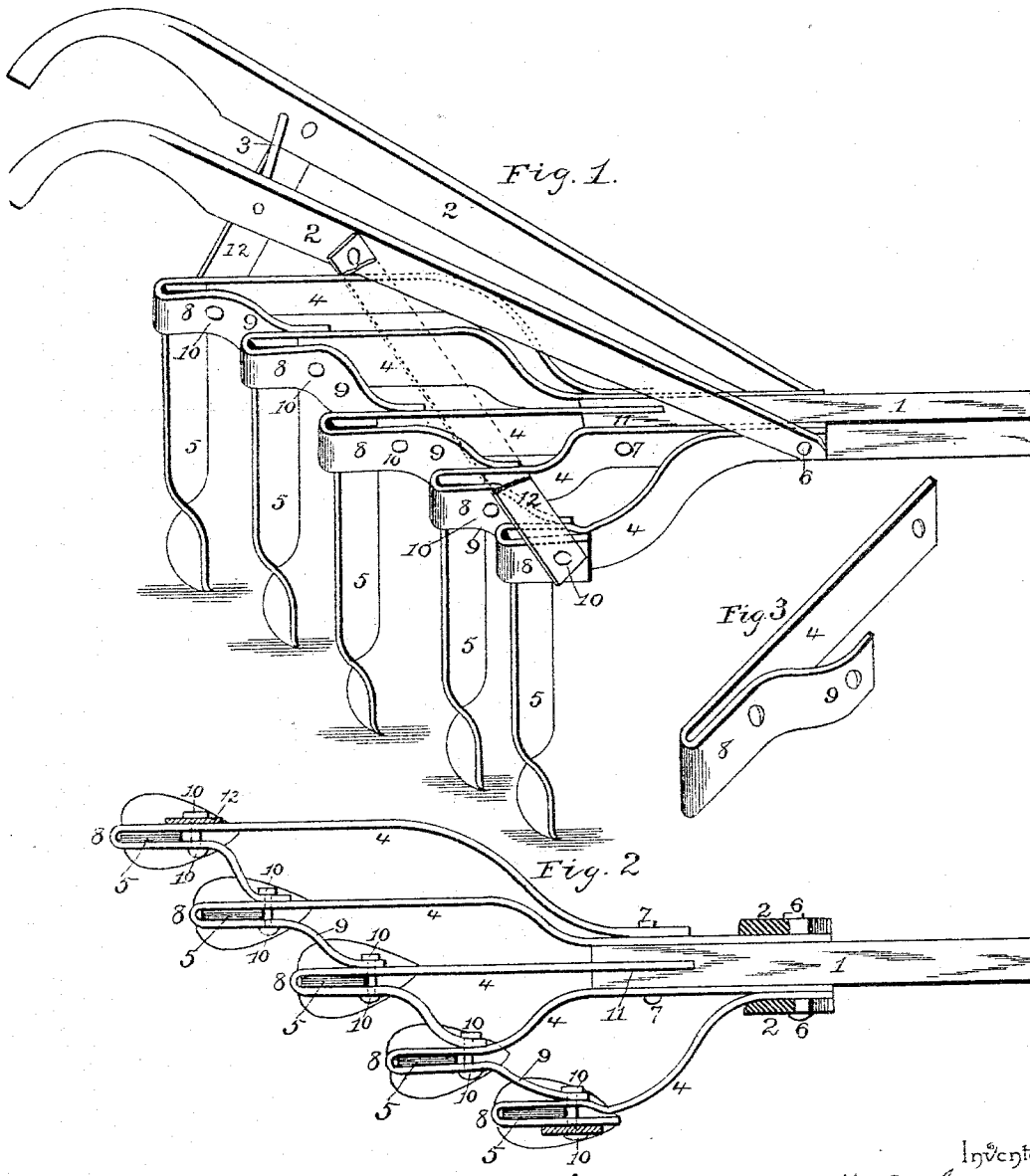


(No Model.)

W. E. JONES.  
HARROW.

No. 531,947.

Patented Jan. 1, 1895.



Witnesses

*F. A. Schmann*  
*E. H. Hoff*

By his Attorneys.

*Calnow & Co*

Inventor

*W. E. Jones*

# UNITED STATES PATENT OFFICE.

WILLIAM ERVIN JONES, OF HEIDELBERG, MISSISSIPPI.

## HARROW.

SPECIFICATION forming part of Letters Patent No. 531,947, dated January 1, 1895.

Application filed July 17, 1894. Serial No. 517,816. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM ERVIN JONES, a citizen of the United States, residing at Heidelberg, in the county of Jasper and State of Mississippi, have invented a new and useful Harrow, of which the following is a specification.

My invention relates to improvements in harrows, and it has for its object to provide a simple, inexpensive, and efficient means for securing the teeth in place whereby the same may be adjusted as desired to secure the necessary extension.

Further objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claim.

In the drawings: Figure 1 is a perspective view of a harrow embodying my invention. Fig. 2 is a plan view, partly in section, of the supporting-bars and clamps whereby the harrow-teeth are secured in place. Fig. 3 is a detail view, in perspective, of one of the supporting bars, detached.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates the beam to which are attached the front ends of the handles 2, said handles being connected, near their rear ends by the cross-bar or round 3. The bars 4 for supporting the harrow-teeth 5 are secured at their front ends to the beam by means of bolts 6 and 7 of which the former is also employed to attach the front ends of the handles to the beam. Each supporting bar is doubled upon itself to form a spring clamp or holder 8 for the reception of the shank of a harrow-tooth, and the short arms 9 of the bars, which are formed by thus doubling them, are attached to contiguous bars by means of bolts 10. The central supporting bar has a straight body portion, which is fitted at its front end in a bifurcation or kerf 11 in the rear end of the beam, as shown clearly in Fig. 2, the same being secured in place by the above-described bolt 7; the side bars have their body-portions bent

inward to lie at their front ends in contact with the side surfaces of the beam, one of said side-bars being secured to the beam by the bolt 6 and the other by the bolt 7; and the intermediate bars are also bent, although not so abruptly as the side bars, and are secured by both bolts 6 and 7. The short arm of each supporting-bar is deflected sufficiently to lie in contact with the adjacent bar, and thus connect all of the bars to form a frame, whereby the several bars support each other laterally to prevent deflection. The bolts by which the front ends of the short arms of the bars are secured to contiguous bars are arranged at the front ends of the clamps or holders 8 and thus normally hold said clamps closed to secure the teeth in place; and by loosening the taps of said bolts the clamps are opened to allow the necessary adjustment or removal of the teeth.

The braces 11, one of which is attached at its upper end to each of the handles, are secured to the side supporting bars by means of the bolts 10 carried by said side bars.

It will be understood that in practice various changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus described my invention, I claim—

In a harrow, the combination with a beam and handles, of supporting bars bolted at their front ends to the beam and doubled upon themselves at their rear ends to form spring clamps or holders and integral arms, bolts engaging the sides of said clamps or holders and the free ends of the arms of contiguous supporting-bars, and harrow-teeth fitted and secured in said clamps or holders, substantially as specified.

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

WILLIAM ERVIN JONES.

Witnesses:

J. R. HASSELL,  
I. L. CAMPBELL.