

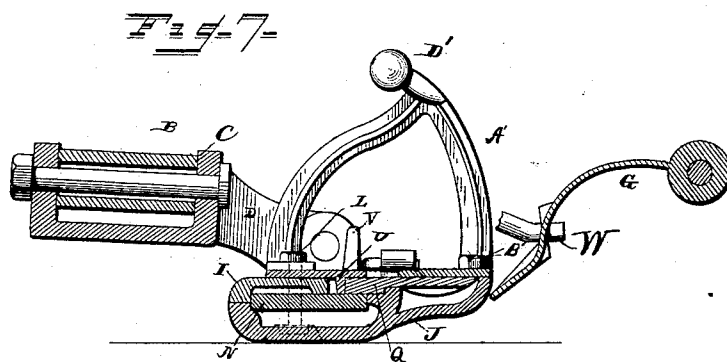
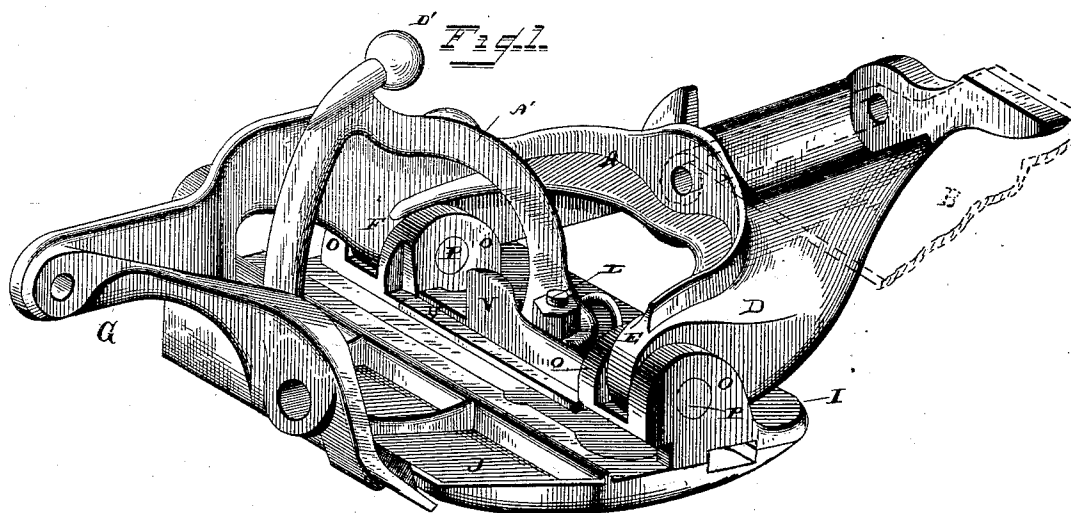
(No Model.)

3 Sheets—Sheet 1.

N. O. STARKS.
SHOE FOR MOWING MACHINES.

No. 340,959.

Patented Apr. 27, 1886.



WITNESSES
F. L. Ourand.
Geo. B. Frick.

