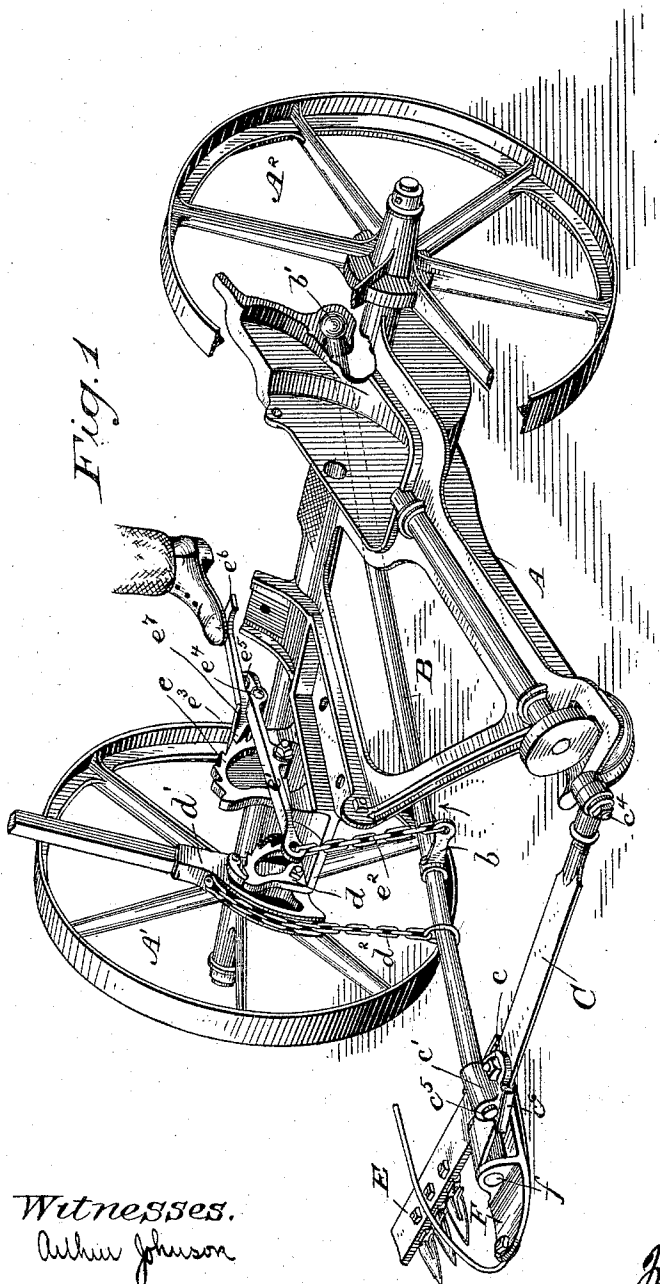


(No Model.)

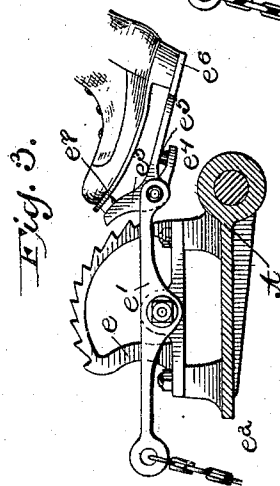
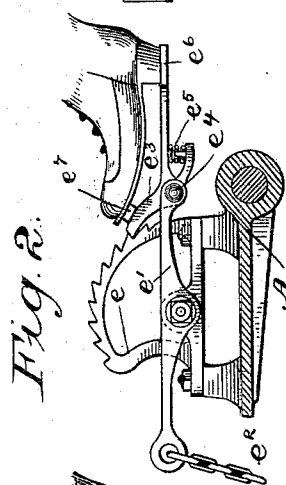
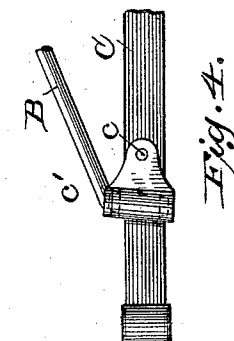
J. F. STEWARD.
MOWER.

No. 456,782.

Patented July 28, 1891.



Witnesses.
Arthur Johnson
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Inventor.

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UNITED STATES PATENT OFFICE.

JOHN F. STEWARD, OF CHICAGO, ILLINOIS.

