J. W. GREER.

HARROW.

No. 191,956. Patented June 12, 1877

Fig. 1.

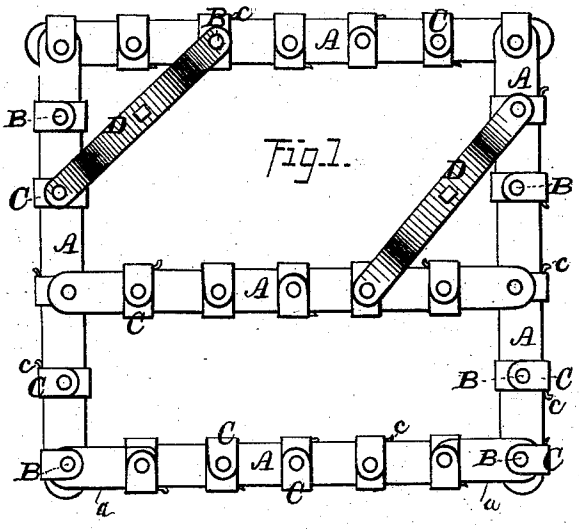


Fig. 2.

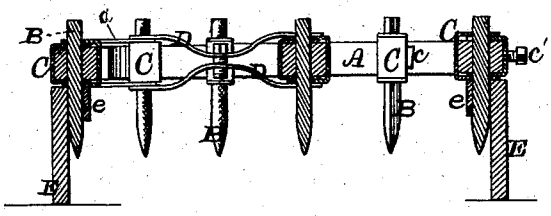


Fig. 3.

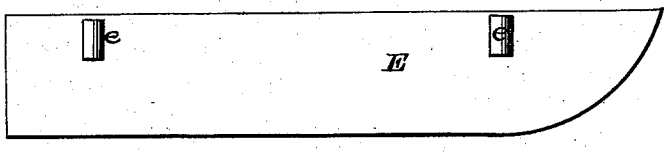
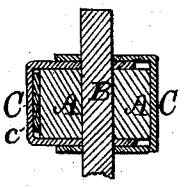


Fig. 4.



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JESSE W. GREER, OF PRINCE OF WALES, KENTUCKY.

IMPROVEMENT IN HARROWS.

Specification forming part of Letters Patent No. **191,956**, dated June 12, 1877; application filed April 30, 1877.

To all whom it may concern:

Be it known that I, JESSE W. GREER, of Prince of Wales, in the county of Breckinridge and State of Kentucky, have invented certain new and useful Improvements in Harrows; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification, and in which—

Figure 1 is a plan view of my improved harrow. Fig. 2 is a transverse vertical section of the same, mounted upon runners to permit of its transportation. Fig. 3 is an inside view of one of the runners detached, and Fig. 4 is a vertical section through one of the tooth-clamping devices, &c.

Corresponding parts in the several figures are denoted by like letters.

This invention relates to a certain improvement in harrows; and it consists of mechanism for securing the teeth in the beams; and, secondly, in connecting the beams together, substantially as hereinafter more fully set forth.

In the annexed drawing, A A refer to the beams of the harrow connected together, as will be hereinafter set forth. B B B refer to the teeth, which are inserted through apertures or holes in the beams A A. C C are clamps for securing the teeth B B in the beams A A, consisting each of two clips, which embrace the said beams, and having their horizontal arms or portions fitting one over the other, and provided with apertures or eyes, which register with each other and the holes in the beams A A, for the reception of the teeth. *c c* are wedges, and *c' c'* set-screws, either of which may be used for tightening the clamps to secure the teeth firmly in their apertures in the beams A A. By means of the clips or clamps C C, it will also be observed that teeth of different size and shape may be fastened in place.

It will be further observed that, as the clips of which the clamps are composed embrace the beams, strengthening the latter where the holes for the teeth are made, and overlap each other, the beams are prevented from splitting, by expansion, upon the insertion of the teeth, and the clamps themselves are also strengthened. *a a* are plates for connecting the beams A A together, their ends being inserted between the overlapping ends of the clips or clamps C C of said beams, and provided with apertures for the passage of the teeth by which the said plates are secured in place.

By simply removing the teeth passing through the said plates, the beams may be disconnected from one another, and may again be as readily put together.

By thus connecting the beams together their relative arrangement can be also varied, by which the harrow may be caused to assume, in addition to its present shape, a diamond or **A** shape.

D D are two braces, each of which consists of two concavo-convex plates or bars, united together at the center, and receiving the beams A A, to which they are connected by the teeth B B, passing through apertures therein.

In changing the form of the harrow the braces can be readily disconnected by simply removing the retaining-teeth. E E are runners, having eyes or staples *e e* for the reception of the teeth B B, to permit of the harrow being mounted thereon in transporting it.

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

1. The tooth-clamping mechanism, consisting of the clips C C, in combination with and embracing the beam A, and having their horizontal arms or portions overlapping each other, and provided with apertures and wedge *c*, substantially as and for the purpose set forth.

2. The plates *a a*, in combination with the beams A A, having the teeth B B and clips C C, between the overlapping and underlapping portions of which are inserted the ends of the said plates, also having apertures for

the passage of the said teeth, substantially as and for the purpose set forth.

3. The braces D D, consisting each of concavo-convex plates or bars united together, and provided with apertures, in combination with the beams A A and teeth B B, substantially as and for the purpose set forth.

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

JESSE W. GREER.

Witnesses:

W. L. HODGES,

MICHAEL SHUMATE.