(No Model.)

I. E. STUMP.

ROTARY HARROW.

No. 395,364. Patented Jan. 1, 1889.

Fig. 1.

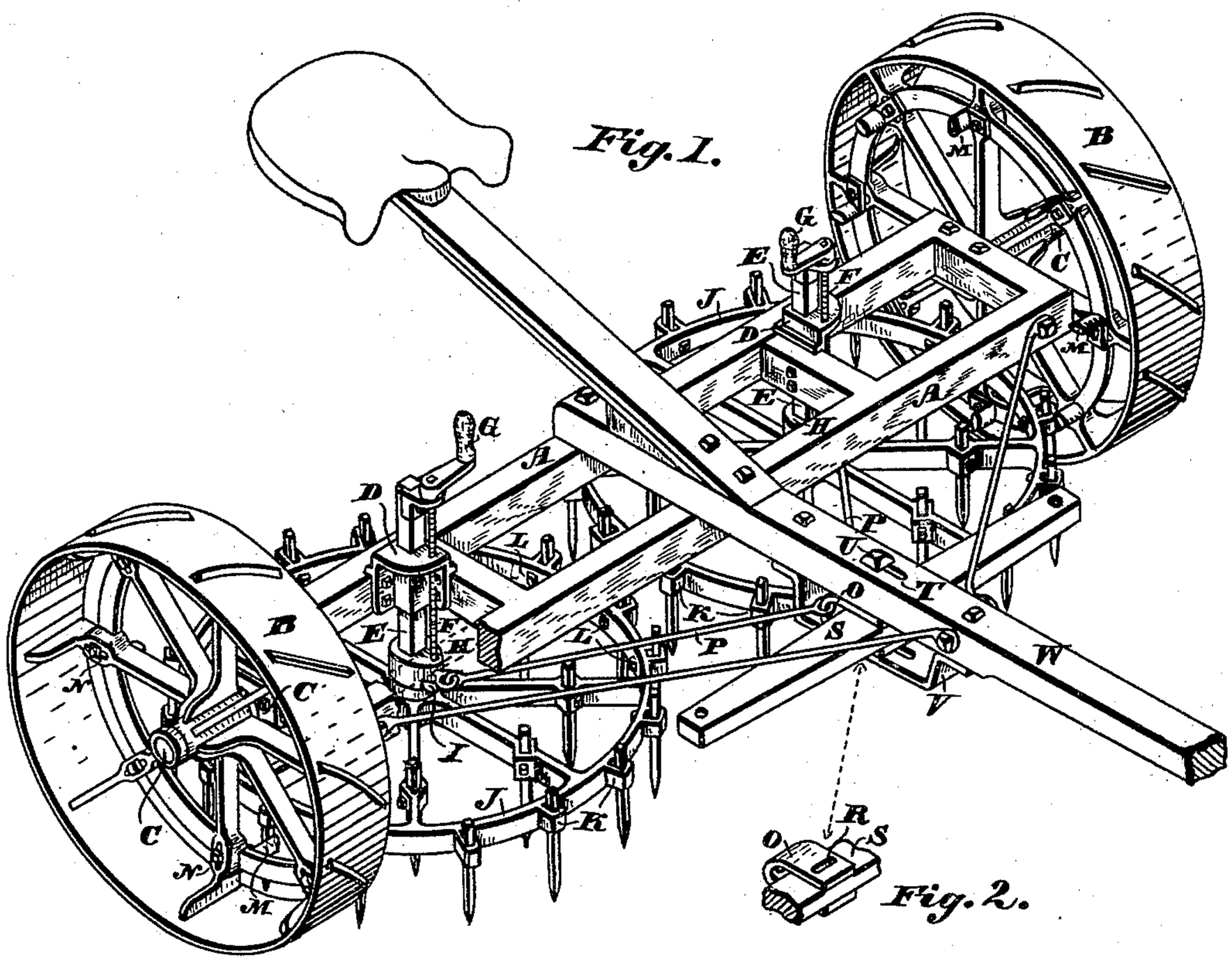

Fig. 2.

WITNESSES:

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IRA EXCELL STUMP, OF RICHVILLE, ASSIGNOR OF ONE-HALF TO A. C. AND GEO. T. McCONNELL, OF CLEVELAND, OHIO.

