(No Model.)

2 Sheets—Sheet 1.

C. VAN DE MARK.

Riding Plow.

No. 238,993. Patented March 15, 1881.

Fig. 1.

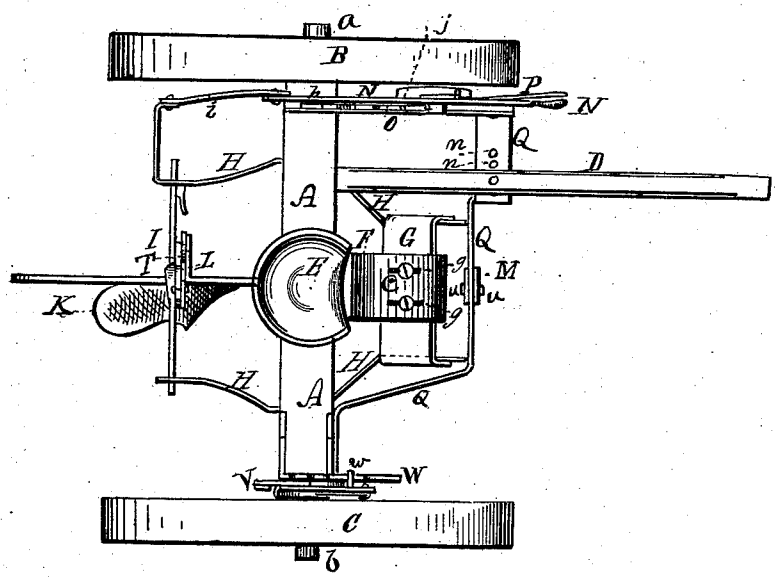
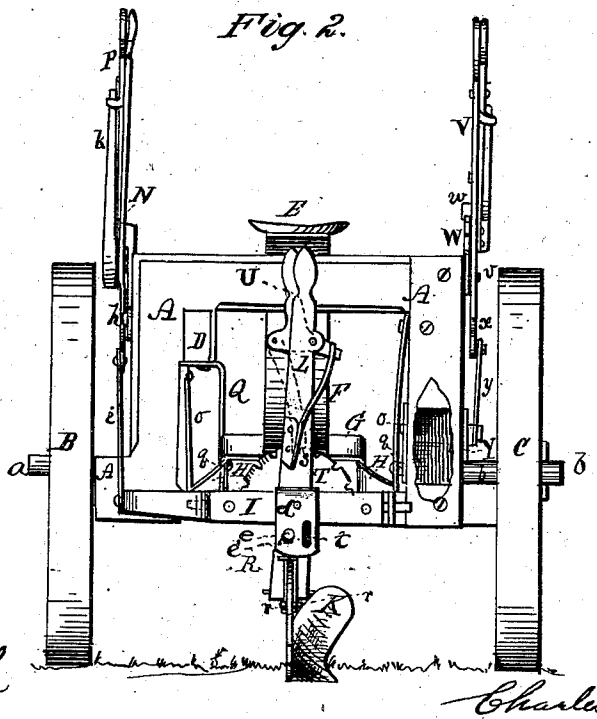


Fig. 2.



Witnesses
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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

