

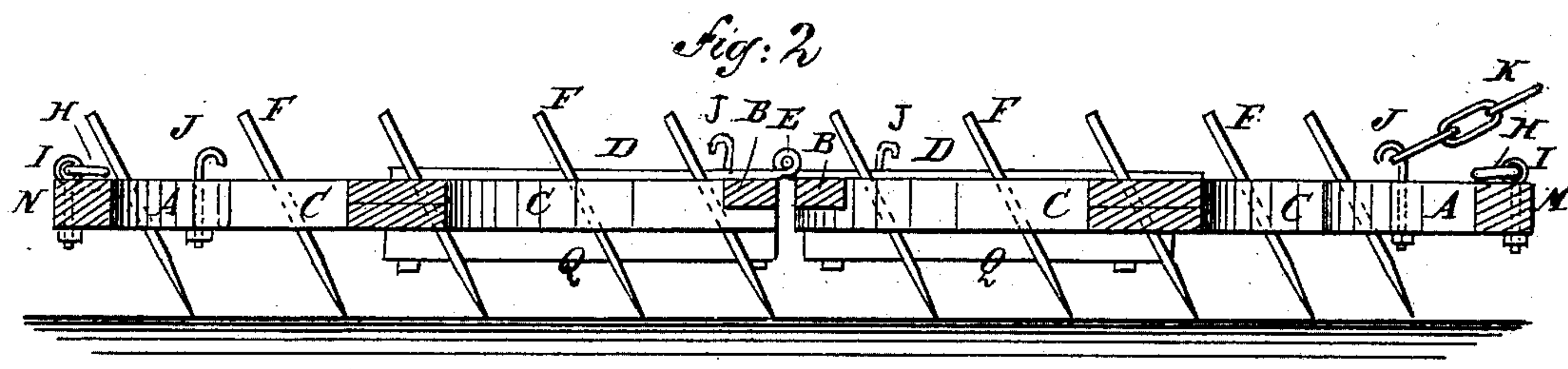
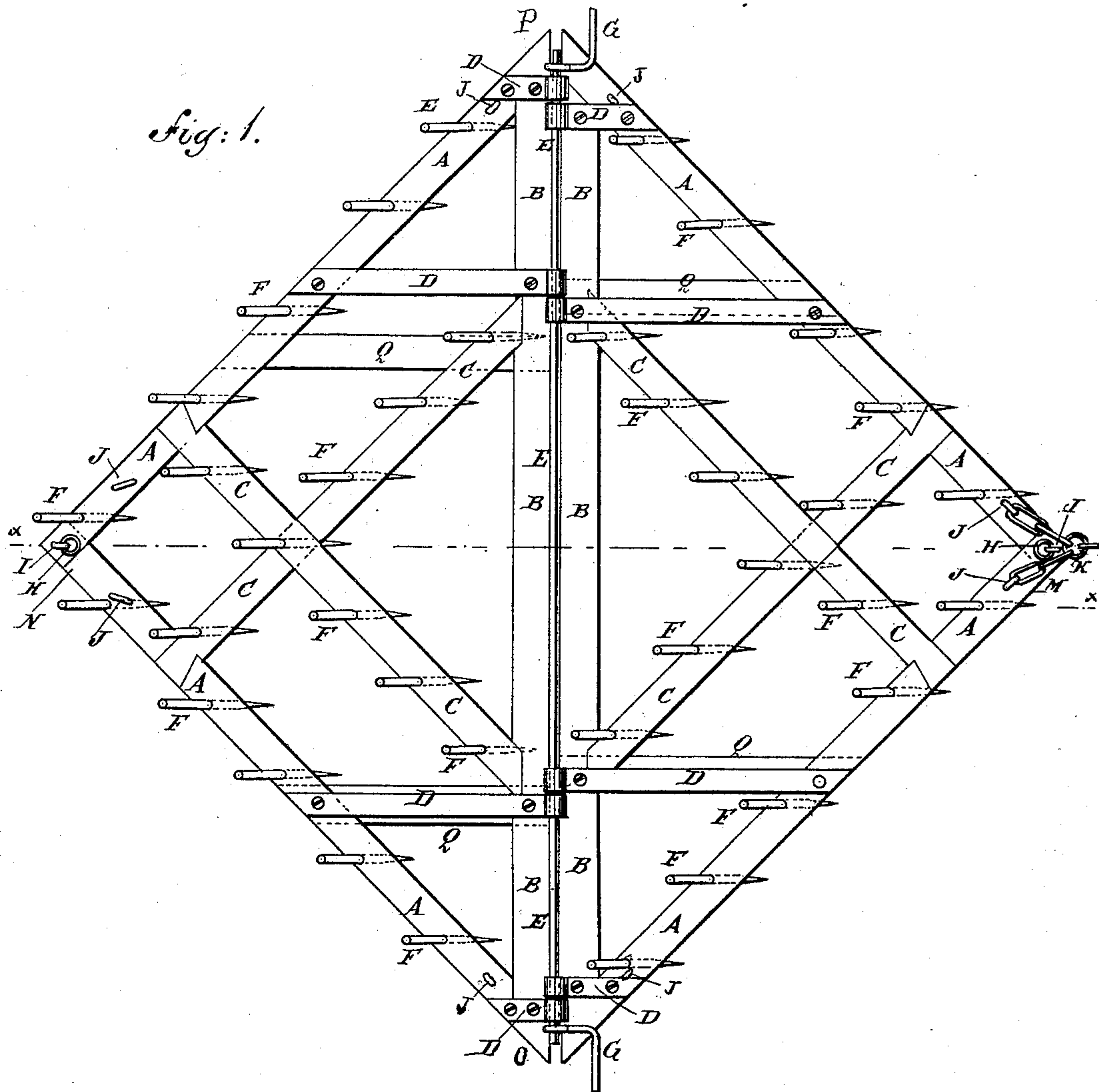
(No Model.)

