in the construction and arrangement of parts as hereinafter fully set forth, and pointed out particularly in the claims.

The object of the invention is to provide a roller composed of emery or other suitable grinding material to normally serve as a guide for regulating the cut of the machine, but which may be moved toward the cutting-knives thereof and brought in contact therewith, suitable means being employed for imparting a rapid rotary motion to said roller while in engagement with said knives for the purpose of grinding or sharpening them, which object is attained by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a lawn-mower with my improved blade-sharpener attached thereto. Fig. 2 is a view of a mowing-machine embodying my invention, said machine being in an inverted position and having portions broken away to show the grinding-roll in engagement with a cutting-knife. The machine tipped or rolled over into this position is the preferred position in which the machine is operated to sharpen the knives. Fig. 3 is a view similar to Fig. 2, but in normal position, the operating-handle being removed and said view showing the manner of locking the grinding-roll in position to grind the blades; and Fig. 4 is an enlarged detail of the locking device employed for rigidly holding the arms in which the grinding-roll is journaled in a horizontal position, which is the normal position of the machine, as shown in Fig. 1.

Referring to the letters of reference, A designates the main shaft of the machine, and A' one of the traction-wheels, mounted on the end thereof.

B designates a disk forming the inner stationary side of the wheel A'. Projecting from one side of said disk is an ear B'. Pivoted to the outer extremity of the ear B' is an arm C, and journaled in the outer end of said arm is a shaft C'.

It will be understood that there is an ear, as B', projecting from each of the inner stationary sides of the traction-wheels A' and that there are parts on the removed side of the mower corresponding to those shown.

Mounted on the shaft C' and extending between the arms C is a roller D. Mounted on the ends of the shaft C', outside of said arms C, are pinions E, said pinions being formed of rubber or other suitable compressible material.

G designates a dog which is pivoted at *a* in an aperture formed in the arm C, which dog projects outward therefrom and extends over the edge of the curved bearing-box *c* of the ear B', said dog being held down by the spring G', as clearly shown in Fig. 4. When it is desired to throw the roller D upward, so as to grind the knives F, the dog G is raised out of the notch *b*, when said arm may be swung upward in the direction of the dotted line of Fig. 1 and said dog released, when it will bear upon the curved portion *c* of the ear B'.

It will be seen that when the arm C is thrown down said dog will retrace its course around the portion *c* of the ear B' until it comes opposite the notch *b*, when the spring G' will force its free end thereinto, rendering its engagement in said notch automatic when the arm C has attained its proper position, as will be well understood.

The roller D is composed of emery, stone, or other suitable grinding material for sharpening the cutting-blades F of the mower. When it is desired to grind the knives F, the locks G, which are employed for normally holding the arms C extended, are unlocked, and said arms, with their pinions and roller D, are swung upward in the path of the dotted line of Fig. 1 until said pinions E come in contact with the teeth on the rim of the

wheels A', as will be understood. When said arms have been thrown upward, they may be locked in any suitable manner, so as to securely hold the pinions E in engagement
 5 with the rims of the wheels A' and the roller against or in close proximity to the path described by the cutting-knives F. Any lock desired that is suitable for the purpose may be used, the lock which I have shown being simply a bar with a slot therein, and a
 10 suitable lock-nut, as shown at II in Fig. 3. When the parts have been so located, the mower is moved back and forth over the floor or ground by the handle I.

15 In the backward movement of the mower, if such mower be of the ordinary construction, the cutting-knives F will not rotate, but the traction-wheels A', rotating, will communicate the motion thereof to the grinding-roll D, and the knife standing within the
 20 path of said rotating roll would be ground, as will be understood.

In the forward movement of the mower the knives F are rotated, which changes their
 25 positions, in consequence of which another cutter is brought within the path of the roll D. Should it happen that the same knife that had previously been sharpened be found to stand opposite the grinding-roll, said
 30 knives may be turned by the hand or otherwise to bring an unsharpened cutter within the path described by the rotating grinding-roll, as will be readily seen.

The roller D is shown in contact with one
 35 of the knives F in Figs. 2 and 3. After the operation of grinding has been completed the arms may be unlocked and swung down to their normal position and secured in place by the lock G, so that said roller D may
 40 serve as a guide to regulate the depth of the cut of the mower and serve the purpose of the ordinary wooden roller.

The pinions E may be composed of rubber or other flexible material, so that as the metal
 45 on the edge of the knives, as well as the substance of which the roller is composed, gradually wear away, said roller may be drawn inward, so as to keep it in contact with said knives and allowing the shaft C' to approach
 50 nearer the rim of the traction-wheels than the normal radius of the pinions E.

It will now be seen that a mower provided with this improved sharpener may be perfectly sharpened in a very short time, and, as
 55 will be seen, when the grinding-roll is locked in position against the wheels A' it serves to true up all the cutting edges of the knives and remove any irregularities therein.

Having thus fully set forth my invention,

what I claim as new, and desire to secure by 60 Letters Patent, is—

1. In a lawn-mower sharpener, the combination of the traction-wheel, the stationary disk forming the inner side thereof, the ear
 65 projecting from said disk, the arm pivoted to said ear, the shaft journaled in said arm, the grinding-roll on said shaft, the pinion also mounted on said shaft, said arm adapted to swing from its pivot, to bring said pinion in
 70 contact with said traction-wheel and the cutters adapted to rotate in a path that touches the surface of the roller.

2. In a lawn-mower sharpener, the combination of the traction-wheels, the stationary disks forming their inner sides, the ears pro-
 75 jecting from said disks, the arms pivoted to said ears, the shaft journaled in said arms, the grinding-roll mounted on said shaft between said pivoted arms, the pinions mounted on said shaft outside of said arms, said pin-
 80 ions adapted to be brought in contact with the rims of the traction-wheels and the cutters adapted to rotate in a path that touches the surface of the roller, for the purpose set forth.

3. In a lawn-mower sharpener, the combi-
 85 nation of the traction-wheels, the stationary disks forming their inner sides, the ears projecting from said disks, the arms pivoted to said ears, the shaft journaled in said arms, the pinions and grinding-roll mounted on said
 90 shaft, means for locking said arms in an extended position, and means for locking said arms in a retracted position with the pinions in engagement with the rim of the traction-
 95 wheels and the cutters adapted to rotate in a path that touches the surface of the roller, substantially as set forth.

4. In a lawn-mower sharpener, the combination of the traction-wheels, the stationary disks forming the inner sides thereof, the ears
 100 projecting from said disks, the arms pivoted to said ears, the shaft journaled in said arms, the grinding-roll and pinion on said shaft, said arms adapted to be swung toward said traction-wheels to bring said pinions in mesh with
 105 the teeth on the face of said wheels, means for locking said arms in an extended as well as a retracted position, means for taking up the wear between the cutting-knives and the grind-roll and the cutters adapted to rotate
 110 in a path that touches the surface of the roller, substantially as set forth.

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

GEORGE R. DAVIDSON.

Witnesses:

H. ROSCOE WHEELER,
 A. BERGMANN.