

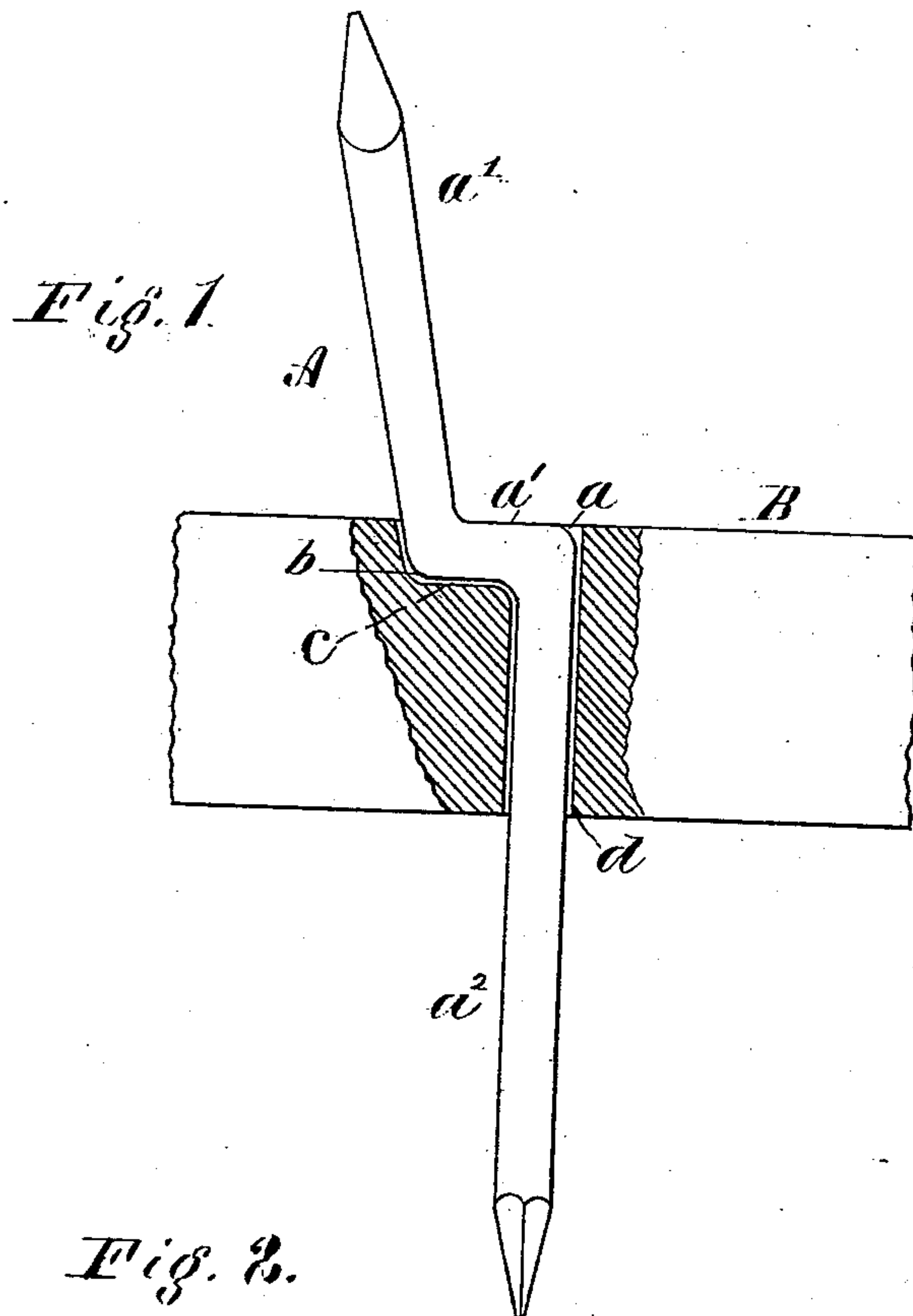
(No Model.)

