

Benj. Johnston.

Harrow.

PATENTED JUL 4 1871

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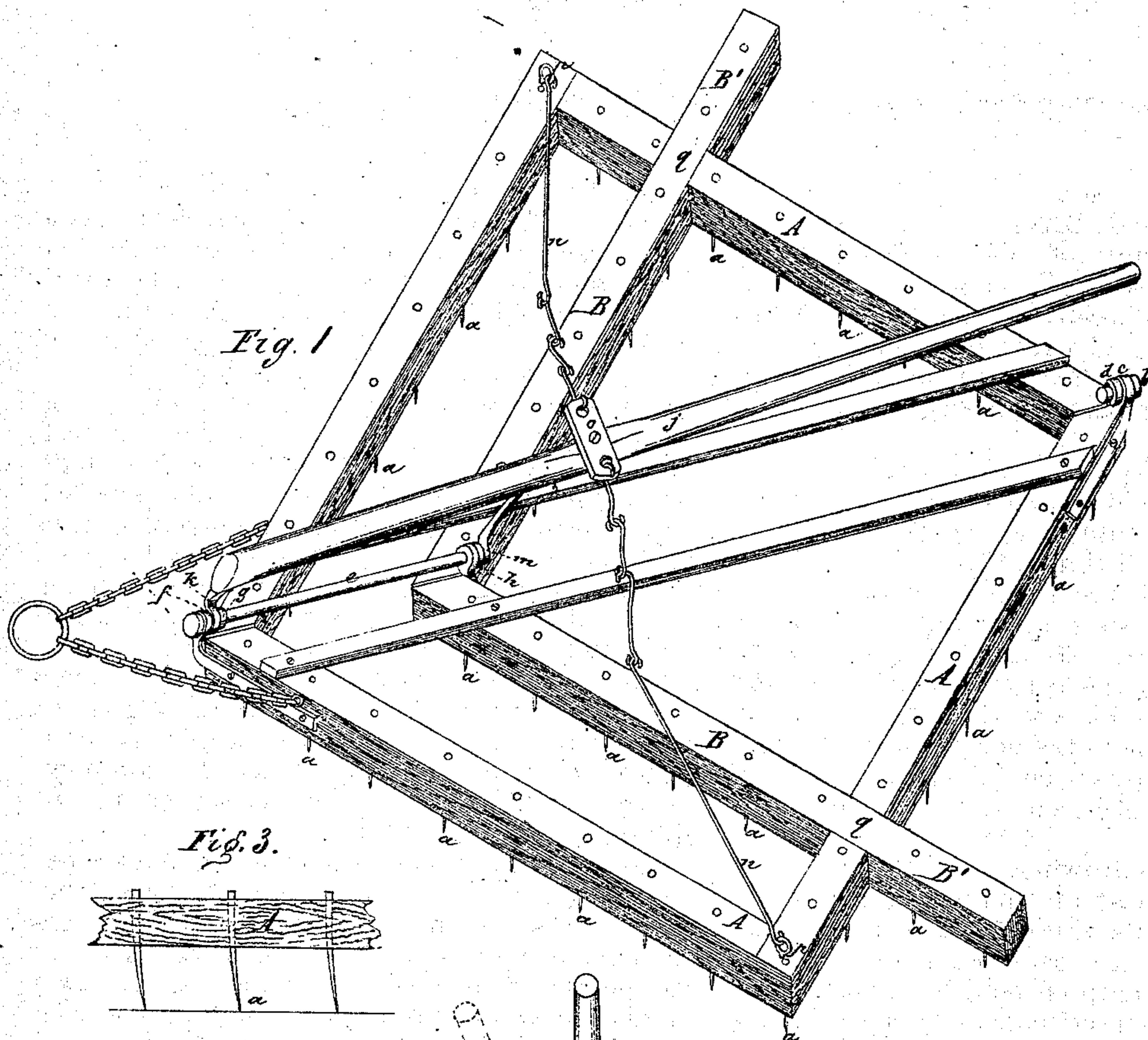


