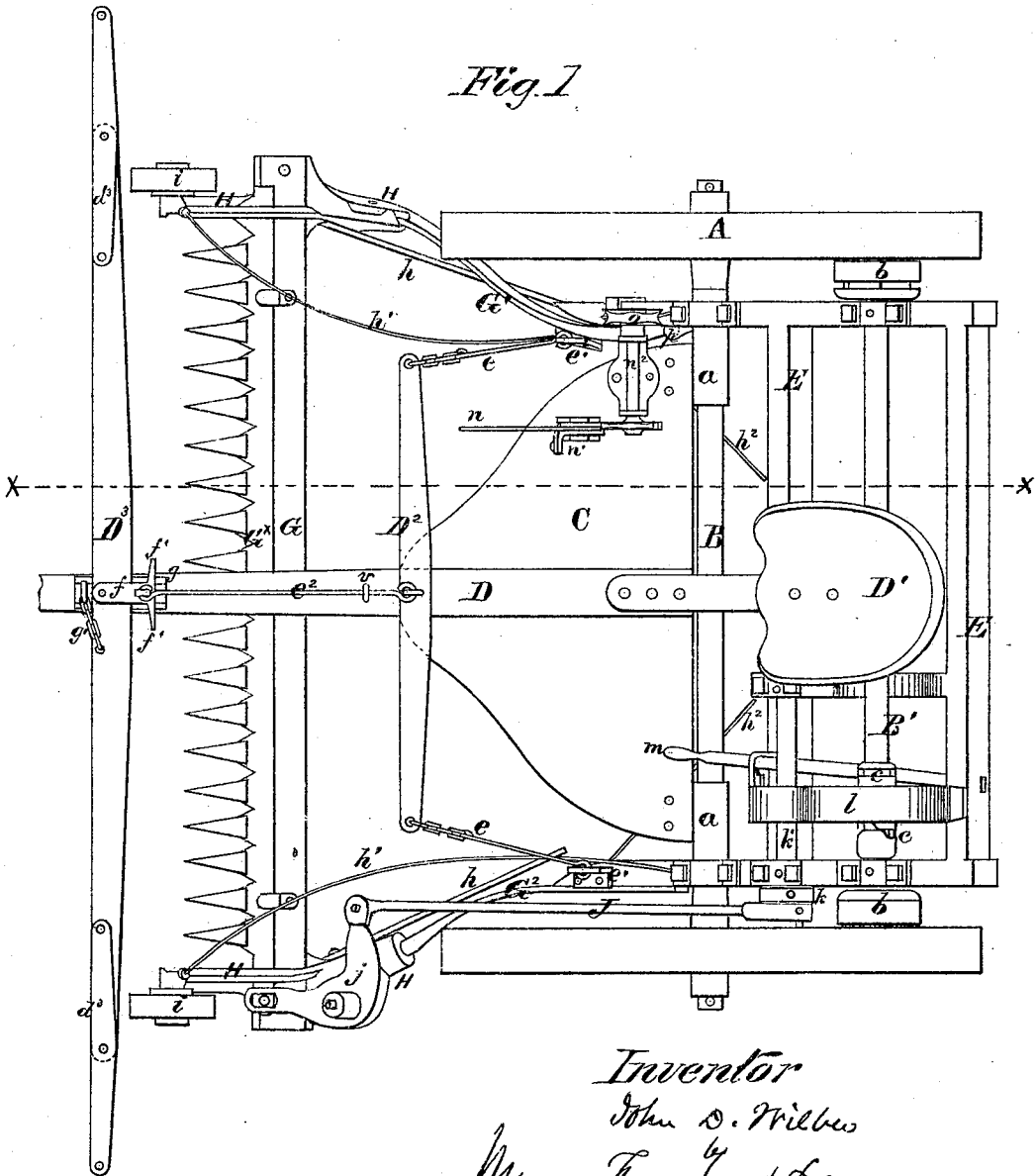


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No. 142,828.

Patented September 16, 1873.



