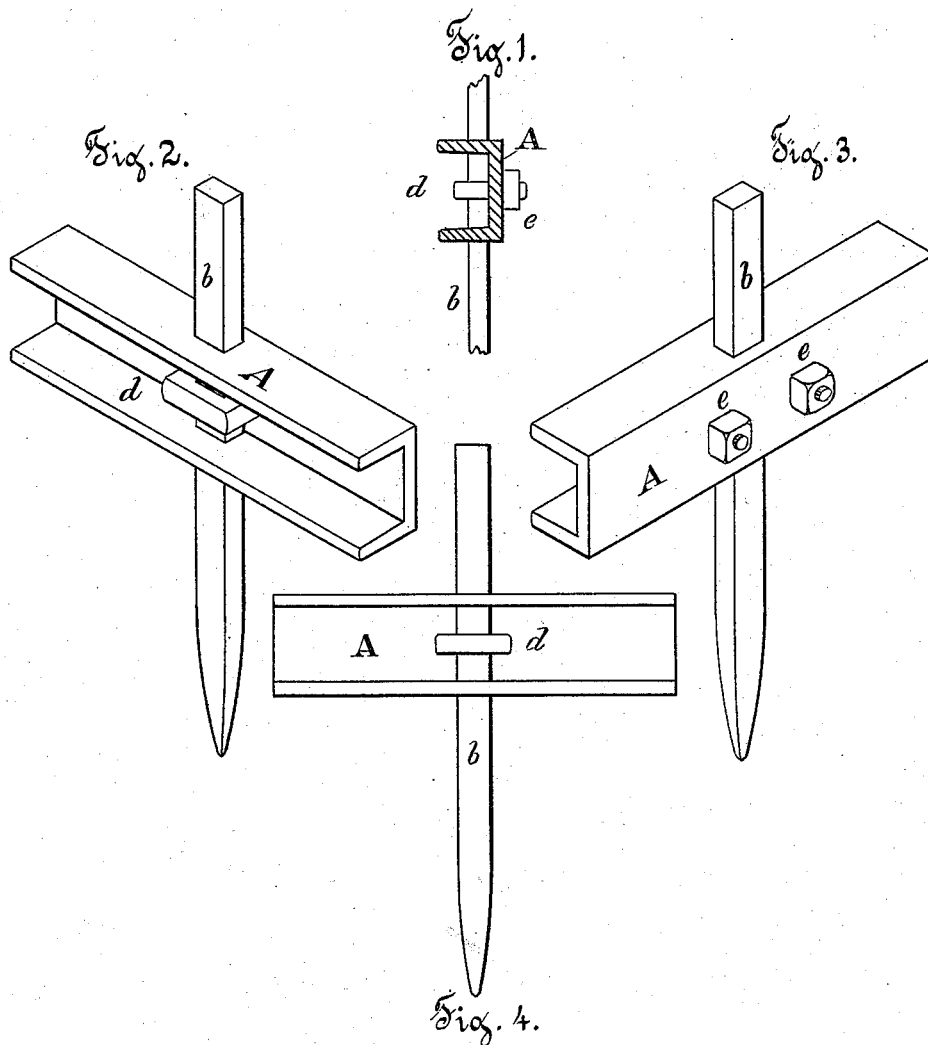


N. BEAUREGARD  
Metallic Harrow.

No. 217,320.

Patented July 8, 1879.



Witnesses  
W. Lloyd Duckett  
J. D. Henderson.

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# UNITED STATES PATENT OFFICE.

NAPOLEON BEAUREGARD, OF SAN FRANCISCO, CALIFORNIA.

## IMPROVEMENT IN METALLIC HARROWS.

Specification forming part of Letters Patent No. **217,320**, dated July 8, 1879; application filed February 24, 1879.

*To all whom it may concern:*

Be it known that I, NAPOLEON BEAUREGARD, of the city and county of San Francisco, State of California, have invented certain Improvements in Metallic Harrows; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings.

My invention has reference to metallic harrows; and consists, first, in the employment of channel or U iron for forming the parallel rails or bars of the harrow; and, secondly, in a novel device for securing the harrow-teeth in the metal rails or bars, as hereinafter more fully described.

Referring to the accompanying drawings, Figure 1 is a cross-section, showing the way of securing the teeth to the U-iron. Figs. 2 and 3 are front and back perspectives of a part of a harrow-rail with tooth attached, and Fig. 4 is an elevation of the same.

Let A represent a section of one of the parallel rails or bars of a harrow in which the teeth are secured. These rails or bars I make of channel or U iron, placed so that the channel or open portion is on one side, and so that the teeth will pass through the two sides of the channel. This class of iron is light and strong, and by placing the parallel bars on edge, so that the channel will be on one side, I can easily connect them together by braces, the ends of which can be bent and riveted or bolted to the rails.

The holes through which the teeth pass are made through the sides of the channel-iron, so that the teeth will lie close to the bottom of the channel. On each side of each tooth I make a hole through the plate which forms the bottom of the channel-iron. After the

tooth *b* has been inserted I place a metal strap or clip, *d*, around it, so that the ends of the strap or clip will pass through the holes on each side of the tooth and project on the outside of the bottom plate. I then turn nuts *c* on the ends of the clip, so as to draw it close and tightly around the tooth, and thus bind it firmly in place.

Various styles of clips or clamps could be used for securing the teeth in place by drawing them tightly against the bottom of the channel-iron; but they would simply be equivalents of that above described.

By clamping the teeth to the plate, as above described, I obviate the difficulty heretofore encountered in metallic harrows—viz., that of keeping the teeth tight.

A metallic harrow the parts of which are put together with bolts and nuts, as above described, can be shipped in parts to the place where the harrow is wanted, and can then be put together by any farmer or ordinary workman.

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

In a harrow, the combination, with the rail A, formed of a single section of U-iron, of the tooth *b*, passing through such rail and held in place by the clip *d*, substantially as described and shown.

In witness whereof I have hereunto set my hand and seal.

NAPOLEON BEAUREGARD. [L. S.]

Witnesses:

W. FLOYD DUCKETT,  
W. F. CLARK.