(No Model.)

4 Sheets—Sheet 1.

S. D. MADDIN.

MOWER.

No. 397,924. Patented Feb. 19, 1889.

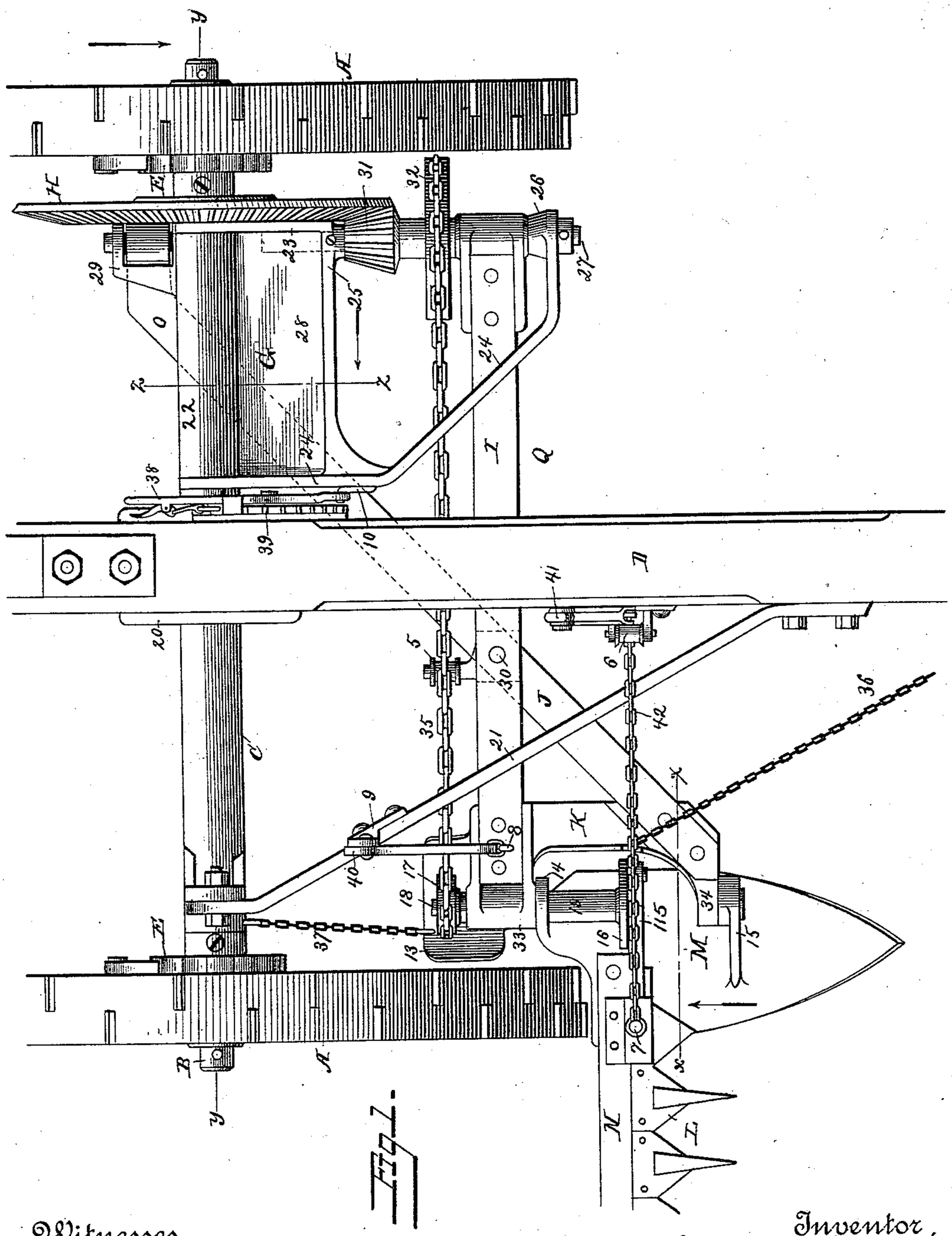

Fig. 1.