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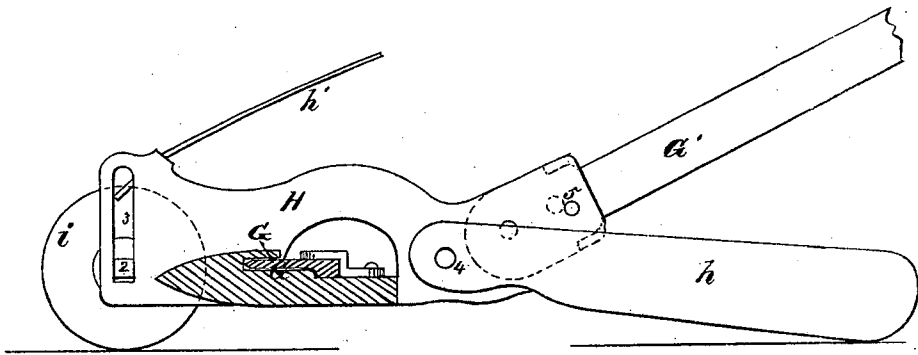


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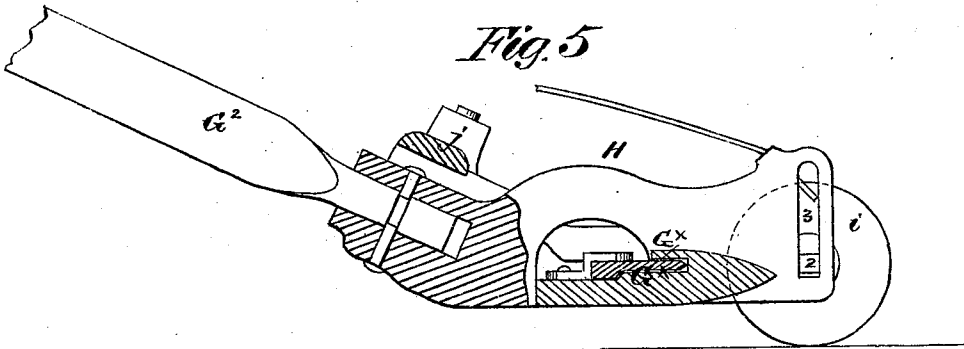
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*Fig. 4*



*Fig. 5*



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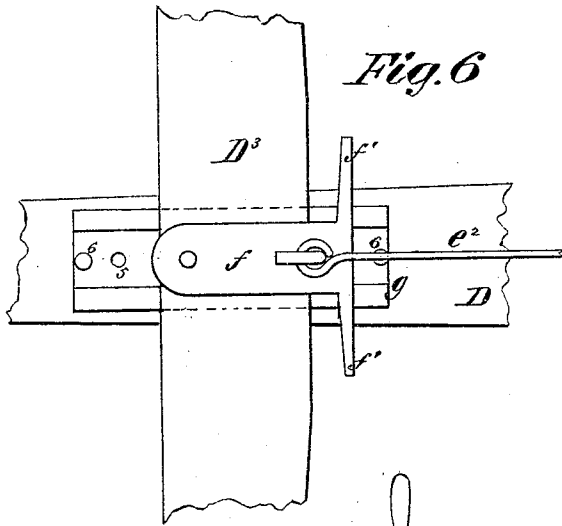


