

(No Model.)

2 Sheets—Sheet 1.

DE WITT C. MARKHAM.
SPRING TOOTH HARROW.

No. 488,714.

Patented Dec. 27, 1892.

Fig. 1.

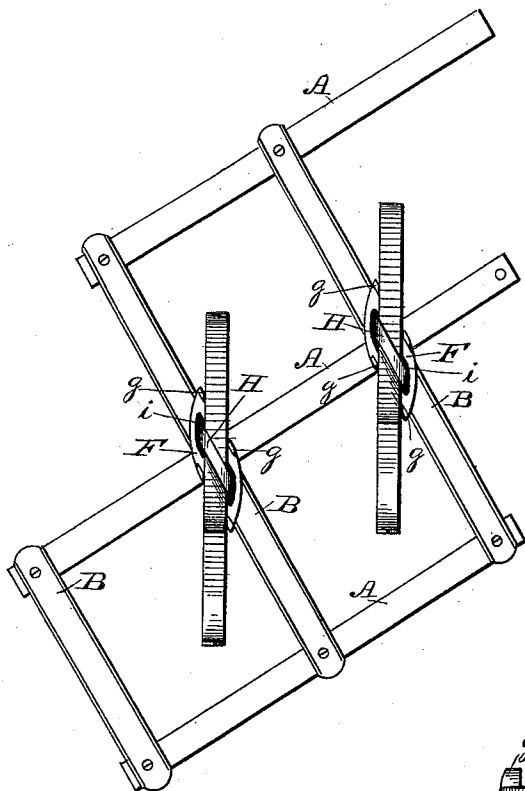


Fig. 3.

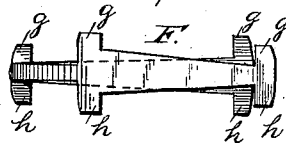
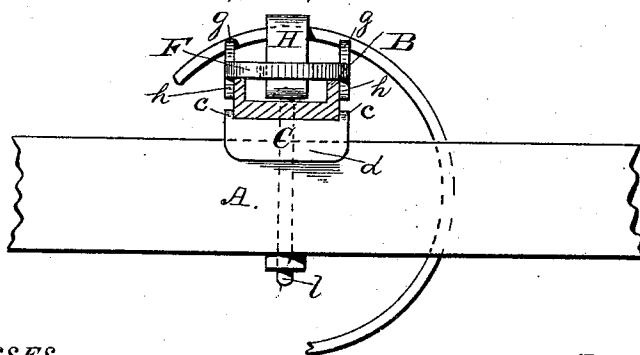


Fig. 2.



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Fig. 4.

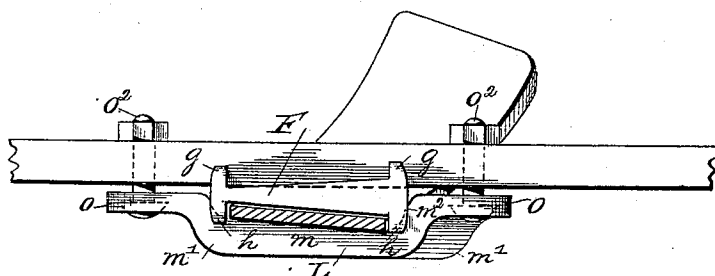


Fig. 5.

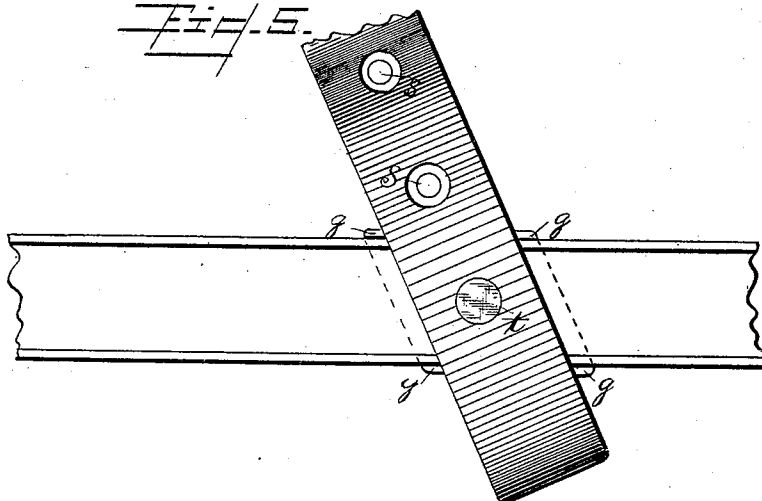


Fig. 6.

