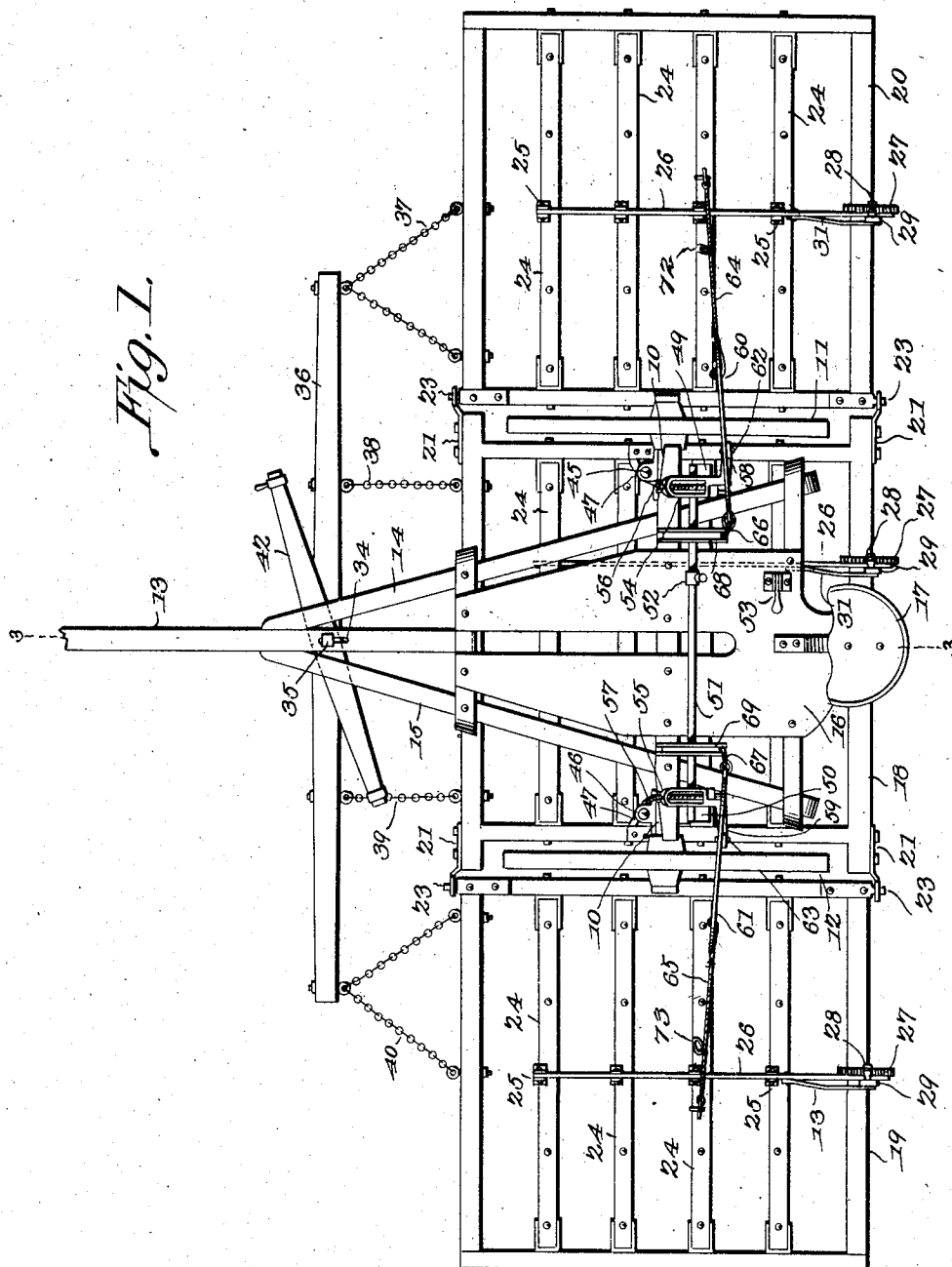


No. 790,376.

PATENTED MAY 23, 1905.

