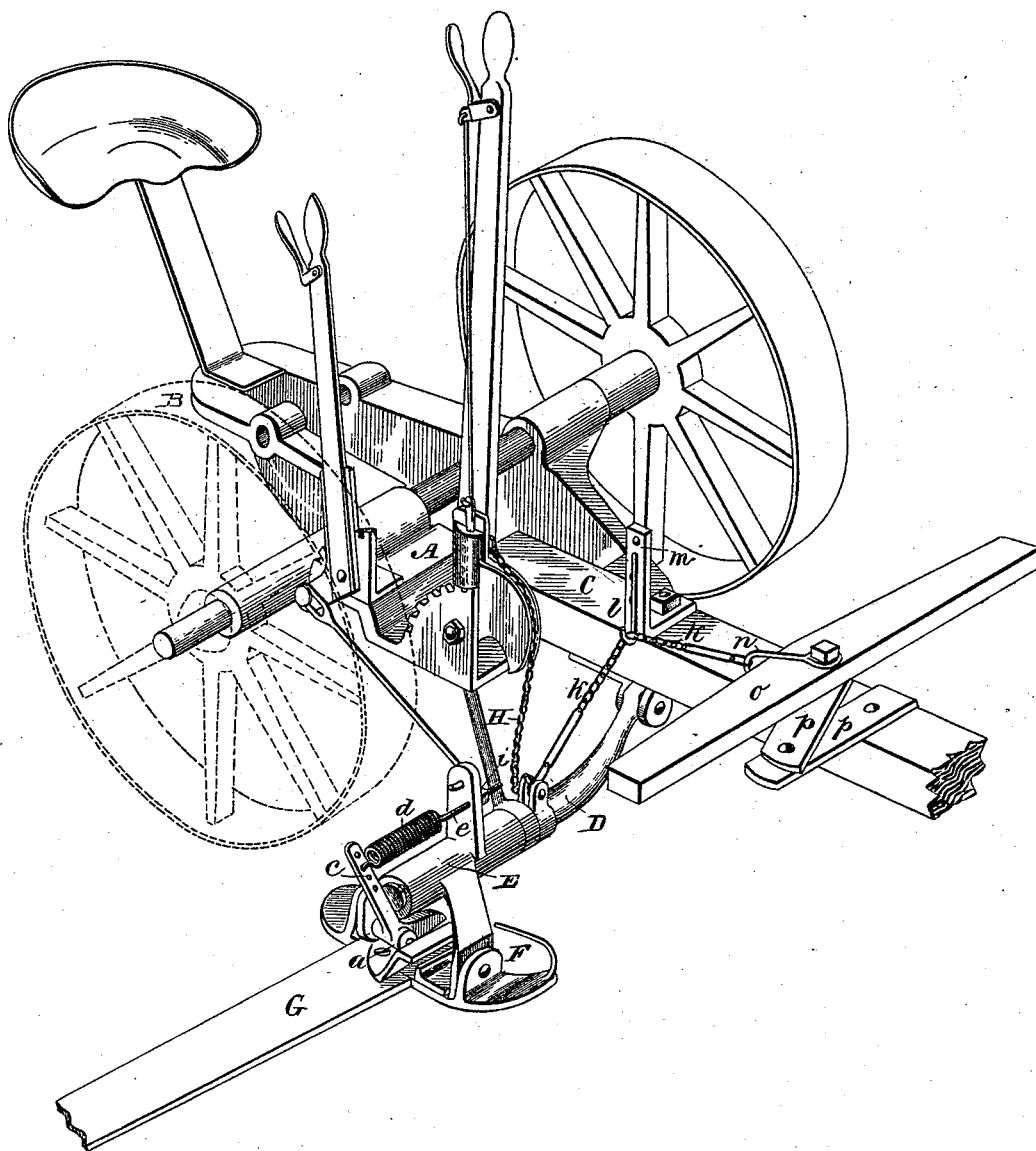


(No Model.)

W. A. KNOWLTON.
MOWING MACHINE.

No. 525,220.

Patented Aug. 28, 1894.



WITNESSES:

L. A. Conner, Jr.
R. B. Seward

INVENTOR,

Wm. A. Knowlton
By E. C. Seward & Co., atty.
A. O. Behel Att'y.

UNITED STATES PATENT OFFICE.

WILLIAM A. KNOWLTON, OF ROCKFORD, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO MATILDA T. KNOWLTON, OF SAME PLACE.

MOWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 525,220, dated August 28, 1894.

Application filed November 18, 1885. Serial No. 183,223. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. KNOWLTON, a citizen of the United States, residing in the city of Rockford, in the county of Winnebago and State of Illinois, have invented new and useful Improvements in Mowing-Machines, of which the following is a specification.

This invention relates to mowing machines of a class known as front cut two-wheels. Its object is to reduce the ground friction of the cutting apparatus; lessen the direct draft, and also the side draft of the machine, and increase its cutting power without materially adding to its weight.

It consists in mechanism made adjustable to regulate the ground friction of the divider end of the cutting apparatus, and in mechanism connecting the cutting apparatus with the draft mechanism to transfer a portion of the weight of the cutting apparatus onto the wheeled carrying frame to lessen the ground friction of the cutting apparatus, lessen the side and direct draft of the machine and increase its cutting power, all of which in connection with the accompanying drawing will be hereinafter more fully described.