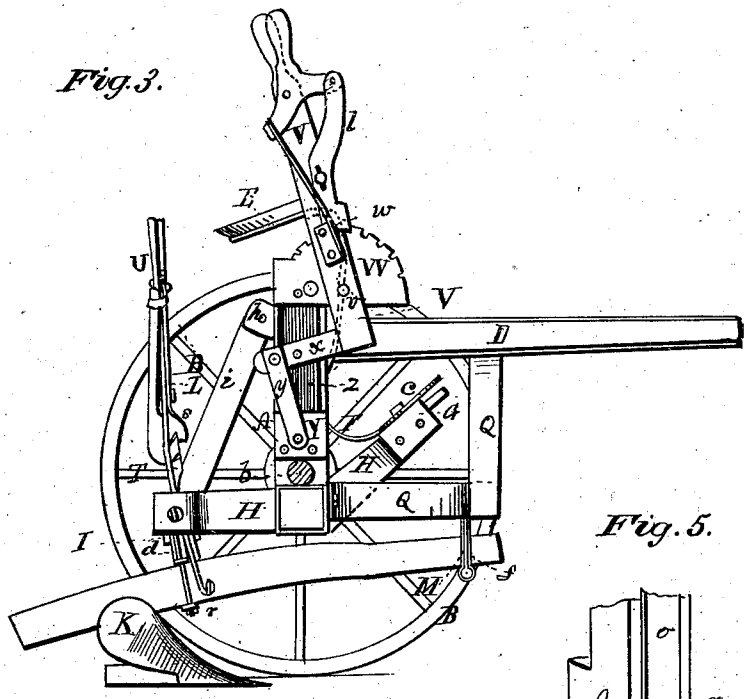


Fig. 5.

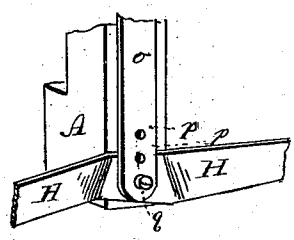


Fig. 4.

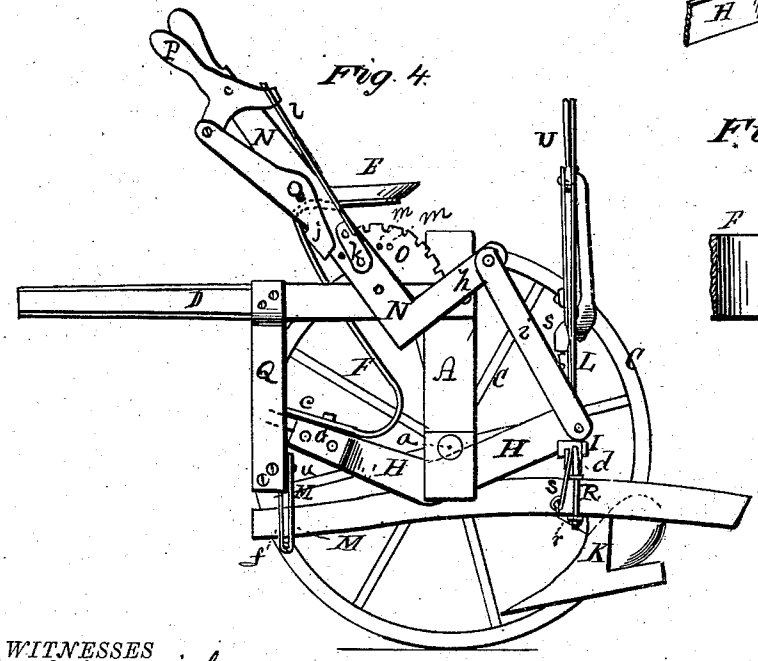
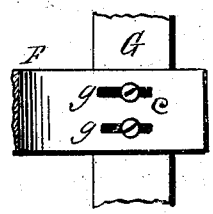


Fig. 6.



WITNESSES

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UNITED STATES PATENT OFFICE.

CHARLES VAN DE MARK, OF HILLSDALE, MICHIGAN.

RIDING-PLOW.

SPECIFICATION forming part of Letters Patent No. 238,993, dated March 15, 1881.

Application filed September 14, 1880. (No model.)

To all whom it may concern:

Be it known that I, CHARLES VAN DE MARK, of Hillsdale, in the county of Hillsdale and State of Michigan, have invented an Improved Riding-Plow; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification—

Figure 1 being a top view of the machine; Fig. 2, a rear view of the same; Fig. 3, a side view thereof, the adjacent wheel being removed; Fig. 4, an opposite-side view, the adjacent wheel being removed; Figs. 5 and 6, views of parts detached.

Like letters designate corresponding parts in all of the figures.

My improvements belong to the class of wheel-supported plows provided with a seat on which the driver sits.