MOWER.

SPECIFICATION forming part of Letters Patent No. 456,782, dated July 28, 1891.

Application filed November 21, 1888. Serial No. 291,459. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. STEWARD, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Mowing-Machines, of which the following is a full, clear, and exact specification, reference being had to the accompanying drawings.

In the accompanying drawings, Figure 1 is a perspective view of the principal portions of a mowing-machine with my improvement applied thereto, certain portions being omitted and others broken away in order to expose the novel features. Fig. 2 is an elevation from the stubble side of the foot-lever and its connections for operating the finger-bar, the parts being in a locked position. Fig. 3 is a similar view showing the parts unlocked. Fig. 4 is a top plan view showing the connection of the thrust-bar and coupling-bar to effect the locking action of the cutting mechanism.

Referring to the drawings, A represents the rigid main frame formed, as usual, with a transverse sleeve or bearing to inclose the main axle, which latter is sustained at its ends upon two ground-wheels A' and A².

E represents the finger-bar bolted, as usual, rigidly to the inner or main shoe F, which is in turn connected by a horizontal pivot *f* to one end of the hinge or coupling bar C, which is continued upward and connected to the frame by a pivot *c*¹ at a point nearly forward of the stubble-wheel and coincident with the axis of the driving-shaft, as usual, in order to permit the rising and falling motion of the finger-bar. The joint between the coupling-bar and the frame is such as to permit a slight torsional or twisting action of the bar, so that the main shoe and finger-bar may be rocked forward and backward in order to raise or lower the points of the teeth and thus vary the height of the cutter. The coupling-bar and shoe are maintained in operative position and the rocking of the shoe effected by the thrust-bar B, connected at its rear end by a spherical head *b*¹ to the main frame and extended thence forward and grassward until it reaches the coupling-bar C, where it terminates in a wrist *c*², which lies in a position oblique to the axis of the bar. The thrust-bar is provided with a lateral arm *b*, by which

to rotate it and its oblique wrist, which is seated in a bearing-plate *c*³, secured to the top of the coupling-bar C by a vertical pivot-bolt *c*, so that when the thrust-bar is revolved about its longitudinal axis its wrist serves to rock the thrust-bar and shoe forward and backward, and thus throw the points of the teeth upward or downward, as the case may be.

For the purpose of lifting the cutting mechanism I pivot to the main frame at *d* a hand-lever *d*¹, provided with a chain *d*², the lower end of which encircles the thrust-bar. This hand-lever is provided with a locking-dog to engage a toothed sector-plate in the frame in the usual manner, as shown in the drawings. By means of these devices the entire cutting mechanism may be raised and supported at the desired height. While it is preferred to retain these manual devices, they may be omitted since the mechanism hereinafter described to control the rocking action of the cutter may also be employed to effect its elevation.

The general construction and arrangement of the thrust-bar with the oblique wrist to rock the cutter is not broadly claimed herein, being the same in principle as that shown in Letters Patent granted to me on the 20th day of April, 1880, No. 226,683.

In the present structure the bearing-plate *c*³, which receives the wrist of the thrust-bar, is connected by a vertical pivot-bolt *c* to the coupling-bar, so that it may vibrate horizontally on top of the bar to accommodate itself to the changing position of the wrist as the thrust-bar is rotated. Unlike that in the patented machine, the bearing-plate *c*³ is now provided with a depending flange or lip *c*⁴, which, coming in contact with the edge of the hinge-bar C, serves as a stop to limit the horizontal play of the plate *c*³ when the thrust-bar is turned to lock the teeth upward, and thereby limit the rocking motion of the teeth while the bearing-plate is free to move horizontally. The essence of my invention in this regard consists in combining with the oblique wrist the pivoted bearing-plate and the stop to limit the pivotal motion of the plate; and, although I prefer to use the flange *c*⁴, it is to be understood that any equivalent stop device may be used in its place. The limitation of the movement of the bearing-

plate c' is advantageous, not only in that it prevents the fingers from being rocked too far, as before referred to, but also for other reasons, which will presently appear.