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Attorneys

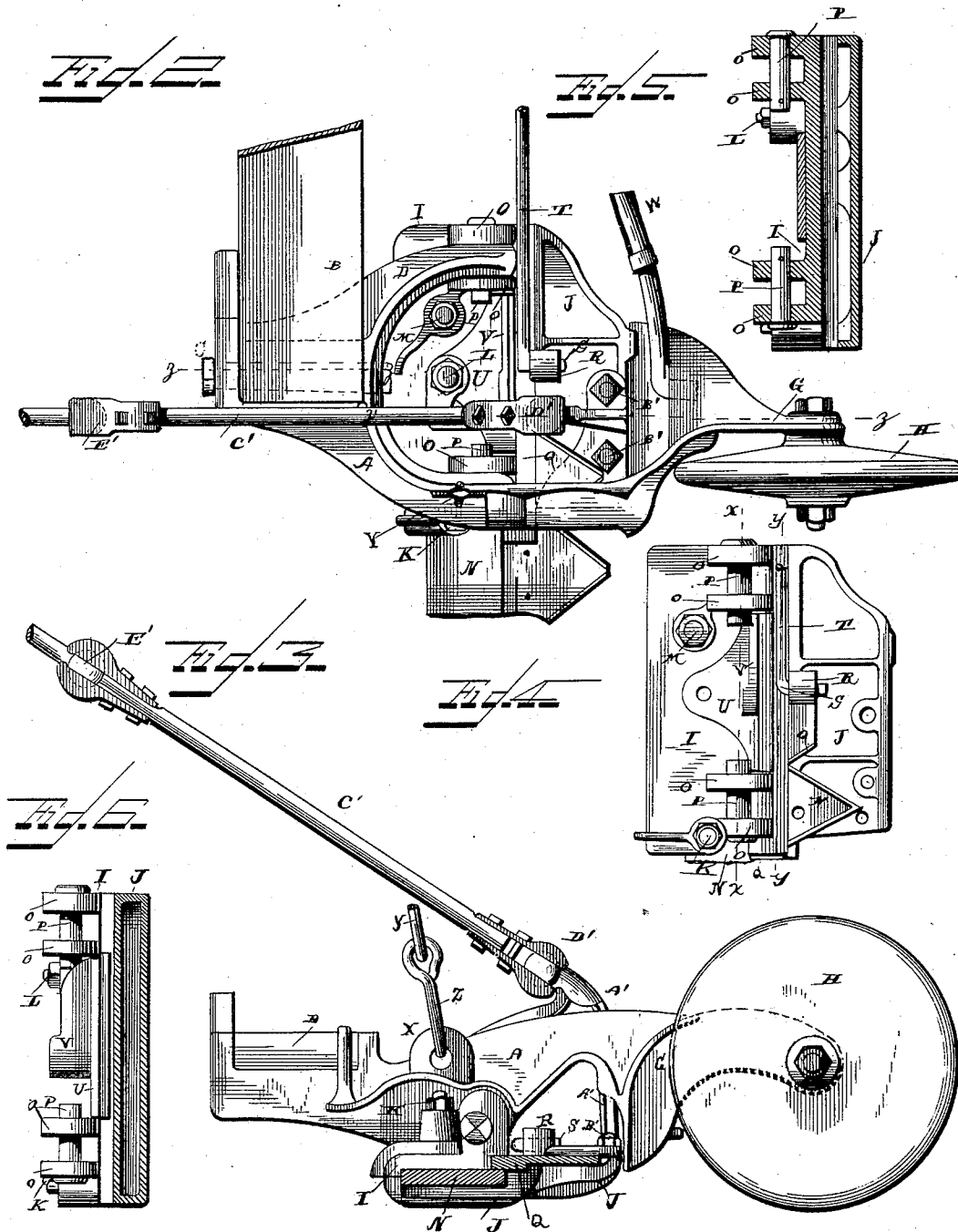
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H. L. Oursand
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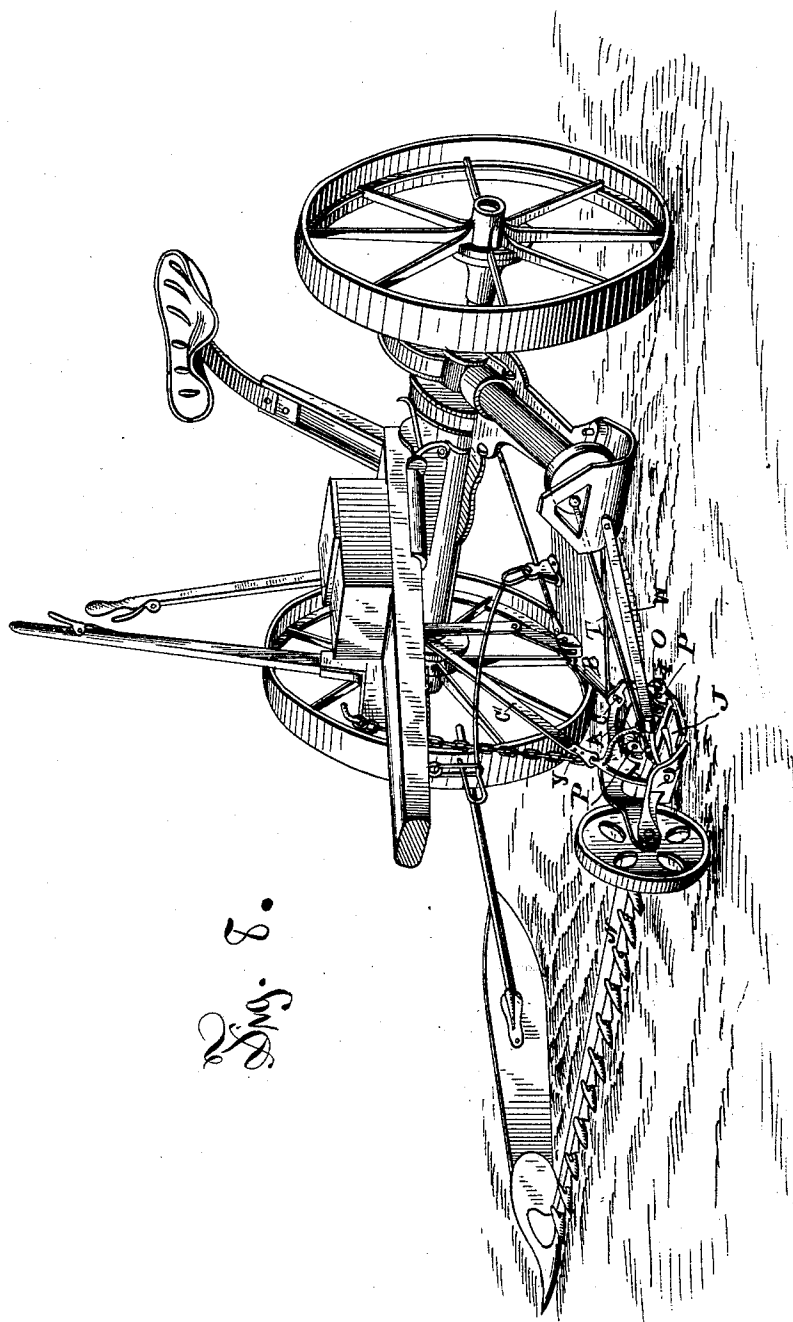
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SHOE FOR MOWING MACHINES.

