

(No Model.)

J. E. BEEBE.  
HARROW TOOTH HOLDER.

No. 344,804.

Patented July 6, 1886.

Fig. 1.

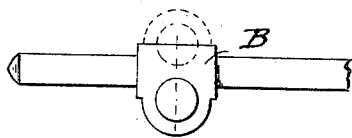


Fig. 2.

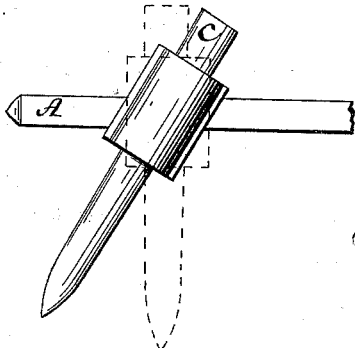


Fig. 5.

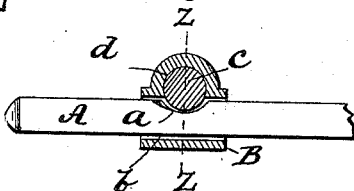


Fig. 4.

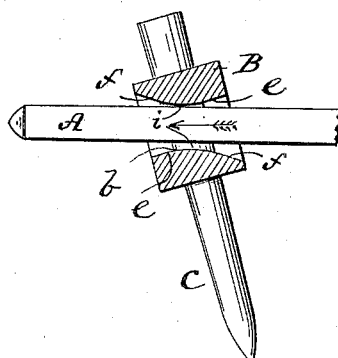


Fig. 6.

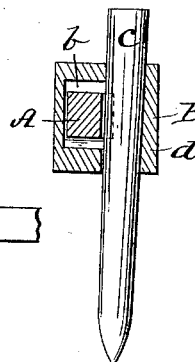


Fig. 3.

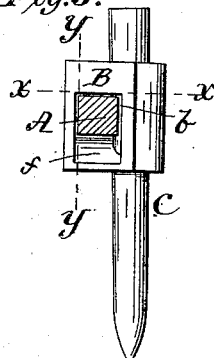


Fig. 7.

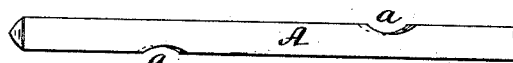


Fig. 8.

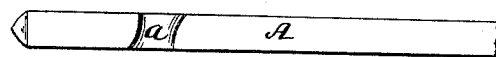
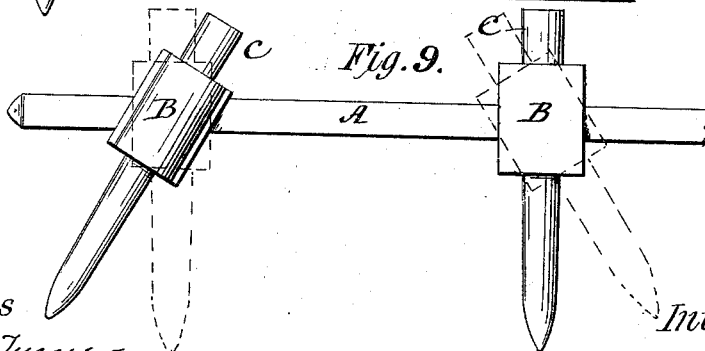


Fig. 9.



Witnesses  
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# UNITED STATES PATENT OFFICE.

JOSEPH ELLIS BEEBE, OF ADAIR, IOWA.

## HARROW-TOOTH HOLDER.

SPECIFICATION forming part of Letters Patent No. 344,804, dated July 6, 1886.

Application filed June 18, 1885. Serial No. 169,116. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH ELLIS BEEBE, a citizen of the United States, residing at Adair, in the county of Adair and State of Iowa, have  
5 invented certain new and useful Improvements in Harrow-Tooth Holders; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable  
10 others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to harrow-tooth-holding devices; and it has for its objects, first, a  
15 holder for securing the tooth in place and permitting an oscillatory movement thereof, said holder being readily attached and detached from the tooth-supporting bar; second, a  
20 holder for securing a tooth to its bar, so that when the latter is moved in one direction the tooth will stand obliquely to its supporting-bar, and when drawn in the opposite direction will stand at nearly right angles thereto,  
25 said holder being made reversible, and also adapted to be inverted to change the position of the tooth, as desired.

The invention by which these objects are obtained consists in the combination, with a  
30 bar having a notch in its side, of a block or holder transversely apertured to receive the bar and vertically apertured to receive the tooth, the two apertures running at right angles to each other and partially intersecting,  
35 the upper and lower walls of the transverse slot through the holder extending part way in a horizontal plane, or at right angles to the tooth-receiving aperture, the remaining portion inclining away from said horizontal portion  
40 the diagonally-opposite portions of the walls being made to correspond, as clearly shown in the accompanying drawings, in which—

Figure 1 represents a plan view of a section  
45 of a harrow-bar provided with my improvements. Fig. 2 is a side view. Fig. 3 is an end view. Fig. 4 is a section on line Y Y, Fig. 3. Fig. 5 is a section on line X X, Fig. 3. Fig. 6 is a section on line Z Z, Fig. 5, the  
50 tooth being shown in full. Figs. 7 and 8 are detail views of a section of the tooth-supporting bars. Fig. 9 represents a section of a har-

row-tooth bar provided with two holders oppositely mounted thereon.

