(No Model.) 3 Sheets—Sheet 1.

E. MERRILL.

HARROW.

No. 456,153. Patented July 21, 1891.

Fig. 1.

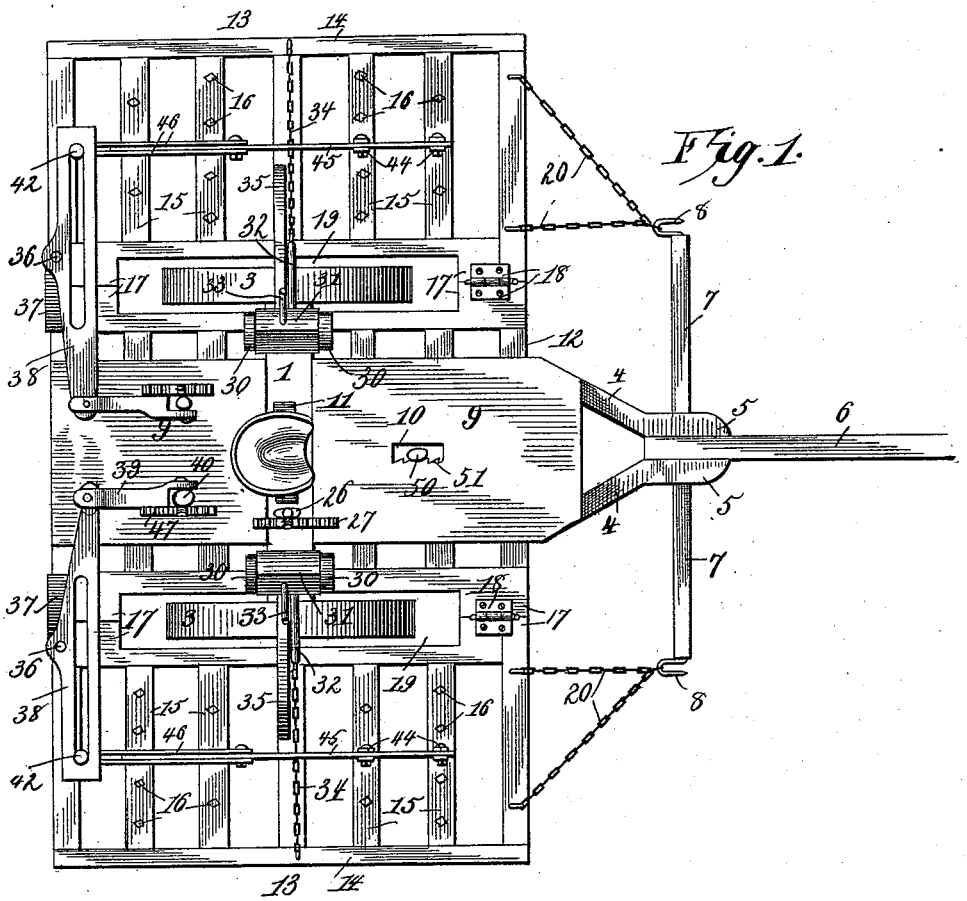
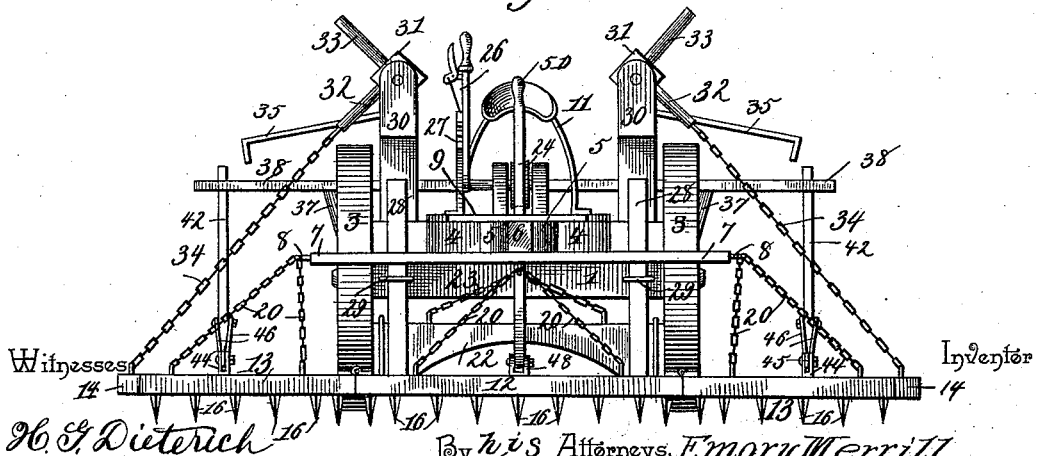


Fig. 2.