Witnesses,
Geo. G. Hinkel Jr.
Sidney L. Johnson

Inventor,
Samuel D. Maddin,
By his Attorneys
Foster & Freeman.

(No Model.)

4 Sheets—Sheet 2.

S. D. MADDIN.

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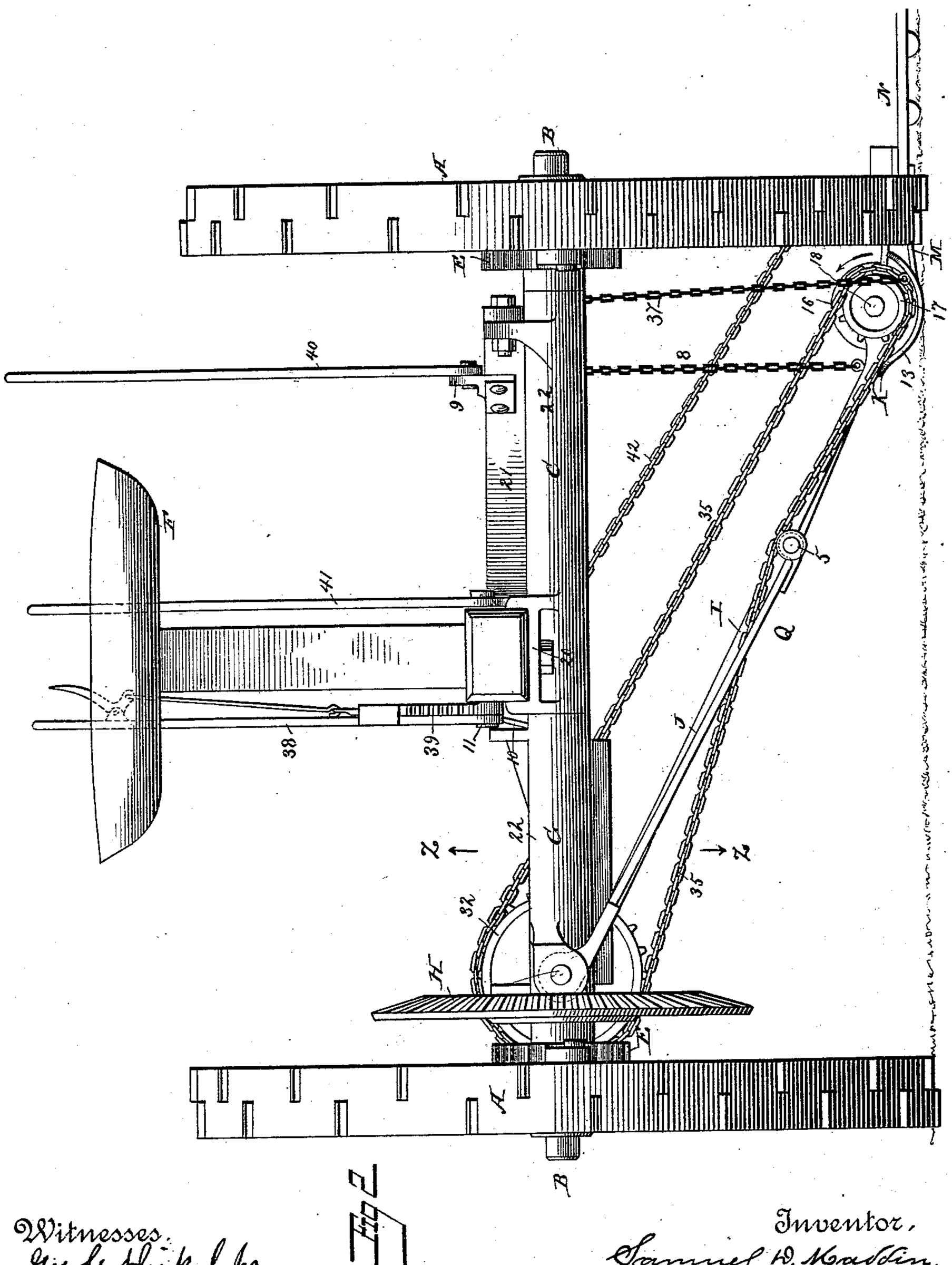

Witnesses:
Jno. S. Hinkel Jr.
Sidney L. Johnson

Inventor,
Sammel D. Maddin,
By his Attorneys
Foster & Freeman.

