

UNITED STATES PATENT OFFICE.

RUFUS DUTTON, OF YONKERS, NEW YORK.

IMPROVEMENT IN MOWING-MACHINES.

Specification forming part of Letters Patent No. **212,135**, dated February 11, 1879; application filed December 5, 1878.

To all whom it may concern:

Be it known that I, RUFUS DUTTON, of the city of Yonkers, in the county of Westchester and State of New York, have invented a new and useful Improvement in Mowing-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, and of the mode or manner of operation, reference being had to the accompanying drawings, and to the letters of reference marked thereon, and making a part of this specification.

The object of my invention is to provide a lifting device for harvesting-machines that will enable the driver to either lift the outer or inner end of the finger-bar at will, or the whole bar, or to raise it vertically to pass high obstructions, or to fold it for transportation, and in addition will enable him at will to change the heavy lift required for raising the bar to a vertical position into a light and easy one for partially elevating it to pass ordinary obstructions, and vice versa, as may be necessary, and in connection therewith to so attach the draft that it will, when the machine is in motion, aid in lifting the outer end of the bar, and will also, by its mode of attachment, help hold down the inside shoe upon the ground when the machine is to be drawn up an incline or steep hill, which is especially advantageous in light grass, and also to provide an improved device for locking and holding the finger-bar when it is raised.

Heretofore finger-bars have been lifted either by a hand-lever pivoted at its lower end to the pole, and connected in a suitable manner by a chain or its equivalent with the frame of the machine, or by pivoting the hand-lever directly to the frame, and so connecting its lower end with the bar that when the lever is drawn back by the hand the outer end of the finger-bar will be raised, its inner end being raised by a foot-lever pivoted to the pole, and connected by a link to the frame. The first method is objectionable because the operator with it cannot raise at will either the inner or outer end of the bar, and, as ordinarily arranged, cannot raise the whole bar to an upright position. The second method is objectionable for the reason that, although with the aid of the foot-lever, the outer or inner end of the bar can be raised at will, or the bar be

raised to an upright position, yet a lift that will enable the operator to raise the bar vertically by a single movement of the hand-lever makes of necessity a heavy lift, even when the bar is raised by it to a small height, enough only to pass ordinary obstructions; but as in the practical operation of mowing-machines it is required to lift the bar partially many times to once raising it up vertically, it becomes very desirable to have an easier and lighter lift for this purpose.

My invention consists in pivoting a hand-lever to a support or stand bolted to the frame, and connecting its lower end or short arm by a link to the finger-bar or inside shoe in such a manner that when the lever is drawn back by the hand the finger-bar will be raised vertically, or nearly so, and in connection therewith a spring-bolt, which, when drawn back by a latch, causes the short arm of the hand-lever, to which the link is attached, to be shortened, so that when the hand-lever is drawn back, as before, the finger-bar will be only partially elevated; and it further consists in a latch for locking the hand-lever when it is drawn back, so as to raise the outer end of the finger-bar, the parts being so arranged that the outer end of the finger-bar when raised up cannot be fastened until after the outer end of said latch has been depressed; and, finally, it consists in arranging said latch with reference to the foot-lever, whereby the raising of the inner end of the finger-bar will cause said latch to come into action.

In the accompanying drawings, in which similar letters of reference indicate like parts, Figure 1 is an elevation of the machine as seen from the right-hand or finger-bar side, the wheels being removed. Fig. 2 is an enlarged view of the device by which the short arm of the hand-lever is made shorter or longer. Fig. 3 is a portion of the upper end of the hand-lever stand, showing the latch for holding up the outer end of the finger-bar when raised. Fig. 4 is a perspective view of the latch and its connections.

In the drawings, 4 represents a part of the pole of the machine, hinged at its rear end to a hollow sleeve, forming a part of the frame, and which surrounds the axle K. Z is a foot-lever, placed so as to be conveniently pressed

forward by the foot of the driver when in his seat 7, and pivoted to a plate, 5, bolted to the pole, and has at its lower end a short arm, to which one end of the link 1 is pivoted, such link being pivoted at its lower end to a part, D, of the frame with which the finger-bar is connected.

As will be evident, when the foot-lever Z is pressed forward, the frame, with the inner end of the finger-bar, will be raised.

Y is a hand-lever which fits into the socket-piece T, which forms a part of such lever, and is pivoted at t'' to the supporting-piece Q, which is bolted to the part D of the frame. Such socket-piece has also a recess, t' , for a spring-bolt, t , Fig. 2. To such socket is pivoted at the point u an arm, U, to the lower end, x , of which is pivoted a link, X, which connects with the finger-bar or inside shoe at the point x' outside of the hinge $s' s'$.

When the hand-lever Y is drawn back it will be evident that the outer end of the finger-bar will be raised, and when such lever is drawn entirely back to the sleeve the finger-bar will be raised to a vertical position, the relative length of the distances from t'' to x and from x to the hinge $s' s'$ being such that when the lever is drawn fully back the finger-bar will be turned to a vertical position.

In the socket t' is placed the spring-bolt t , and from the upper end of that bolt extends a small rod, y' , which connects with the handle or thumb-latch y , which is pivoted to the hand-lever Y.