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Inventor
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(No Model.) 3 Sheets—Sheet 2

E. MERRILL.

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Fig. 3.

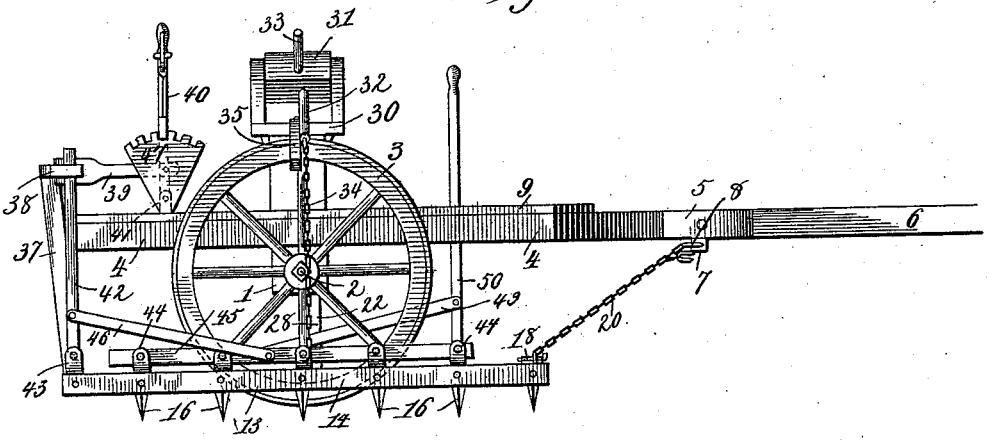
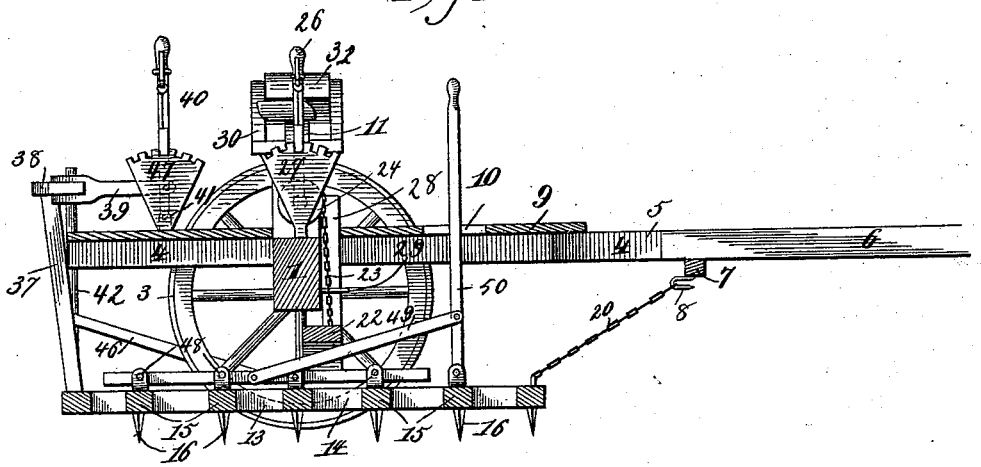


Fig. 4.



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(No Model.) 3 Sheets—Sheet 3.

E. MERRILL.

HARROW.

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Fig. 5.

