(No Model.)

F. G. WINNEK.

Harrow Tooth.

No. 229,788. Patented July 6, 1880.

Fig. 1.

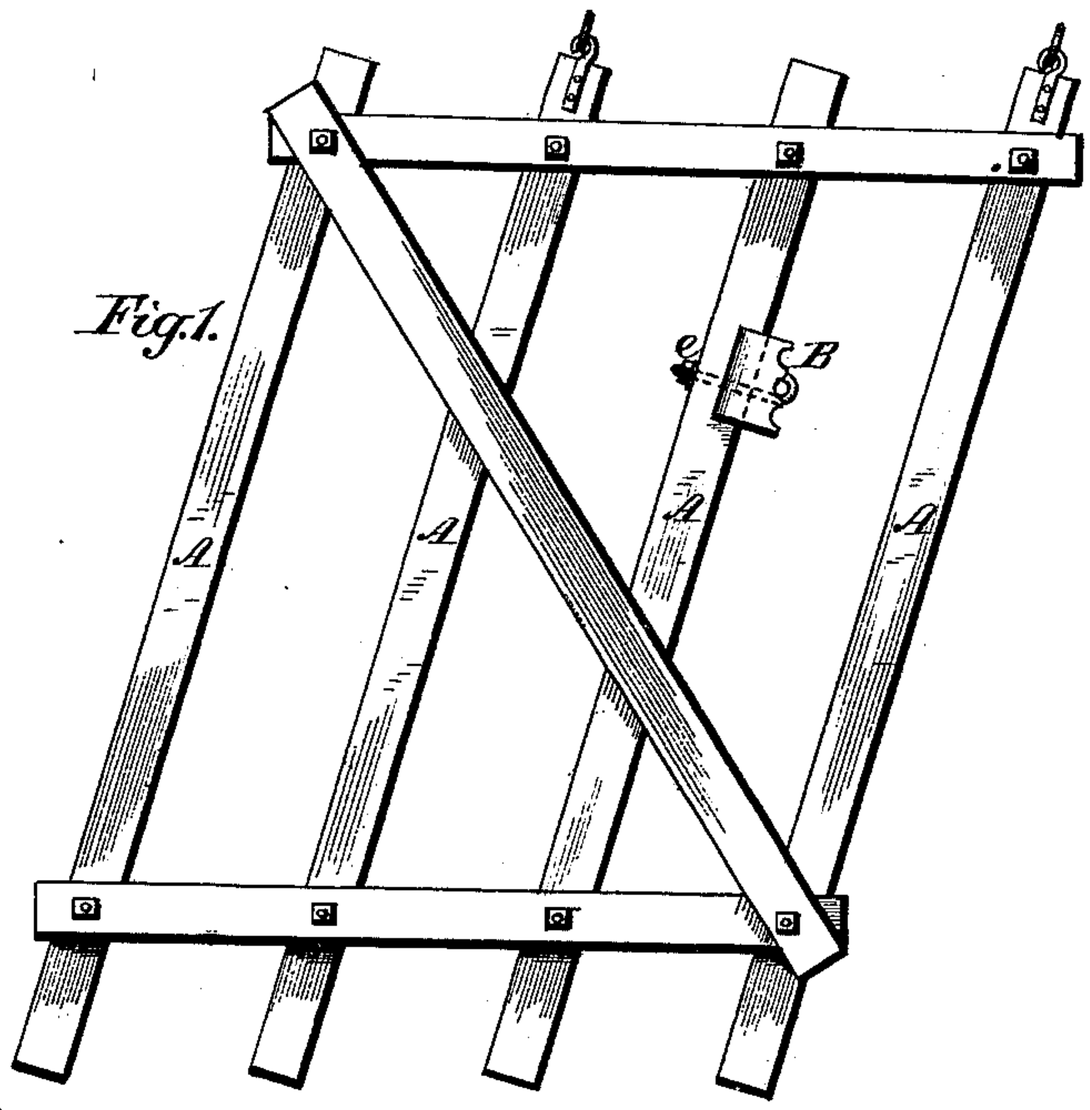


Fig. 2.

