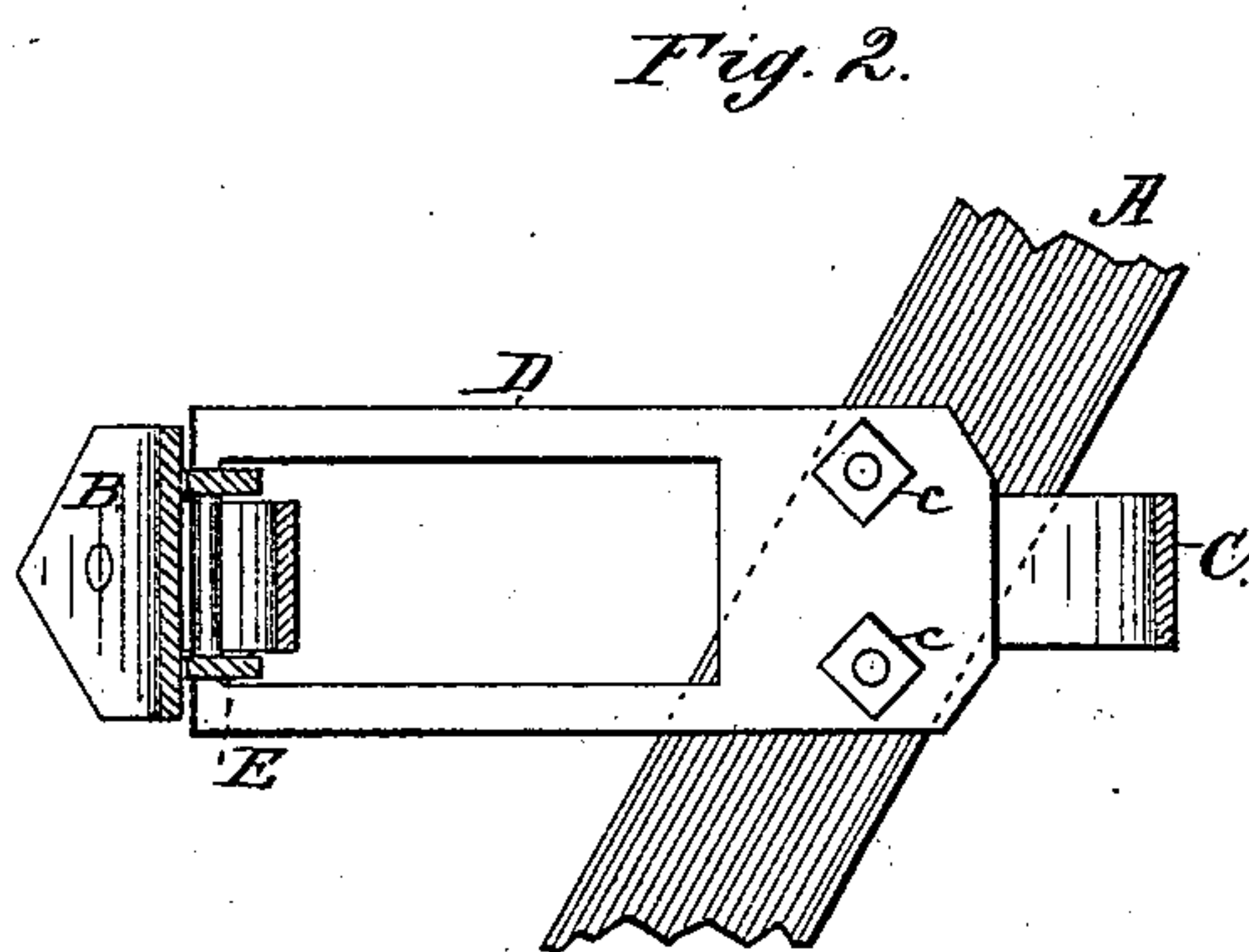
