

(No Model.)

2 Sheets—Sheet 1.

E. T. BETTRETON.

HARROW.

No. 323,104.

Patented July 28, 1885.

Fig. 1.

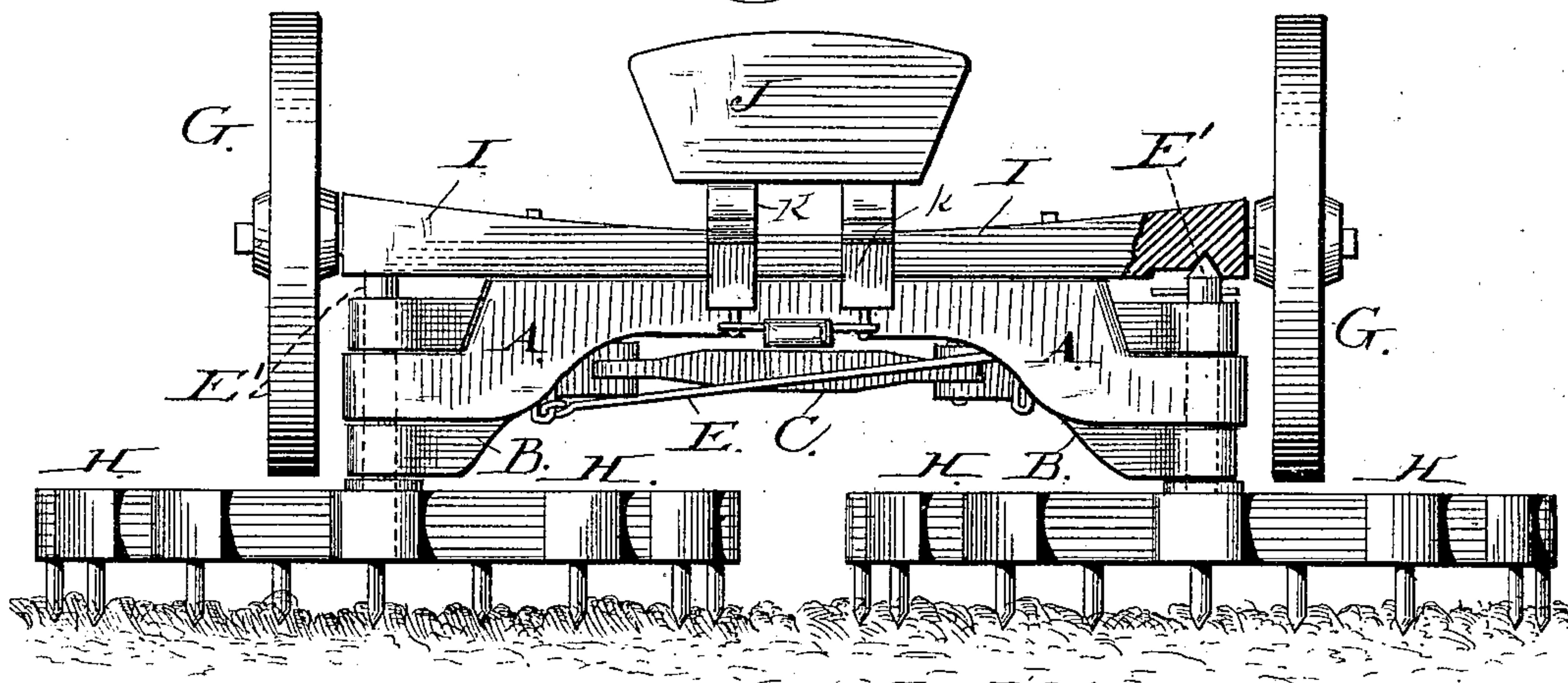
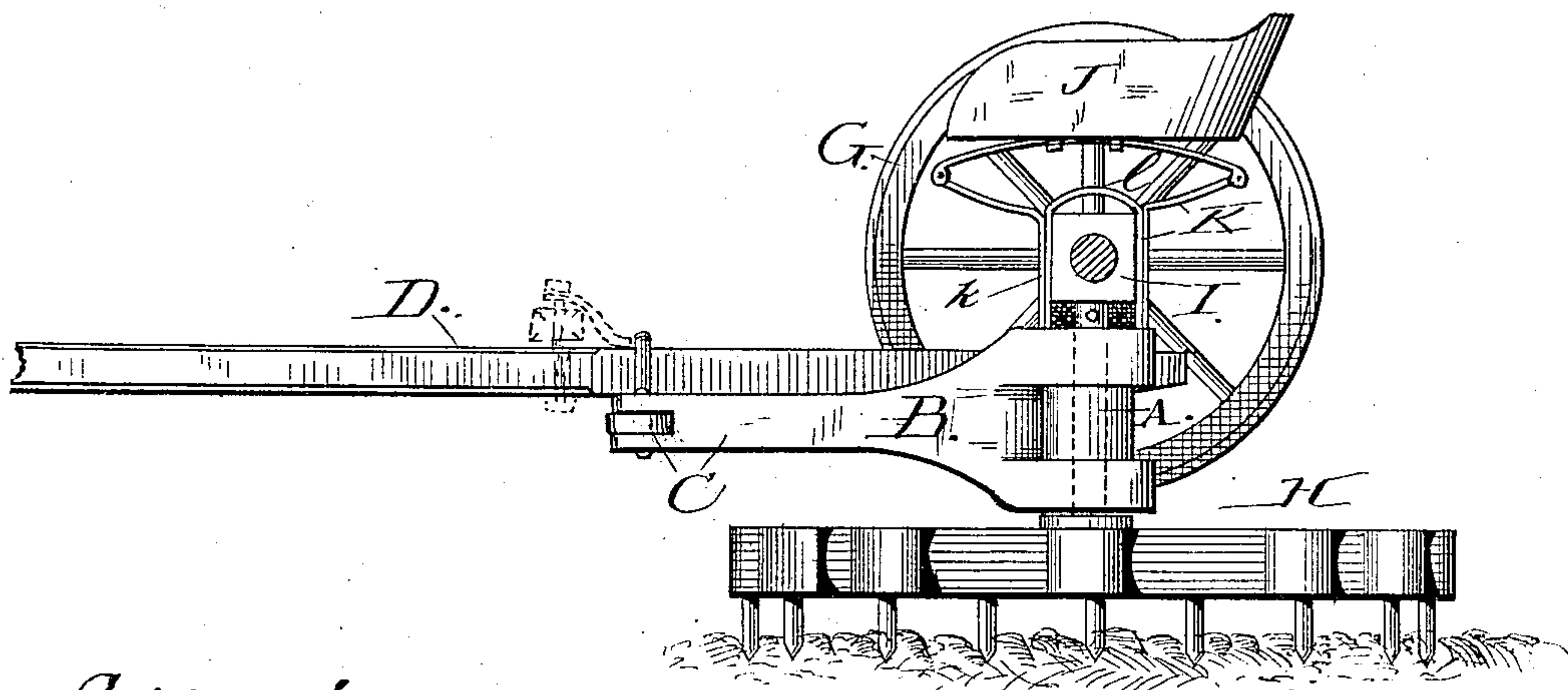