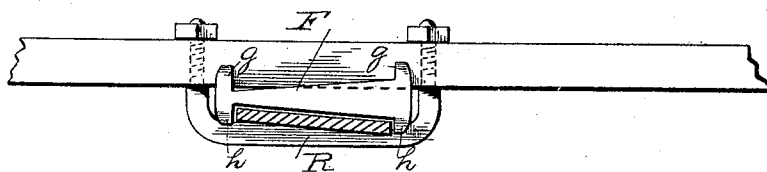
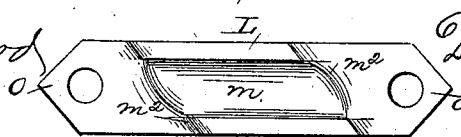


Fig. 7.

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UNITED STATES PATENT OFFICE.

DE WITT C. MARKHAM, OF COLLINSVILLE, ASSIGNOR, BY MESNE ASSIGNMENTS, TO WARREN M. BRINKERHOFF, OF AUBURN, NEW YORK.

SPRING-TOOTH HARROW.

SPECIFICATION forming part of Letters Patent No. 488,714, dated December 27, 1892.

Application filed December 19, 1888. Serial No. 294,082. (No model.)

To all whom it may concern:

Be it known that I, DE WITT C. MARKHAM, a citizen of the United States, residing at Collinsville, in the county of Lewis and State of New York, have invented certain new and useful Improvements in Spring-Harrow-Teeth Fastenings; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in the means of securing curved spring teeth to harrow, cultivator or other similar frames, hereinafter more fully pointed out and claimed.

The principal object of this invention, is to secure such a tooth to the draft bar of a harrow or cultivator in such manner as to prevent the same from rocking thereon, and at the same time, employ such devices for this purpose as will greatly lessen the expense of manufacture.

My invention is illustrated in the accompanying drawings, in which

Figure 1, is a bottom plan view of a section of a harrow frame; Figs. 2, and 3, details partly in section, and Figs. 4, 5, 6 and 7, views of modifications and details.

Referring to the drawings, A represents the draft bars in a harrow frame which are composed of channel metal for securing lightness and strength in the frame. The cross beams B are preferably composed of channel metal for lightness and strength, but they may be formed of other material.

C, is a seat provided with upwardly extending flanges *c*, and downwardly extending flanges *d*, at right angles to the upper ones. The cross beam is placed upon the walls of the seat between the upper flanges, while the downwardly extending flanges embrace the sides of the draft bar.

E, is a metal saddle for the shank of the tooth, and is provided with a central slot and upwardly extending lugs *g*, and downwardly extending lugs *h*. The walls of this saddle between the lugs *g*, are inclined in opposite directions, so that when the shank of the tooth is placed thereon, it will have a flat even bearing; and it will be noticed that these walls

and the adjacent lugs are set obliquely to each other, in order to give the tooth an oblique direction over the draft bar when in position. The lugs *h*, upon the opposite sides of the saddle embrace the sides of the draft bar.

H, is a stirrup shaped clip for the purpose of holding the shank of the tooth firmly on the saddle, and is provided with a bolt *l*. The tooth shank is put through the clip and rested on the saddle. The clip extends through the slot *i*, of the saddle and the screw bolt is passed through the bar, cross-beam and its seat, and tightened by means of a nut. It will be noticed that the walls of the clip just mentioned, are also inclined to correspond to the inclinations of the saddle, in order to give the tooth its oblique direction, as already described, so that the tooth engaging lugs and the inner faces of the side walls of said clip are parallel with the line of draft.