When the handle y is pressed toward the hand-lever Y the bolt t will be drawn up in its socket and away from the part w' of the arm U, thus permitting such arm to then swing back on the center u until the shoulder w' strikes against the face or recess v , the effect of which will be to shorten the lower arm of the hand-lever, or reduce the length of the leverage between x and t'' . In this condition of the parts, if the hand-lever Y is drawn back, the finger-bar will be only partially raised, as is required in passing ordinary obstructions. When it is desired to raise the outer end of the finger-bar to a vertical position, the bolt t is left in its normal position—that is, its lower end rests, as shown in Fig. 2, against the shoulder w' , at which time the lower arm of the hand-lever, or the length of the leverage between x and t'' , is the greatest, and sufficient, when the hand-lever Y is drawn back, to raise the finger-bar vertically. The arm of the lever from t'' to x being shortened, less power will be required to raise the finger-bar than when such lever is lengthened by the dropping of the bolt, as shown in Fig. 2.

In Fig. 1, v represents a part of the rear portion of the draft-rod, which is pivoted or connected to the hand-lever socket-piece T at the point V, which is below the pivoted connection t'' , the upper end of such rod v being connected to the evener, and supported from the pole by a sliding connection of the usual construction. As the socket T, which is con-

nected with the finger-bar through the arm U and link X, turns upon the pivot or pin t'' , it will be apparent that power applied through the draft-rod v , which connects with the socket-piece below t'' , will tend in some degree to raise the outer end of the finger-bar, the same as power applied to the hand-lever Y. The draft thus aids, when the machine is in motion, in lifting the outer end of the finger-bar, or, in other words, less manual power will be required to lift the outer end of the finger-bar than would be required if the draft-rod were connected at t'' , or above that point.

As the inclined draft-rod v is pivoted at its back end to the socket-piece T at the point V, which is below the pivoted point t'' , and as such socket-piece is connected through U and X with the finger-bar at a point outside of its hinge $s' s'$, it is also evident that power applied to such rod v cannot raise the shoe or inner end of the finger-bar without, at the same time, raising the outer end of the finger-bar, as the whole weight of the bar is added to that of the front end of the frame and inner shoe. This added weight acts when the machine is drawn uphill to hold down the inside shoe upon the ground, and is particularly advantageous when the machine is used in light grass.

In the upper end of the stand or support Q, and playing in a slot made therein for that purpose, is placed a latch, 2, which turns or oscillates on a pin, o , and which is designed to lock the hand-lever Y when it is drawn back and raises the outer end of the finger-bar; but it is not operative except when the foot-lever Z is pressed down and the inner end of the finger-bar is also raised. This latch 2 is placed in the support Q, substantially at right angles to the hand-lever Y, and its outer end or long arm extends toward the tongue, so as to be acted upon and pressed down by the foot-lever Z when that lever is depressed. As the foot-lever Z is pressed down a projection, z , on such lever strikes against and presses down the outer end of the latch 2, thereby raising the other end, in which position of the foot-lever and latch, as the hand-lever Y is drawn back, the latch passes under ratchets a and b , Fig. 2, in the socket-piece T, and catches therein and holds the hand-lever Y in the position it may then have, and through it holds up the outer end of the finger-bar. If, however, the hand-lever Y is drawn back and the foot-lever Z is not depressed, the spring 3, under the outer end of the latch, throws the inner end of such latch down into the slot, in which position it will not engage with the ratchets a and b to hold the hand-lever.

The hole through the latch and through which the pin o passes is elongated, so as to allow the outer end of the latch, when its other end is held down by the foot-lever Z, to be pressed down a little as the ratchets a and b are drawn over it.

The fulcrum of the latch 2 is shifted from the pin o to the point of contact with the foot-

lever as said latch is depressed by the ratchet. The spring 3 throws it up again as soon as the ratchet has passed over the latch.

The ratchets *a* and *b* are so arranged as to hold the hand-lever in two positions—one when the outer end of the finger-bar is raised a less distance, and the other when the bar is raised a greater distance. These positions of the hand-lever will also vary, according as the spring-bolt *t* is down or up, or, in other words, as a light or heavy lift is made use of. This arrangement of latch and ratchet thus enables the finger-bar to be held in four different positions.

What is claimed as new is—

1. The combination, with the hand-lever Y and its socket-piece T, connected to the finger-bar outside of the place of its hinged connection with the frame, of the spring-bolt *t* and rod *y'*, for varying the length of the lower arm of such lever, for the purposes set forth.

2. The combination of the foot-lever Z and hand-lever Y, with its spring-bolt *t*, severally operating substantially as described, forming a double lifting device by which the operator, while on the machine, can raise either the inner end of the finger-bar or the outer end but partially to pass obstructions, or vertically for transportation, and can at pleasure vary the length of the lower arm of the hand-lever, for the purposes set forth.

3. In combination with the lever Y and its socket-piece T, the pivoted arm U and spring-

bolt *t*, for changing the leverage or length of the lower arm of that lever, for the purposes set forth.

4. The latch 2 and its sustaining-spring, which keeps it out of engagement, combined with the foot-lever Z, whereby, when said foot-lever is depressed, the inner or operative end of said latch is raised up and caused to engage with the ratchets *a b*, as and for the purpose set forth.

5. A pivoted hand-lever provided with a segment-ratchet, combined with a latch having an elongated hole for its pivot-pin and a sustaining-spring, whereby said latch will be thrown out of engagement except when its outer end is depressed, substantially as set forth.

6. The latch 2, having a sustaining-spring and an elongated hole for the pin *o*, whereby it is made capable of motion on said pin as a center, or at a point near its rear end, substantially as set forth.

7. Lifting mechanism whereby the inner end of the finger-bar may be raised and sustained, combined with mechanism for raising the outer end of said finger-bar and locking mechanism for the same, so controlled by suitable devices as to be inoperative except when said inner end is raised up, as set forth.

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Witnesses:

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