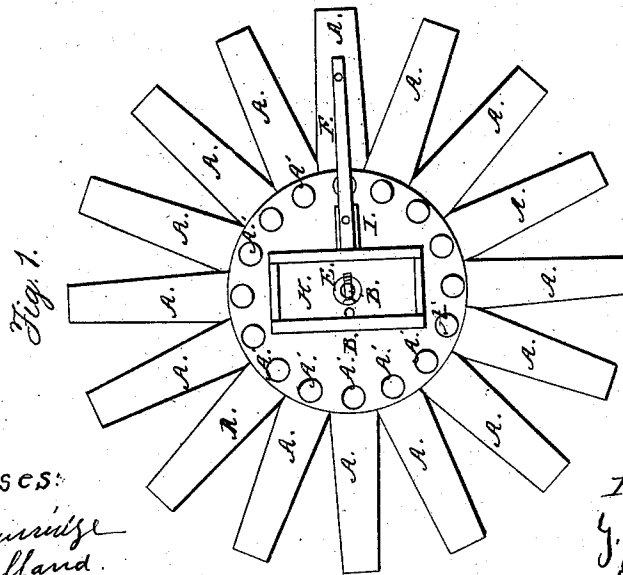
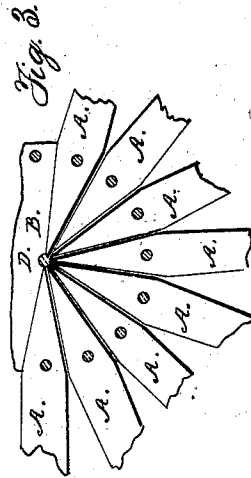
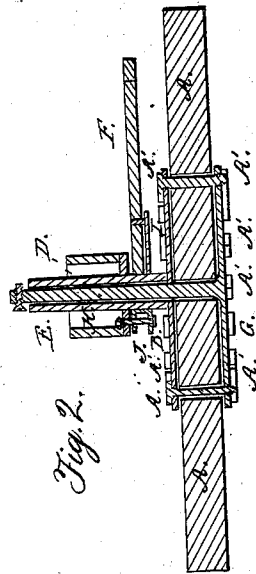


J. BRAINERD & E. F. & A. W. OLDS.

Revolving-Harrow.

No. { 861. }
31,865. }

Patented Apr. 2, 1861



Witnesses:
H. H. Burrill
A. M. Clelland.

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UNITED STATES PATENT OFFICE.

J. BRAINERD, OF CLEVELAND, OHIO, E. F. OLDS, OF LYON, AND A. W. OLDS,
OF GREEN OAK, MICHIGAN.

IMPROVEMENT IN HARROW-FRAMES.

Specification forming part of Letters Patent No. 31,865, dated April 2, 1861.

To all whom it may concern:

Be it known that we, JOHN BRAINERD, of Cleveland, in the county of Cuyahoga and State of Ohio, and EDWARD F. OLDS, of Lyon, in the county of Oakland and State of Michigan, and ALONZO W. OLDS, of Green Oak, in the county of Livingston and State of Michigan, have invented certain new and useful Improvements in Harrow-Frames; and we do hereby declare that the following is a full and complete description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a top view. Fig. 2 is a vertical section. Fig. 3 is a horizontal section.

The same letters refer to like parts in the drawings.

My improvement relates to a harrow-frame consisting of radial arms secured between two metallic plates near their circumference, by bolts or otherwise, in such a manner that any arm can be removed without disturbing the others. From the lower plate arises an upright pin or standard, over which is a pipe or socket, resting on the upper plate, to which the draw-bar is connected.

In the drawings, B and C represent two metallic plates, one placed above and the other below the radial arms A, that form the frame. The arms A, for a narrow frame five feet and one-half in diameter, may be two and one-half inches thick (three inches wide) at the place where they pass between the plates B and C, from which point they converge to the center pin or standard, D, as shown in Fig. 3. For a harrow of this size the plates should be sixteen inches in diameter and from one-quarter to three-eighths of an inch in thickness. The outer end of the arms should be about two and one-half inches square. The arms are held in place between the plates by screw-bolts A', one of which passes through each arm and through the plates B and C, as shown in the

figures. It will be seen by reference to Fig. 3 that the converging ends of the arms meet and completely fill the spaces between the circumferences of the plates B and C. From the plate C arises the pin or standard D, that passes through a hole in the plate B, extending up some distance, on the outside of which is the pipe or socket E, that rests upon the plate B, and to which is attached the draw-bar F by means of the piece I, which connects with the pipe E, and to which the draw-bar is bolted. On the opposite side of the pipe E is a projection, J, furnished with a slot and pin for the purpose of connecting two harrows to be drawn by one team.

H is a box resting upon the draw-bar F and projection J, through the bottom of which the standard D and pipe E passes, as seen in Fig. 2, the use of which box is for loading the harrow for soft or hard soil. If the soil is light, little or no weight will be needed; but if the soil is hard, the harrow can be loaded accordingly in order to cause it to penetrate the soil to a sufficient depth.

The harrow-frame is intended for rotation, which may be accomplished by any of the known methods, especially by the form and position of the teeth.

What we claim as our improvement, and desire to secure by Letters Patent in harrow-frames, is—

The radial arms A, secured between the plates B and C by the bolts A', in combination with a central pin or standard, D, or socket or pipe E, projection J, box H, and draw-bar F, the several parts being constructed and arranged substantially as and for the purpose set forth.

J. BRAINERD.
E. F. OLDS.
A. W. OLDS.

Witnesses:

LIBBIE W. OLDS,
ROSA G. OLDS.