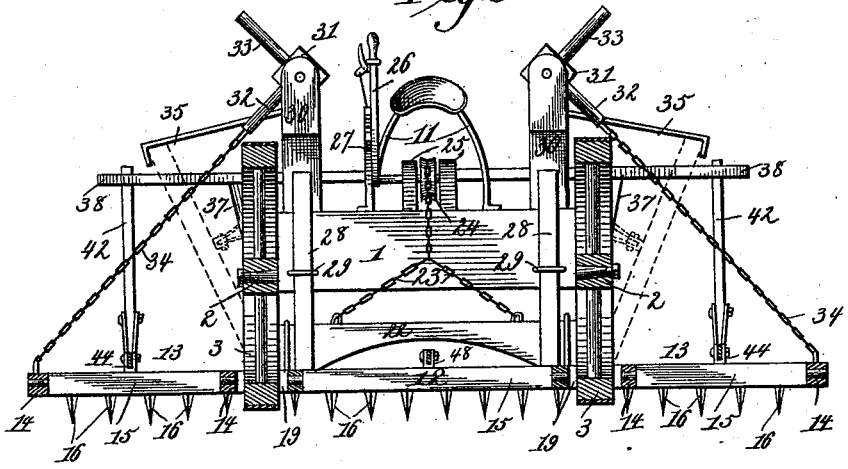
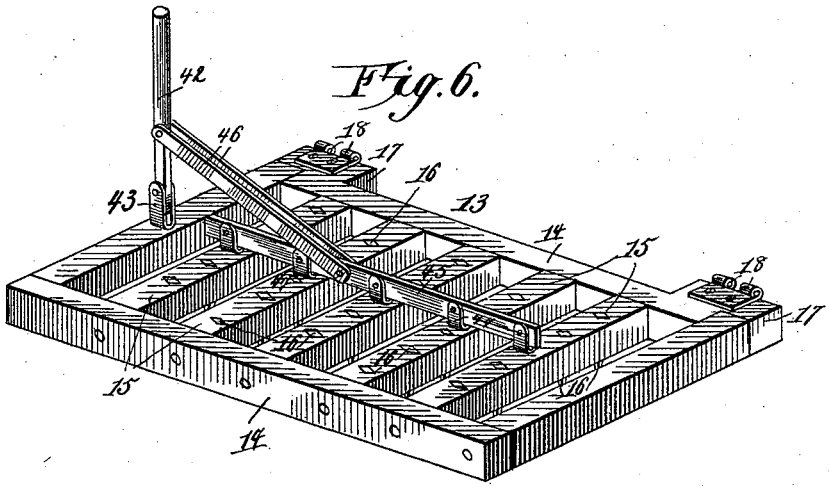


Fig. 6.



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UNITED STATES PATENT OFFICE.

EMORY MERRILL, OF GENEVA, NEBRASKA.

HARROW.

SPECIFICATION forming part of Letters Patent No. 456,153, dated July 21, 1891.

Application filed December 3, 1890. Serial No. 373,431. (No model.)

To all whom it may concern:

Be it known that I, EMORY MERRILL, a citizen of the United States, residing at Geneva, in the county of Fillmore and State of Nebraska, have invented a new and useful Riding-Harrow, of which the following is a specification.

This invention has relation to improvements in riding-harrows; and the objects in view are to provide a riding-harrow of simple and economical construction, comprising in its make-up a series of harrow-sections, means of raising and lowering said sections for the purpose of clearing the same of accumulated trash and brush or for the purpose of transporting the harrow to and from the field, and to provide means for tilting at various angles the harrow-bars and their teeth, the entire mechanism being controlled by the driver without leaving his seat.

Other objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a plan of a riding-harrow constructed in accordance with my invention. Fig. 2 is a front elevation of the same. Fig. 3 is a side elevation. Fig. 4 is a vertical longitudinal section. Fig. 5 is a vertical transverse section. Fig. 6 is a detail in perspective of the harrow-sections.

Like numerals of reference indicate like parts in all the figures of the drawings.

In practicing my invention I employ a suitable truck, which comprises the transverse axle 1, which at its ends is reduced to form suitable bearings 2, upon which are mounted ordinary ground-wheels 3. Near opposite sides of the axle are mounted longitudinally-disposed side bars 4, in this instance let into the upper side of the axle, extending in front and in rear of the same, and at their front ends converged to form hounds 5, securely bolted to the opposite sides of the draft-pole 6, to which is pivoted the doubletree 7, which terminates in hooks 8. The opposite side bars 4 are connected by a platform 9, which in rear is provided with a slot 10. From the center of the axle rises a seat-standard 11, to the upper end of which is secured a seat for the accommodation of the driver. In the present instance I employ a central harrow-section 12 and opposite side sections 13, each of which consists of a pair of longitudinal side bars 14 and a series of transverse connecting harrow-bars 15, rectangular in cross-section and having inserted in their under sides ordinary harrow-teeth 16. Each side section 13 at its inner side and the central section at its outer side are provided with front and rear projections or offsets 17, which are loosely hinged together by hinges or couplings 18, so that the two side sections are flexibly connected with the central section, and by reason of the offsets combined to form openings or spaces 19 at each side of the central section, in which the ground-wheels travel. The front end of each section is provided with a pair of chains 20, which are connected with the hooks 8 of the doubletree, so that no draft of the harrows is thrown upon the truck or sulky portion thereof.

