

A. Friedman,
Harrow.

No. 106046.

Patented Aug. 2, 1870.

Fig. 1.

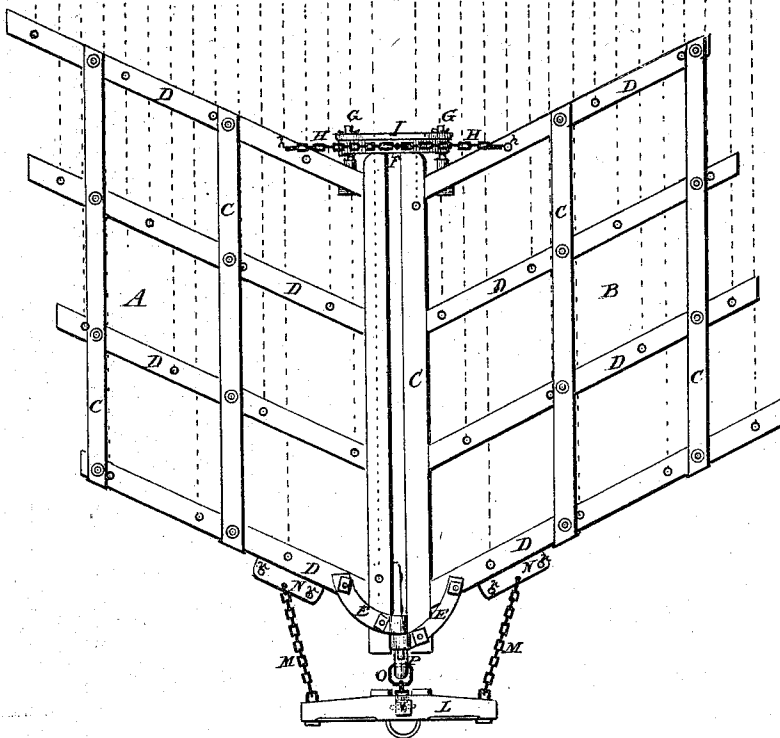
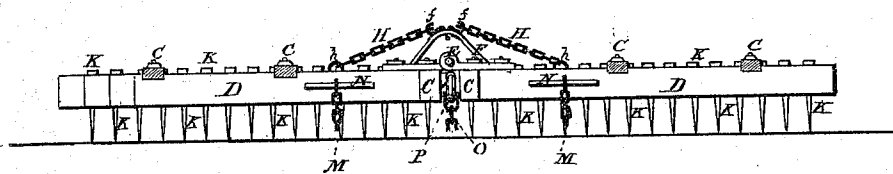


Fig. 2.



Witnesses.

Chas. H. Poole.
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AUGUST FRIEDEMANN, OF WAVERLY, IOWA.

Letters Patent No. 106,046, dated August 2, 1870.

IMPROVEMENT IN HARROWS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, AUGUST FRIEDEMANN, of Waverly, in the county of Bremer and in the State of Iowa, have invented certain new and useful Improvements in Harrows; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a plan view of the upper side of my device, and

Figure 2 is a front elevation of the same, with the draft-bar removed.

Letters of like name and kind refer to like parts in each of the figures.

My invention is an improvement in the construction, attachment, and draft of hinged or flexible harrows; and

It consists principally in the peculiar construction of the rear hinge for connecting the sections, by means of which a relatively radial and a vertical movement of the said sections is secured, as is hereinafter set forth.

It further consists in the tripple attachment of the draft-bar, substantially as and for the purpose hereinafter shown.

In the annexed drawing is shown a harrow, composed of two sections, A and B, each of which consists of three bars, C, arranged parallel with and equidistant from each other, and secured together by means of four cross-bars, D, arranged parallel with each other, and at an angle of about thirty degrees to said bars C.

The front ends of the sections A and B are pivoted together by means of an ordinary strap-hinge, E, the leaves of which are curved to the rear, so as to conform to the shape of the bars C and D, while the rear ends of said sections are connected by means of a strap, F, having its ends pivoted to or upon two studs, G, secured to and projecting rearward from the inner ends of the rear cross-bar C.

As seen in fig. 2, the strap F springs upward in the form of a pointed arch, and has secured to or within its apex two hooks, f, to each of which is attached one end of a short chain, H, having its opposite end connected to the rear cross-bar by means of a staple, h. The object of the chains is to hold the arched clamp in place, and prevent it from moving too far to either side. A straight strap, I, provided with suitable openings at its ends, is placed over the studs G, and receives all lateral strain that would otherwise come upon the arched clamp.

As thus connected, the rear ends of the sections

have not only a radial, but also a relatively vertical movement, that enables them to conform most readily to the undulations or inequalities of the ground, and much increases the efficiency of the harrow.

The teeth K, of usual form, are inserted within the cross-bars D, and within the inner bars C, and are so arranged with reference to each other as that no two shall come in the same line of draft, by which means the furrows marked are equidistant from and parallel with each other.

The draft-bar L is connected to the harrow by means of a chain, M, attached to either end of said bar and to a plate, N, secured to or upon the front edge of each section, said plates being provided with a series of holes, n, which permit said chains to be connected at a greater or lesser distance from the center of the harrow.

A third chain, O, attached to the draft-bar L at its center, and connected to a hook, P, secured and projecting forward from the inner edge of one of the sections, furnishes a means whereby the draft is transferred from the plates N to the center of the harrow, whenever said sections are raised, by which means the operation of the harrow and the draft upon the horses is rendered more uniform.

The especial advantages claimed for this device are, thoroughness and efficiency of operation, together with ease and uniformity of draft.

Having thus fully set forth the nature and merits of my invention,

What I claim as new, and desire to secure by Letters Patent, is—

The means employed for connecting together and rendering relatively adjustable the rear ends of the sections A and B, consisting of the arched and straight straps F and I, pivoted to or upon the studs G, substantially as shown and described.

Also, in combination with the sections A and B, the straps F and I, and the studs G, the check-chains H, substantially as shown, and for the purpose specified.

Also, the means employed for connecting the draft-bar L to the harrow, consisting of the chains M and O, attached to said draft-bar, the plates N, and the hook P, substantially as shown and for the purpose specified.

In testimony that I claim the foregoing, I have hereunto set my hand this 11th day of April, 1870.

AUGUST FRIEDEMANN.

Witnesses:

H. S. HOOVER,
E. E. HOOVER.