Fig. 2.



Attest;

Walter Fowler,
E. M. Johnson

Inventor;
Elijah T. Bettretton

E. T. Bettretton

Atty ;

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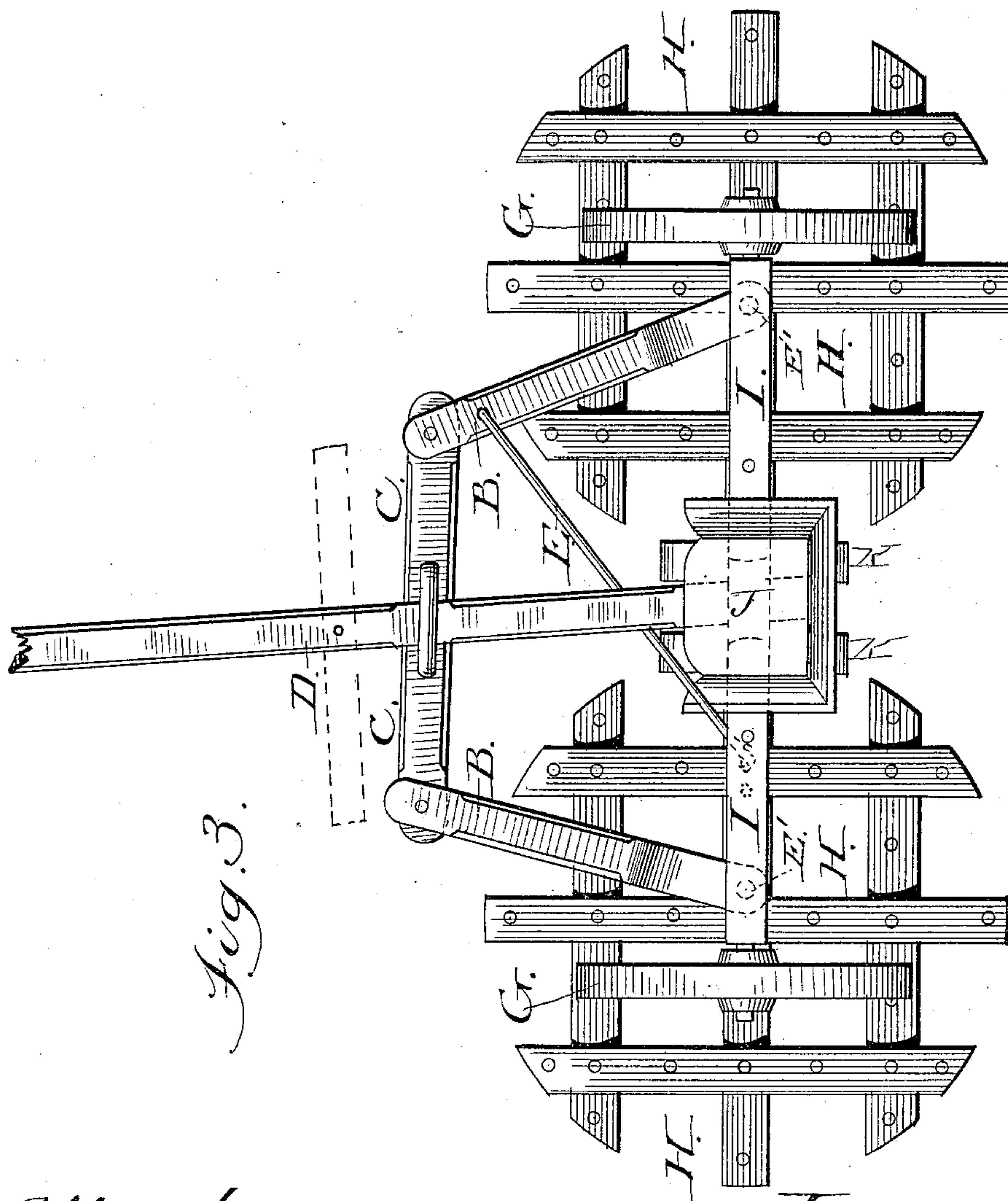


Fig. 3.

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UNITED STATES PATENT OFFICE.

ELIJAH THOMAS BETTRETTON, OF ATLANTA, TEXAS.

HARROW.

SPECIFICATION forming part of Letters Patent No. 323,104, dated July 28, 1885.

Application filed July 12, 1883. (No model.)

To all whom it may concern:

Be it known that I, ELIJAH T. BETTRETTON, a citizen of the United States of America, residing at Atlanta, in the county of Cass and State of Texas, 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to rotary harrows; and it consists in the improvements hereinafter described and set forth, and then sought to be defined by the claims.

In the annexed drawings, which illustrate my invention, Figure 1 is a rear view. Fig. 2 is a side view, and Fig. 3 is a plan view.