W. MERRILL.
RIDING HARROW.
APPLICATION FILED NOV. 5, 1904.

2 SHEETS—SHEET 1.



Witnesses
E. J. Stewart
E. H. Woodward

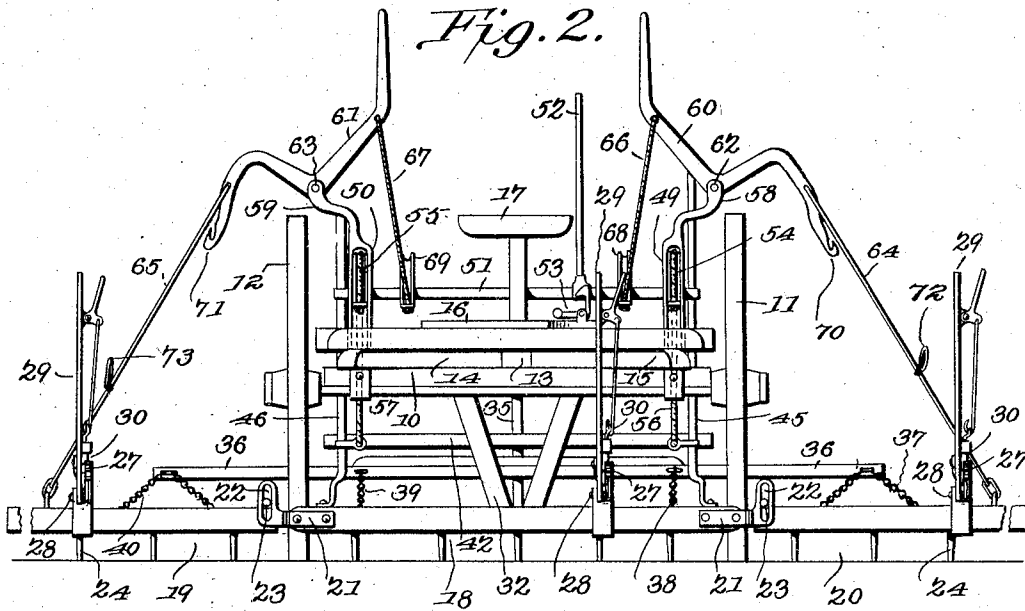
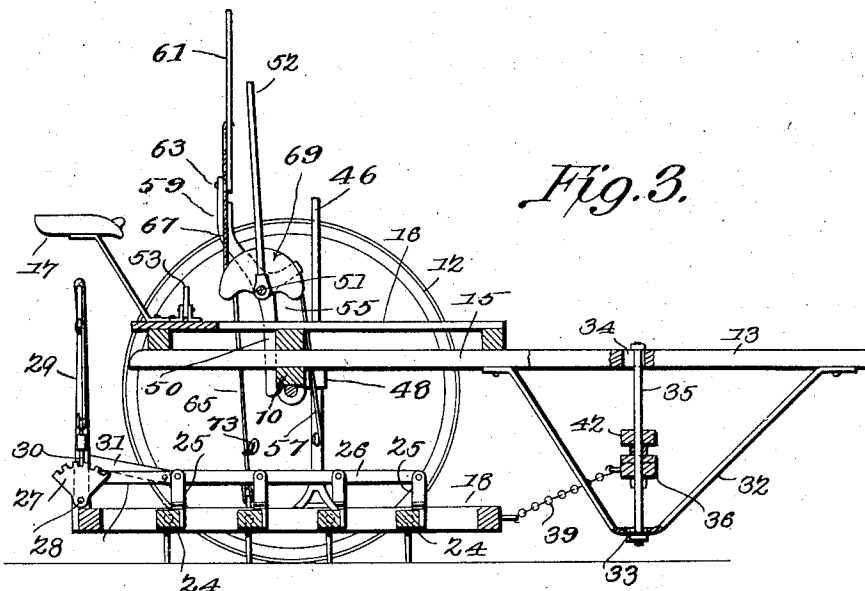
William Merrill,
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Attorneys

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UNITED STATES PATENT OFFICE.