(No Model.)

4 Sheets—Sheet 3.

S. D. MADDIN.

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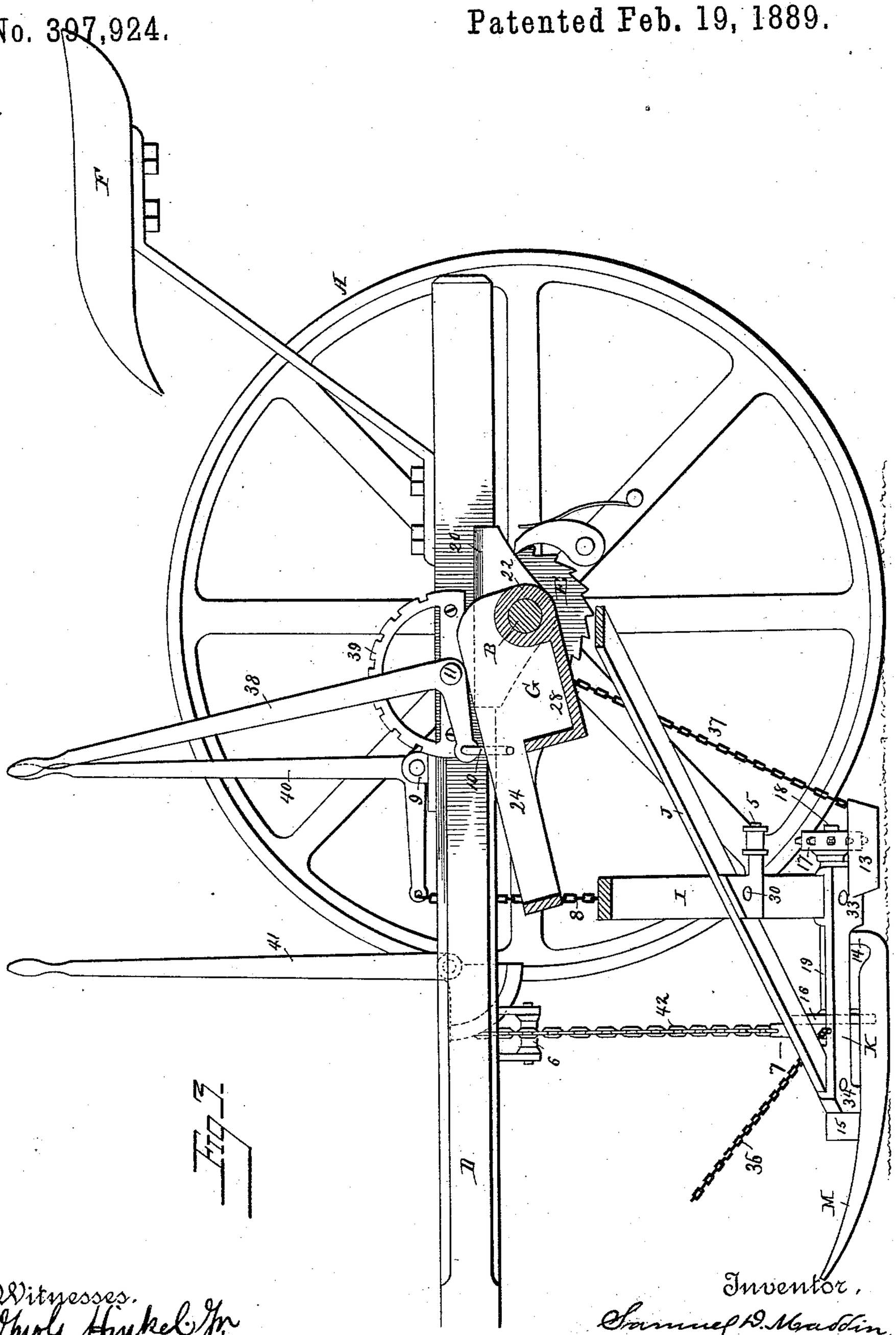

FIG. 1.