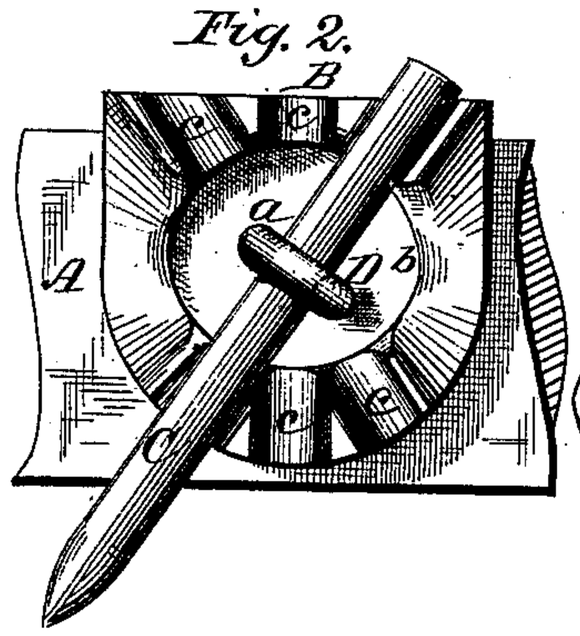


Fig. 3.

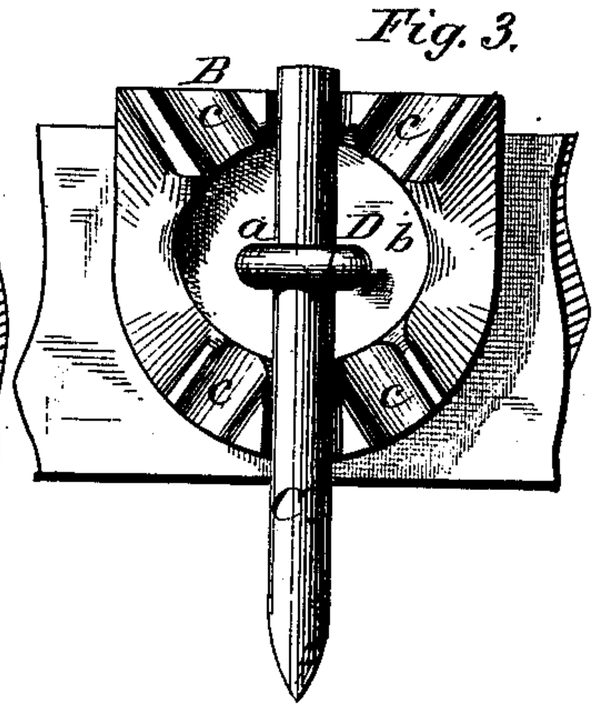


Fig. 4.

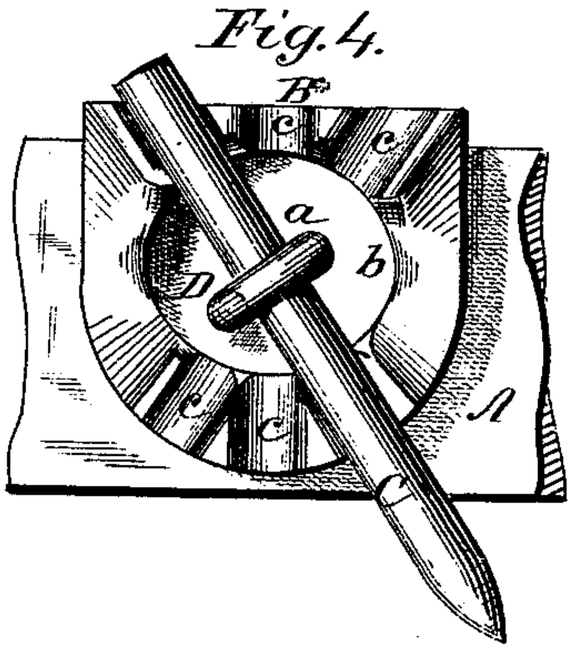


Fig. 6.