WILLIAM MERRILL, OF PARIS, MISSOURI.

RIDING-HARROW.

SPECIFICATION forming part of Letters Patent No. 790,376, dated May 23, 1905.

Application filed November 5, 1904. Serial No. 231,565.

To all whom it may concern:

Be it known that I, WILLIAM MERRILL, a citizen of the United States, residing at Paris, in the county of Monroe and State of Missouri, have invented a new and useful Riding-Harrow, of which the following is a specification.

This invention relates to riding-harrows, and has for its object to improve the construction and increase the efficiency of devices of this character.

With these and other objects in view, which will appear as the nature of the invention is better understood, the same consists in certain novel features of construction, as hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which corresponding parts are denoted by like designating characters, is illustrated the preferred form of embodiment of the invention capable of carrying the same into practical operation, it being understood that the invention is not necessarily limited thereto, as various changes in the shape, proportions, and general assemblage of the parts may be resorted to without departing from the principle of the invention or sacrificing any of its advantages.

In the drawings thus employed, Figure 1 is a plan view. Fig. 2 is a rear elevation, and Fig. 3 is a section on the line 3 3 of Fig. 1.

In the improved device is comprised an axle 10, having the bearing-wheels 11 12, independently rotative on the ends, and with a draft-tongue 13, connected to the axle by diverging hounds 14 15, and with a platform 16 and seat 17, supported upon the hounds.

The harrow portion of the device is in three sections—a central section 18, disposed between the wheels, and flanking sections 19 20 outside the wheels, as shown. The central harrow-section 18 is provided at each corner with a plate 21, having a vertical slot 22, and the flanking harrow-sections are provided at each corner with a horizontal pin 23 for extending through the vertical slots. By this means the flanking sections are connected to swing upon the central section and at the

same time free to move vertically within the limits of the vertical slots. The harrow-sections are long enough to permit the bearing-wheels to operate between the coupling plates and pins, as shown.

The tooth-bars 24 of the harrow-sections are mounted for oscillation in the inclosing frames of the several sections and are provided with means for adjusting the same to regulate the degree of inclination of the teeth, and as this adjusting means is the same upon each of the sections corresponding characters are employed to designate like parts in each. The rocking tooth-bars are each provided with a bracket 25, to which a rod 26 is pivoted and extended over the rear of the section-frame and alongside a notched segment 27. Pivoted at 28 to swing upon the segment is a lever-arm 29, provided with a pawl 30 for engaging the teeth of the segment and connected to the rod 26 by a link 31. By this arrangement it will be obvious that the rocking tooth-heads 24 may be adjusted to cause the harrow-teeth to stand at any desired angle relative to the ground over which they are drawn.

Suspended beneath the draft-tongue 13 and hounds 14 15 is a hanger-frame 32, having a longitudinal slot 33, and the tongue 13 is likewise provided with a corresponding slot 34, the two slots to receive a vertical bolt 35 for supporting an evener-beam 36, connected by draft-chains 37 38 and 39 and 40 to the harrow-sections 18, 19, and 20. Pivoted upon the bolt 35 is the doubletree 42, to which the swingletrees are connected to provide means for attaching the draft-animals.

The central harrow-section 18 is provided with rigid vertical standards 45 46, slidable through keepers 47 48 upon the axle 10 to provide a movable coupling means between the axle and central harrow-section.

