S. KAIN.

HARROWS.

No. 184,011. Patented Nov. 7, 1876.

Fig. 1.

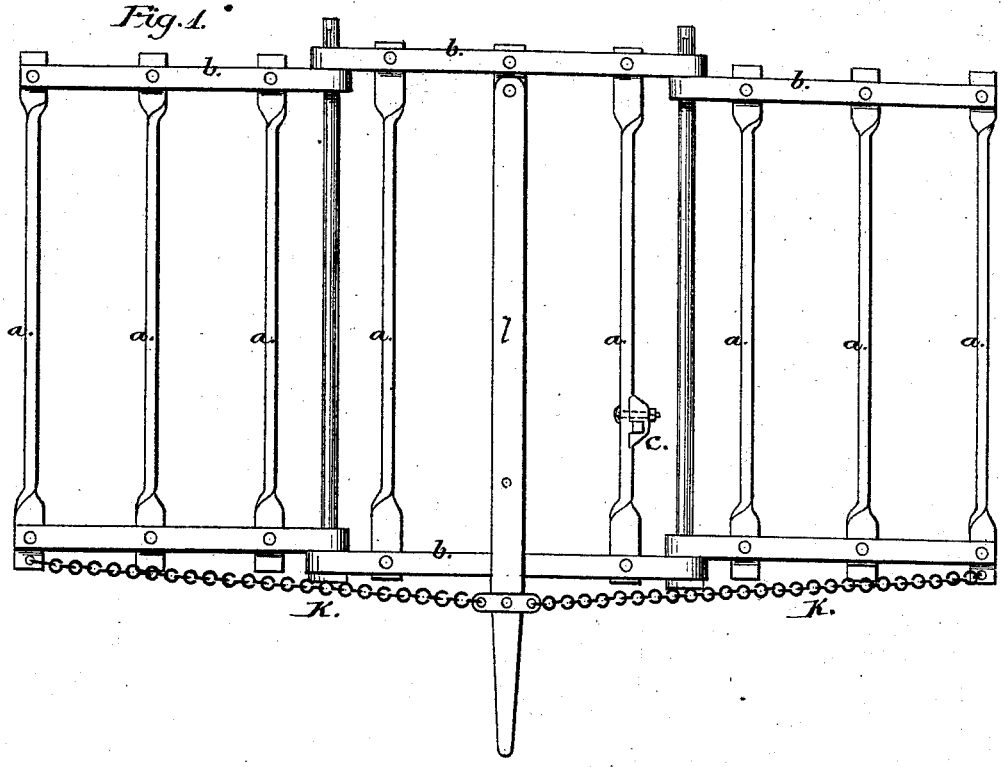


Fig. 2.

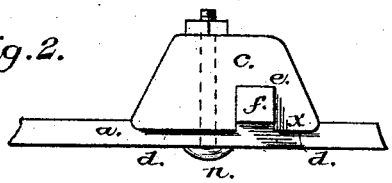


Fig. 3.

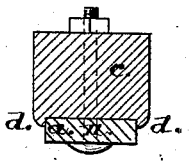
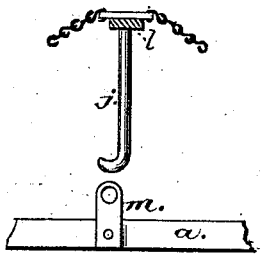


Fig. 4.



WITNESSES

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SAMUEL KAIN, OF BETHANY, OHIO.

IMPROVEMENT IN HARROWS.

Specification forming part of Letters Patent No. **184,011**, dated November 7, 1876; application filed August 4, 1875.

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 a new and useful Improvement in Harrows; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Figure 1 represents a plan of a harrow, made of iron, in three sections, hinged together. Fig. 2 represents a top view of the tooth holder or clamp, with a portion of one of the iron rails or bars to which the tooth is secured. Fig. 3 represents a transverse section of the tooth-clamp and rail. Fig. 4 represents a transverse section of the lifting-lever with its hook, and the link or loop into which the hook may be inserted to elevate the rear end of the harrow.

The rails *a* are flat bars of iron, bolted to the hinged bars *b*, and twisted sufficiently near their ends to cause them to occupy vertical planes. The tooth-clamp C is a block of cast metal, having flanges *d* extending longitudinally to overlap the edges of the rail *a*, and it is also provided with a transverse recess, *e*, to receive the harrow-tooth *f*, and the single bolt *n* serves to secure the tooth firmly to the rail *a* by clamping it, as represented in Fig. 2, and it may be quickly adjusted vertically to harrow ground to any desired depth. The longitudinal recess between the flanges *d d*, which is occupied by the rail *a*, is of sufficient depth to allow an open space between the bottom of this recess and the rail *a*, at that end of the clamp in which the tooth is inserted, as indicated by the dotted lines at *x*, thereby causing the clamp to firmly hold the tooth (by means of the bolt *n*) in any position to which it may be adjusted for different kinds of work. The flanges *d d* serve to retain the clamp in position, and their use enables the clamp to be effective with a single bolt, instead of two bolts, which would otherwise be necessary. The pivoted lever *l* is secured by a vertical pivot to the center of the central section of the harrow, and is provided with a vertical hook, *j*, and two chains, *k*. The chains connect the two outer sections of the harrow with lever *l*, as represented, and the hook *j* may be inserted in the hook or loop *m* when desired to raise the entire rear end of the harrow. These devices are for this purpose, and for raising either of the outer sections to pass obstacles, and to clean the harrow-teeth of weeds or grass.

The lever *l* stands at an inclination from the front of the harrow, to be convenient for the attendant, and it may be moved laterally upon its pivot when its hook *j* is detached from loop *m*, but not vertically to any considerable extent.

Having described my invention, I claim—

The vertically-pivoted lever *l*, provided with hook *j* and chains *k*, in combination with the three sections of the harrow, substantially as and for the purpose described.

Witness my hand this 15th day of July, A. D. 1875.

SAMUEL KAIN.

Witnesses:

JOHN M. DAVIDSON,

H. P. K. PECK.