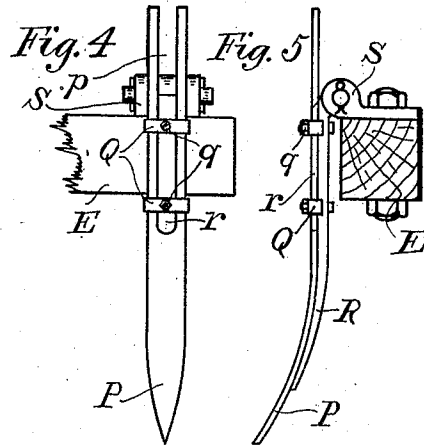
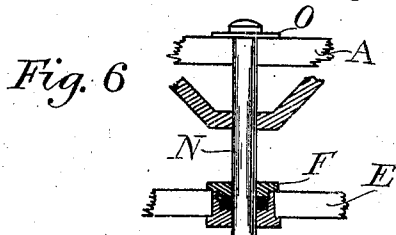
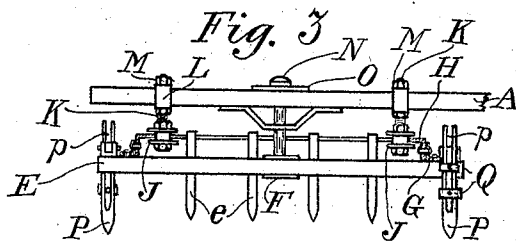
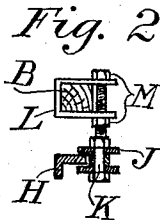
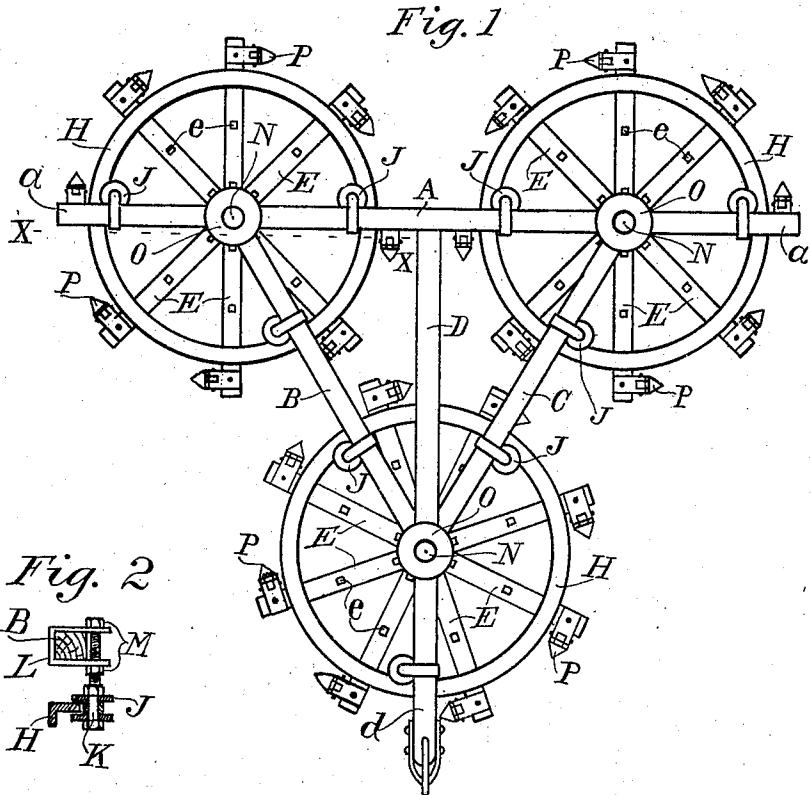


No. 823,933.

PATENTED JUNE 19, 1906.

C. J. DAVIS.
ROTARY HARROW.
APPLICATION FILED OCT. 14, 1905.



Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES J. DAVIS, OF LANSING, MICHIGAN.

ROTARY HARROW.

No. 823,933.

Specification of Letters Patent.

Patented June 19, 1906.

Application filed October 14, 1905. Serial No. 282,804.

To all whom it may concern:

Be it known that I, CHARLES J. DAVIS, a citizen of the United States, residing at Lansing, in the county of Ingham and State of Michigan, have invented certain new and useful Improvements in Rotary Harrows, of which the following is a specification.

My invention relates to rotary harrows, and has for its object the production of a harrow having three rotating parts and provided with a platform-frame and bearings of peculiar construction, whereby the weight of the rider and frame is most evenly distributed upon the rotary parts and undue strains upon the center pins or pivots relieved and guarded against.

