

No. 811,575.

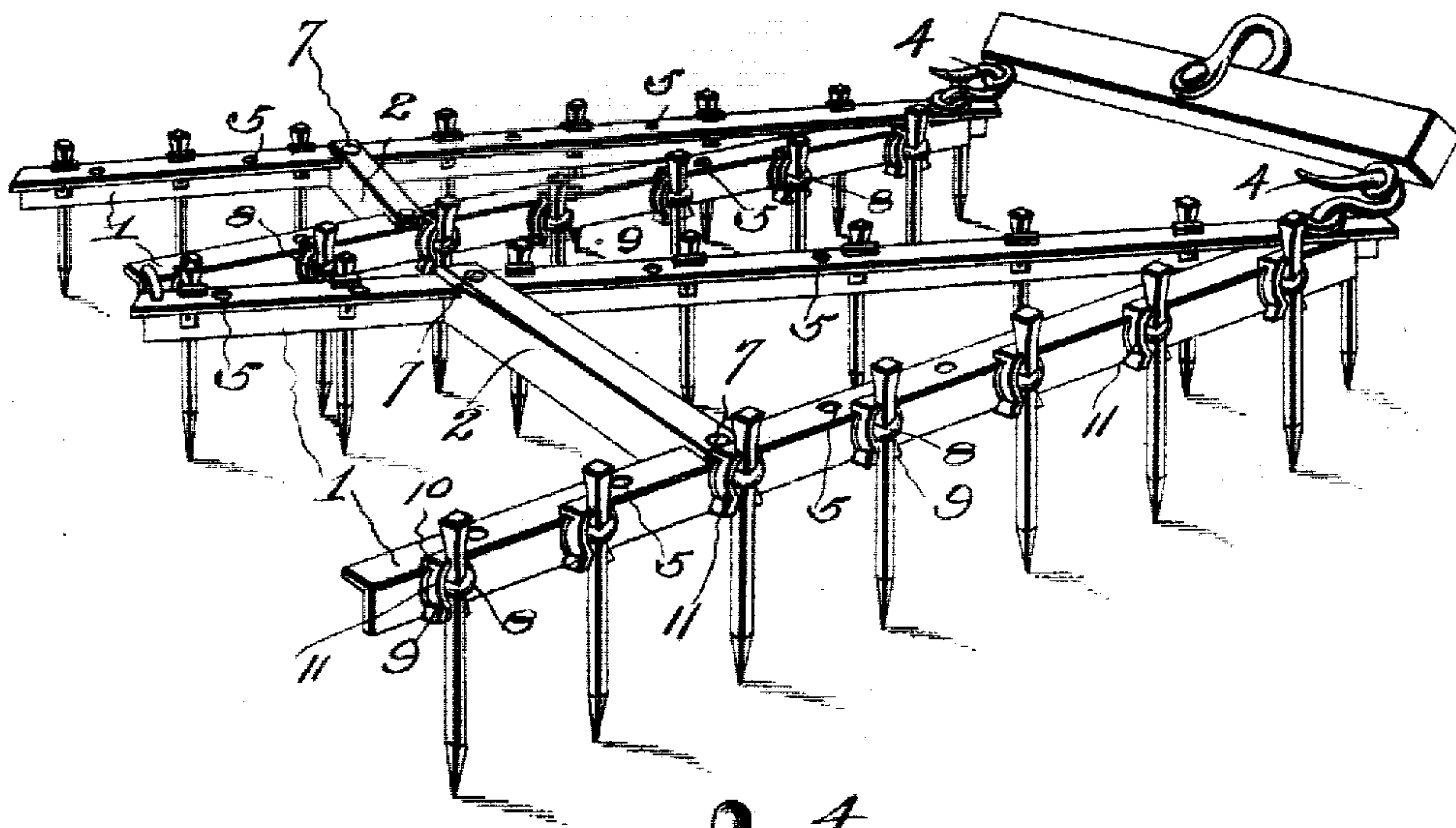
PATENTED FEB. 6, 1906.