5 The thrust-bar has its arm b connected by a chain e^2 to the forward end of a lever e' , pivoted to the side of a toothed sector-plate e on the main frame. When, therefore, the forward end of this lever e' is elevated by the
10 depression of its rear end, the chain e^2 acts first through the arm b to turn the thrust-bar and cause its oblique wrist to elevate the teeth of the finger-bar, and thus increase the height of the cut, until finally the rock-
15 ing action is checked by the bearing-plate c' locking it against the hinge-bar. If now the lifting action of the lever and chain is continued, further rotation of the thrust-bar being impossible, the effect will be to raise the thrust-bar and with it the cutting mechanism. Thus it will be seen that the chain e^2
20 and the arm of the thrust-bar serve first to rock the cutter end, and thereafter to lift the cutting mechanism bodily, this second function being the same as that of the lifting-lever.

In order that the operator may conveniently control the lever e' without the employment of either hand, I connect to the rear end, by
30 a horizontal pivot e^4 , a foot-plate e^5 , the forward end of which e^7 is adapted to engage the sector-plate and to receive the pressure of the operator's toe, while the rear end e^6 is adapted to receive the pressure of his heel
35 or toe at will. A spring e^3 applied between the lever and the foot-piece tends to hold the latter in engagement with the sector-plate to lock the lever in position. In rocking the teeth upward the operator places his foot
40 upon the two ends of the foot-piece at the same time, as shown in Fig. 2, and by properly controlling the plate upon its pivot he depresses the rear end of the lever, after which he permits the foot-piece to engage
45 the teeth of the sector-plate. A continued downward motion of the rear end of the lever will lift the cutting mechanism clear of the ground.

To release the parts it is only necessary
50 for the operator to depress the rear end of the foot-piece until the front end is out of engagement with the sector-plate, after which it permits the parts to rise. It will be seen that this foot-piece affords two bearings for
55 the foot on opposite sides of its fulcrum, whereby the operator is enabled to keep the same under perfect control. The essence of my invention in this regard consists in combining with the lever which controls the cutting mechanism a foot-piece, by which it is
60 operated and locked, and it will be manifest that the details of construction may be modified without departing from the scope of the invention.

65 I prefer to provide the machine in all cases, as shown in the drawings, with a hand-lever d' , pivoted to a sector-plate d on the frame

and provided with a chain d^2 , the lower end of which encircles the thrust-bar for the purpose of raising the cutting mechanism. The
70 hand-lever will be provided with a locking-dog, as shown, or other equivalent locking device.

The hinge or coupling bar and the push-bar constitute jointly, as in other machines,
75 what is commonly known as the "coupling-frame," by which the cutting mechanism is carried from the main frame, so that it may rise and fall and roll or rock forward and backward.
80

Having thus described my invention, what I claim is—

1. In a mowing-machine, and in combination with the cutting mechanism, the hinge-bar carrying the cutter, the bearing-plate
85 connected to the hinge-bar by a vertical pivot, but limited in its pivotal motion by a stop, and the locking thrust-bar having the oblique wrist seated to turn loosely in the bearing-plate.
90

2. In combination with a mower main frame and cutting mechanism, the intermediate thrust-bar having a limited rotary motion and provided with an arm by which to
95 turn it and with an oblique wrist, the hinge-bar to carry the cutter, a bearing-plate through which the wrist acts to rock and raise the hinge-bar, and a lifting mechanism connected with the arm of the thrust-bar, whereby said lifting mechanism acts through the
100 thrust-bar first to rock the cutter upward at the front and thereafter to raise the cutter bodily.

3. The main frame, the hinge-bar, and the cutting mechanism jointed to said bar, in
105 combination with the pivoted flanged plate c' on said bar, the rotary thrust-bar having the oblique wrist and the arm b , the chain attached to said arm, a chain-operating lever on the frame, and a locking device to hold
110 the lever.

4. In a mower, the main frame, the cutter, and the rotary thrust-bar acting to rock the cutter, in combination with a lifting-lever d' ,
115 and a locking device therefor, and the foot-lever and its locking device to turn the thrust-bar, whereby the attendant is enabled to effect the two adjustments of the cutter, one by hand and the other by foot.

5. In a mower, the combination of a cutter-controlling lever pivoted to the frame, a
120 locking-plate located adjacent thereto, a foot-lever pivoted to the cutter-controlling lever and adapted to engage the locking-plate, said foot-lever having one end extended forward of its pivot to support the front of the
125 operator's foot and the opposite end extended rearward of the pivot to support the heel of the operator's foot.

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