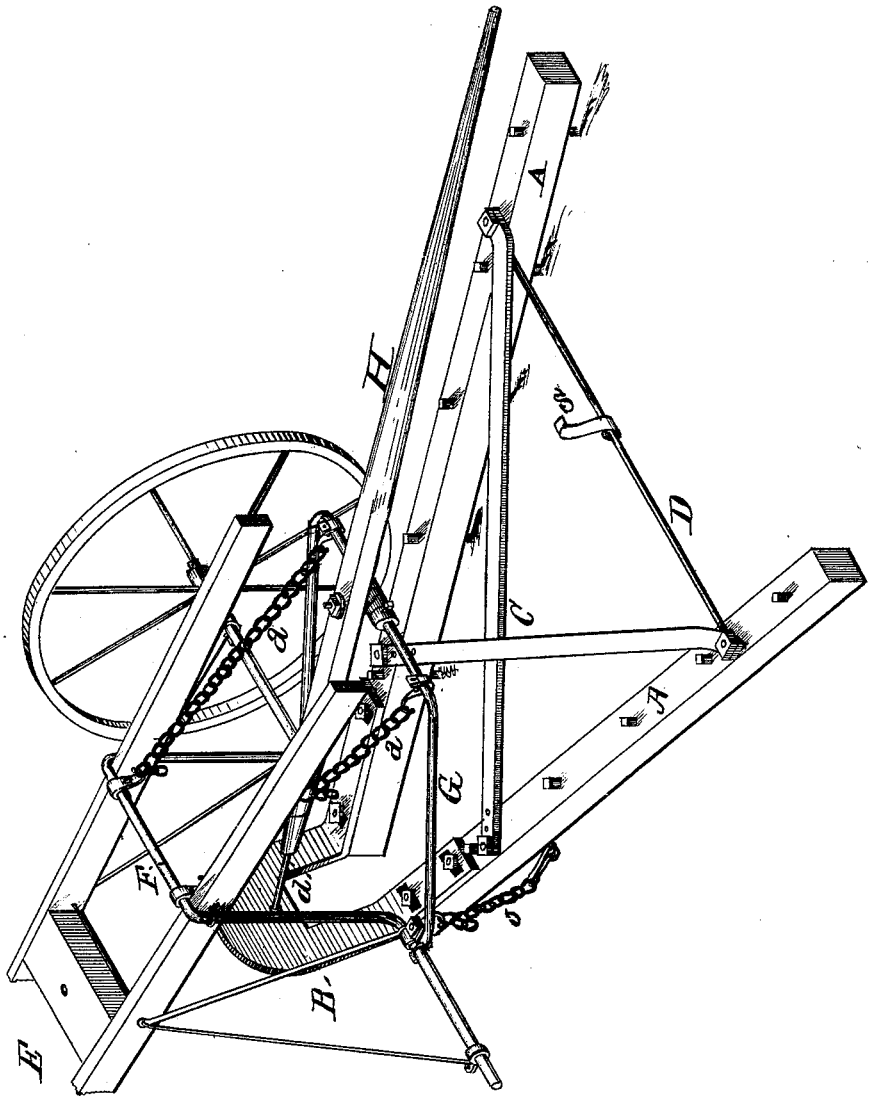
E. MURRAY.

Harrow.

No. 204,501. Patented June 4, 1878.



Witnesses
Jas M. See
S. C. Peck

By

Inventor
Eli Murray
By A. P. K. Peck
Attorney.

UNITED STATES PATENT OFFICE.

ELI MURRAY, OF RUSHVILLE, INDIANA.

IMPROVEMENT IN HARROWS.

Specification forming part of Letters Patent No. **204,501**, dated June 4, 1878; application filed July 17, 1877.

To all whom it may concern:

Be it known that I, ELI MURRAY, of Rushville, in the county of Rush and State of Indiana, have invented a new and useful Improvement in Harrows; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

The drawing is a perspective view of my improvement, showing the carriage with one wheel removed.

My invention consists in the combination of certain devices for governing and elevating the harrow, as herein fully described.

A denotes the harrow-frame or timbers, connected in front by the branched metal plate B, having its ends bolted upon the ends of the timbers, and its projecting curved front bent upward to an angle of about forty-five degrees. Slots are formed in plate B for bolt-holes, by means of which the space between the front ends of the timbers may be changed or adjusted, and the latter are braced by the cross-ties C and rod D, to the center of which a hook, S, is secured. The tongue E is secured to the elevated portion of the axle F in the usual manner. The U-shaped frame G is hinged to the axle, as represented, and its rear part is connected by adjustable chains *a* to the elevated portion of bent axle F, hooks being provided for the purpose of connecting and adjusting the supporting-chains *a*. To each side of the elevated part of the axle draft-chains *o* are attached, which connect with eyebolts that pass down through the timbers of the harrow, and these draft-chains are also adjustable in length.

To enable the harrow to be easily balanced, and to retain a horizontal plane when in use, the draft-chains are connected thereto some distance rearward and toward the center of the harrow.

Upon the swinging frame G a guide-lever, H, is pivoted to a loose collar, and its front end terminates with a rod, *d*, which passes through a hole in the front plate B, in which it works freely.

Lever H extends out in rear of the harrow, so that an attendant may grasp it and govern the direction of the harrow by the aid of the swiveled fulcrum upon which it works. By this means the harrow may be so guided as to avoid the hills of corn, the rows of which the harrow straddles in its progress. When any obstacle is to be passed the lever H enables the attendant to raise up the front end of the harrow, and when it is desired to carry the harrow clear of the ground the attendant will place the rear end of the lever under the hook S, which will cause the harrow to swing suspended from frame G.

Having described my invention, I claim and desire to secure by Letters Patent—

In a wheel-harrow, the combination of the bent axle F, adjustable swinging frame G, and swiveled guide and elevating-lever H, all arranged and operating substantially as and for the purpose herein specified.

Witness my hand this 1st day of June, A. D. 1877.

ELI MURRAY.

Witnesses:
RUFUS W. VICKREY,
CLAUDE CAMBERN.