A. J. UPHAM.

HARROW.

No. 192,607. Patented July 3, 1877.

Fig. 1.

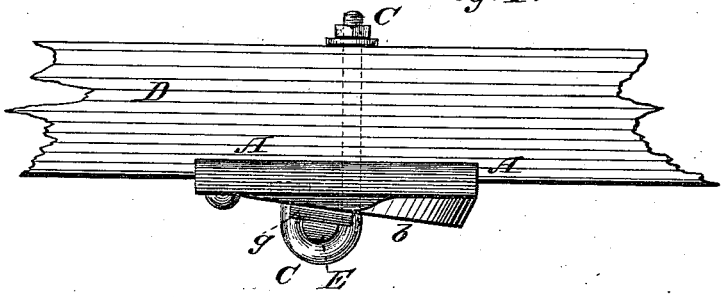


Fig. 2.

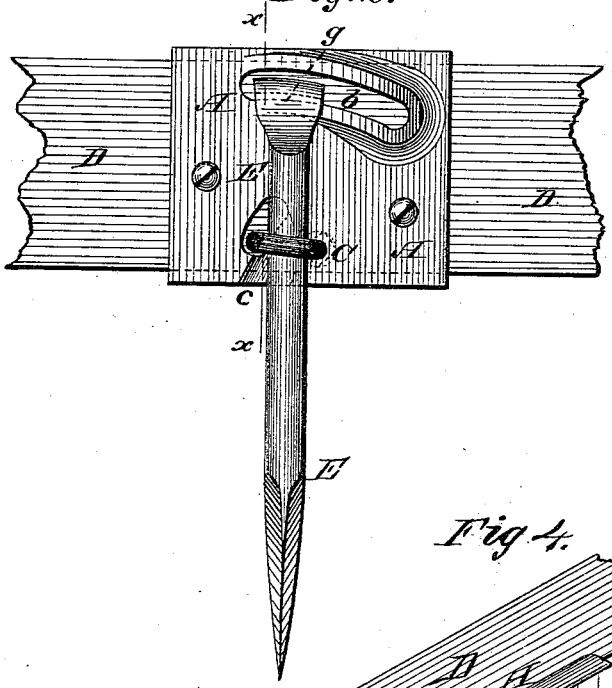


Fig. 3.

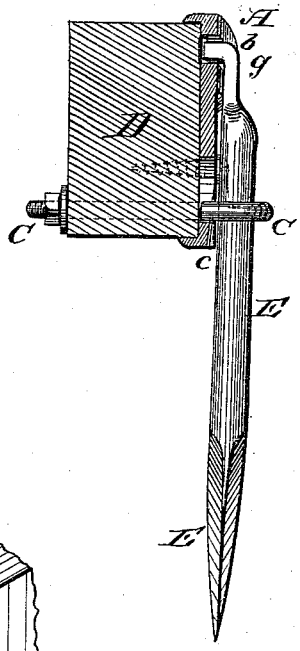
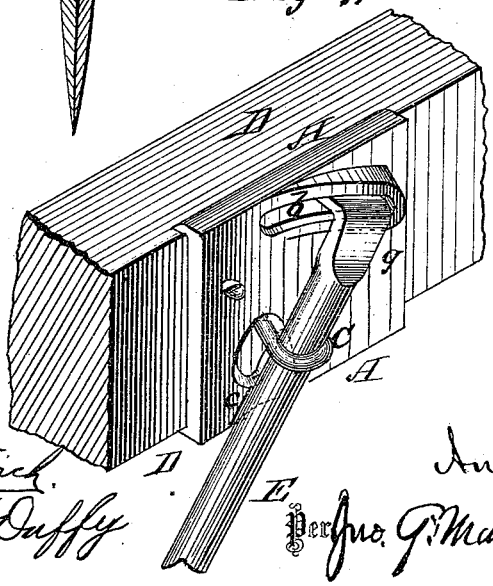


Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

ANDREW J. UPHAM, OF STERLING, ASSIGNOR TO REUBEN ELLWOOD, OF SYCAMORE, ILLINOIS.

IMPROVEMENT IN HARROWS.

Specification forming part of Letters Patent No. **192,607**, dated July 3, 1877; application filed April 11, 1877.

To all whom it may concern:

Be it known that I, ANDREW J. UPHAM, of the city of Sterling, county of Whitesides, and State of Illinois, have invented a new and useful Improvement in Harrows, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

The object of my invention is to provide a simple and economical mode of attaching the teeth of a harrow to the beams thereof, so that such teeth will automatically assume a perpendicular position, or a position obliqne to the rear, as the draft may be applied at one end or the other of the harrow.

Figure 1 is a plan view. Fig. 2 is a side elevation. Fig. 3 is a central vertical section on line *x x*, Fig. 2; and Fig. 4 is a perspective view of my invention.

A is a plate, fastened to the side of the beam D, and provided with the curved slot *b*. The walls of the slot *b* are semi-wedge-shaped, having their maximum height or thickness at what may be called the rear end of the slot. C is a bolt, passing laterally through the plate A and beam D, and having its head formed to clasp the tooth E. A projection, *g*, is formed on the inner side of the upper end of the tooth E, which fits into and traverses the slot *b*. The point where the bolt C passes through the plate A is so located relatively to the slot *b* that when the projection *g* rests against the front end of the slot the tooth is held in a vertical position, and when the projection *g* rests against the other end of the slot the tooth is held in an oblique position.

By tightening sufficiently the nut on the bolt C the tooth E may be held in any position between the two extremes above named. As the slant of the tooth directly in the line of the beam would throw the former out of the line of draft, the increased thickness of the walls of the slot *b*, and a slight lateral countersinking of the tooth E in the lower portion of the plate A at *c*, slants the tooth obliquely to the beam and directly in the line of draft. The teeth, being pivoted on the bolt C, will arrange themselves vertically or obliquely, as the harrow may be drawn from either end.

The projection *g* performs the double function of following in the slot *b*, and thus changing the position laterally of the tooth, and also prevents the tooth from slipping downward through the bolt C, when the latter is sufficiently loose to constitute a pivot for the tooth.

The plate A can be made at little expense by being cast.

The advantages of a combined stirring and smoothing harrow are well known; but I do not broadly claim such combination; but

What I claim as my invention, and desire to secure by Letters Patent, is—

The plate A, provided with the curved slot *b*, the tooth E, projection *g*, bolt C, and harrow-beam D, all constructed and combined substantially as and for the purpose specified.

ANDREW J. UPHAM.

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