

(No Model.)

O. K. OPPEN.
HARROW.

No. 419,158.

Patented Jan. 7, 1890.

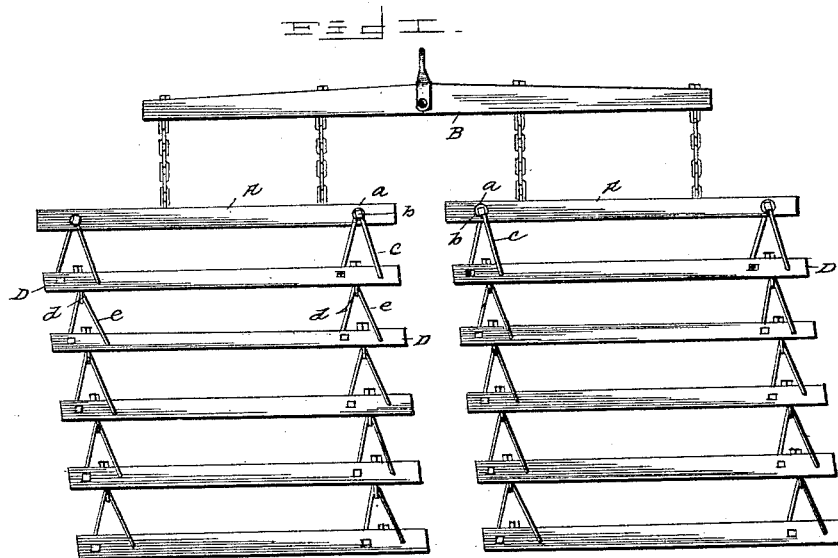


FIG. 1.

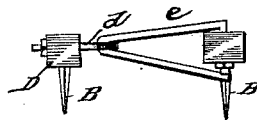
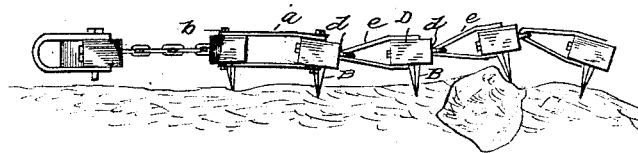


FIG. 2.



Witnesses
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OLE K. OPPEN, OF EATON, WISCONSIN.

HARROW.

SPECIFICATION forming part of Letters Patent No. 419,158, dated January 7, 1890.

Application filed September 9, 1889. Serial No. 323,354. (No model.)

To all whom it may concern:

Be it known that I, OLE K. OPPEN, a citizen of the United States of America, residing at Eaton, in the county of Manitowoc and State of Wisconsin, have invented certain new and useful Improvements in Harrows, of which the following is a specification, reference being had therein to the accompanying drawings.

My improvement in harrows consists in the manner of connecting or linking its beams together, whereby lateral movement of the beams separately and apart is avoided. At the same time each beam, or an end of each beam, may be elevated to pass any obstacle, and the beams may be folded one upon another for removal of trash collected on the teeth or spikes.

In the accompanying drawings, Figure 1 is a plan view of my invention. Fig. 2 is an enlarged detail view of the link-connection. Fig. 3 is a side elevation thereof, showing the harrow in use.

In constructing my harrow I provide all the beams, as usual, with teeth or spikes, secured therein in any ordinary manner, and they are all arranged in similar columns (ordinarily two) and secured to the whiffletree by chains or their equivalent, as shown. The forward beams A in each column adjoining whiffletree B are linked to the next adjoining beam D by means of vertical-nutted bolts *a*, projected through eyes *b* of links *c*, and are provided with teeth B'. Eyes *b* are formed to align with the upper or horizontal surface of beams A, (see Fig. 3,) and in continuation links C are spread and obliques apart, their converging ends being threaded for reception

of nuts, with which they are secured to beams D, as shown. Beams D, having teeth B', are each provided with nutted staples or hooks *d* and apertures *d'* for reception of nutted links *e*. Links *e* are each linked in staples or hooks *d'*, projected horizontally through the beams in continuation, (their ends being nutted.) One of their ends is projected vertically downward and nutted on the bottom of the beam, and the other end projecting in an opposite direction and in like manner secured on the top of the beam. Thus constructed and arranged, lateral movement of the beams separately and apart is avoided, and each beam is free to pass over any intervening obstacle, its teeth meantime harrowing all the soil passed over, whereby a simple and very efficient harrow is produced.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

In a harrow, the series of tooth-beams secured by approximately V-shaped links formed of a bar of metal and having their outer ends terminating in upwardly and downwardly projecting right-angular projections extending through the beams from either side thereof and nutted, and the nutted links or staples, substantially as shown and described.

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

OLE K. OPPEN.

Witnesses:

THOS. E. TORRISON,
ROBT. H. MARKHAM.