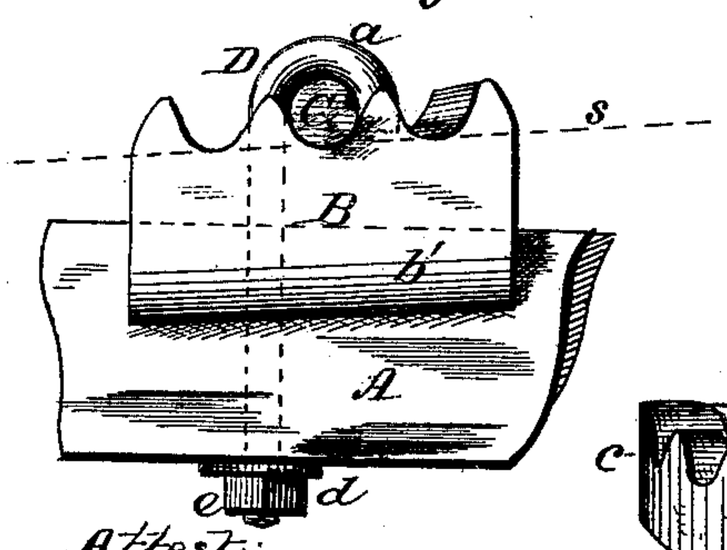


Fig. 7.

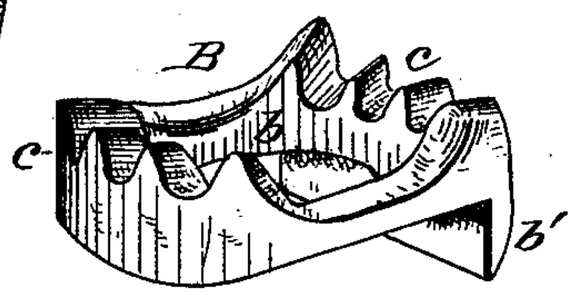
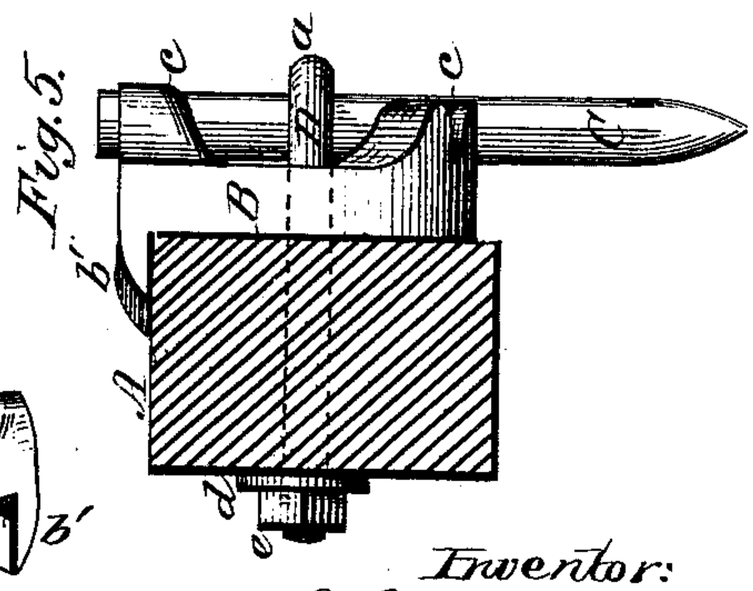


Fig. 5.



Attest:

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Inventor:

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UNITED STATES PATENT OFFICE.

FREDERICK G. WINNEK, OF OSAGE, IOWA.

HARROW-TOOTH.

SPECIFICATION forming part of Letters Patent No. 229,788, dated July 6, 1880.

Application filed April 27, 1880. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK GIDEON WINNEK, a citizen of the United States, residing at Osage, in the county of Mitchell and State of Iowa, have invented new and useful Improvements in Harrow-Teeth, of which the following is a specification.