I accomplish the object set forth by fashioning and associating elements substantially as illustrated in the accompanying drawings, of which—

Figure 1 represents a top plan view. Fig. 2 is a cross-section of one of the frame-bars and shows the clamp for attaching the axis of the spool-roller to the bar. The spool and flange-track are also represented in section. Fig. 3 is a cross-section of the right-hand rear rotating member on line X X, one transverse diametrical tooth-bearing bar only being shown. Fig. 4 is an enlarged front view of the pivoted blade-tooth. Fig. 5 is an enlarged side view of the pivoted blade-tooth, and Fig. 6 is an enlarged detail view of one of the center pins and its bearings.

Like letters of reference designate like parts throughout.

Letter A marks a transversely-disposed bar forming the base of a triangular frame, of which like bars B and C are the sides, and bar D, a fourth piece, is arranged perpendicularly to the base-bar A and passes through the apex of the triangle. The small letters *a*, *a'*, and *d* refer to the ends of bars A and D, which project beyond the corners of the triangular frame and will be again mentioned.

The rotary members of my invention comprise the radial tooth-bars E, having teeth *e*, usually consisting of spikes passed through the bars and held rigidly. The bars are connected together at their common center F, and they are also connected near their outer extremities by means of the annular angle-iron G, to which is bolted, as shown in Fig. 3, the annular angle-iron H, which has a horizontal flange. The angle-iron H constitutes a track the inner edge of which engages the spool-wheels J. The axis of the spools is

designated by letter K. It is vertical, as shown, and its upper portion is screw-threaded. The threaded portion passes through the projecting ends of a C-clamp L, and by means of nuts M the clamp is secured about the bars of the frame, as illustrated in Fig. 2. It will now be observed that certain of the spools are located near the extremities of the projecting ends *a*, *a'*, and *d* of the bars A and D, already referred to, and other spools are placed upon the triangular portion of the frame at equal distances from the angles.

The center pins N pass downwardly through the plates O at the angles of the triangular frame and through the common center piece F of the tooth-bars, as shown in Fig. 6.

In order to cause the rotary members of my invention to turn constantly, I secure at the ends of each tooth-bar a pivoted blade-tooth P. It is, as shown, a curved blade with edges converging to a point at its lower end and having the slot *p* formed lengthwise through its upper portion. It is secured, by means of the cross-piece clamps Q and screws *q*, upon the backing or supporting tooth R, which has, as illustrated in Fig. 5, a longitudinal raised portion *r*, that fits the slot *p* of the blade-tooth. The backing-tooth R is pivotally secured to the plate S, bolted, as shown, to the radial tooth-bar E. In the usual manner as my invention is drawn along, the pivoted teeth drag upon one side over the ground and catch into the ground upon the other side of each rotary member, thus causing it to turn.

The engagement of the spools and the track-flange limits the rocking movement of the frame with respect to the rotary members and prevents unusual shocks upon them.

Having thus described my invention and explained the mode of its operation, what I claim is—

1. In a rotary harrow, the combination with a triangular frame composed of frame-bars and the ends of two of said bars being arranged to project beyond the angles of the triangular frame, of rotary elements, center pins passing through the angles of said triangular frame and through the center of the said rotary elements, circular tracks borne by the said rotary elements, and wheels secured to the said frame and arranged to engage the said circular tracks, each of the said projecting ends of the frame-bars having secured thereto outside of the triangular frame one of the said wheels, and pivoted teeth at-

5 tached to said rotary elements and adapted to drag upon one side and to catch the ground upon the other side of the said rotary elements whereby they are rotated, substantially as described.

10 2. In a rotary harrow, the combination with a triangular frame composed of frame-bars and the ends of two of said bars being arranged to project beyond the angles of the
15 triangular frame, of rotary elements, center pins passing through the angles of said triangular frame and through the center of the said rotary elements, circular tracks having horizontal flanges borne by the said rotary
elements, and spool-wheels secured to the said frame and arranged to engage the said

circular tracks, each of the said projecting ends of the frame-bars having secured there-
to outside of the triangular frame one of the said spool-wheels, and pivoted teeth attached
20 to said rotary elements and adapted to drag upon one side and to catch the ground upon the other side of the said rotary elements whereby they are rotated, substantially as described.

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

CHARLES J. DAVIS.

Witnesses:

ERNEST D. GIBBS,
F. M. SEELEY.