W. CARLETON.

HARROW.

No. 341,451.

Patented May 11, 1886.



WITNESSES:

*Chas. Vida*  
*C. Sedgwick*

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# UNITED STATES PATENT OFFICE.

WILLIAM CARLETON, OF POMEROY, OHIO.

## HARROW.

SPECIFICATION forming part of Letters Patent No. 341,451, dated May 11, 1886.

Application filed April 29, 1884. Serial No. 129,720. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM CARLETON, of Pomeroy, in the county of Meigs and State of Ohio, have invented a new and useful Improvement in Harrows, of which the following is a full, clear, and exact description.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a plan view of one of my improved harrows. Fig. 2 is a sectional elevation of the same, taken through the line *x x*, Fig. 1.

The object of this invention is to provide harrows constructed in such a manner as to adapt them to different kinds of work.

The invention consists in a harrow constructed with two triangular frames hinged to each other, provided with interior crossed bars, and having teeth inserted in the bars of the frame at an inclination with the plane of the said frame. To each corner of the frame are attached hook-bolts to receive the draft-chain and adapt the harrow to be drawn with either corner forward. To the under sides of the bars of the frame are attached removable bars, to limit the depth to which the harrow-teeth enter the soil, as will be hereinafter fully described.

A are two pairs of bars, of equal length. The bars A of each pair are secured to each other at a right angle at one end, and at the other ends are attached to the ends of a bar, B.

To the bars A, at a little distance from their meeting ends, are attached the ends of two bars, C. The bars C are placed parallel with the bars A, cross each other at right angles, are halved to each other, and are attached at their inner ends to the base-bars B. The base-bars B of the two triangular frames are laid side by side and the said frames are hinged to each other by the eye-straps D and the long rod E, which passes through the eyes of the said straps D. The eye-straps D are placed at right angles with the base-bars B, are attached near their eyes to the said base-bars, and are attached at their outer ends to the bars A, as shown in Fig. 1, so that the said eye-straps will serve as braces to the harrow-frame. By this construction a square harrow-

frame is produced, jointed diagonally, so that either half of the said frame can be raised from the ground without disturbing the other half.

F are the harrow-teeth, which are made of round rods and are pointed at their lower ends. The teeth F are inserted in inclined holes formed in the bars A C, so that all the said teeth will be parallel with each other and will be inclined toward one of the solid angles of the harrow-frame and away from the other.

To each end of the rod E is attached a handle, G, and to each solid angle of the frame is attached a ring, H, by means of an eyebolt, I, to serve as a handle, so that either corner of the harrow can be raised from the ground, as may be required. These handles G are bent in an L shape, and the inner end of each of them is provided with an aperture by means of which they are secured upon the ends of the rod E, outside of the straps D, thus retaining the rod in its place, while their outer ends project beyond the sides of the harrow, thus affording a means of raising either side of the harrow. By turning them to either side of the hinge they will always be in the rear of the harrow and can be taken hold of without danger of being caught by getting in front of it, and when the harrow is folded for transportation or for storage the handles will lie between the two parts of the harrow, entirely out of the way.

To the bars A, at each corner of the harrow-frame, are attached two hook-bolts, J, upon which are hooked the ends of two arms of the short three-armed chain K, the third arm of which is designed to receive the draft. With this construction, when the draft is applied to the corner M, as indicated by the chain K in Figs. 1 and 2, the harrow operates as a drag or digging harrow and loosens the soil thoroughly and to the full length of the teeth. When the draft is applied to the corner N, the harrow operates as a smoothing-harrow, and when the draft is applied to either of the corners O P, the teeth F will be drawn through the ground laterally with respect to the direction of their inclination, and will thoroughly stir up and loosen the soil. When the draft is applied to the corner M or in the direction of the inclination of the teeth F, and it is not desired to have the said teeth F enter the

ground to their full length, bars Q are attached to the lower sides of the bars A C, parallel with the line of draft and at right angles with the bars B, which bars Q, by coming in contact with the soil, limit the depth to which the said teeth enter the soil, and at the same time serve as runners for the harrow to move forward upon.

I am aware that hinged harrows have been constructed which were secured together by means of a bolt passing through hinge-straps secured to each of the two halves, and also that such harrows have been provided with regulating-bars upon their under side, and I do not claim such construction, broadly; but

I claim and desire to secure by Letters Patent of the United States—

The combination, with the two parts of a hinged harrow having hinge-straps secured thereto, of a rod passing through said straps, and an L-shaped handle having an aperture in its inner end, secured upon each end of said rod outside of said straps, as shown and described.

WILLIAM CARLETON.

Witnesses:

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