The same letters refer to corresponding  
55 parts in the various figures.

A section of tooth-supporting bar, A, is notched on its sides, as at *a*.

The tooth-holder B is transversely slotted, as indicated at *b*, and vertically apertured, as  
60 represented at *d*, said openings preferably extending at right angles to each other, and partially intersecting, as most clearly shown in Figs. 3, 5, and 6. These openings *b* and *d* correspond to a cross-section of the tooth-bar and  
65 tooth, respectively, the former being preferably rectangular, although any desired shape may be employed. The upper and lower walls of the opening *b* are formed on different planes, a part, *e*, extending at right angles to  
70 the aperture *d*, the remaining portion *f* inclining away from the horizontally-extending part. The inclined portion of the wall on the one side is directly opposite the horizontal portion of the diametrically-opposite wall,  
75 thus bringing the corresponding parts of the walls diagonally opposite to each other, as more fully shown in Fig. 4. The plain surfaces of the walls *e* and *f* are united by a convexed curving surface, *i*, which is found to  
80 give better results, and the wear on the beam is not so great as it would be if the walls *e* and *f* met on a straight line, thus presenting an angular projection.

The side walls of the notches *a* in the tooth-  
85 bar are similarly formed to the upper and lower walls of the openings *b* through the holder.

In practice the harrow is constructed so that its bars may be easily and readily detached and replaced in order to better carry  
90 out my invention. The holder B is sleeved or passed over the bars with its vertical aperture adjacent to and coinciding with the notch in the bar, when a tooth is passed  
95 through the vertical aperture in the holder and locks the parts in position, there being sufficient play to permit the free oscillation of the tooth and holder in a direction lengthwise of the bar.  
100

The tooth may be held in place in the holder in any well-known manner; but the way shown is preferred, the tooth being made tapering and the aperture of a corresponding

shape, this being the simplest and most inexpensive method.

It will be seen that the holder may be inverted without changing its relation or that of the tooth to the bar, provided the tooth remains on the same side of the bar, while reversing the holder and changing the tooth to the opposite side of the bar reverses the position of the tooth and holder, as best shown in Fig. 9.

It must be observed that in cases where it is designed that the holders should be inverted without changing the relation of the tooth to the bar the tooth is made of uniform diameter to within a short distance of its pointed end, and the vertical aperture through the holder is likewise of a uniform area corresponding to the tooth, the latter being secured in place in any well-known manner which will readily suggest itself to a skilled mechanic.

In Fig. 1 a form of holder is shown, partly in dotted lines, in which vertical apertures extend on either side of the transverse opening, the reversing of which, the tooth remaining on the same side of the bar, changes the relative position of the tooth.

From the foregoing the operation of the tooth and holder will readily be understood. As the bar is drawn in one direction, (represented by the arrow, Fig. 4,) the inclined walls of the holder will contact with the upper and lower face of the tooth-bar and hold the same and its tooth in an oblique or inclined position, while a reverse motion will cause the shifting of the holder, and the horizontal portions of said walls will contact with the upper and lower faces of the tooth-bar and hold the tooth in a vertical position.

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

1. A harrow-tooth holder formed in one piece having a vertical opening to receive the tooth and a horizontal opening to receive the beam, and adapted to rock upon the beam, to permit the tooth to automatically shift from a vertical to an inclined position, or vice versa when the draft is reversed.

2. The combination of a notched bar, a holder provided with partially-intersecting vertical and transverse apertures, each surface of

the upper and lower walls of the transverse aperture extending part way in a horizontal and part way in an inclined direction, the inclined portion of the one surface being arranged opposite the horizontal portion of the other surface, and a tooth adapted to pass through the vertical aperture of the holder and extended into the notch of the bar, whereby the former and latter are interlocked and the tooth permitted to automatically shift from a vertical to an inclined position, or vice versa when the draft is reversed.

3. As an improved article of manufacture, a harrow-tooth holder consisting of a casting provided with a vertical and transverse aperture adapted to receive the tooth and beam, respectively, the transverse aperture having its upper and lower surfaces or walls each provided with a horizontal and an inclined surface, the said horizontal and inclined surfaces being arranged at opposite ends of the aperture, substantially as and for the purposes set forth.

4. In combination with the harrow-beam, the tooth-holder wholly inclosing the latter, and having the opening through which said harrow-beam extends inclined or tapered from one end of said tooth-holder, as set forth.

5. In a harrow, a tooth-holder formed in a single piece having a vertical opening to receive the tooth, with means for adjusting the latter therein, and a horizontal opening to receive the beam, and adapted to rock upon the beam to permit the tooth to automatically shift from a vertical to an inclined position, or vice versa when the draft is reversed.

6. In a harrow, the combination of the single flat beam and a pivoted tooth-holder consisting of the two frames at right angles to each other inclosing the tooth and beam, respectively, the frame of the latter having its opening diminished in longitudinal width, to allow the tooth-holder to partially rotate on its pivot and the tooth to incline automatically, as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH ELLIS BEEBE.

Witnesses:

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WM. MONTGOMERY.