A. C. EVANS.

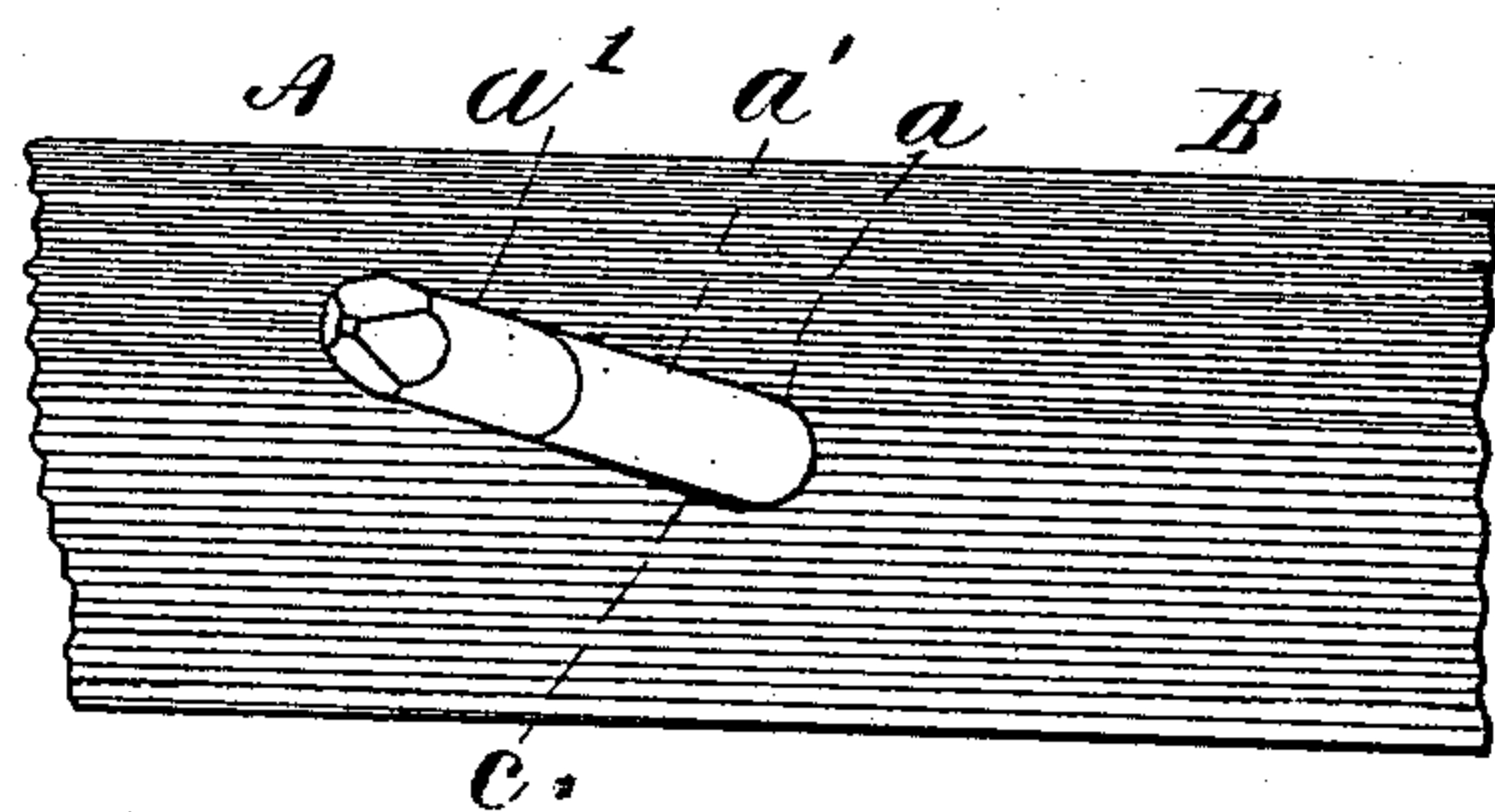
HARROW.

No. 291,174.

Patented Jan. 1, 1884.



*Fig. 2.*



Attest.  
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# UNITED STATES PATENT OFFICE.