W. L. ORAN.  
HARROW.

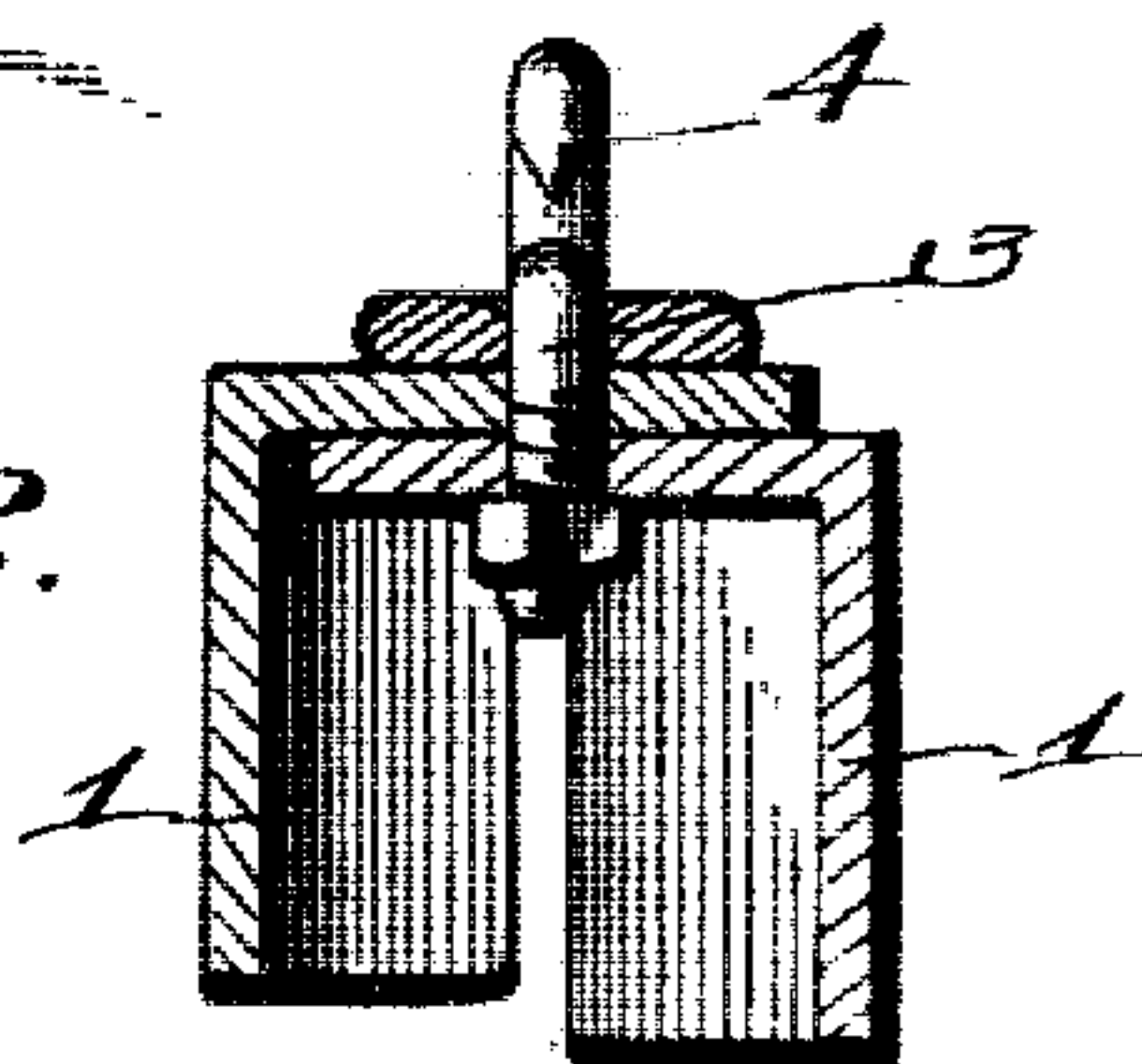
APPLICATION FILED FEB. 13, 1905.