No. 340,959.

Patented Apr. 27, 1886.



WITNESSES
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UNITED STATES PATENT OFFICE.

NILS O. STARKS, OF MADISON, WISCONSIN, ASSIGNOR TO THE FULLER & JOHNSON MANUFACTURING COMPANY, (LIMITED,) OF SAME PLACE.

SHOE FOR MOWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 340,959, dated April 27, 1886.

Application filed September 7, 1885. Serial No. 176,410. (No model.)

To all whom it may concern:

Be it known that I, NILS O. STARKS, of Madison, in the county of Dane and State of Wisconsin, have invented certain new and useful Improvements in Shoes for Mowing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a perspective view of a shoe for mowing-machines embodying my improvements. Fig. 2 is a top view of the same. Fig. 3 is a side elevation. Fig. 4 is a top view of the rocking or lower part of the shoe, the tilting arch having been removed from the same for the purpose of illustrating the construction more clearly. Fig. 5 is a transverse vertical sectional view taken on the line *x x* in Fig. 4. Fig. 6 is a transverse vertical sectional view taken on the line *y y* in Fig. 4. Fig. 7 is a longitudinal vertical sectional view taken on the broken line *z z z z* in Fig. 2, and Fig. 8 is a perspective view of a mower provided with my improved shoe.

The same letters refer to the same parts in all the figures.