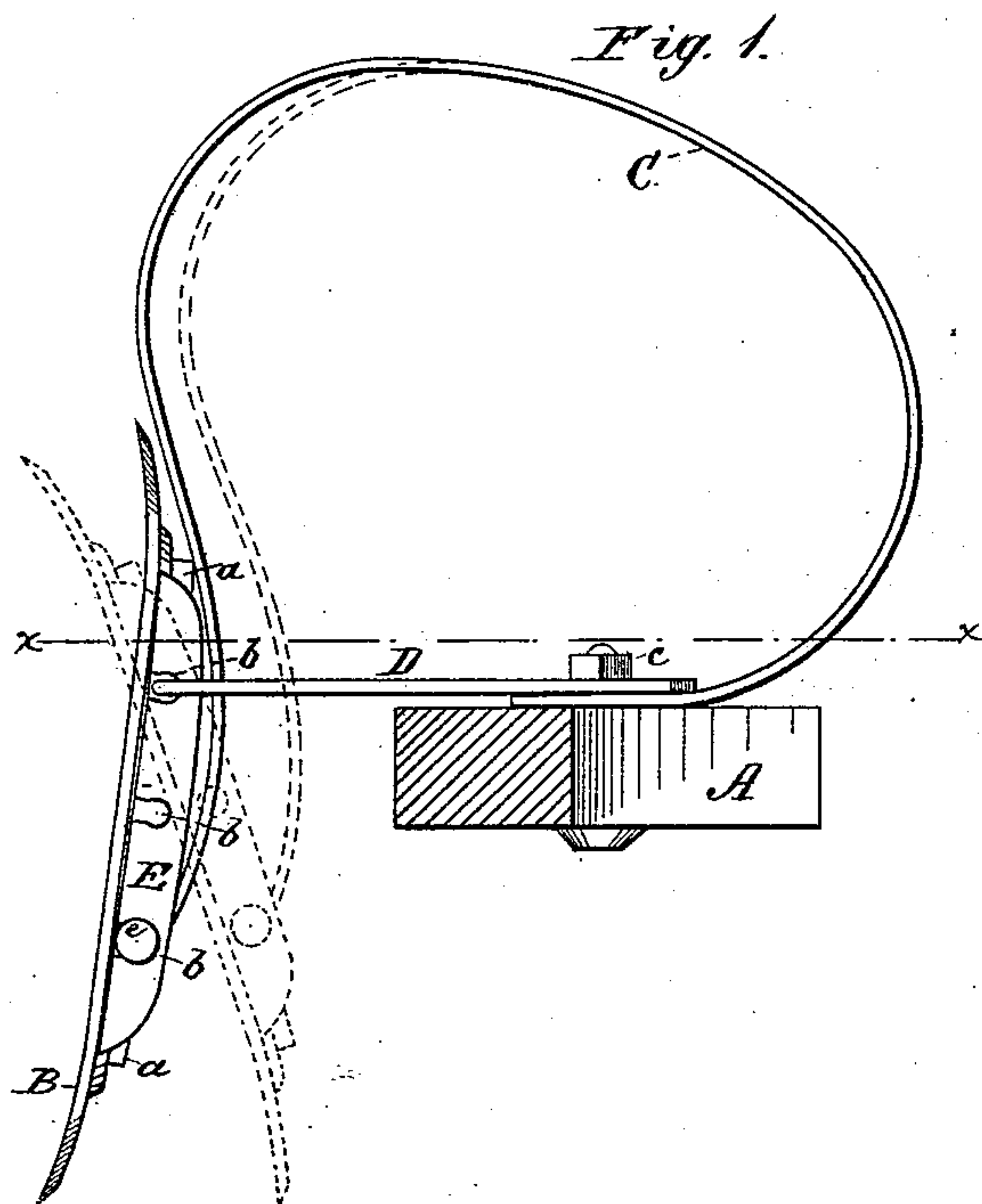


