(No Model.)

J. CULLEN.

HARROW.

No. 325,734. Patented Sept. 8, 1885.

Fig. 1.

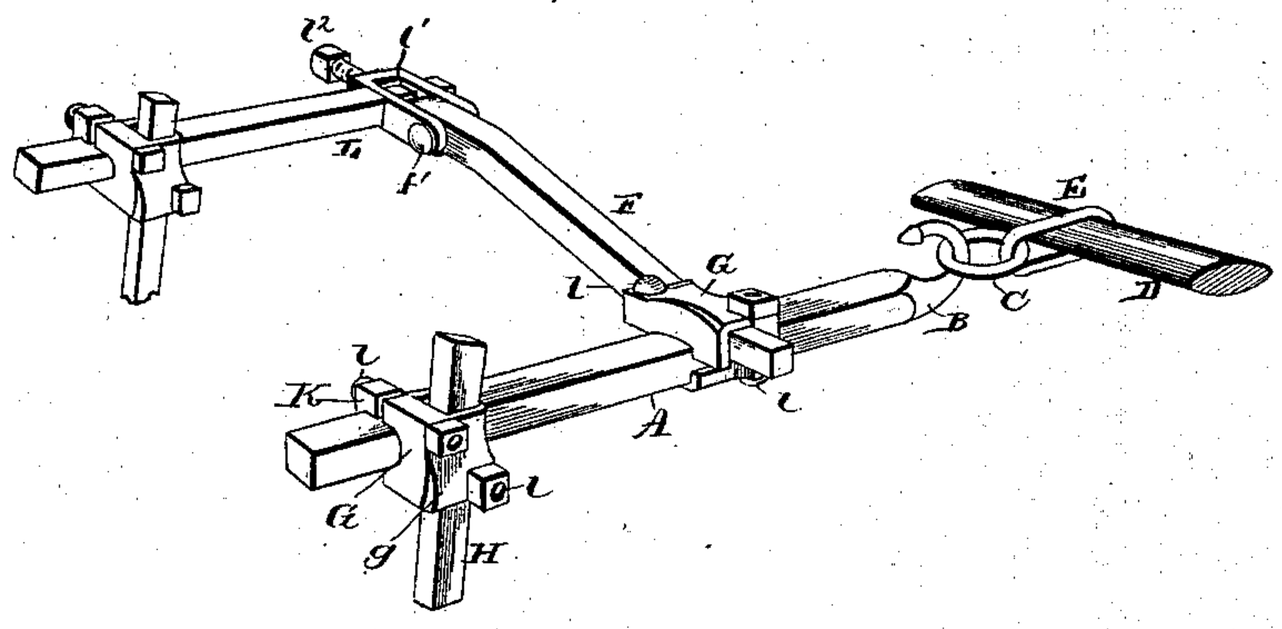
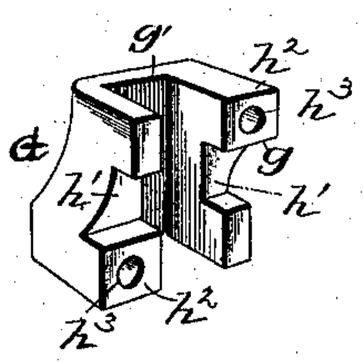
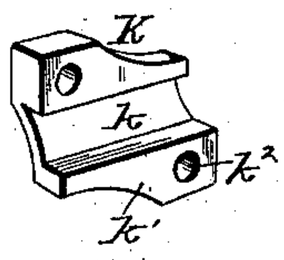


Fig. 2.





WITNESSES

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JOHN CULLEN, OF JANESVILLE, WISCONSIN.

HARROW.

SPECIFICATION forming part of Letters Patent No. 325,734, dated September 8, 1885.

Application filed May 22, 1885. (No model.)

To all whom it may concern:

Be it known that I, JOHN CULLEN, of Janesville, in the county of Rock and State of Wisconsin, 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 invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in harrows, the object of the same being to provide the harrow with supporting-bars for teeth, which may be connected with each other in such manner as will permit the bars to pass independently of each other over rough and uneven surfaces. A further object is to provide means for adjustably securing the harrow-teeth to the bars, a further object being to provide means of the above character which shall be simple and economical in construction and durable and efficient in use; and with these ends in view my invention consists in certain features of construction and combinations of parts, as will be hereinafter fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of a portion of a harrow embodying my improvement. Fig. 2 is a detailed view of one of the lock-plates.

A represents one of the drag-bars, one end of which is provided with the hook B, adapted to clasp one of the loops or rings C, secured to the double-tree D by means of a ring or loop, E, or in any other preferred manner. Near the upper end of the drag-bar A is secured the cross-bar F, by means of the lock-plate G, the lower end of the bar being provided with a similar lock-plate secured thereto in a different position and adapted to receive the tooth H, which is adjustably secured therein. The plate G is composed of two separate pieces of metal, the piece g of which is provided with the deep recess g', in which is located the cross-bar or harrow-tooth adapted to fit snugly therein. The side walls of the recess g' are provided with the grooves h', adapted to receive the drag-bar A. The diagonally-opposing corners h^2 of the piece g are enlarged and provided with the openings h^3. The upper section, K, of the plate is provided with the recess k and the lips k'. The said sections, being adapted to cover the drag bar or tooth and the ends thereof, are provided with the holes h^4, adapted to register with the holes h^3 in the lower piece, g, the two being clasped together by means of the bolts l, provided with suitable nuts or fastening devices. It will be observed that when the bolts are tightened the two sections g and K of the plate are brought close together, thus forcing the drag-bar and tooth or drag-bar and cross-bar, as the case may be, firmly against each other. When it is desired to extend the length of the tooth or cross-bar, the bolts are loosened and the same can be readily accomplished. One end of the cross-bar F is slightly enlarged and provided with the perforation, to which enlarged portion is secured the clip L, the arms of which are provided with perforations adapted to register with the perforations in the bar to which the clip is secured by means of the pivotal bolt f'. The clip L is provided near its end with the longitudinal perforation l', which is adapted to receive one of the drag-bars of the harrow, which is locked in the said clip by means of the set-screw l^2, which impinges against the bar from the outside of the clip. By employing the hinged or pivoted clip as a support for the drag-bar, it will be seen that the bars are free to move independently of each other with reference to vertical movement when the harrow is employed over rough and uneven surfaces.

I am aware that it is not, broadly, new to connect the drag-bars of a harrow by cross-bars adjustably secured to one bar and pivotally secured to the next adjacent bar. In this device above referred to the cross-bar is provided at one end with an eye, which receives a cross-bar and permits it to turn therein, and is objectionable in that it will not permit the drag-bar passing through the eye of the cross-bar to rise without turning or tilting the other bar to which it is connected. In my device the drag-bars are connected by a hinge-joint located between the drag-bars, and permits either bar to be elevated without interfering with the other.

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

1. In a harrow, the combination, with a

drag-bar, of a cross-bar adjustably secured to said drag-bar, and a clip pivotally secured to said cross-bar and adapted to support a second drag-bar, substantially as set forth.

2. In a harrow, the combination, with a drag-bar and the lock-plates secured thereto, of the cross-bar adjustably secured to the lock-plates, the clip pivoted to said cross-bar, and a second drag-bar secured to the clip, substantially as set forth.

3. The combination, with a drag-bar, the plate G, having recess g' and grooves h', and the plate K, having recess k, of the tooth, and the bolts, all of the above parts constructed and combined substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JOHN CULLEN.

Witnesses:

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CHARLES E. PIERCE.