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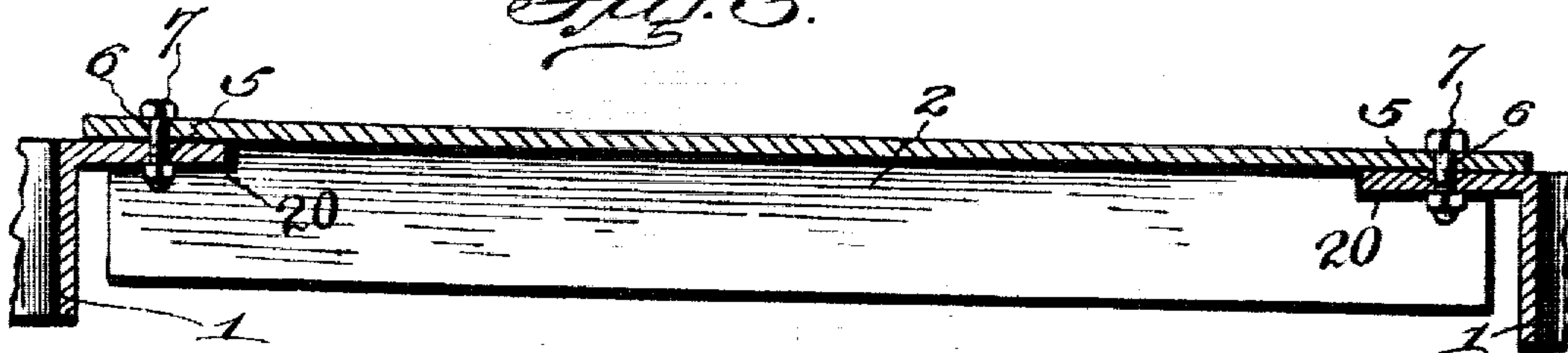
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



