

(No Model.)

J. F. STEWARD.

SPRING LIFTING DEVICE FOR MOWING MACHINES.

No. 464,739.

Patented Dec. 8, 1891.

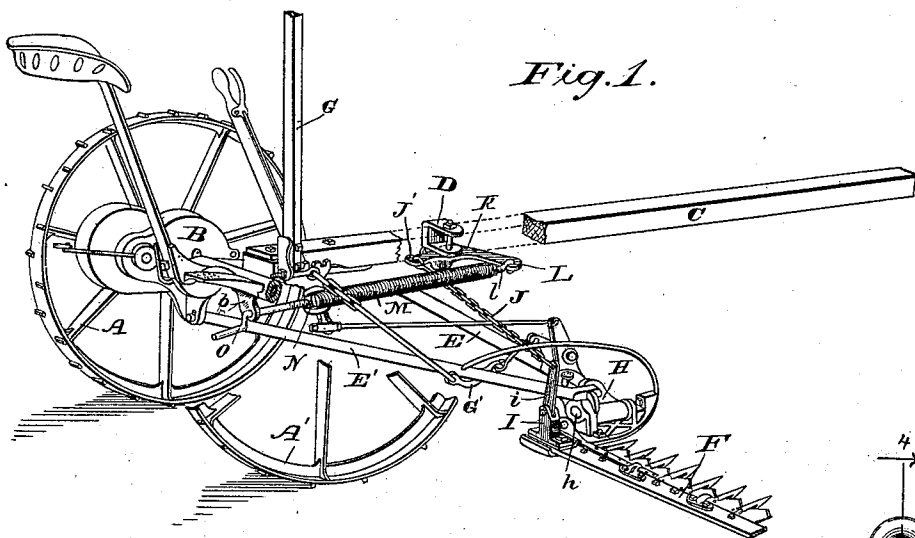


Fig. 2.

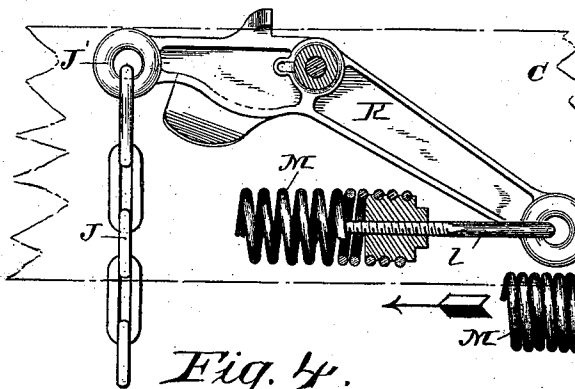


Fig. 3.

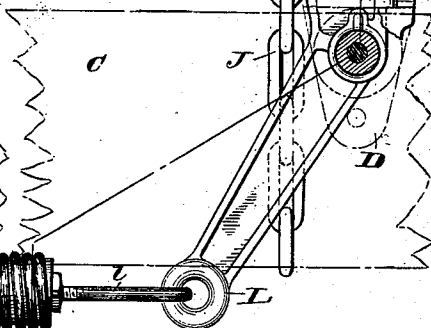


Fig. 4.

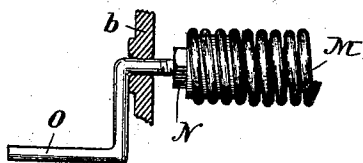
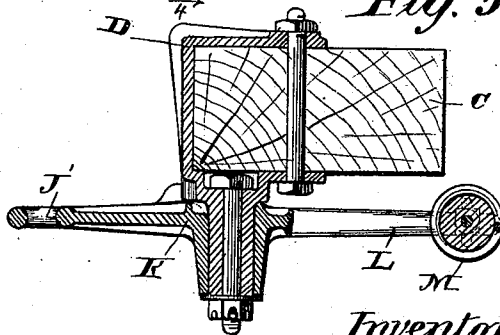


Fig. 5.



Witnesses.

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JOHN F. STEWARD, OF CHICAGO, ILLINOIS.

SPRING LIFTING DEVICE FOR MOWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 464,739, dated December 8, 1891.

Application filed February 28, 1891. Serial No. 383,187. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. STEWARD, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Spring Lifting Devices for Mowing-Machines, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of a mowing-machine, with tongue and wheel cut away sufficiently to expose the details of construction of the parts forming the subject-matter of my invention; and Figs. 2, 3, 4, and 5 are details.