Witnesses.
Jno. G. Hinkel Jr.
Sidney L. Johnson

Inventor,
Samuel D. Maddin,
By his Attorneys
Foster & Freeman.

(No Model.) 4 Sheets—Sheet 4.

S. D. MADDIN.

MOWER.

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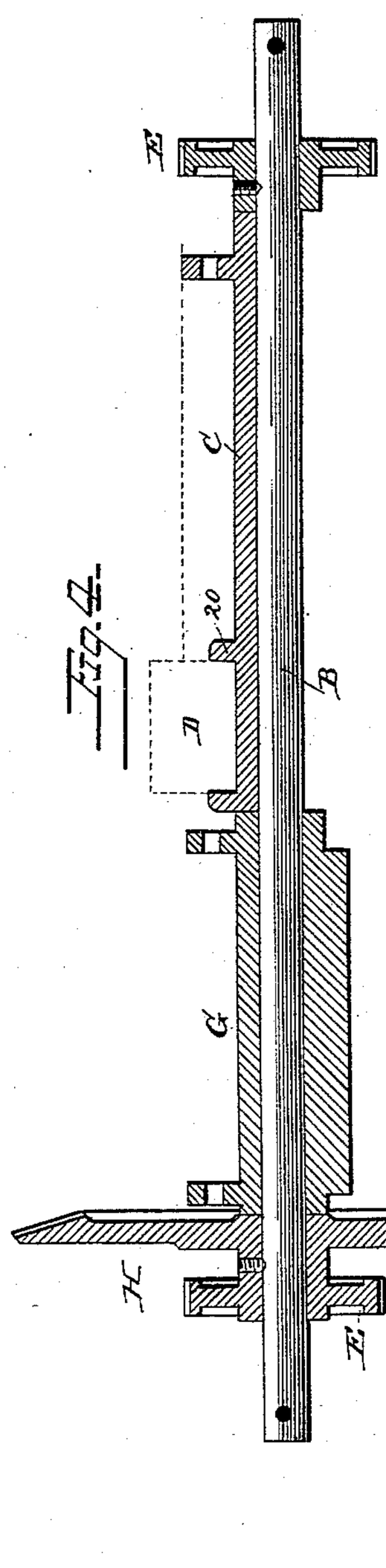

Fig. 4.

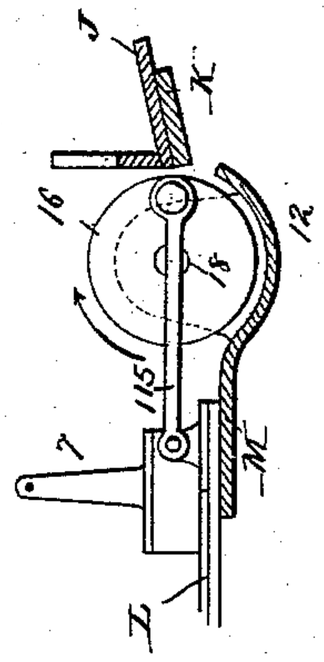

Fig. 6.

