

A. W. C. WILLIAMS.

Improvement in Lawn-Mowers.

No. 114,501.

Patented May 2, 1871.

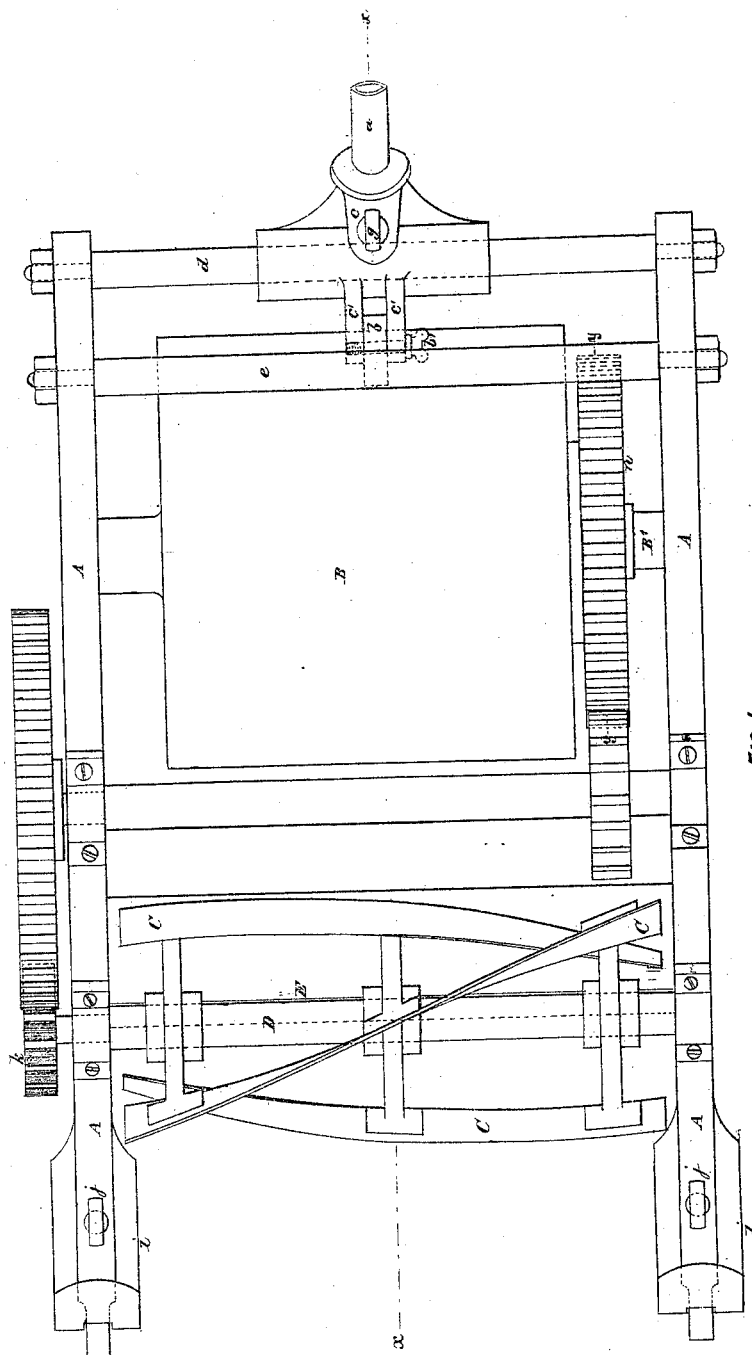


FIG. 1.

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By his Attorneys.

