S. KAIN.

HARROW.

No. 181,849. Patented Sept. 5, 1876.

Fig. 1.

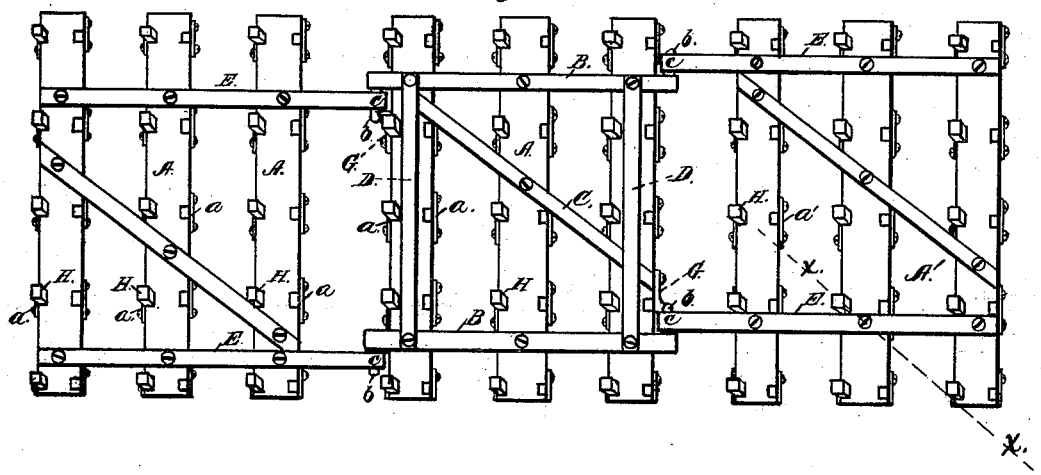


Fig. 2.

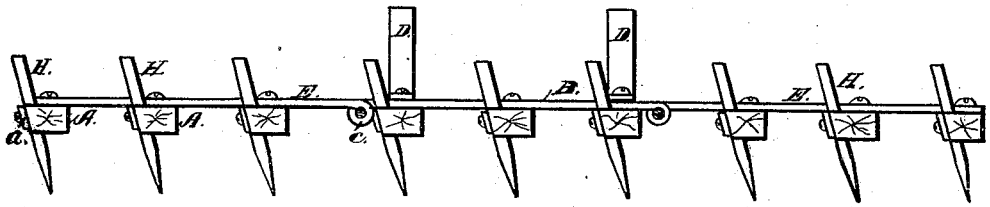
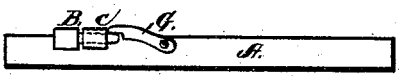


Fig. 3.



Witnesses;
Chas. M. Peck
Wm Ritche

Inventor;
Samuel Kain
by his Attys
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UNITED STATES PATENT OFFICE.

SAMUEL KAIN, OF BETHANY, OHIO.

IMPROVEMENT IN HARROWS.

Specification forming part of Letters Patent No. **181,849**, dated September 5, 1876; application filed July 15, 1876.

To all whom it may concern:

Be it known that I, SAMUEL KAIN, of Bethany, in the county of Butler and State of Ohio, have invented certain new and useful Improvements in Harrows; and I do hereby declare the following to be a full, clear, and exact description of the same.

This invention relates to that class of harrows formed of detachable sections hinged together to allow it to accommodate itself to inequalities in the ground; and my improvements consist in the manner of hinging the sections, and in the construction of the tooth-beams, and the manner of securing the teeth thereto, all as will be herewith described and specified.

To enable others skilled in the art to which my invention appertains to make and use the same, I would thus proceed to describe it, referring to the accompanying drawing, in which—

Figure 1 represents a plan view of my improved harrow. Fig. 2 is a side elevation of the same. Fig. 3 is an end elevation, showing the drop for fastening the hinges.

Corresponding letters of reference indicate like parts in all the figures.

A A represent wooden beams of the size usual in harrows of this description, but each having one of its edges beveled, as represented. These beams are parallel to each other, and in the central section (which is composed of three) are braced by two end metal bars, B, at right angles to the beams, to which they are bolted, and by a central diagonal bar, C, likewise bolted to the beams. The two usual runners D are bolted upon the bars B, as represented. The ends of the bars B are formed into gudgeons *b*, over which the loop *c*, upon the ends of the bars E that brace the outer sections or wings, are slipped, thus forming hinges upon which the wings can play to accommodate them to the inequalities of the ground. The wings are braced in the same manner as the central section.

It will be noticed that they are placed at some distance from the central section, so that their own weight will be sufficient to keep them down to work.

It will also be noticed that the gudgeons on which the hinges turn lie in opposite directions—that is, in the section A′, to which the draft is applied. The loops on the bars E are on the right of the bars B, looking back in the line of draft *x x*, while the loops on the brace-bars of the rear wing are on the opposite side of the bars B.

By this arrangement it can be clearly seen that it is impossible for the sections to become accidentally detached while at work; but to render their junction more secure I provide the latches or detents G, Fig. 3, which, bolted to the sides of the beams A, can be pressed down to rest upon the projecting end of the gudgeon, and abut against the edges of the loops, thus preventing their removal until the detents be raised. Two of these detents, as represented in the drawing, are sufficient. On the beveled side of each beam A are equidistant gains or mortises, in which the teeth H fit, and which are given the proper inclination. The teeth, which are of the ordinary shape, do not entirely fill up these gains, and over the part which projects is fitted a metal clamping-plate, *a*, which is held by screw-bolts, which enter the beam on each side of the teeth, as represented. These plates securely hold the teeth in position, and by slightly loosening the bolts they may be moved up or down to suit the character of the work to be done. The vertical sides of the beams are likewise mortised and provided with clamping-plates, so that the teeth may be changed at pleasure from an inclined to a vertical position.

I am aware that teeth have been made adjustable in a harrow by means of an adjustable eyebolt fastening without removing them; but such method of adjusting them is not so secure as the one I describe.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is as follows:

1. In a harrow the beams A, each having one side beveled and the opposite side ver-

tical, and both mortised substantially as described, for holding the teeth either in a vertical or a slanting direction, in the manner and for the purpose specified.

2. In a sectional hinged harrow the hinges, composed of the gudgeons *b* and loops *c*, when arranged in opposite directions to each other, and held from displacement by the pivoted latches or detents G, substantially in the manner and for the purpose specified.

Witness my hand this 29th day of June, A. D. 1876.

SAMUEL KAIN.

Witnesses:
CHAS. M. PECK,
MICHAEL RUBLE.