A represents a transverse beam, to the ends of which are pivoted the forward projecting bars, B, which are bifurcated at their ends so as to embrace the frame A, and the forward cross-bar, C, which is attached to the outer ends of the bars B B. To this frame is secured a tongue, D, which is pivoted at its rear end to the central portion of the cross-beam A, and at an intermediate point to the cross-bar C by a bail, so as to allow a lateral movement of the parts upon each other. Near the forward end of one of the pivoted bars is attached a rod, E, which rod passes from the bar B diagonally rearward under the tongue D to the inside of the supporting-beam A, to which it is detachably secured. The upper side of the supporting-beam is provided with a series of perforations, as shown by dotted lines, Fig. 3, which are adapted to receive and retain the end of the bar E. By engaging one of the said perforations near the seat J the bar B, to which the other end of said rod E is attached, will be caused to assume a position more nearly at right angles with the axis of the machine, thereby transversely moving the bar C to occupy a position a little farther to one side, and thus bringing the draft-tongue into central longitudinal position. By means of this adjustment I am enabled to change the line of draft with respect to the frame, so that the

harrows may be employed to work the entire ground over which the machine passes, which is accomplished by adjusting the bar E so that the harrows will be thereby diagonal with respect to the tongue. The parts A B are pivotally connected to each other by pins E', the lower portion of which are rigidly secured to the central upper side of the harrows. The upper parts of these pins are tapered and bear within similarly-shaped recesses in the inside of the axle I. Displacement of the pins is prevented by a key, which passes through the same above the bars B B and under the axle I.

The harrows H H are made up of cross-bars, which are securely attached to each other so as to provide substantially circular disks, which are provided with the usual harrow-teeth, as shown.

Attached above the main beam A is an axle, I, which is of sufficient length to project over the ends of the beam, and said axle is provided at its end with spindles upon which are mounted wheels G G, which are supported over the harrows H H, but do not contact with the same. To the axle there is attached a removable-seat, J, having a spring, K, attached to the inside thereof, which spring has parallel portions k, which extend vertically therefrom, these vertical portions being connected to each other by a bail, l, which is riveted thereto. By this construction I provide a spring-clamp which will securely hold the seat in position, and will exert a pressure upon the axle I, which increases with the weight placed upon the seat, besides providing a spring for said seat.

In order to provide for a limited lateral movement of the rear end of the tongue before referred to, the central portion of the bar A, Fig. 1, is recessed to provide a bearing in which the tongue lies, the draft of the tongue being preserved by means of a bolt the ends of which are secured in the beam A, and the horizontal portion of which extends transversely through the perforation in the tongue.

The operation of my invention is as follows: When the implement is used as a harrow, the circular harrows will rotate in the usual manner and leave an unbarrowed strip between the disks, and by moving the rod E the line of draft may be changed so that the harrows

will follow each other diagonally and harrow the entire ground over which the implement passes. When it is desired to transport the implement, the frame may be turned completely over, after having first removed the seat, and the implement will then rest upon the wheels, and may be moved from place to place without digging up the soil. It will be understood that the bearing on the end of the draft-tongue in the harrow, beneath the seat, is of such character as to permit a limited play or oscillation of the draft-tongue therein, the loop-connection of said draft-tongue with the cross-bar C also permitting a like lateral play of said draft-tongue.

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

1. In combination with the harrows H H, pivoted so as to be capable of a rotary movement, the supporting-frame consisting of bars A B, pivotally attached to each other over the central portion of the harrows, cross-bar C, adjusting-bar E, and tongue, substantially as shown, and for the purpose set forth.

2. The combination, in a harrow, of rotary disks H H, pivoted to the supporting-frame, a draft-tongue, D, having an end bearing in said supporting-frame, to permit a limited lateral play of said tongue therein, a cross-bar, C, pro-

vided with a loop through which passes said draft-tongue, side bars, B B, pivotally connecting each end of said cross-bar C with the supporting-frame, and the bar E, connected at one end of said bars B, and having its other end bent to engage a series of perforations in the supporting-frame, substantially as set forth.

3. The combination, in a harrow, of a rear cross-bar, A, side bars, B, having bifurcated ends, front cross-bar, C, pivotally connected thereto, draft-tongue D, attached to the front and rear cross-bars, and an adjusting-bar, E, the ends of said bars B being connected to the cross-bar A by vertical pins attached to the harrows, substantially as shown and for the purpose set forth.

4. The combination, in a rotary harrow, of the bars A B B C, pivotally connected to each other, as shown, and the axle I, carrying wheels G G, and provided near its spindles with recessed bearings for the upper ends of the pins E', substantially as shown.

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

ELIJAH THOMAS BETTRETON.

Witnesses:

JOSHUA E. HOWARD,

WILLIAM E. EVERS.