Wiedersheim & Norris

Witnesses.  
J. H. Pinckel  
A. J. Peyton

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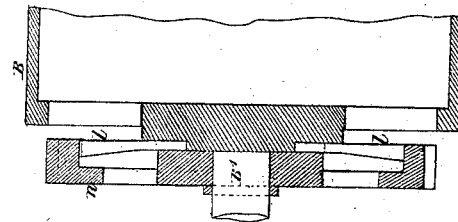
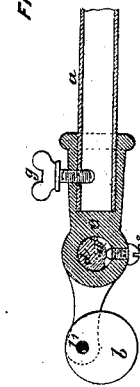
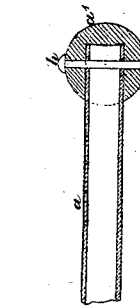
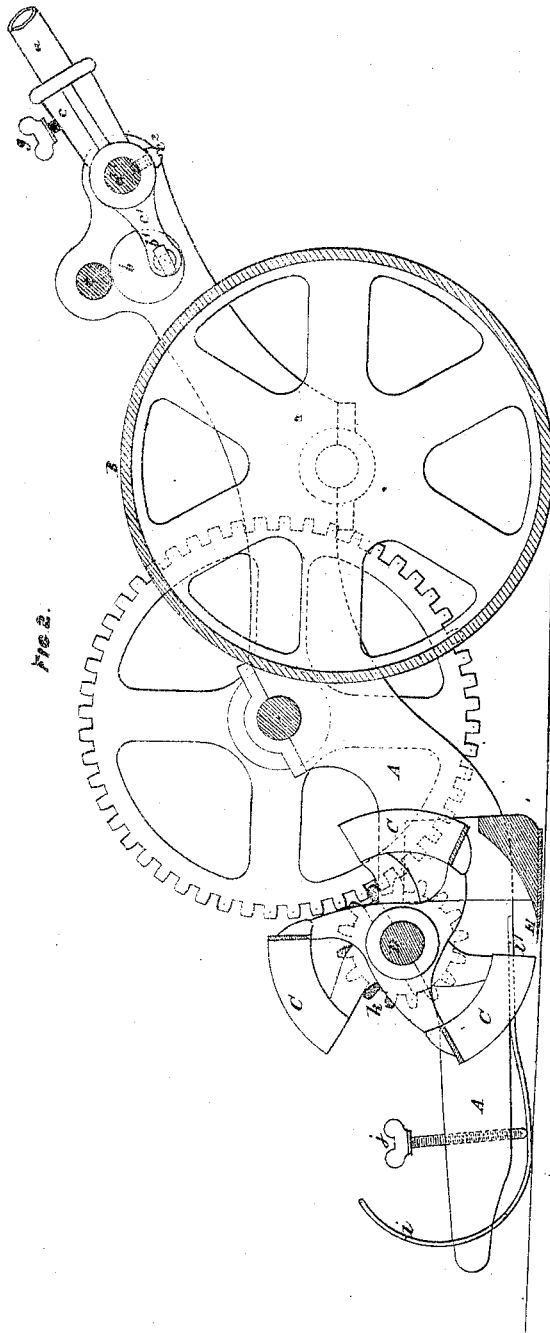
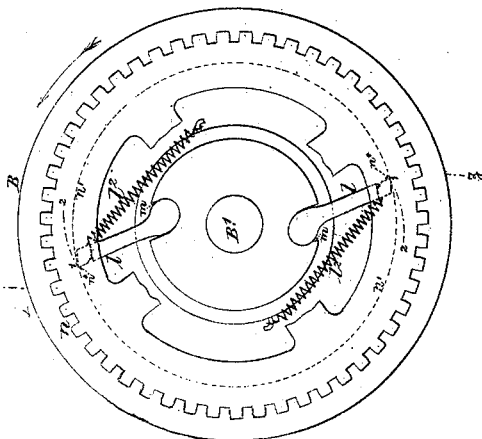


FIG. 4.

FIG. 3.



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# UNITED STATES PATENT OFFICE.

AARON WHITE COOK WILLIAMS, OF LONDON, ENGLAND.

## IMPROVEMENT IN LAWN-MOWERS.

Specification forming part of Letters Patent No. 114,501, dated May 2, 1871.

*To all whom it may concern :*

Be it known that I, AARON WHITE COOK WILLIAMS, formerly of Bridgeport, Connecticut, now of London, England, have invented certain Improvements in Lawn-Mowing Machines, of which the following is a specification:

My invention consists, first, in the arrangement of an eccentric in combination with the handle for adjusting the same to any desired elevation, so that the said handle may be raised or lowered to the most convenient position for any person to propel the machine with the least exertion of strength; secondly, in the peculiar construction and arrangement of adjustable springs at the front of the machine, whereby the cutters may be raised more or less above the ground to regulate the height of the machine, so that the grass may be cut down close to the roots, or may be simply trimmed off evenly at the top.

Referring to the drawing, Figure 1 is a plan or top view of my improved lawn-mowing machine. Fig. 2 is a longitudinal section on the line *x x*, Fig. 1. Fig. 3 is a vertical section on the line *y y*, Fig. 1. Fig. 4 is a vertical transverse section on the line *z z*, Fig. 3. Fig. 5 shows the handle and its means of adjustment detached from the machine.

Like letters indicate the same parts throughout the drawing.

A is the frame of the machine, which may be of cast-iron or other suitable material. B is the roller, which is connected, by devices hereinafter described, with the series of revolving cutters C. The latter are strips or bars of steel, which are bent into the proper form and fixed around the horizontal shaft D. E is the fixed blade or cutter.

As hereinbefore stated, a part of my invention relates to an eccentric for adjusting the handle or rod of the machine to any desired height.

*a* is the said handle. *b* is the eccentric, which is supported in and between the jaws *c*<sup>1</sup>, formed on the metal socket *c*, which turns on the bar *d*, and into which the handle *a* is inserted. The socket *c* is kept in place laterally on the bar *d* (but with a capability of turning thereon) by means of a screw, *c*<sup>2</sup>, whose point enters a groove, *d*<sup>1</sup>, in the bar *d*. The periphery of the said eccentric is arranged to bear against another bar, *e*, extending across the machine.