AUSTIN C. EVANS, OF SPRINGFIELD, OHIO.

## HARROW.

SPECIFICATION forming part of Letters Patent No. 291,174, dated January 1, 1884.

Application filed September 13, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, AUSTIN C. EVANS, a citizen of the United States of America, residing at Springfield, in the county of Clarke and State of Ohio, have invented certain new and useful Improvements in Harrows, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in harrows.

My invention relates to improvements in the harrow-teeth and in the manner of inserting them in the beam of the harrow.

My invention consists in the construction of a harrow which, when reversed, may be changed from a straight-toothed harrow to a slanting or inclined toothed harrow, combining the two kinds in the same implement without any of the usual accessories used for converting it from one kind to the other. I accomplish this by the construction of a double tooth, extending the same distance above the harrow-beam and bent with two angles in the center, to form an inclined tooth at one end and a straight tooth at the other. The manner of inserting the tooth in the beam is also a part of my invention.

Figure 1 is a side elevation of a part of a harrow-beam with my improved harrow-tooth inserted therein. A portion of the beam is broken out, to show the shape of the tooth and the manner in which it is inserted. Fig. 2 is a top view of the same.

A is the harrow-tooth, which consists of a bar (either square or round, as preferred) pointed at each end. The bar (or section of a bar or rod) is cut longer than would be required if the tooth were straight throughout its entire length. It is bent near the middle at a right angle from the line of the straight tooth, and at a distance of about two inches from the exterior angle of this bend it is again bent at an angle upward toward a perpendicular of about seventy to seventy-five degrees, according to the inclination desired to be given to the part which forms the slant tooth, which in the figures is shown projecting above the top of the harrow-beam B. In inserting the tooth, a hole is first bored through the

center of the beam B, and then a slot, *c*, is cut out of the top of the latter, sufficiently deep to allow that part *a'* of the tooth between the angles *a* and *b* to lie therein, so that its exterior or top surface will be even with the surface of the beam; and as the beams of most harrows are at an angle with the line of draft, the slot *c* is cut at an angle to the central longitudinal line of the beam. This is done, also, to prevent weakening or splitting of the wood in driving the tooth. The straight section of the tooth is then inserted in the beam, and it is struck upon the part *a'* (which forms a kind of central head) until this portion is driven the depth of itself into the slot *c*. The upper section of A now forms a slanting tooth, *a'*, and the lower section a straight tooth, *a''*, as seen in the figures.

When it is desired to change the implement from a straight-toothed to a slanting-toothed harrow, it is only necessary to turn it over or reverse it.

I claim as my invention—

1. In a reversible harrow, a tooth bent at opposite angles in the middle, and having one limb of the same extending in a slanting direction from the beam to the point of the same, as set forth.

2. In a harrow a tooth pointed at each end and bent at two opposite angles in the middle, to form a straight tooth of one section and a slanting tooth of the other section, and to adapt it to be driven into the harrow-beam, as set forth.

3. The combination, in a reversible harrow, with the beam having a straight hole and a recess leading from said hole at right angles with the latter of a tooth having two opposite angular bends, one section or limb of said tooth slanting from the beam to the end or point of the same.

4. The combination, with the tooth A, having the angles *a* and *b*, and the horizontal part *a'* between them, the angle *a* being a right angle, to form the straight section *a''* and the angle *b* about seventy to seventy-five degrees, to form the slanting section *a'*, of the beam B, having the straight hole *d*, adapted for the insertion of section *a''*, and the slot *c*, extend-



ing therefrom at an angle with the central longitudinal line of the beam, as and for the purpose set forth.

5 5. A harrow-tooth combining in a single piece a straight and a slanting tooth, and bent in the middle of the same at two opposite angles away from and back toward the vertical line of the same, whereby the central part between said angles is formed at right angles to said  
10 vertical line, to allow the tooth to be driven

into the harrow-beam, and to adapt it to engage with the slot formed in the latter, for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

AUSTIN C. EVANS.

Witnesses:

THOMAS STRONG,

B. C. CONVERSE.