ROTARY HARROW.

SPECIFICATION forming part of Letters Patent No. 395,364, dated January 1, 1889.

Application filed September 7, 1887. Serial No. 249,032. (No model.)

To all whom it may concern:

Be it known that I, IRA EXCELL STUMP, a citizen of the United States, residing at Richville, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Rotary Harrows; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to that class of harrows in which the parts to which the teeth are secured are caused to rotate as the harrow advances, thereby securing better pulverization of the soil and leaving the surface of the ground more even and level than is possible with the ordinary drag-harrow. I attain these objects by the mechanism illustratd in the accompanying drawings, in which—

Figure 1 is a perspective view of my improved harrowing-machine. Fig. 2 is a similar view of the central portion of the doubletree with the draft-strap.

Similar letters refer to similar parts in the drawings.

A, Fig. 1, is the main frame of the harrow, supported upon the wheels B B by spindles C.

D are castings firmly bolted to the frame, into and through which casting pass the adjustable harrow-spindles E, adapted to move vertically therein, controlled by the screws F, said screws being operated by the cranks G. The screws pass through and engage their threads with corresponding ones in the flanges of the castings D, while their lower ends pass through the lifting-lugs H and are secured thereto by the heads I, said lugs being firmly secured to the harrow-spindles E.

On the lower extremity of each spindle is journaled and freely rotates a harrow, J. By this device it will be observed that the operator can harrow shallow or deep at pleasure, and when passing to or from the field can elevate the harrows entirely clear of the ground, so as to transport them to any place desired.

K are vertical sockets for the harrow-teeth, which are secured therein by bolts L and adapted to be lowered as the points may wear or replaced by new ones, as desired.

M are driving-lugs firmly bolted to the arms or spokes of the driving-wheels at their junction with the secondary rim thereof, and adapted to be moved in radial slots, as shown at N, said lugs being adapted to engage with the teeth secured to the periphery of the harrows J, thereby causing them to rotate as the wheels move forward.

P are draft-rods, the forward ends of which are secured to the strap O and adapted to hinge therewith, while the lower or rear ends are connected with eyebolts on the lugs H, as shown. In the draft-strap O, which is firmly secured to the central portion of the doubletree S, is shown the slot R, penetrating said doubletree to its opposite side and running lengthwise thereto. In the pole W is shown a similar slot at T, running lengthwise to said pole, penetrating to the opposite side thereof, and adapted to receive the bolt U, which, passing through the slot R in the doubletree S, is secured therein with a nut threaded on its lower end. By the relation of these slots to each other it will be observed that if both harrows are hoisted equally at the same time the doubletree will move lengthwise of the pole W by virtue of the slot T, the draft remaining equal on both harrows; but if one harrow is raised more than the other, then, in order to preserve equality of draft upon both, the doubletree S, to which is secured the draft-strap O, must move lengthwise to itself as well as lengthwise to the pole W. This movement is secured by the relation of the two slots being at right angles to each other.

V is a clip secured to the under side of the pole W and embracing the doubletree S, thereby preventing the depression of the ends thereof below the plane of the under side of said pole, yet permitting free action of said doubletree.

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

1. The combination of the frame A, provided with the castings D, the spindles E, having located upon their lower ends the rotating harrows J, the screws F, provided with the handles G, the lifting-lugs H, and the driving-lugs M, substantially as and for the purpose specified.

2. The combination of the frame A, the wheels B, the castings D, the screws F, the spindles E, having located upon their lower ends the rotating harrows J, and the draft-rod P, connecting the lifting-lugs H and the draft-strap O, substantially as and for the purpose specified.

3. The combination of the frame A, the wheels B, provided with secondary rims, and the driving-lugs M, adapted to be moved in radial slots and to engage with the teeth of the harrows J, substantially as and for the purpose specified.

4. The combination of the pole W, provided with the slot T, the doubletree S, provided with the slot R, the draft-strap O, and the draft-rods P, substantially as and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

IRA EXCELL STUMP.

Witnesses:
PRIMUS PHILIPPI,
LOUIS DEUBLE.