The drawings represent a bent axle or cross-frame, A, highest in the middle, with one fixed journal, *a*, on which the wheel B turns, and one vertically-movable journal, *b*, on which the other wheel, C, turns. From the upper part of the bent axle, near one side of the same, a suitable tongue or pole, D, extends forward. The foot *c* of the seat-standard F is bolted or otherwise secured to a cross-bar, G, which unites the forward ends of two side tilting-bars, H H, the rear ends of which are connected by another cross-bar, I, from which, or a downward extension, *d*, thereof, the plow K is suspended. This rear cross-bar, I, is properly pivoted in the side bars, so that it may always assume a vertical position when the side bars are tilted. The plow is suspended from the cross-bar I by means of a vertical lever, L, pivoted at *e* to the same. The forward end of the plow-beam rests in a slot, *f*, of a suspending-plate, M, or its equivalent, supported by some fixed part of the machine-frame. The side bars, H H, of the plow-frame are centrally pivoted respectively to the inner sides of the vertical parts of the bent axle A at the proper height, as shown in Figs. 4 and 5, so that the front and rear ends of the frame may be made to rise and fall at will. As the rear end thereof is raised or lowered, so is the plow supported thereby; and the driver, sitting on the seat E, supported by the front end of the frame, descends as the plow ascends, and vice versa. Thus the weight of the driver is made to counterbalance the plow, and he can lift the plow by moving forward somewhat over his seat, or let it down by moving or leaning backward.

The arrangement of the seat in relation to the plow is intended to be such that the ordinary weight of a man sitting in the seat will just about balance the plow, and the foot *c* of the seat-standard F is made adjustable forward or backward on the cross-bar G of the tilting-frame to suit the varying weight of different drivers. This may be effected by slots *g g* in the standard-foot and screws passed through them into the cross-bar, as shown in Fig. 6. The cross-bar G is made wide to give support to the varying positions of the standard, and to serve as a support for the feet of the driver, whereby he can govern his positions and more easily vary his leverage on the tilting-frame.

I contemplate the employment of a dead-weight (of sand or other convenient material) to be placed on the cross-bar G or other convenient place on the tilting frame when desired, as when an unusually light person—such as a boy—is the driver; and in case an unusually heavy man is driving this adjusting-weight may be put on the rear or plow end of the tilting frame to equalize the balance. The above-described arrangement for balancing and for raising and lowering the plow accomplishes the purpose perfectly and with very little effort to the driver when it is necessary to raise the plow out of the ground, as in turning at the ends of furrows and at other times; but in order to steady the plow when running in the furrow, and to hold it up when raised, I make use of an adjusting-lever, N, mounted at the center of a semicircular ratchet-plate, O, which is secured in a proper position at one side of the raised part of the bent axle. This lever is of bell-crank form, and is connected with the rear end of the plow-supporting frame by a connecting-bar, *i*. A pawl-catch, *j*, taking into the notches of the plate O, is actuated by a bent lever, P, on the main lever N, with a closing-spring, *k*, and connecting-rod *l*, and thus secures the lever N, and consequently the tilting frame, in the position to which it is adjusted. One or more holes, *m m*, are made through the notched plate O, and a correspond-

ing hole in the lever N, through which to put a pin, whereby the lever can be held firmly in the required position without imposing the strain on the notches of the plate and the pawl-catch. The notched plate, as well as the plate or bar M, which sustains the forward end of the plow-beam and the tongue or pole D, is partially or wholly supported by an angular or bent brace-bar or plate, Q, extending from the lower end of one of the upright parts of the bent axle A over and upward to the other upright part, near the top thereof.

The tongue may be adjustable laterally in direction by being pivoted at its attachment to the axle, and by means of one or more additional holes, *n n*, in the plate Q.