G. C. WINSLOW.
Harrow-Tooth.

No. 227,085.

Patented April 27, 1880.



WITNESSES:

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UNITED STATES PATENT OFFICE.

GEORGE C. WINSLOW, OF KALAMAZOO, MICHIGAN.

HARROW-TOOTH.

SPECIFICATION forming part of Letters Patent No. 227,085, dated April 27, 1880.

Application filed February 21, 1880.

To all whom it may concern:

Be it known that I, GEORGE C. WINSLOW, of Kalamazoo, county of Kalamazoo, and State of Michigan, have invented a new and Improved Harrow-Tooth; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side view of the tooth applied to the harrow-bar, and showing, in dotted lines, the position of the spring in yielding. Fig. 2 is a horizontal section through line *xx* of Fig. 1.

My invention relates to an improvement in spring harrow-teeth; and it consists generally in hinging the harrow-tooth in the forward end of a rectangular frame bolted to the harrow-bar, and combining therewith a spring, which at its back end is clamped to the harrow-bar by the same bolts which secure the rectangular frame, and which spring then curves upward and forward, and then down through the slot or opening of the rectangular frame, and is jointed at its extremity, near the bottom of the harrow-tooth, so that its tension serves to throw the harrow-tooth forward, but allows it to yield to obstruction.

The invention also consists in the combination of the reversible harrow-tooth with its back plate, the rectangular frame, and the spring, as hereinafter more fully described.

In the drawings, A represents one of the bars of the harrow-frame or cultivator. B is the reversible tooth, sharpened at both ends. C is the spring, D, the rectangular frame, and E the back plate, of the harrow-tooth.

The tooth B is ordinarily made about eight inches long, two inches wide, and three-sixteenths of an inch thick, and is bolted at top and bottom to the back plate by bolts *a a*. This back plate may be either forged or made of malleable cast-iron, and its side bars stand in a plane at right angles to the plane of the tooth, and are formed with open half-round seats *b*, which, when the back plate is bolted to the tooth, are closed in and retain, respectively, the end of the rectangular frame and the lower end of the spring.

The rectangular frame D is bolted at its rear end to the harrow-bar by bolts *c c*, and beneath the broad portion of said rectangular

frame is clamped the rear end of the spring C. The front cross-bar of the rectangular frame is retained in the upper one of the seats *b* of the back plate, and constitutes a fulcrum upon which the tooth turns in yielding to obstructions, while the lower one of the seats *b* in the back plate receives the bolt *c*, that secures the front end of the spring. This spring rises from its point of connection with the back plate of the tooth, and passes upward and slightly to the rear, and after passing through the slot or opening of the rectangular frame inclines to the front again until it coincides with the curve of the tooth, after which it bends over, down, and under the rear end of the rectangular frame.

The principal advantages of this improved construction are as follows:

First, by extending the spring through the rectangular frame and jointing it to the lower part of the tooth the side bars of the said rectangular frame form a guard or guide against the lateral displacement of the spring when the tooth is being deflected.

Secondly, by causing the tooth to fulcrum near its upper end and applying the tension of the curved spring low down and near the ground the tension of the spring is utilized to great advantage, while the upper end of the tooth or its back plate is made to act as a stop when the tooth resumes its normal position after being deflected.

Thirdly, the peculiar form of the back plate with its seats *b* not only permits the reversal of the tooth or gives an adjustment as to leverage by permitting the fulcrum to be placed in one or the other of the seats, but it forms also a ready and efficient means for connecting the parts together.

In defining the limits of this, my present invention, I would state that in another application for a spring harrow-tooth, which I filed November 29, 1879, I have made broader claims than in the present case, and I therefore do not claim in this case any subject-matter which is shown or claimed in the said prior case.

Having thus described my invention, what I claim as new is—

1. In a spring harrow-tooth, the combination, with a rectangular open frame fixed to

the harrow-bar, of a harrow-tooth fulcrumed upon the rectangular frame, and a spring connected with the harrow-bar and extending over and down through the rectangular frame
5 and jointed to the tooth below its fulcrum, as described.

2. The back plate, E, having open seats b, combined with the spring and rectangular

frame, and bolted to the tooth so as to inclose the connections of said spring and frame, substantially as described, and for the purpose
10 set forth.

GEORGE C. WINSLOW.

Witnesses:

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