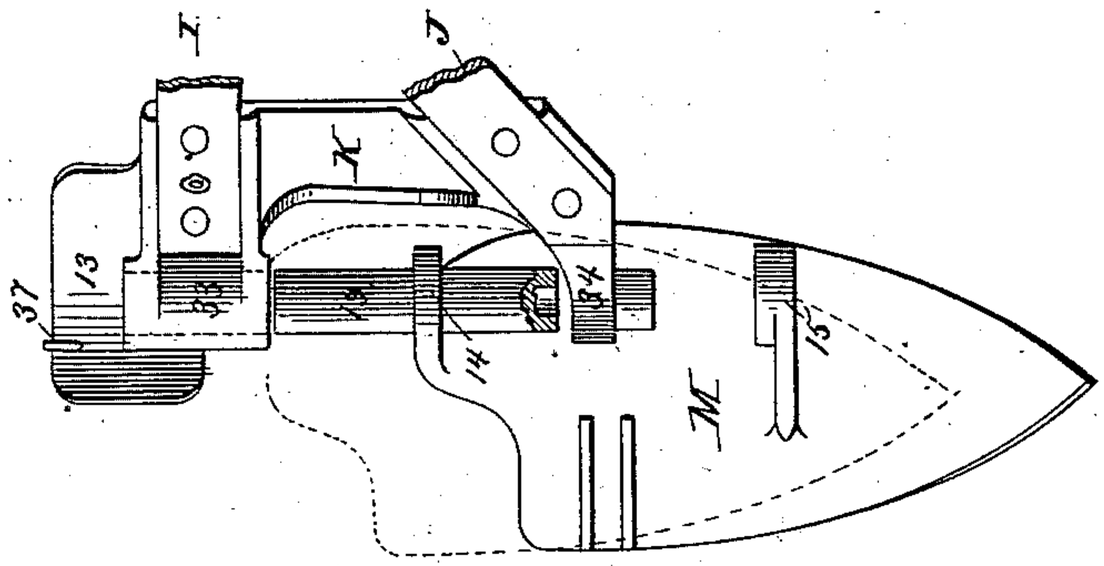

Fig. 5.

Witnesses.
Jno. G. Hinkel Jr.
Sidney L. Johnson.

Inventor,
Samuel D. Maddin,
By his Attorneys
Foster and Freeman.

UNITED STATES PATENT OFFICE.

SAMUEL DOMINICK MADDIN, OF SARNIA, ONTARIO, CANADA, ASSIGNOR TO MARY MADDIN, OF SAME PLACE.

MOWER.

SPECIFICATION forming part of Letters Patent No. 397,924, dated February 19, 1889.

Application filed March 31, 1887. Serial No. 233,208. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL DOMINICK MADDIN, a citizen of the United States, and a resident of Sarnia, Lambton county, Ontario, Canada, have invented certain new and useful Improvements in Mowers, of which the following is a specification.

This invention relates to that class of harvesters known as "reaping" or "mowing" machines.

The object of the present improvements is to lessen and counteract the lateral and rearward strains upon the shoe and driving mechanism, so that such strains are taken up by the frame of the machine to obviate as much as possible the side-draft, to counteract all side-thrust upon the driving-gear, and to simplify and increase the general efficiency of the machine.

To this end the invention consists in a frame supported loosely upon the main axle of the machine independent of the main framing, and a connection preferably consisting of bars extending laterally across each other, which in turn carry a light yoke supporting the shoe and crank-shaft for driving the reciprocating cutter-bars, which bars are disposed in such relation to each other and to the main frame supporting them that all side thrust and draft upon the shoe and its yoke are taken up thereby and transmitted directly to the axle of the machine.

It also consists in the construction of the shoe and its yoke, whereby the position of the crank-shaft is lowered, so as to be on line with the pitman-connection with the cutter-bar; and it further consists in certain details of construction and combinations of elements hereinafter described and specifically claimed.

In the drawings, Figure 1 is a plan view of the mowing-machine. Fig. 2 is a rear elevation thereof. Fig. 3 is a vertical sectional elevation of the same, taken on the lines *z z* of Figs. 1 and 2. Fig. 4 is a longitudinal central section taken on the line *y y* of Fig. 1, looking from the rear of the machine. Fig. 5 is a plan view of the shoe and supporting yoke or bracket detached from the machine, and illustrating the manner in which the shoe is supported and detached therefrom, the dotted lines indicating its normal position; and Fig. 6 is a sectional elevation of the shoe, taken on the line *x x* of Fig. 1, showing particularly the crank and pitman connection for reciprocating the cutter-bar.

Referring to said drawings, it is to be understood that A represents the supporting and driving wheels, B the axle upon which they are mounted, and E ratchet-wheels secured upon the axle just inside of the wheels that are engaged by pawls, as usual, carried by the wheels. To the axle B is also secured a driving beveled wheel, H, which, as shown in Fig. 4, may be formed integral with one of the ratchet-wheels E, as is obvious.

