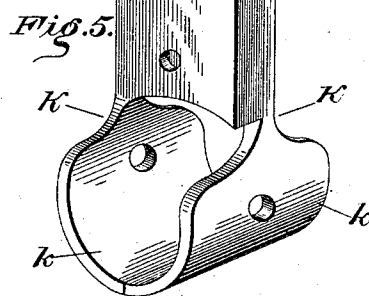
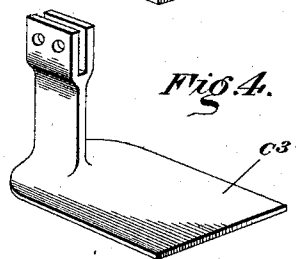
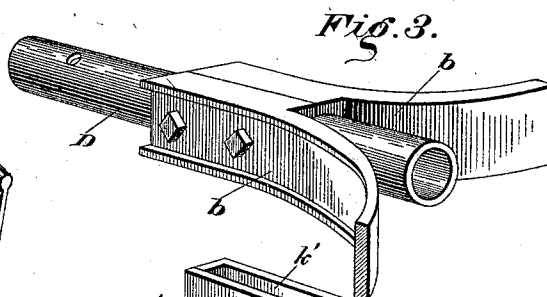
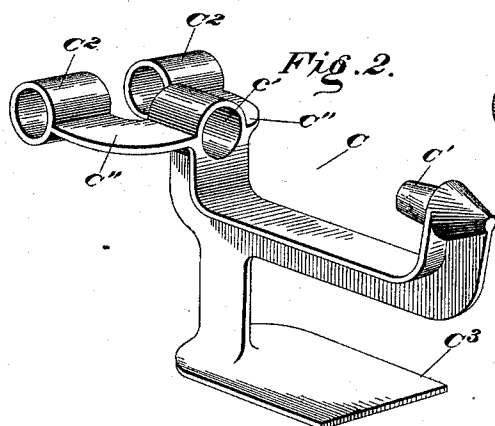
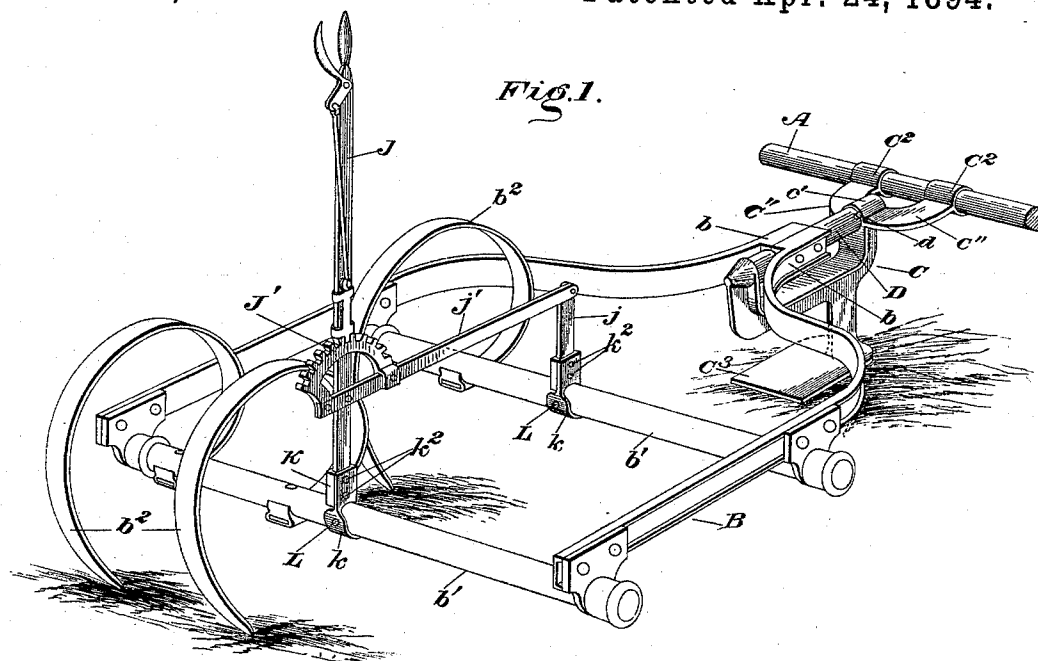


(No Model.)

J. I. HOKE.
PIVOTED TOOTH BAR.

No. 518,603.

Patented Apr. 24, 1894.



Witnesses:
M. E. Fowler
Jas. R. Mansfield

Inventor:
John I. Hoke
By his Attorneys, *Alexander & Fowell*

UNITED STATES PATENT OFFICE.

JOHN I. HOKE, OF SOUTH BEND, INDIANA.

PIVOTED TOOTH-BAR.

SPECIFICATION forming part of Letters Patent No. 518,603, dated April 24, 1894.

Application filed May 17, 1893. Serial No. 474,555. (No model.)