Fig. 6

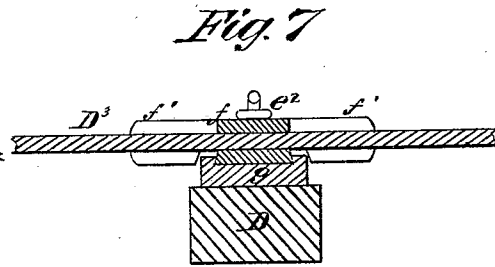


Fig. 7

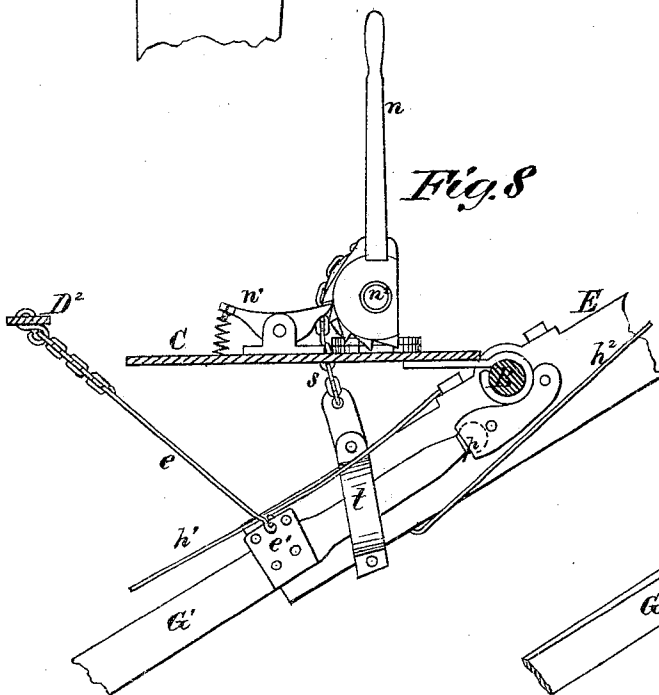


Fig. 8

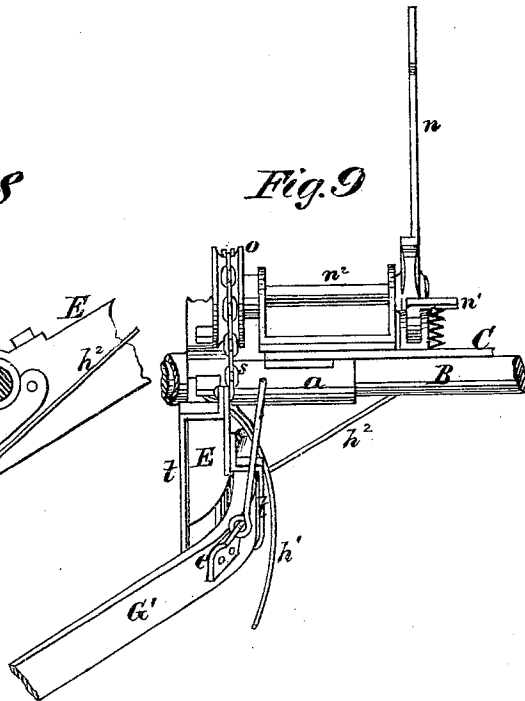


Fig. 9

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. **142,828**, dated September 16, 1873; application filed January 27, 1873.

To all whom it may concern:

Be it known that I, JOHN D. WILBER, of Poughkeepsie, in the county of Dutchess and State of New York, have invented certain new and useful Improvements on Mowing-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings making part of this specification, in which—

Figure 1, Plate 1, is a top view of the machine complete. Fig. 2, Plate 2, is an elevation of the left-hand side of the machine. Fig. 3, Plate 2, is a section taken vertically and longitudinally through the machine in the plane indicated by dotted line *x x*, Fig. 1, looking toward the right-hand side thereof. Fig. 4, Plate 3, is a cross-section through the cutting apparatus, showing the right-hand support therefor. Fig. 5, Plate 3, is a sectional view of the left-hand supports for the cutting apparatus. Fig. 6, Plate 4, is a top view in detail of the double-tree on the tongue and its attachments thereto. Fig. 7, Plate 4, is a cross-section through Fig. 6. Figs. 8 and 9, Plate 4, are views showing the devices for lifting the cutting apparatus.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to certain novel improvements on direct-draft mowing-machines where the cutting apparatus is arranged in front of the transporting-wheels, and connected to the frame of the machine by loose-jointed arms, as will be hereinafter explained.

The following is a description of my improvements.

In the accompanying drawings, A A represent the transporting-wheels, which are also driving-wheels for the sickle, and which are applied loosely on an axle, B. On this axle B is also applied loosely a frame, E, consisting of two longitudinal side bars connected together in rear of the axle B by cross-bars, as shown in Fig. 1. This frame is thus allowed to vibrate vertically on its axle. Between the side bars of frame E the platform C is loosely connected to the axle by tubular bearings *a a*, and to the middle of this platform a tongue, D, is rigidly secured, rising from rear end of