By turning the eccentric *b* upon its pin or stud *b*<sup>1</sup> it is obvious that any portion of its periphery may be brought to bear upon the bar *e*, and therefore the distance between the pin *b*<sup>1</sup> and the said bar may be increased or diminished, and the handle is proportionately raised or lowered. The said eccentric is secured, when properly adjusted, by means of the pin *b*<sup>1</sup>, which is screwed into one of the jaws, or provided with a nut, and which compresses the jaws *c*<sup>1</sup>, and causes them to pinch and bind the eccentric *b* between them.

Heretofore these handles or rods have been made of wood, the end being fitted into the socket and secured therein by a pin passed through the socket and rod.

It has been found that these wooden handles are liable to shrink or contract, so that although when new they may fit properly and are firm in the socket, yet in a little time, in certain conditions of climate and temperature, they will become loose, and will greatly impair the convenient working of the machine.

Furthermore, the cross-piece or hand-bar at the end of the handle is liable to work loose and be displaced, which is another cause of annoyance to those using the machine.

To remedy these inconveniences I make the handle *a* of metal tubing, (preferably iron,) which, not being liable to shrinkage, will never become loose in its socket, and which, moreover, is slender and more slightly in appearance than a wooden bar. I fasten this handle *a* in its socket *c* by means of a thumb-screw, *g*. The cross-piece or bar *a*<sup>1</sup> is of wood. The end of the tube *a* is inserted in a hole bored in the said cross-piece, and a rivet, *h*, is passed through the cross-piece and tube. In this manner I obtain a strong, durable, convenient, and cheap handle for my improved machine.

The springs *i* are attached at *i*<sup>1</sup> to the under side of the projecting side pieces of the frame A. The said springs are curved or bent upward at their outer end, as shown in Fig. 2. The ends of the frame pass through slots in the springs to keep the latter properly in place. The upward tendency of these springs is counteracted by the adjusting-screws *j*, which are passed through the frame and fitted in screw-threads therein, or in nuts properly arranged on the frame.

By turning these screws in one direction the springs *i* may be pressed down, and by

turning them in the other direction the springs are allowed to rise.

By this means the front of the machine is raised or lowered upon the said springs, and the height of the cut is regulated accordingly.

By means of the device which I employ as a substitute for the ordinary ratchet for connecting the roller with the revolving cutters, I still further diminish the noise of the machine in working, and entirely prevent the disagreeable clicking which has hitherto usually accompanied these machines, and which, in some cases, prevents their use.

The said device, which is clearly shown in Figs. 3 and 4, is constructed and acts as follows: The pawls *l* are supported in the recesses or notches *m*, formed in the end of the roller B. These recesses are so formed that the free end of the pawls may move for a short distance in the arc of a circle which cuts the inner periphery *n'* of the wheel *n* at the point *n\**, as indicated by the dotted line 1 2; consequently the end of the pawl cannot pass this point.

It must be borne in mind that the wheel *n* is loose on the gudgeon B' of the roller B, and therefore will not turn with the roller except when its connection therewith is established by the pawls *l*.

The arrow indicates the direction in which the roller turns when the machine is cutting, and it will be seen that the pawls *l* are so arranged that when the roller is turned in the direction of the arrow, the pawls, which are kept up to the periphery *n'* of the wheel *n* by light springs *l'*, are so acted upon that they tend to turn in the arcs 1 2, and to cross the

line of the periphery *n'* of the wheel; but as their crossing this line is impossible, the effect of this action is to cause the pawls to gripe the wheel tightly and lock the wheel *n* and roller B together.

On the other hand, when the machine is drawn backward, the roller turning in the opposite direction moves the pawls inward and away from the line *n'*, thereby instantly releasing the wheel and depriving the cutters of motion.

It will be obvious that as the gripping or locking is effected entirely by the frictional contact of the surfaces, there will be no perceptible noise at this part of the machine in either the forward or backward motion of the same.

I claim—

1. The handle of a lawn-mowing machine, adjusted by means of an eccentric or cam, *b*, arranged at the lower or inner end of the handle, and operating substantially as herein shown and described.

2. The eccentric or cam *b*, the socket *c*, with jaws *c'*, the bars *d* and *e*, and pinching-screw *b'*, arranged in combination with the handle *a*, substantially as set forth, for the purpose specified.

3. The main frame A, projecting as described, in combination with the slotted curved spring *i* and set-screw *j*, these parts being constructed and arranged as herein shown and described.

AARON WHITE COOK WILLIAMS.

Witnesses:

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