Witnesses  
*C. Hunt.*  
*L. H. Griesbauer.*

Inventor  
*William L. Oran*  
by *H. B. Wilson*  
Attorney

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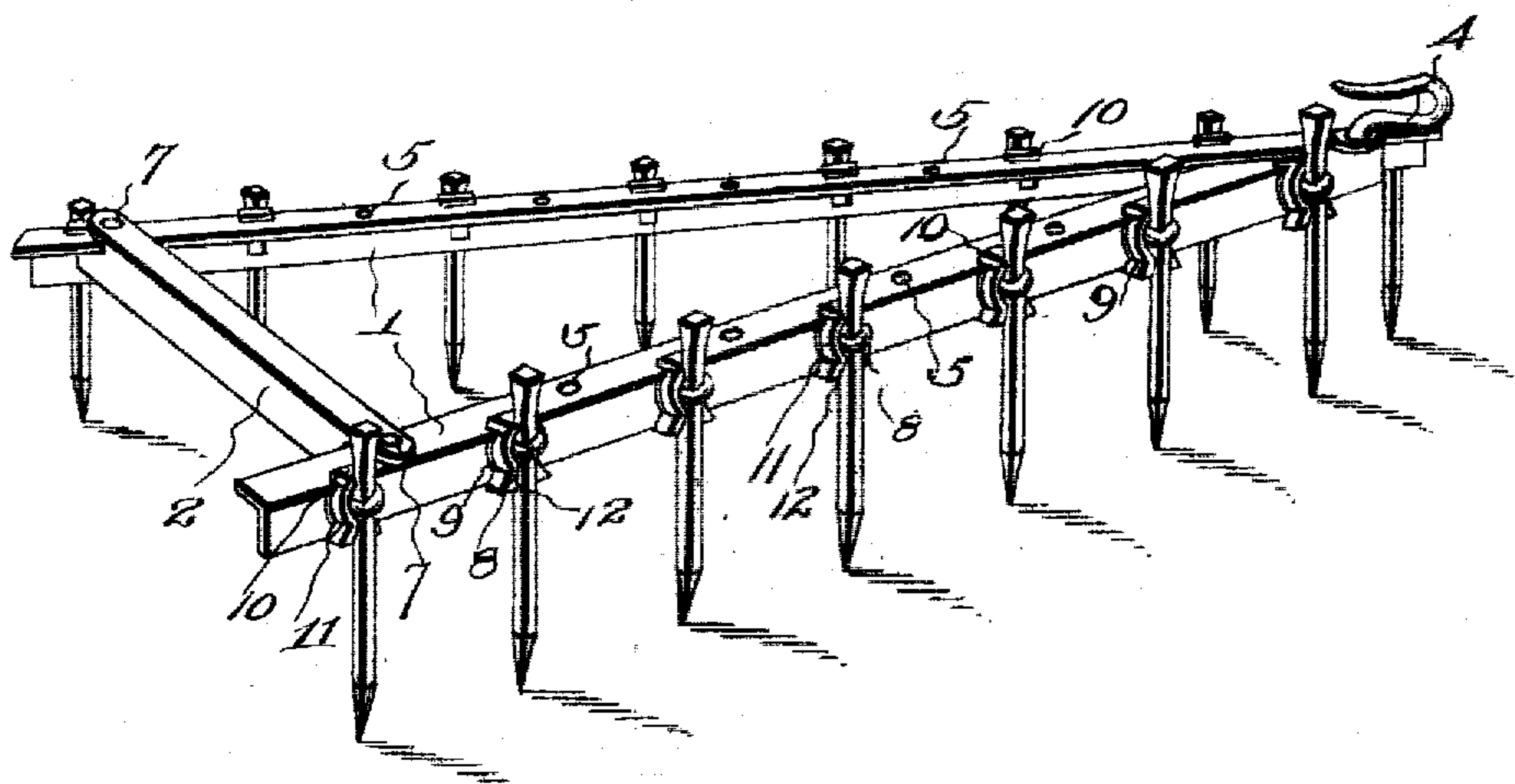
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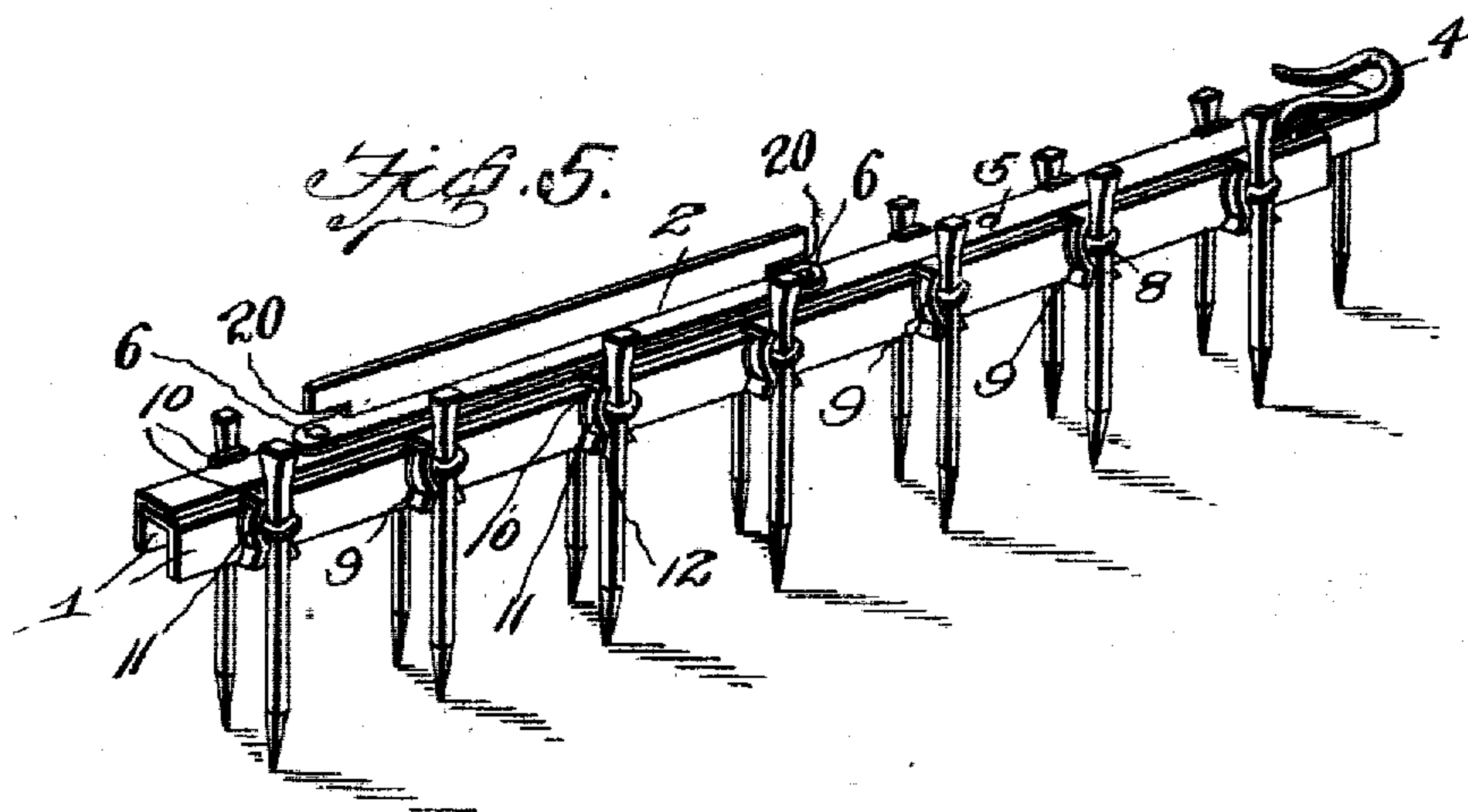
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2 SHEETS—SHEET 2.