This invention relates to mowing-machines, and more particularly to the shoes for the same; and it has for its object to construct the shoe with a swinging or rocking portion, enabling it and the finger-bar carried thereby to be rocked or tilted, so that the operator at will may easily and conveniently tilt the guards or fingers up and down, so as to cut higher or lower, as may be required, or to cause the bar to move or slide more easily over obstructions than would otherwise be the case.

My invention also has for its object to so construct and arrange the hinge whereby the swinging portion is attached to the yoke of the shoe that the outer end of the bar shall not move back and forth when the bar is rocked, but that the fingers or guards shall move straight up and down, thereby avoiding side draft when the bar is rocked.

With these ends in view the invention consists in the improved construction, arrangement, and combination of parts, which will be

hereinafter fully described, and particularly pointed out in the claims.

Referring to the drawings hereto annexed, A designates the yoke of the shoe, the rear end of which is connected in the usual manner to the main supporting spring or brace B by means of a hinge-bolt, C, so that it shall be capable of being swung or turned to a vertical or upright position when it shall be desired to raise the finger-bar and cutting apparatus carried by the shoe to a vertical position while the machine of which these devices form a part is traveling on the road or from one field to another. The stubble side of the yoke A forms an arm, D, terminating in a transversely-perforated lug, E, and the grain side of the said yoke has a transversely-perforated lug, F, registering with the lug E, and it is extended thence in a forward direction, and is bent or curved, as shown, so as to form the horn or beak G, to one side of which the ground-wheel H is journaled in the usual manner.

The central or rocking part of the shoe is composed of a top plate, I, and a bottom plate, J, which latter is sled-shaped or runner-shaped on its under side, in order that it shall travel smoothly and easily over the ground. The said upper and lower plates are each provided with a groove which register with one another when the plates are in position, and within which the finger-bar N is clasped and secured by means of the bolts K, L, and M, which also hold the plates together. The upper plate, I, is provided with upwardly extending transversely-perforated lugs or ears O O, registering with the hinge-lugs E F of the yoke A, with which they are connected by means of the hinge pins or pintles P P, thereby enabling the entire central part of the shoe to swing or rock transversely with relation to the said yoke.

The plates or parts I and J, forming the central part of the shoe, are formed or provided with suitable ways or bearings for the laterally-reciprocating cutter-bar Q, which is equipped, in the usual manner, with knives or cutters, and which is provided at its inner end with the perforated head or eye R, to receive the hooked end S of the pitman or operating rod T, to which motion may be imparted by

mechanism of any suitable construction, which, however, forms no part of the present invention.

A guard-plate, U, having a flange, V, which serves to prevent the pitman from becoming disconnected from the eye of the cutter-bar when in motion, is secured detachably to the plate I by means of the connecting-bolt L. In Figs. 1, 4, and 7 the flange is shown as moved back to permit the insertion or removal of the pitman from the eye.

The forward end of the yoke A is connected pivotally with the lower end of a suitable brace-rod, W, which is attached to the main frame of the machine, in order to be well supported in position for operation. The point at which the yoke is connected with the said brace-rod should be in a line with the hinge-bolt C, as will be plainly seen in Fig. 2 of the drawings, in order that the yoke, with its attachments, may be readily turned or swung upon its hinges when it shall be desired to elevate the cutting apparatus from the ground for the purpose of transportation. The grain side of the yoke A is provided with a perforated lug or eye, X, with which a chain, Y, may be connected by means of a hook, Z, or in any other suitable manner. This chain leads to the main frame of the machine, and is for the purpose of lifting or tilting the yoke when the cutting apparatus is to be elevated, mechanism of any suitable well-known construction being employed for this purpose.

A' designates a tilting arch, which is secured to the upper plate, I, of the rocking part of the shoe by means of the bolt L, and by additional bolts B' B'. To the upper end of the said arch an operating-rod, C', is connected by means of a ball-and-socket joint, D', or by a universal joint of any suitable construction. The upper rear end of the said operating-rod is in turn provided with a ball-and-socket or other universal joint, E', whereby it may be connected with a bell-crank or operating lever suitably mounted upon the frame of the machine.