The term machine as employed in the present specification and claims, is intended to include the main frame, suitable supporting wheels and axle, the cutting apparatus, and connections of parts to render the whole practically operative.

The expression "cutting apparatus," will be employed throughout the specification and claims, to denote the coupling bar, the finger bar, the shoe and the operative parts immediately connected therewith, taken as a whole; and when any particular part is referred to it will be designated by a more specific term.

In the accompanying drawing the figure is an isometrical representation of portions of a mowing machine embodying my invention.

The several parts represented in the figure, consisting of a main frame A, mounted on carrying wheels B, a tongue C, fixed to the frame, a coupling bar D, hinge-jointed at one end to the frame, a yoke E, swivel-jointed on the free end of the coupling bar, a shoe F, hinge-jointed to the yoke arms, a finger bar G, fixed to the shoe and a thrust bar H, hav-

ing a hinged connection with the coupling bar and with the main frame, are parts common to like machines and may be any of the known varieties capable of use in connection with my improvements. The heel or inner end of the finger bar in its connections with the shoe extends beyond the inner edge of the shoe for a purpose to appear hereinafter. An angle lever *a* is pivotally supported at the pivotal point of the shoe in its connection with the yoke, and the short arm *b* thereof extends from its pivotal connection inward to engage the inner or heel end of the finger bar, and its long arm *c* rises from its pivotal support vertically. A spring *d* is connected at one end to the vertical arm of the lever and is made adjustable in its connection therewith in this instance by means of a series of holes in vertical line therein, to increase or lessen the leverage to vary the lifting and holding action of the spring on the divider end of the cutting apparatus.

The inner arm *e* of the spring is screw-threaded and extends through an arm *h* rising from the yoke, and by means of a screw nut *i* the tension of the spring is made adjustable to vary its force to operate to a greater or less extent as a counter balance to support the outer end of the finger bar to lessen the pressure of the divider end upon the ground to reduce its ground friction to its lowest practical point. This construction and operation of the counter balance spring in its adjustable connection furnish the means to regulate the pressure of the divider end of the cutting apparatus on the ground, by means of the pivoted angle lever, which permits the folding or finger bar portion of the cutting apparatus to be raised and supported in an elevated position without cramping or injuring the spring. The construction and application of this counter balance spring are such that the weight of the divider end of the cutting apparatus supported by the spring, is transferred to its shoe end. To regulate the ground friction of the shoe end of the folding or finger bar portion of the cutting apparatus, I have employed a draft apparatus in which a chain *k* is connected at one end to the coupling bar from which it extends upward over a swinging link hook *l* pivoted at

its upper end to a bracket *m* rising from the tongue and from its passage over the swinging hook, it extends forward and by means of a clevis *n* is connected centrally with an evenner *o*, which in its connection with the tongue is capable of a limited movement lengthwise of said tongue. The evenner in this instance is pivotally connected to one end of a lever *p* which is pivoted at its other end to one end of a lever *p'* which is pivoted at its other end to the tongue, forming a free connection of the evenner therewith, to permit a limited movement of the evenner lengthwise thereon. From this construction and arrangement of the parts, it will be seen that in use, the evenner under the draft of the team employed will by reason of its chain connection with the coupling bar operate to lift upon the coupling bar, and this in combination with the counterbalancing spring lift a portion of the whole weight of the cutting apparatus and the portion of the weight thus lifted will be transferred to the main frame to lessen the ground friction of the cutting apparatus to lessen the direct draft and also the side draft, increase the traction of the supporting wheels and consequently add to its cutting power. In this construction the swinging link hook is made adjustable vertically in its pivotal connection with its bracket support to vary the angle of deflection produced in the draft chain in passing over the hook, to vary its lifting force under the draft strain, to reduce the frictional contact of the cutting apparatus with the grounds to its lowest practical point, and increase the cutting power of the machine.

The bracket support *m*, for the swinging hook *l* is made adjustable in its connection with the tongue lengthwise thereof to vary the angle of deflection of the chain in its pas-

sage from the coupling bar to its connection with the evenner, to vary its lifting force under the draft strain. Instead of the swinging link support for the draft chain made adjustable in its connection with the bracket support and the bracket support of the swinging hook made adjustable in its connection with the tongue to vary the angle of deflection of the chain, a sheave or other known equivalent device may be employed for the purpose and may be made adjustable vertically, or in the lengthwise direction of the tongue, or in both directions.

In the accompanying drawing and in the foregoing description, I have only shown and described the portions of a mowing machine necessary to a complete understanding of the character, application and operation of my improvements and the parts necessary to a complete machine not herein shown or described may be any of the forms of such parts, capable of use in connection with my improvements.

I claim as my invention--

1. The combination of a finger bar, a standard rising therefrom, a coupling bar or frame connecting said finger bar, with the machine frame, and a spring connection between said standard and the coupling bar.

2. The combination of a main frame, a finger bar, a standard rising therefrom, a coupling bar or frame, connecting said finger bar with the main frame, a spring connection between said standard and coupling bar, and a draft connection supporting the cutting apparatus.

WILLIAM A. KNOWLTON.

Witnesses:

H. E. WALLACE,
A. O. BEHEL.