The central harrow is spanned by a yoke 22, and from the same a chain 23 passes up over a pulley 24, mounted in bearings 25, located at the center of the axle 1 and under the driver's seat. The pulley is operated by a lever 26, extending at one side of the driver's seat and adapted to be swung to the front or rear for the purpose of raising and lowering the harrow and be locked in any of its adjusted positions by means of a toothed locking-bar 27. In its vertical movement the central section is guided by a pair of vertical guide-bars 28, mounted for movement in a pair of keepers 29, secured to the front face of the axle, said guide-bars having their lower ends bolted to the yoke.

At opposite sides of the driver's seat there arise from the axle a pair of standards 30, the upper end of each of which is bifurcated and provided with a rock-shaft 31, each of which has a rock-arm 32 and a lever 33. The outer ends of the rock-arms are connected by chains 34 to the outer ends of the side harrow-sections, and by rocking the shafts by means of the levers the said sections may be raised and lowered to and from contact with the ground, either for the purpose of ridding the same of trash or for the purpose of preventing contact of the harrow-sections with the ground during the travel of the harrow to and from the field. When thus elevated for the pur-

pose of traveling to and from the field, the outer side bars of the side sections may be engaged by a pair of spring-arms 35, terminating in bent ends and projecting from each of the standards 30.

From the opposite rear corners of the central section rise standards 37, the upper ends of which terminate in reduced bearings 36, and upon each of said standards is pivoted a longitudinally-slotted lever 38, each connected at its inner end by a link 39 to a lever 40, pivoted in bearings 41, located upon the rear end of the platform 9 and directly in rear of the driver's seat. A lever 42 operates in each of the slots of the pivoted levers 38 and at its lower end is pivoted to bearings 43, located upon the rear transverse bars of the two side sections. Each of the harrow bars is provided with a pair of bearing-ears 44, the entire series of each bar aligning with each other and being loosely connected by a connecting-bar 45, which is connected at its center to a rod 46, the rear end of the rod being connected with the lever 42. By manipulating the levers 40, which may be held in position by means of locking-bars 47, it will be apparent that the harrow-bars of the side sections may be partially rotated in either direction to present the harrow-teeth at various angles to the soil. The central section has each of its harrow-bars provided with a pair of bearing-ears 48, which are connected by a connecting-bar 49, the front end of which is connected with a hand-lever 50, which projects up through the opening 10 in the platform and may be adjusted in any desired position, and maintained in such adjustment by means of a locking-bar 51. In this manner it will be apparent that the several harrow-sections possess all the advantages of the usual flexible harrow, and may be raised and lowered conveniently by hand and without the necessity of the driver leaving his seat. In front and rear of the wheels—that is, in the offsets 17 of the harrow-frames—are inserted harrow-teeth, the teeth being removably mounted in position. Thus it is that no portion of the ground traversed by the harrow is left unharrowed. If desired, these teeth just mentioned may be removed from the sections when in the act of subjecting the ground to its last harrow previous to the planting of the corn, and by reason of the fact that I locate the wheels such a distance apart as agrees with the proposed corn-hills said wheels act as markers and accurately indicate the location of the rows.

Having described my invention, what I claim is—

1. In a riding-harrow, the combination, with the truck and two outer sections loosely connected, of opposite rock-shafts mounted in bearings upon the truck, rock-arms extending from the shafts, levers extending from the shafts to operate the same, chains connecting the sections to the rock-arms, and hook-shaped spring-arms extending from the truck and designed to be sprung over and engage the free ends of the sections, substantially as specified.

2. In a riding-harrow, the combination, with the truck and the harrow-sections, each of the harrow-bars of which are pivotally mounted in the frames, of a series of bearing-lugs mounted upon the harrow-bars, a connecting-bar pivoted in each lug of the series, a lever pivoted at the rear end of each section, a rod connecting the same with the connecting-bar, opposite slotted levers pivoted upon the truck and having their slots engaging said levers, operating-levers pivoted upon the truck, and connecting devices between the operating-levers and the slotted levers, substantially as specified.

3. In a riding-harrow, the truck and harrow-sections, the levers 42, rising from the side sections and pivotally attached thereto, the longitudinally-slotted levers 38, through the slots of which the levers 42 extend, and the hand-levers 40, connected to the levers 38, substantially as specified.

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

EMORY MERRILL.

Witnesses:
M. V. KING,
W. MERRILL.