When desired, the universal joint at the upper end of the operating-lever may be dispensed with, and the said operating-rod may be manipulated direct by hand, or by other means than the bell-crank lever. The latter forms no part of the invention.

The operation and advantages of this invention will be readily understood from the foregoing description, taken in connection with the drawings hereto annexed, without requiring any extended explanation.

By means of the chain Y the shoe, as a whole, may be readily raised or tilted in the usual manner when it shall be desired to elevate the cutting apparatus, the shoe turning upon the hinge-bolt C, and on the pivot, by means of which it is connected with the brace-rod W.

By means of the operating rod C' the central or rocking part of the shoe may be swung or tilted upon its hinges or pivots, thus rais-

ing or lowering the front ends of the cutters, so as to cut high or low, as may be required, and when desired raising the front end of the rocking part of the shoe, so as to enable it easily to clear or pass over any obstructions which may be encountered.

Suitable mechanism of any well-known kind may be employed for the purpose of retaining the operating-rod and the rocking part of the shoe in any position to which they may be adjusted.

The universal joints at the end or ends of the operating-rod enable the latter to adjust or adapt itself to the motion of the entire shoe, when the latter is tilted for the purpose of elevating the cutting apparatus.

The general construction of the device is simple and inexpensive. It is easily manipulated, and the invention may be readily applied to many mowing-machines of ordinary construction.

In the practical manufacture of this invention it may sometimes be found desirable to slightly change or modify the construction of minor parts, and I would therefore have it understood that I do not limit myself to the precise construction and arrangement of parts herein shown and described, but reserve to myself the right to all modifications which may be resorted to without departing from the spirit of my invention.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a shoe for mowing-machines, the combination of the yoke, the stubble side of which terminates in a transversely-perforated lug, and the grain side of which is extended forwardly and provided with the ground-wheel, and with a downwardly-extending perforated lug registering with the perforated lug of the stubble side, with the central rocking frame, consisting of an upper and a lower plate, and means for securing them together, and clamping between them the finger-bar, and having suitable ways or bearings for the cutter-bar, said upper plate being provided with perforated lugs, whereby it is connected with the main frame of the shoe, substantially as and for the purpose herein set forth.

2. In a shoe for mowing-machines, the combination, with the herein-described yoke, of the central hinged or rocking frame, composed of an upper and a lower plate suitably connected by means of vertical bolts, the finger-bar clamped and secured between the said plates, the laterally-reciprocating cutter-bar arranged to slide in suitable ways or bearings in the said plates and having an eye at its inner end, the operating-rod or pitman having a hooked end entering the said eye, and a flanged guard-plate secured to the upper shoe-plate by means of one of the connecting-bolts, substantially as and for the purpose herein set forth.

3. In a shoe for mowing-machines, the combination of the yoke, the central hinged or

rocking frame comprising an upper and a lower plate, between which the finger-bar is securely clamped, and the tilting arch securely attached to the upper plate of the said rocking frame, substantially as and for the purpose herein shown and specified.

4. In a shoe for mowing-machines, the combination of the yoke, the hinged or rocking frame carrying the cutting apparatus, the tilting arch secured to the upper side of the said rocking frame, and an operating-rod for manipulating the said rocking frame, said operating-rod being provided at one or both ends with universal joints, by means of one of which it is connected with the upper end of the said tilting arch, substantially as and for the purpose herein shown and specified.

5. In a mowing-machine, the combination of the yoke connected by means of suitable hinge-joints with braces C and U, attached to the main frame of the machine, the rocking frame hinged transversely to the said yoke and carrying the cutting apparatus, the tilting arch mounted upon the said rocking frame, and an operating-rod connected with the said tilting arch by a universal joint, substantially as and for the purpose herein set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

NILS O. STARKS.

Witnesses:

W. R. BAGLEY,
GEO. GERNON.