The invention consists in an arrangement of devices and adapting them to better accomplish the results sought—viz., to poise the finger-bar and in part take the weight from the ground at both ends, so that the friction of the cutting apparatus on the ground may be reduced as much as possible.

A and A' are the usual wheels of a mower, the latter broken away to expose the spring arrangement.

B is the mower-frame, having a lug *b*.

C is the tongue, having secured thereto a bracket D.

E is the front bar of the coupling-frame, and E' a portion of the coupling-frame, the latter being adapted to form a thrust-brace. To this coupling-frame the cutting apparatus F is jointed. A lifting-lever G is provided and lifting-chain G', the latter adapted to pass under the thrust-bar E' and connect to the swivel-piece H, pivoted on the front bar E of the coupling-frame.

To the swivel-piece the cutting apparatus is hinged by means of the pin *h*.

The shoe to which the finger-bar is secured is provided with ears which the said pin *h* enters, the means for jointing said bar to the swivel-piece being that in most common use.

So far the parts are of common form. Upon the shoe I bolt the foot-piece I, which forms a socket for the bar *i*. The parts I and *i* together form an upright arm that extends somewhat higher than the pin *h*, and to the top of this arm is connected the chain J, which at its stubble end is connected at J' to the lever K, pivoted to the bracket D at a point preferably beneath the tongue.

The foot-piece may be secured to the shoe in any convenient way; but I show it in Fig. 1 adapted to take the two bolts which secure the bar to the shoe, and so adapt it that part *i* of the arm may be rule-jointed thereto. It may, however, be adapted by any other means to fold toward the bar but not to yield at the joint under the stress of the chain.

At the end L of the lever is connected the spring M, through the instrumentality of the hook *l*, screwed into a nut inclosed within the coils of the spring at the immediate end. At the rear end of the spring is inclosed the nut N, and threaded into this is the rod O, the latter passing through the lug *b*. I prefer to bend the rod in the form of a crank, so that the tension of the spring M may be varied at will. The lever K forms, in fact, a bell-crank which changes the direction of stress of the spring from one parallel with the line of the tongue to one transverse thereto, which is nearly longitudinal relative to the cutting apparatus, through the instrumentality of the chain J.

I joint the uprising arm formed of the parts I and *i* simply, so that the upper portion may give way when the bar is folded to an upright position because of coming in contact with the push-bar E'. The upreaching arm upon the shoe must be of such height that the chain, if extended grainward, would reach to a point not far from the center of gravity of the cutting apparatus, and thereby cause the lifting action to poise the bar, as a whole, to a certain extent.

I am aware that it is not new to so apply a spring that it shall exert its influence at a point grassward from the main shoe, as that is shown and described in patent to Burdick and LeRoy, No. 133,013, November 12, 1872. Neither is it new to make use of an upreaching standard from the shoe in order to produce a lifting action upon the outer end of the finger-bar, because such an arm is shown and described in patent to Graham, No. 67,041, of July 23, 1867. In the Burdick and LeRoy patent, however, the spring is attached between the lifting-lever and the cutting apparatus, and the spring does not aid the driver in lifting the machine. I disassociate my lever from the lifting-spring entirely and con-

nect one end of the latter to the main frame, so that the position of the lever shall in no way act upon the spring and affect the tension. By placing the lever K beneath the tongue and extending the spring rearward it is in an unobtrusive position, and I am enabled to connect it directly to the main frame and there secure it in such a way as to make screw adjustment of the tension available.

10 The bracket D is adapted to fit the tongue and be held from working out of position by means of a bolt.

As I so direct the stress of the chain as to tend to lift the bar bodily without the instrumentality of intervening levers, it is of course necessary that the said stress of the chain be not vertical, as in the patent to Jones, No. 405,238, of June 11, 1889. By placing a bracket, however, beneath the tongue, the chain J 20 being directed diagonally downward, the spring M may lie thereabove and the two cross without interfering with the action of either.

By my arrangement I am able to get the parts in a position not only compact, but also one that will enable them to operate efficiently.

I do not limit myself to placement of the spring beneath the tongue and frame, but so place it simply from preference. If placed above the tongue and frame, the same results would be obtained, but the parts would be more obtrusive.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination and arrangement of the main frame, tongue, pivot-bracket, secured to and beneath the tongue, lever K, spring M, chain J, upreaching-arm I, and the hinged cutting apparatus, all arranged and combined substantially as described.

JOHN F. STEWARD.

Witnesses:

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A. L. UPTON.