The saddle as here described is reversible, so that by turning it over and placing it on the draft bar it will give the tooth an opposite oblique direction. The clip also may have its inner walls inclined in the other direction to correspond, or cut out so as to present the tooth to the saddle in the proper position.

A modification of this form of saddle and clip is shown in Fig. 4. There, the same form of saddle is employed without the central slot, but resting upon the draft bar, and embracing the sides of the bar with its lugs, and also affording a seat for the shank of the tooth on its walls between the upper lugs, but differing from the form of the clip above described. The clip in this modification consists of a strap *L*, formed with a central span *m*, shoulders *m'*, having inclined inner walls *m²*, and lugs *o*, having holes therein for the insertion of screw bolts *o³*. The faces of the saddle and of its clip which bear upon the shank of the tooth, are inclined as before described, and as shown in the drawings, in order to provide a flat surface for the tooth to rest upon and thereby prevent any rocking of the same when in use. The clip just mentioned, is placed over the shank of the tooth, and screw bolts are inserted through the lugs and through the draft bars, then nuts are placed on the ends of the bolts on the plane

surface of the draft bar, and the parts then are drawn and rigidly secured together by tightening the nuts.

In the forms of clips thus far described the same are held above the floor of the draft bar and away from its sides so as to afford room for drawing down the clip tightly on to the tooth and holding it on to the saddle.

Still another modification is shown in Fig. 5. In place of the stirrup shaped or other clip, the shank of the tooth may be provided with holes *s*, and a screw bolt with a head *t*, employed which is passed through the parts and held to the draft bar in the same manner as the bolt *l*. The tooth may be provided with more than one hole so as to adjust the same along the saddle.

Still another form of clip *R*, is shown in Fig. 6, which is the ordinary form of strap clip except that the lugs are screw threaded near their ends to permit of the application of nuts.

Having thus described my invention, what I claim is:

1. In combination with the draft bar, and cross-beam of a harrow or cultivator, the seat for the said beam having flanges embracing the sides of the beam and the draft bar, the saddle provided with upwardly and downwardly extending lugs and with a seat for the shank of the tooth composed of oppositely inclined surfaces, the said tooth, and the clip spanning the tooth and holding the parts rigidly together, substantially as described.

2. The combination of the draft bar, the saddle having the oppositely inclined surfaces top and bottom forming seats for the tooth, and the tooth engaging lugs, the clip and the curved tooth, substantially as described.

3. In combination with a draft bar and cross beam, the saddle provided with the obliquely set lugs, and oppositely inclined surfaces composing a seat in which tooth shank is held, the seat provided with lugs mounted

on the draft bar and in which the cross beam is held, and a clip for holding the said parts solidly together: substantially as described.

4. The saddle provided upon its upper and lower faces with lugs to embrace the sides of the draft bar and tooth and oppositely inclined surfaces affording a seat for the tooth, whereby either face may be used adjacent to the draft bar, substantially as described.

5. In a harrow the combination with the frame bars the curved spring tooth arranged in the line of draft, a tooth supporting saddle having projections for engaging the walls of the frame bar and having separate tooth engaging projections in line with the edges of the frame bar on which it is mounted and a clip engaging said tooth obliquely between the saddle projections, the inner faces of its tooth engaging walls being parallel with the line of draft, substantially as described.

6. In a harrow the combination with the draft bars and the cross beams, of a saddle having on each of its upper and lower faces a recessed portion for engaging the said draft bars, and oppositely inclined surfaces forming a tooth seat, and means for securing said draft bars, saddle and tooth rigidly together, substantially as described.

7. In a harrow the combination with the frame bars of a tooth saddle having on each of its upper and lower faces a recessed portion to engage the frame bars, and oppositely inclined surfaces forming a tooth seat, and a reversible binding clip engaging said tooth obliquely and having the inner faces of its side walls, parallel with the line of draft, substantially as described.

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

DE WITT C. MARKHAM.

Witnesses:

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M. J. HOYT.