Fig. 1

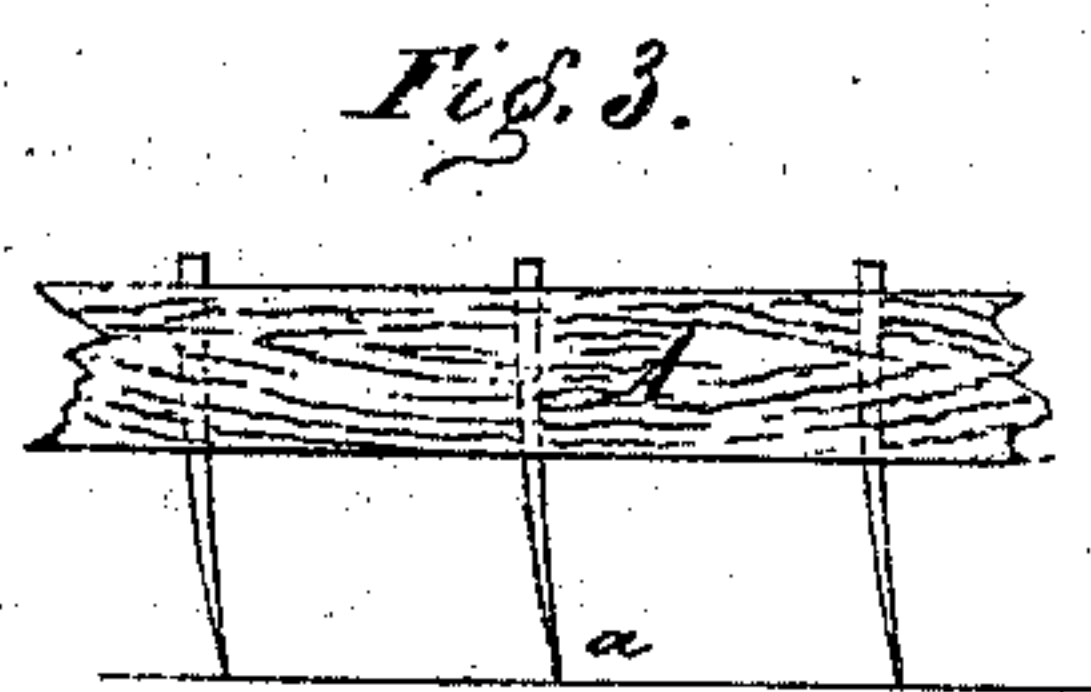


Fig. 3.