*Fig. 4.*



*Fig. 5.*



Witnesses  
*C. H. Hunt,*  
*L. H. Giesbauer.*

Inventor  
*William L. Oran,*  
by *H. A. Wilson*  
Attorney.



# UNITED STATES PATENT OFFICE.

WILLIAM L. ORAN, OF KINGSTON, TENNESSEE.

## HARROW.

No. 811,575.

Specification of Letters Patent.

Patented Feb. 6, 1906.

Application filed February 13, 1905. Serial No. 245,498.

*To all whom it may concern:*

Be it known that I, WILLIAM L. ORAN, a citizen of the United States, residing at Kingston, in the county of Roane and State of Tennessee, have invented certain new and useful Improvements in Harrows; and I do 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.

My invention relates to improvements in harrows; and it consists in the construction, combination, and arrangement of devices hereinafter described and claimed.

The object of my invention is to effect improvements in the construction of the harrow-frame, whereby the same is adapted to be adjusted in width to any desired extent and whereby the same may be folded compactly to economize space in storage and when being transported.

In the accompanying drawings, Figure 1 is a perspective view of a harrow embodying my improvements, showing two sections of my harrow combined and provided with a common draft-bar. Fig. 2 is a detail transverse sectional view taken through one of the harrow-frames near the front end thereof and showing the pivotal connection between the side bars of said harrow-frame. Fig. 3 is a similar view taken on a plane intersecting the cross-bar which connects the side bars to the harrow-frame and the ends of which are detachably connected thereto. Fig. 4 is a perspective view of one section of my improved harrow, showing the same adjusted and narrowed, so that it may be used between rows of plants for harrowing the ground between said rows. Fig. 5 is a perspective view of one section of the harrow, showing the same compactly folded for storage or transportation.

Each section or frame of my improved harrow comprises a pair of side bars 1 and a cross-bar 2, each of which is made of angle or channel steel or iron. The horizontal upper flanges of the side bars 1 overlap at their front ends, and the said side bars are pivotally connected together at their front ends by means of a bolt 3, the upper end of which is formed with a forwardly-extending hook 4, which is adapted for the attachment of a

draft-bar, swingle-tree, or the like, as will be readily understood. The horizontal upper flanges of the side bars 1 are provided at suitable points with adjusting openings 5. The upper horizontal flange of the cross-bar 2 is provided near the ends thereof with openings 6, which are adapted to register with the openings 5, and pins or bolts 7 are placed in said registering openings to secure the said cross-bar to the side bars at any suitable distance from the rear ends of the latter, and hence the said cross-bar is enabled to secure the side bars at any desired angle with respect to each other, so that the frame or section of the harrow may be widened or narrowed, as desired. The vertical web or flange of the said cross-bar is provided with notches 20 at its ends to receive the horizontal webs of the side bars.

The vertical flanges or webs of the side bars are provided at suitable distances apart with openings for the reception of eyebolts 8, which are employed in connection with holding devices 9 to secure the harrow-teeth 10.

When the cross-bar has been removed from between the side bars of the harrow-frame or section, said side bars may be closed together and disposed in parallel relation, and the cross-bar may then be secured on one of the side bars of the harrow by means of the pins or bolts 7, which may be placed in the openings with which the upper side of said cross-bar and the upper sides of the side bars are provided.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

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

A harrow comprising side bars of angle metal having horizontal and depending vertical webs, the horizontal webs of the said bars being overlapped and pivotally connected together at their front ends, a rigid

cross-bar of angle metal, having a horizontal web to lie on those of the side bars and a vertical web provided with notches at its ends to receive the horizontal webs of the side bars, and means to adjustably secure the ends of the horizontal web of the cross-bar to the horizontal webs of the side bars.

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

WILLIAM L. ORAN.

Witnesses:

W. M. GALYON.

M. A. J. PRICE.