To all whom it may concern:

Be it known that I, JOHN I. HOKE, of South Bend, in the county of St. Joseph and State of Indiana, have invented certain new and useful Improvements in Pivoted Tooth-Bars; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

The present invention relates to harrows, and is an improvement upon the harrow shown and described in my application for Letters Patent filed November 28, 1892, and serially numbered 453,331. Its objects are to provide improved means for attaching the sections to the draft bar, and for attaching the levers to the rocking bars; it therefore consists in the novel constructions and combinations of parts hereinafter described and claimed.

In the drawings: Figure 1 represents a perspective view of a harrow section connected to the draft bar, illustrating my improvements. Figs. 2 and 3 are enlarged perspective views of the connection between the harrow section and draft bar, detached and separated. Fig. 4 is a detail illustrating a modification. Fig. 5 is a detail perspective view showing the connections between the levers and rocking bars.

Referring to the drawings by letter: A designates the draft bar; B a harrow section both of which may be constructed substantially as described in my aforesaid application.

C designates a casting which is shaped somewhat like the letter "U" looked at from the side, and like the letter "Y" looked at from the top. The casting is preferably T-shaped in cross section to give it rigidity and strength. The main body of the casting is upturned at each end, and its rear end is provided with a horizontally disposed inwardly projecting conical lug C' and directly opposite this at the junctions of the bifurcations of the casting (viewed from above) is an eye c' whose axis is in line with the axis of said lug. From each side of eye c' project the forwardly extending diverging horizontally disposed arms C'' on the extremities of which are eyes C² which stand in line with each

other, and whose axes are at right angles to the axis of eye c'.

The draft bar A extends through eyes C² as indicated in Fig. 1. One end of a short tube D is slipped through eye c' and its other end over lug C'; a key d is then passed through the tube so as to confine it in place. The ends of the side bars b, b, of the harrow frame are rigidly secured to this tube intermediate the lug and eye. In practice the tube would be rigidly connected to the harrow frame before it is connected to the casting as described and by removing pin d the harrow section can be detached from the casting. A rod 65 having a recess in one end to fit on a lug c could of course be used instead of the tube.

It will be obvious from the foregoing that the casting and section can swing or turn on the draft bar in a vertical plane; and that the section can swing or turn on the casting in a plane transverse thereto, but at the same time lateral vibration of the harrow section is prevented. As two or more sections are to be connected to the same draft bar, as described in my application above mentioned, it is necessary to prevent lateral movement of the sections, while the utmost freedom of movement in a vertical plane is essential to their proper operation.

The casting C may be provided with a shoe C³ which may be formed integral therewith as indicated in Figs. 1 and 2, or separate therefrom and bolted to the bottom flange thereof as indicated in Fig. 4. This shoe runs upon the surface of the ground and holds the casting and draft bar above the surface so that they will not catch.

The harrow teeth b² are attached to rocking bars or tubes b' which are journaled in the side bars or in castings attached to said bars in any suitable manner. As shown there are two tooth bars b'. To the front one is attached an arm j and to the latter a hand-latch lever J and sector J', said levers being connected by a link j' so that by rocking lever J, the bars are turned and can be locked, in any position desired as usual.

I do not claim herein the construction of the tooth fastenings, or the peculiar construction of harrow frame, but I have invented and show a peculiar fastening for the lever

J which may also be used if desired for the arm *j* and the teeth, and is shown clearly in Fig. 5.

The fastening consists of two semi-clips K which have a curved portion *k* adapted to fit and partly embrace the bars *b'* and are secured to the tube by a through bolt or rivet L which transfixes the portions *k* of the opposite clips and the bar as shown. The upper portions *k'* of the clips are turned so as to stand perpendicular to the bar and transversely thereof, and portions *k'* of the opposite clips face each other and may be recessed on their opposed faces as shown in Fig. 5 so as to receive between them the lower end of the lever J (or arm *j*, or end of harrow tooth, as desired) which is secured thereto by bolts or rivets *k''*, as shown. This fastening device gives a double shear on the securing bolt L besides the friction of the portions *k* on the bar *b'* making a firm connection and giving certain control of the bar.

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

1. The combination of the draft bar, the casting hinged to said bar, provided with a shoe, a tube detachably secured to said casting lying at right angles to the draft bar, and a harrow section connected to said tube, substantially as described.

2. The combination of the draft bar, a casting upturned at both ends, and loosely hinged at one end to the draft bar, the tube secured

between the upturned ends of the casting and lying at right angles to the draft bar, and the harrow section attached to said tube, substantially as described.

3. The combination of the draft bar, the casting upturned at both ends, hinged at one end to the draft bar and lying at right angles thereto, and a harrow section, and a connection between the section and casting, secured to the casting between the upturned ends thereof, substantially as set forth.

4. A casting for the purpose specified having its ends upturned, and one end provided with an inwardly projecting lug, and the other end with an eye, and arms diverging from said eye formed with eyes in their extremities whose axes are at right angles to the axis of the first eye, substantially as and for the purpose described.

5. A casting for the purpose specified having its ends upturned, and one end provided with an inwardly projecting lug, and the other end with an eye, and arms diverging from said eye formed with eyes in their extremities whose axes are at right angles to the axis of the first eye, and a shoe on the under side of the casting, substantially as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JOHN I. HOKE.

Witnesses:

JAMES DUSHANE,
WILL G. CRABILL.