Mounted for rotation above the platform 16, as by standards 49 50, is a shaft 51, having an operating-handle 52 attached thereto and adapted to engage a trip-catch 53 upon the platform 16 when in its rearward position. Connected rigidly to the shaft 51 are spaced

grooved segments 54 55, coupled, respectively, to the lower ends of the guide-standards 45 46 by wire cables or chains 56 57, so that the rotation of the shaft 51 by the operation of the lever 52 will cause the cables to wind upon the segments and elevate the central harrow-section and hold it elevated by engaging the lever with the trip-catch 53. The standards 49 50 are extended upwardly, as at 58 59, and support levers 60 61, as by intermediately-disposed pivots 62 63, the levers connected from near their outer ends to the flanking harrow-sections by cables 64 65 and likewise connected from their inner portions by cables 66 67 to spaced grooved segments 68 69, fast upon the shaft 51. The free inner ends of the levers 60 61 are positioned convenient to the hands of the driver upon the seat 17 and operative therefrom. By this arrangement when the lever member 52 is operated and the shaft 51 rotated the four segments will be correspondingly rotated, with the result of bodily elevating the central harrow-section 18 and elevating the outer ends of the flanking sections 19 20 or causing them to swing upon their hinge-joints for lessening the extreme width when passing through gateways or other contracted passages. At the same time the flanking harrow-sections may be independently tilted by operating the lever-arms 60 61 from the driver's seat if for any reason it is desired to increase the inclination of either or both of the flanking sections. The degree of inclination of the sections is thus easily controlled by the driver from his seat.

It will be observed that when the harrow-sections are elevated from the ground the chains 37 38 39 40, whereby said harrow-sections are connected with the evener 36, will become slackened; but this slack will be taken up by the forward movement of the vertical bolt 35, upon which the evener is mounted, in the slots 33 34. On the other hand, when the harrow-sections are lowered into ground-engaging position the bolt 35 is free to move rearwardly in the slots 34 35, so that the points of the harrow-teeth will be free to enter into the ground.

The outer terminals of the lever members 60 61 are provided with hooks 70 71, and the cables 64 65 are provided with links 72 73 for engaging the hooks when the flanking sections are elevated to hold them elevated while the device is not in use or when being transported.

By this arrangement it will be obvious that a very complete and operative harrow structure is produced of wide range and flexible to cause it to automatically adapt itself to the contour of the ground over which it is operated and which may be adjusted to any required extent to carry the flanking sections over obstructions or through gateways or other contracted passage-ways.

Having thus described the invention, what is claimed is—

1. A wheel-supported frame, a cam-bearing shaft supported for rotation in said frame, a pair of transversely-disposed levers, a central harrow-section and flanking sections hingedly connected therewith, flexible connections between the central harrow-section and the cams, flexible connections between the cams and the inner ends of the transverse levers, and flexible connections between the outer ends of said levers and the free edges of the flanking harrow-sections.

2. In a sulky-harrow, a supporting-frame having wheels, a central harrow-section disposed between said wheels, flanking harrow-sections hinged to said central section and disposed outside said wheels, levers pivoted above said frame and having hooks at their outer terminals, flexible members between said levers and said flanking harrow-sections and provided with intermediate loops for engaging said terminal hooks to support the flanking harrow-sections in elevated position, and means for simultaneously adjusting said central section and actuating said levers for tilting said flanking sections.

3. In a sulky-harrow, a supporting-frame having a draft-tongue provided with a longitudinal slot and mounted upon wheels, a plurality of harrow-sections vertically adjustable in the supporting-frame and movably connected at the ends, a hanger-frame depending from said tongue and supporting-frame and provided with a longitudinal slot in vertical alinement with the slot in said draft-tongue, a rod movably disposed in said alined slots, an evener-beam rotative upon said rod and coupled by flexible members to said several harrow-sections, and a doubletree pivoted upon said rod.

4. In a sulky-harrow, a supporting-frame having a draft-tongue provided with a longitudinal slot and mounted upon wheels, a plurality of harrow-sections vertically adjustable in the supporting-frame and movably connected at the ends, means carried by said frame for vertically adjusting said harrow-sections, a hanger-frame depending from said tongue and supporting-frame and provided with a longitudinal slot in vertical alinement with the slot in said draft-tongue, a rod movably disposed in said alined slots, and an evener-beam rotative upon said rod and coupled by flexible members to said several harrow-sections, and a doubletree pivoted upon said rod.

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

WILLIAM MERRILL.

Witnesses:

JOHN A. BETHEA,
EDWARD EATON.