which is a standard for the driver's seat D<sup>1</sup>. The finger-bar G, on which plays the sickle G<sup>x</sup>, is located directly in front of the transporting-wheels A A, and is connected to the frame E as follows: On the outer side of the left-hand side bar of frame E an arm, G<sup>2</sup>, is rigidly secured, which arm inclines downward, and is curved outward. Its lower end is fitted loosely into a socket, which is made into the rear end of a shoe, H, and is held in this socket by pins fitting into a groove in that portion of the arm G<sup>2</sup> which is received into the socket. The left-hand shoe H is thus allowed to rock laterally on its arm, and it is allowed to rise and descend by reason of the attachment of the arm G<sup>2</sup> to the vertically-vibrating frame E. This left-hand shoe has secured to it the left-hand end of the finger-bar G, and by means of a front extension of this shoe a lead-wheel, *i*, is employed, the stud-bearing 2 of which is adjustable in a vertical slot, 3, which is through the said front extension of the shoe H. (Shown in Fig. 5.) The right-hand end of the finger-bar G is also rigidly secured to a shoe, H, which, like the left-hand shoe H, is constructed with a front extension, and provided with a lead-wheel, *i*, whose stud-bearing 2 is adjustable in a slot, 3. (Shown in Fig. 4.) By means of the slotted connections of the studs 2 of the wheels *i i* the finger-bar and sickle can be adjusted for cutting higher or lower, as may be required. The right-hand shoe H is connected, by a transverse pivot, 5, at its rear end, to the front end of an arm, G<sup>1</sup>, the rear end of which is connected, by a ball-and-socket joint, *p*, to the inner side of the right-hand side bar of frame E. (Shown by Figs. 1, 3, and 8.) By thus attaching the shoes at the extremities of the finger-bar G to the frame E and arms G<sup>1</sup> G<sup>2</sup>, the finger-bar is allowed to accommodate itself freely to all inequalities of surface passed over. The length of the finger-bar and sickle is such that the lead-wheels *i i* run on the ground outside of the treads of the wheels A A. This allows a swath to be cut which is wider than the space between the treads of the wheels A A; consequently these wheels will not run on the standing grass. I obtain this result in my machine by giving the front ends of the two arms G<sup>1</sup> G<sup>2</sup> the proper outward curve, and

making the sickle and finger-bar a proper length to extend from one shoe to the other. To prevent the wheels A A from running on the cut grass which falls behind the finger-bar, I employ curved deflectors *h h* and *h' h'*. The deflectors *h' h'* lean the grass toward the center of the swath, and cause it to fall in this direction from both sides of the machine, while the deflectors *h h* are pivoted at their front ends to the inner sides of the shoes H H, and extend backward and inward, so as to press the cut grass toward the center of the machine out of the paths of the wheels A A. It will thus be seen that the wheels A A neither run on the standing grass nor on the cut grass.

The sickle  $G^x$  is reciprocated by an angular lever, *j*, which vibrates about a pivot on the left-hand shoe H. One arm of this angular lever is connected by a pitman-rod, J, to a wrist-pin on the outer face of a crank-wheel, K, which latter is keyed on a short shaft, K', whose bearings are located in rear of the axle B. On this shaft K' is keyed a pinion spur-wheel, (not shown in the drawings,) which engages with the teeth of a larger spur-wheel, *r*, on a horizontal transverse shaft, B'. The two spur-wheels just described are housed in by a guard, *l*. (Shown in Fig. 1.) The shaft B' has its bearings on the longitudinal bars of the frame E, in rear of the shaft K', and the spur-wheel *r* is applied loosely on this shaft B', but can be made fast thereon at the pleasure of the driver by means of a clutch, *c c*, one portion of which is fast on its shaft, and the other portion is applied to the hub of the spur-wheel *r*. To clutch and unclutch the wheel *r*, a hand-lever, *m*, is used, which is pivoted to the rear cross-bar of frame E, and connected by a yoke and annular groove to the hub of said wheel. This lever *m* is located in a convenient position to the driver sitting on the seat D<sup>1</sup>. The driving power for the sickle is derived from large spur-wheels A', which are fixed to the inner sides of the two wheels A, eccentrically to the axis of the shaft B', and with which engage pinions *p'*. The pinions *p'* are applied by means of clutches *b* on the shaft B', which clutches engage the pinions to their shaft when the machine is moved forward, but not when it is moved backward. D<sup>3</sup> represents a double-tree, which crosses the tongue D at the middle of its length, and which has attached to its extremities single-trees *d*<sup>3</sup>, which latter are outside of the path of the machine, owing to the length of the double-tree. This double-tree D<sup>3</sup> is pivoted to a T-shaped slide, *f*, which works in a dove-tail groove made longitudinally into a plate, *g*, fast on the tongue. At the extremities of the grooved plate *g* are stop-pins 6 6, which limit the forward and backward movements of the double-tree. By inserting a movable pin, *g'*, into a hole, 5, through plate *g*, the double-tree will be prevented from moving forward beyond such pin, and consequently the draft will be directly from the axle B.