Supported upon the axle B is a frame, C, arranged between the wheels at one side of the longitudinal center of the machine, that carries a suitable seat, 20, in which is secured the end of a shaft or tongue, D, projecting to the front of the machine and braced by a diagonal strap, 21, extending and secured to a lug provided on one end of the frame C. The tongue supports the ordinary driver's seat, F, all of which is of well-known construction. The axle B also supports loosely a stout rocking frame, G, which consists of a sleeve, 22, surrounding the axle and extending upon one side of the tongue D between the end of the frame C and the driving beveled wheel H, so that it has little or no lateral play upon said axle, and having extending flanges 23 24, providing bearings 25 26 for a short shaft, 27, the inner end of which is extended well into the rear bearing, 25, and may be therein secured by a set-screw, as shown. These flanges may be strengthened by a cross-bar, and the space between the cross-bar, sleeve 22, and flanges may be utilized for a box or receptacle, 28, for tools, &c.

The shaft 27 between its bearing 25 and the end of a bar, I, supports and forms a bearing for a beveled pinion, 31, gearing with the driving beveled wheel H, and a sprocket-wheel, 32, which latter and the pinion are secured together or formed integral with each other, so as to be rotated together during the forward movement of the machine.

From the rear of the sleeve 22 of the frame G extends a bracket, 29, providing a pivotal

bearing for one end of a bar, J, of a frame, Q, extending diagonally between the wheels to the front of the machine, where it is finally secured to the front end of the yoke K, that supports the crank-shaft 18 (for reciprocating the cutter-bar L) and the shoe M, as will be hereinafter described. Upon the shaft 27 is also pivotally mounted one end of the bar I, that extends between the wheels substantially parallel with the axle B, crossing the diagonal bar J at the point 30, where they are riveted together, constituting the connecting-frame Q, the opposite end of said bar I being rigidly secured at the rear of the yoke K, as seen in Figs. 1 and 5.

The yoke K is provided with front and rear bearings, 33 34, in the former of which fits one end of a sleeve, 19, that is carried by an ear, 14, rising from the rear of the shoe M. In the sleeve is mounted the short shaft 18, and upon the rear end thereof is secured a sprocket-wheel, 17, that is substantially in line with the sprocket-wheel 32, an endless sprocket-chain, 35, passing around said two wheels, so that the motion of the latter will be transmitted to the former. A small wheel, 5, is provided upon the bar I to tighten and support the chain in its return from the wheel 32 and prevent it from traveling in contact with the diagonal bar J. Upon the opposite end of the shaft 18 is secured a crank-disk, 16, which, through a pitman, 115, imparts reciprocating motion to the cutter-bar L, as is common.

The shoe M, as usual, supports the inner end of the cutter-bar frame and is connected to the finger-bar N thereof, and is pivotally supported from the yoke K, in addition to the ear 14 and sleeve 19, through an ear, 15, that fits over and is borne by a stud projecting from the bearing 34 of said yoke K, the construction being such that the displacement and lateral play of the shoe are prevented by the sprocket-wheel 17 and ear 14 abutting against opposite sides of the bearing 33, the rearward thrust of the shoe being borne by both the bearings 33 34 through the ears 14 and 15, while no strain comes upon the crank-shaft, as will be apparent. Thus, should it be desired to disconnect the shoe and yoke K, it will only be necessary to remove the crank-wheel 16 from the end of its shaft 18, when the latter and the sprocket-wheel on its other end may be withdrawn from the sleeve 19 and the shoe drawn forward sufficient to remove the sleeve from within its bearing 33 and the forward ear, 15, from the bearing 34.

The rear of the yoke K is provided with a curved flange, 13, (see Fig. 5,) which extends under the sprocket-wheel 17 and practically around it sufficiently to protect it from the ground. (See Fig. 2.) A portion of the bottom of the shoe M is likewise depressed, as shown at 12 in Fig. 6, so as to permit the movement of the crank-disk 16 and its pitman 115. This feature, while it serves to protect the rotating sprocket-wheel 17 and crank-disk from the ground, enables the crank-shaft 18 to be supported low enough to bring its axis substantially in line with the joint of the pitman-connection with the cutter-bar L, which is very important, as it prevents thrust and obviates materially the strain upon said connection and the crank-pin.