The side bars H H are additionally supported, where they are pivoted to the uprights of the bent axle, by plates *o o*, which are bolted at their upper ends to the said upright parts. The height of the tilting frame is adjusted absolutely by having a series of bearing-holes, *p p*, in each upright and strengthening-plate, into any one of which the respective pivots *q q* are inserted.

The lateral angular adjustment of the plow may be effected in different ways; but the means represented in the drawings are suitable and as follows: The vertical lever L is the means of adjusting the plow, its upper end extending upward behind the driver in the seat E, where he can readily reach it. From the lower end of this lever a link or stirrup, R, extends downward and embraces the plow-beam, being secured below the beam by a cross-bar and screw-nuts *r r*, whereby the plow may be readily attached and detached and different plow-beams may be adjusted in place. Another stirrup or link, S, suspended from the lever-pivot *e*, may similarly embrace the plow-beam to give additional strength and security to the support. As thus suspended the plow is swung laterally to any desired angle by swinging the lever L, and this lever is held for the time in any position by another arc-shaped notched plate, T, secured to the cross-bar I concentric with the lever-pivot *e*. A pawl-catch, *s*, controlled by a bent lever, U, on the lever L and suitable connecting-rod and closing-spring, similar to the device for holding the lever N, above described, serves here to retain the lever L in its positions. The lever-pivot *e* is represented as being situated in a round bearing, *e'*, of the supporting-bar I, or of its downward extension *d*, and where the land is smooth and free from stones this is the best arrangement; but where the ground is rough and stony, and the plow is liable to meet obstructions and be suddenly thrown upward, I employ a vertically-oblong bearing, *t*, Fig. 2, whereby the plow may yield freely upward to a sufficient extent without lifting the tilting frame or jolting or otherwise disturbing the driver in his seat. I contemplate providing each suspending-bar with two bearings, side by side, one round and one vertically-oblong, and arranged to readily shift the pivot from one to the other, according to the condition of the ground to be plowed.

The suspending plate or bar M, in which the forward end of the plow-beam rests, is pivoted at *u* to its support Q, so that it may swing laterally to the same extent as the plow at the rear end of the beam. The slot *f*, in which the beam rests, allows a little vertical play or adjustment of the beam therein, since this end of the beam remains at the same height while the rear end is raised and lowered.

In this machine, as in others of similar class, the axle-journal *b* of one wheel, C, is movable up and down, so that the wheel can be adapted to inclined surfaces and keep the body of the machine nearly level at all times. The means shown are as follows: A nearly-vertical lever, V, is pivoted at *v* concentrically with an arc-shaped notched plate, W, mounted on one of the upright parts of the bent axle, over the movable journal *b*, being connected by a connecting rod or bar, *y*, with the sliding block Y, from which the journal *b* projects, this sliding block having an up and down sliding movement in a way, *z*, in or on the adjacent upright part of the bent axle.

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

1. In a riding-plow, a centrally-pivoted tilting frame having the plow supported by the rear end, and the driver's seat supported wholly by the forward end thereof, and adapted to tilt independently of the tongue and main frame of the machine, whereby the weight of the driver is utilized to counterbalance and raise the plow, substantially as and for the purpose herein specified.

2. In combination with the tilting frame G H H I a d the plow K, supported by the rear end thereof, the standard F of the driver's seat, arranged to be adjusted forward and backward on the said tilting frame while the pivots of the latter remain substantially in the vertical plane of the axle-support, substantially as and for the purpose herein specified.

3. In combination with the centrally-pivoted tilting frame G H H I, the plow K, suspended from the rear end thereof by means of a suspending-lever, L, pivoted to the said frame so as to impart a lateral angular adjustment to the plow, substantially as and for the purpose herein specified.

4. The block or hanger *d*, having the round bearing *e'* and vertically-oblong bearing *t*, for receiving the pivot *e* of the plow-suspending lever L, in combination with the tilting frame, substantially as and for the purpose herein specified.

The foregoing specification signed by me this 22d day of June, 1880.

CHARLES VAN DE MARK.

Witnesses:
JOHN KENMEIER,
T. C. WORDIN.