G. COLLINS.

Harrow.

No. 107,337. Patented Sept. 13, 1870.

Fig: 1.

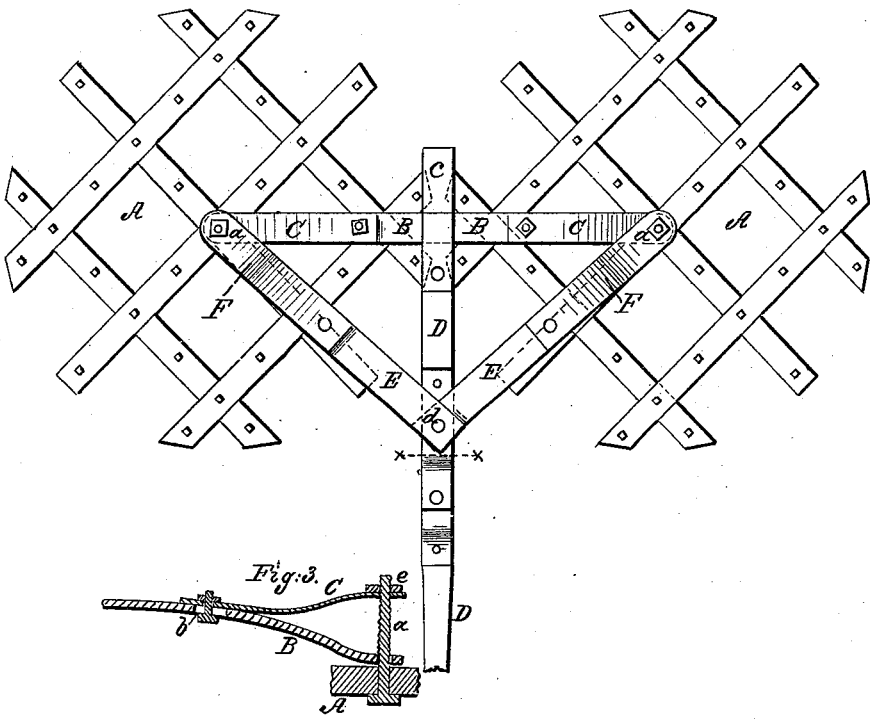
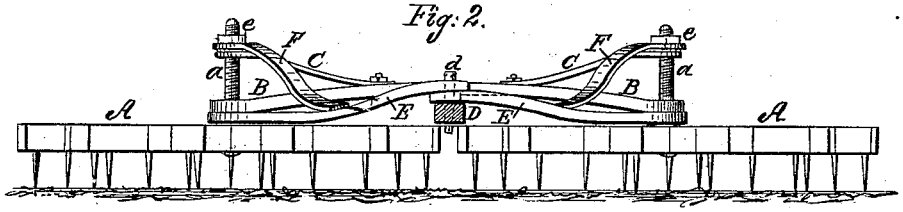


Fig: 3.

Fig: 2.



Witnesses.

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GEORGE COLLINS, OF FREMONT, NEBRASKA.

Letters Patent No. 107,337, *dated September* 13, 1870.

IMPROVEMENT IN ROTARY HARROWS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, GEORGE COLLINS, of Fremont, in the county of Dodge and State of Nebraska, have invented a new and useful Improvement in Rotary Harrows; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a plan view.

Figure 2 is a front elevation.

Figure 3 is a sectional view, in detail, of coupling-bar, showing the connection of brace therewith.

Like letters in the different figures of the drawing indicate like parts.

My invention relates to a rotary harrow, having for its object the avoiding of resistance by the harrow rotating when striking a stone, stump, or other impediment, as well as a more thorough breaking up and leveling of the soil, and consists in a combination and arrangement of devices as will be hereinafter fully described.

A A are harrows.

B, a coupling-bar, arranged to connect at each end with a pivot-screw, *a*, projecting upwardly in the center of each harrow.

C C are braces, arranged one at each end of the coupling-bar, to connect with the pivot-screws, so as form a steady bearing for the latter, which are passed through the under side of the harrows, where the center beams intersect one another at right angles, and fastened rigidly thereto.

The braces are fastened to the coupling-bar by bolts and screw-nuts, the bolts passing through elongated slots *b b* in the coupling-bar.

The object of the slots is to give to the axis of the harrows an angular position with the vertical, so that the harrows may be made to rotate either way.

D is the tongue, having an opening cut transversely on its upper side near the rear end, and a spring plate, *c*, arranged over the opening, and attached, by a screw or otherwise, a little forward of it.

The tongue is attached to the coupling-bar by raising the spring-plate up and placing the tongue so that the opening will embrace the coupling-bar; the opening is made loose enough to allow the tongue to slide laterally therein either way; the spring plate prevents it from becoming detached from the bar.

The tongue is further secured by the braces E E, one on each side, arranged with additional braces at their rear ends, F F, to connect with the pivot-screws.

The forward ends of the braces E E intersect one another on the tongue, and are secured thereto by a pivot-screw, *d*. This arrangement of the tongue with the coupling-bar and braces E E allows it to have a lateral movement either way, thus avoiding any too sudden or abrupt strain upon the team by the harrow striking a stump or other impediment, as well as facilitating the rotating of the harrow in avoiding the latter.

The coupling-bar is bowed from end to end, so as to elevate the tongue sufficiently to keep the draft from the neck of the horse.

The braces F F are riveted or otherwise fastened to the braces E E, which latter are placed over the pivot-screws first, and then the ends of the coupling-bar next, with the braces C C of the latter under those of the former, and the whole then secured by screw-nuts *e e*.

Having thus fully described my invention,

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

The arrangement of coupling-bar B, provided with movable or adjustable braces C C, braces E F and E F, tongue D, having its rear end arranged as described, and pivot-screws *a a* of the harrows A A, substantially as shown and set forth.

As evidence that I claim the foregoing as my invention, I have hereunto set my hand and seal in the presence of two witnesses.

GEORGE COLLINS. [L. S.]

Witnesses:

T. S. COX,

N. M. PILSBURY.