The yoke K may of course be provided with front and rear safety or stay chains, 36 37, the former being connected to an attachment on the tongue D at a point not seen in the drawings and the latter to the frame C.

A most important feature of my invention is the connection of the rocking frame and the yoke K by an intermediate pivoted frame, Q, in connection with a crank-shaft at the junction of the yoke and frame Q and a chain connection between the crank-shaft and driving-shaft carried by the rocking frame. This insures a positive regular motion to the crank-shaft whatever the position of the frames without the use of universal joints, and removes from the pivoted or floating parts the weight of all driving appliances and their supports, so that said parts are so light in weight that they move over the ground without transmitting to the main frame the shocks which result invariably when the cutter-bar attachments are heavy.

By making the frame Q of the crossed bars I J, I form a light rigid structure, the peculiar disposition of the bars imparting great stiffness to the frame, enabling it to withstand the constant strains to which it is subjected as it is being dragged over the ground during reaping. The arrangement of the bars and their connection with said yoke K, owing to their rigid connection with each other, also results in transmitting the side-draft and lateral strains equally to the front and rear of the frame G, thus having the effect to divert the thrust due to such strains directly to the main frame instead of to the face of the driving beveled wheel H, as is commonly the case.

Means are provided within the control of the driver of the machine for adjusting the inclination of the frame G and for raising the shoe and its yoke K and the finger-bar N.

The inclination of the frame G is effected by a bell-crank lever, 38, (see Fig. 3,) that is pivoted at 11 to the side of the tongue D, and has its short arm connected by a link, 10, to the side flange, 24, of said frame, a notched segment, 39, being provided upon the tongue D, in which a spring-pawl of the lever engages to hold the frame in its adjusted position. The raising of the shoe and its yoke K is accomplished by a lever, 40, pivoted to a lug, 9, that is secured to the diagonal brace 21. One end of the lever is connected through a chain, 8, to the yoke K, which, together with its supporting-bars I J, will be raised upon the pivotal points of said bars. The finger-bar is likewise raised by a lever, 41, pivoted to the side of the tongue D, its lower end being connected by a chain, 42, to the finger-bar and shoe at the point 7, a small bending-roller, 6, being provided upon the side of the said

tongue for properly transmitting the leverage upon the chain to said finger-bar and shoe, which in rising will be turned on the pivots formed by the sleeve 19 and bearing 34, as will be readily understood.

I do not limit myself to the precise details of construction shown.

What I do claim is—

1. The combination of a main frame supported upon the main axle, the rocking frame, also supported thereon independently of the main frame, the cutting apparatus, the yoke in which is supported the inner end of the cutting apparatus, havingthe bearings 33 34 therefor, the intermediate frame consisting of the bar I, pivotally connected with the rocking frame in front of the main axle at one end and at its opposite end connected to the rear end of the yoke, and the bar J, pivotally connected to the rocking frame in rear of the main axle and to the yoke near the front end thereof, the said bars I and J crossing each other and being connected at their point of intersection, and the adjusting devices for the rocking frame and for the intermediate frame, substantially as described.

2. The combination, with the yoke K, provided with a recessed bearing, 33, and a separate bearing, 34, in line with the bearing 33, of a shoe pivotally supported in said bearings and carrying a sleeve, 19, adapted to the recess in the bearing 33, and with a bearing for the crank-shaft for driving the pitman, substantially as described.

3. The combination, with the yoke K, provided with bearings 33 34 for pivotally supporting the shoe, and the shoe provided with a sleeve adapted to one bearing and an ear for the other, so as to be detached from both by a forward movement of the crank-shaft supported by the bearing 33, and having secured to its opposite ends a sprocket-wheel and a crank-disk, whereby the shoe and frame are held together, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SAMUEL DOMINICK MADDIN.

Witnesses:
THOMAS H. MURPHY,
BRITTAIN CLARKE.