The horns *f' f'* of plate *f* prevent the extremities of the double-tree from being moved so far back as would allow the horse's legs to be injured by the cutting apparatus.

By reference to Fig. 1 it will be seen that the double-tree D<sup>3</sup> is connected by a rod, *e*<sup>2</sup>, to a single-tree, D<sup>2</sup>, which rod is kept in place on the tongue D by means of staple *v*. The extremities of the single-tree D<sup>2</sup> are connected, by chains and rods *e e*, to draft-irons *e' e'*, one of which is secured to the front end of the rigid left-hand side bar of the frame E, and the other is secured to the swinging socketed curved arm G<sup>1</sup>, in front of its joint-connection *p* and in front of the axle B.

The draft-irons may be adjustable longitudinally, or they may have several perforations through them, which will allow the double-tree and single-tree to be adjusted forward or backward, according to the weight of the grass to be cut.

When the pin *g'* is removed from the hole 5 the horses will draw the machine from the draft-irons *e' e'*, the tendency of which is to sustain the cutting apparatus, so that it will not bear with its entire weight upon the ground with either end. I thus greatly lighten the draft of the machine.

For the purpose of lifting the cutting apparatus free from the ground I employ a vertically movable stirrup, *t*, which is guided by the right-hand bar of the frame E, and through which passes the arm G<sup>1</sup>, as shown in Figs. 8 and 9. The lifting portion of the stirrup *t* is located inside of the right-hand bar of frame E, for a purpose hereinafter explained. The stirrup *t* is hung from a grooved segment, *o*, by a chain, *s*, which segment is keyed on the shaft *n*<sup>2</sup> of a lever, *n*. The segment and its shaft have their bearings on the platform C, and by means of a pawl, *n*<sup>1</sup>, and a ratchet, which is on shaft *n*<sup>2</sup>, the cutting apparatus can be sustained when it is raised from the ground.

The improvement which I have made on this lifting apparatus consists in locating the stirrup on the inner side of the right-hand side bar of frame E, so that the segment *o*, from which this loop is suspended, can be brought near the outer bearing of the rock-shaft *n*<sup>2</sup>, thus relieving this shaft *n*<sup>2</sup> of much strain to which it would be subjected if the shaft *n*<sup>2</sup> were extended out over the side bar of frame E.

It will be seen from the above description, first, that the draft of the horses on the machine operates to overcome the tendency of both ends of the finger-bar and its attachments to press down upon the ground; second, that this tendency to lift either end of the cutting apparatus can be increased or diminished, as circumstances require, by attaching the rods *e* to the draft-irons farther forward or backward; third, that when it is desired to draw directly from the axle B, this can be done by inserting the pin *g'* into the grooved plate *g*, in front of the double-tree D<sup>3</sup>; fourth,

that the cutting apparatus is of such length that the width of the swath cut is greater than the distance between the treads of the transporting-wheels.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The sliding plate *f*, constructed with stops or horns *f'*, and having pivoted to it the double-tree *D*<sup>3</sup>, substantially as described.

2. The draft chains or rods *e e*, suspended from the evener *D*<sup>2</sup>, one of which is attached to the left-side arm of frame *E*, the other to the right-side brace *G'*, as and for the purpose set forth.

3. The double-tree *D*<sup>3</sup> and single-trees *d*<sup>3</sup>, combined and connected by rod *e*<sup>2</sup> to an evener, *D*<sup>2</sup>, which extends across the tongue *D*, back from a vertical line from the finger-bar, the left end of said evener being connected to a draft-iron located on the rigid left-hand side arm of frame *E*, and the right end connected to a draft-iron located on the side brace *G*<sup>1</sup>, substantially as described.

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