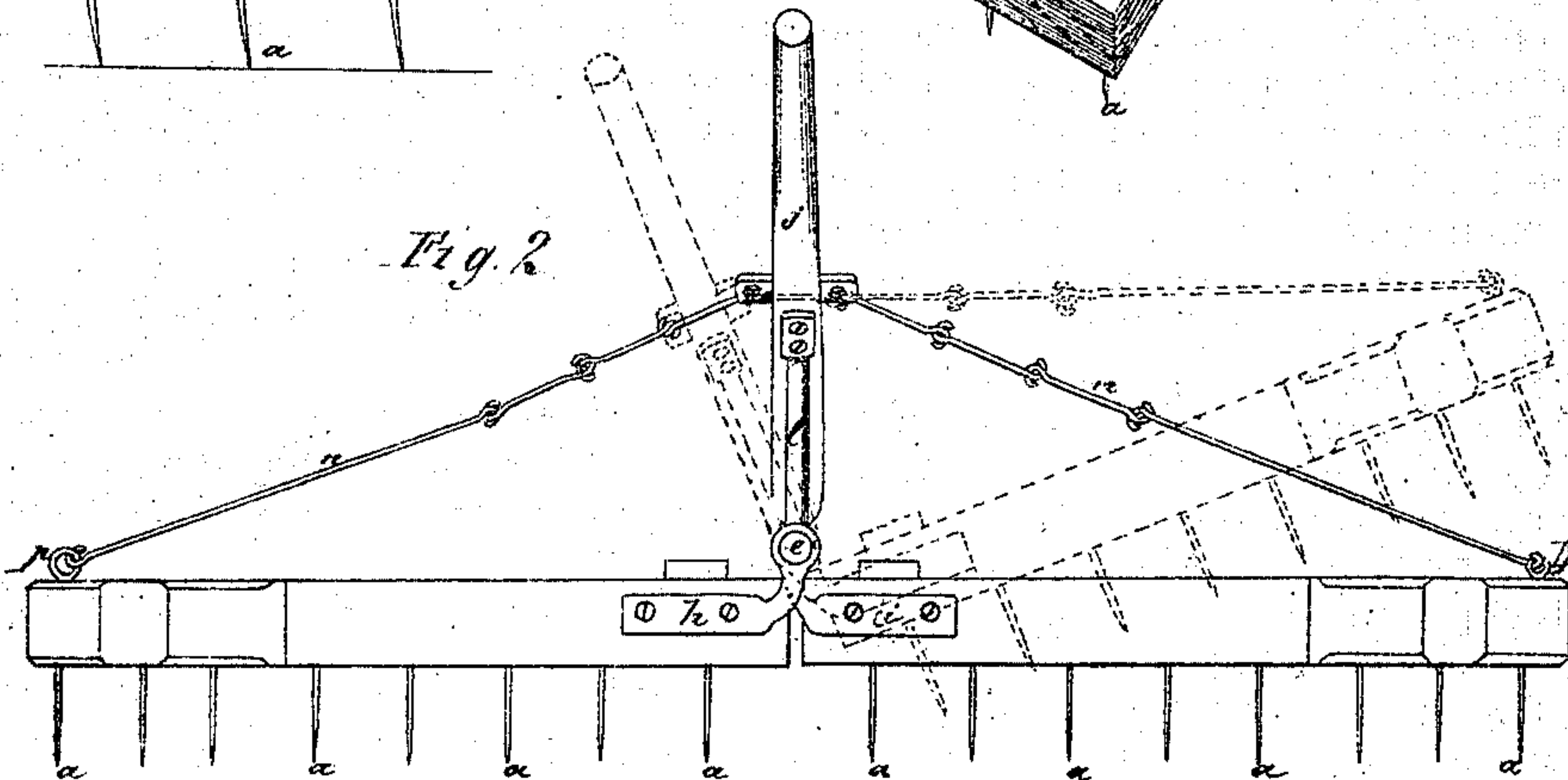


Fig. 2

Witnesses:

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UNITED STATES PATENT OFFICE.

BENJAMIN JOHNSTON, OF STERLING, ILLINOIS.

IMPROVEMENT IN HARROWS.

Specification forming part of Letters Patent No. 116,716, dated July 4, 1871.

To all whom it may concern:

Be it known that I, BENJAMIN JOHNSTON, of Sterling, in the county of Whitesides and State of Illinois, have invented a new and Improved Harrow; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a perspective view. Fig. 2 is a rear elevation, and Fig. 3 is a partial side elevation.

This invention relates to an improved arrangement of a lever for lifting or tilting the two parts of a harrow which are hinged together at the middle; and it consists in supporting the lever upon arms in such a way that its gravity shall aid in overcoming the gravity of either of the hinged parts of the harrow when it is desired to raise it to an angle to the horizontal plane, and shall extend back so as to be conveniently grasped by the operator, as hereinafter more fully described.

Referring to the drawing, *a* are the teeth, the same being all set at an inclination backward. In all lifting-harrows where the teeth are vertical, corn-stalks, weeds, &c., become impaled on them, and hence do not drop off readily when the harrow is lifted. When the teeth are arranged in the way I propose few stalks are impaled, or are dragged along with the teeth, and such as are impaled easily drop off when the harrow is raised. The halves *A* of the harrow are hinged together by means of a pin, *b*, passing through eyes *c d*, one projecting from each half, and by means of a bar, *e*, passing through the eyes *f g* and *h i*. A lever, *j*, is rigidly connected with the bar *e* by means of an eye, *k*, encircling said bar and attached to a plate that is fastened to the under side of the lever *j*, at one end of the latter; and by means of an arm, *l*, secured at one end to the under side of the lever *j*, and at the other end by an eye, *m*, connected with the

bar *e*. Chains *n*, secured to a plate, *o*, that is fastened to the lever *j*, extend thence to eyes *p* driven into the outer corners of the harrow, which chains serve to limit the movements of the lever. By pressing the latter to either side, that half of the harrow away from which it is pressed is elevated as high as the chain *n* permits.

It will be perceived that when it is desired to elevate either half of the harrow the slightest movement of the lever *j* toward the other half carries it beyond the center or point of equipoise, and, accordingly, its weight, or a portion of it, is made to assist the manual force applied for overcoming the weight of part of the harrow being raised. This greatly assists the operator, particularly if the lever be weighted.

I am aware it is not new to so arrange a lever that its gravity shall assist, in some degree, to raise a part of a harrow; but I believe it to be new to arrange a lever thus, and also in a horizontal position, so as to be easily seized and operated.

The ends *B'* of the second set of bars *B* extend outward beyond the bars *A*, the bars *B* being of the same length as those in front. This arrangement gives three rows of teeth outside of the points of connection *q*, which is the same number of rows as is within said points of connection. The harrow, consequently, tears the ground equally at every part, thus rendering lapping unnecessary.

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

The lever *j*, supported in a horizontal position, or nearly so, on the pivot-arms *k* and *l*, and connected with the hinged portions of the harrow, as specified.

BENJAMIN JOHNSTON.

Witnesses:

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JNO. G. MANAHAN.