The object of my invention is to increase the efficiency of devices for holding the teeth of a harrow either in vertical or inclined planes, and to maintain each tooth of the harrow, during its several adjustments, in line with the line of draft. For this purpose I employ a flanged open-faced or slotted notched holder for the harrow-tooth, the said holder being applied to the bar so that it is adapted for adjustment thereon in the line of the bar over the shank of the clamping-bolt, to change the position of the tooth. The hollow or open-faced holder is formed with triple sets of notches adapted to receive the harrow-tooth, these notches being formed in lines at an angle to the bar, whereby the tooth will be held in the line of draft irrespective of its adjustment in said notches, as hereinafter described.

Referring to the accompanying drawings, Figure 1 represents the harrow-frame, showing the relation therewith of one of the tooth-holders; Figs. 2, 3, and 4, side views of the tooth and its holder, showing the tooth in different positions; Fig. 5, a section showing the tooth clamped to the beam; Fig. 6, a top view of the same, and Fig. 7 the flanged open-notched holder.

The diagonal bars A of an ordinary harrow-frame are set obliquely to the line of draft, as usual.

As the holders for maintaining the teeth in vertical or inclined planes are all of like construction, a description of one of the said holders will apply to all.

The holder B consists of a hollow or slotted casting, *b*, formed with a flange, *b'*, the open or slotted flat side of the casting being applied to one side of the harrow-bar, while the flanged part thereof rests upon the top of the bar. The holder is formed with an upper and a lower series of notches, *c c*, to receive the harrow-tooth C, which is held in place within the notches by means of an eyebolt or a hook upon one end of a bolt, D. The stem of this bolt is passed laterally through the harrow-bar, and upon its screw-threaded end is arranged a washer, *d*, and a nut, *e*, the latter being tightened up in order to maintain the tooth in rigid position within the notches of the holder, and also to clamp the holder firmly upon the tooth-bar.

In order to vary the pitch of the harrow-tooth, the nut upon the bolt must be loosened so as to allow the hook or eye portion *a* of the bolt to be drawn out laterally from the bar to a distance sufficient to enable the operator to transfer the tooth to different notches in the holder. In doing this the holder must necessarily be shifted in position upon the harrow-bar, and this shifting will be readily effected, since, during the time in which the tooth is not held upon the holder, the said holder will be simply suspended upon the harrow-bar by its flange.

In the drawings the three positions of the tooth are illustrated. Fig. 3 shows the tooth in a vertical plane, and when all of the teeth are in this position they will act as ordinary straight harrow-teeth. The next position, Fig. 4, is a forward inclination of the tooth. When all of the teeth are in this position a deep-cutting harrow will be formed. The next position, Fig. 2, is a rearward inclination of the tooth. The teeth, being all in this position, constitute harrow-teeth for smoothing down the ground and breaking up the clods of earth.

In order to compensate for the divergence of the harrow-bars from the line of draft, the notches of the holders are formed in lines at such angles to the bar that no matter at which angle the tooth is shifted it will be held in the line of draft. Hence, if the teeth of the harrow are in vertical or inclined planes, they will always be in the line of draft. To effect such arrangement of the notches the holder is thickened toward one vertical edge, so that while the notches will be of equal depths they will be in lines oblique to the bar, as shown by the dotted line *s* in Fig. 6.

I am aware that prior to my invention harrow-teeth have been supported by clamping devices capable of adjusting the angle or position of the tooth on the beam for different kinds of work; and I do not claim, broadly, an adjustable harrow-tooth holder.

I claim—

1. The harrow-tooth holder consisting of the casting B, having the top flange, *b'*, the top and bottom ranges of notches, *c c c*, and the middle oblong opening, *b*, the said notches being on a plane inclined to the back crosswise of said holder, and adapted for use, as shown and specified.

2. The combination of the holder, consisting of the casting B, having the top flange, *b'*, the top and bottom ranges of notches, *c c c*, and the middle oblong opening, *b*, with the oblique harrow-bar A, the tooth C, and the clamping-bolt D, said holder being supported by and shifted horizontally upon its flange *b'* to change the position of the tooth, and the said notches being formed to support the tooth in the line of draft, as shown and specified.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

FREDERICK GIDEON WINNEK.

Witnesses:

OTTO EDWARD SAUTER,

JOHN B. CLELAND.