

(No Model.)

J. MILLER.

HARROW TOOTH FASTENER.

No. 318,195.

Patented May 19, 1885.

Fig 1.

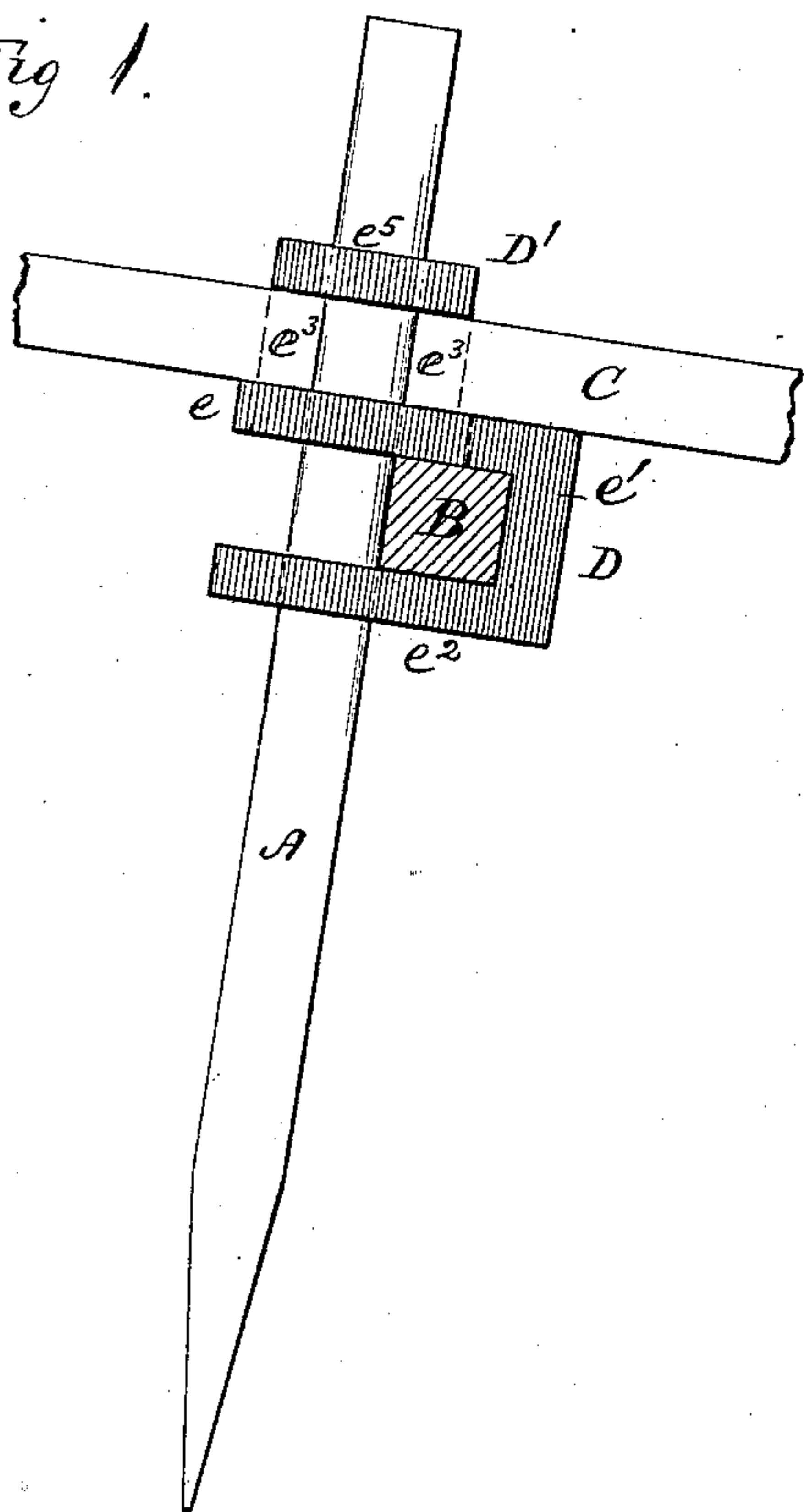


Fig 2

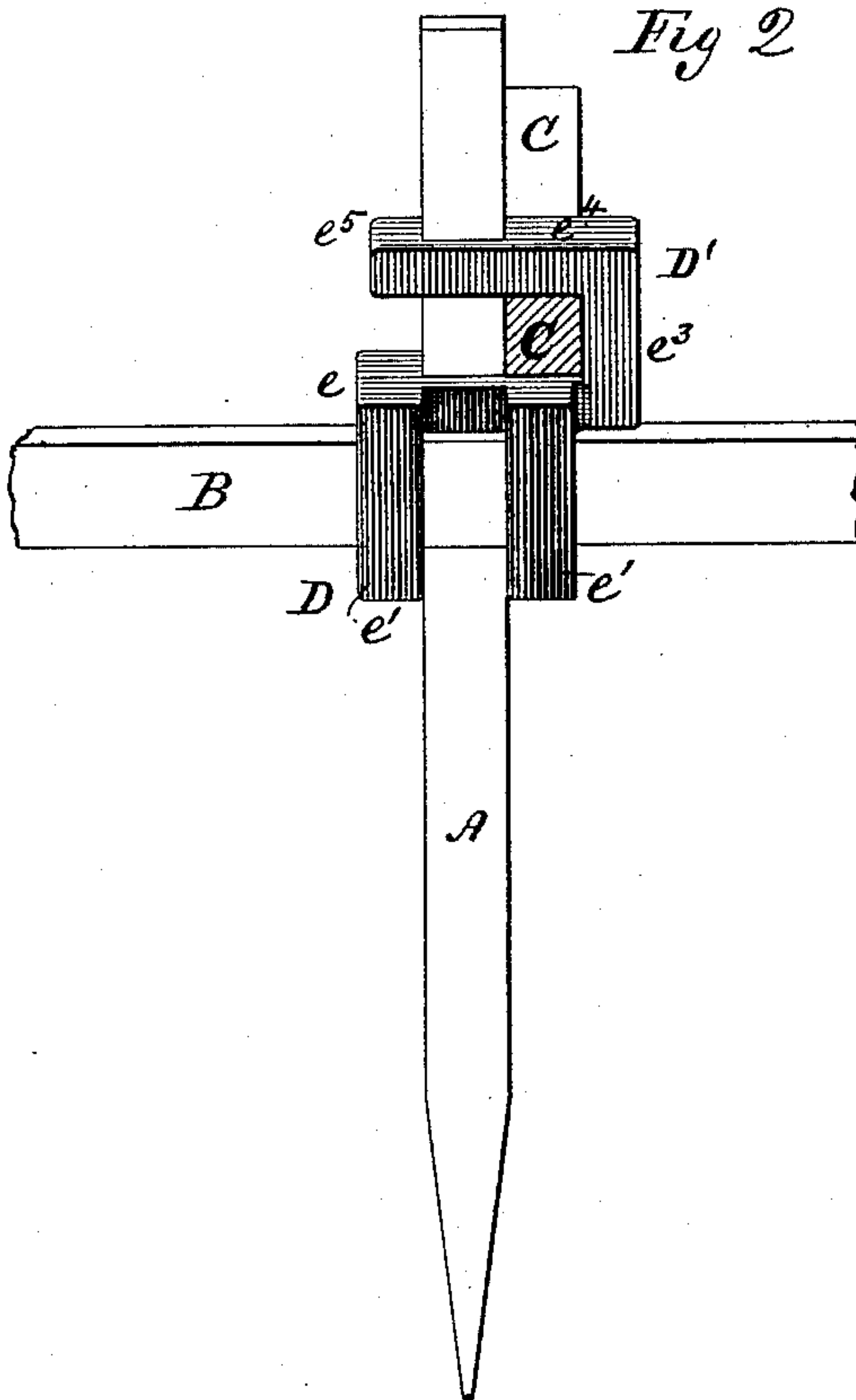
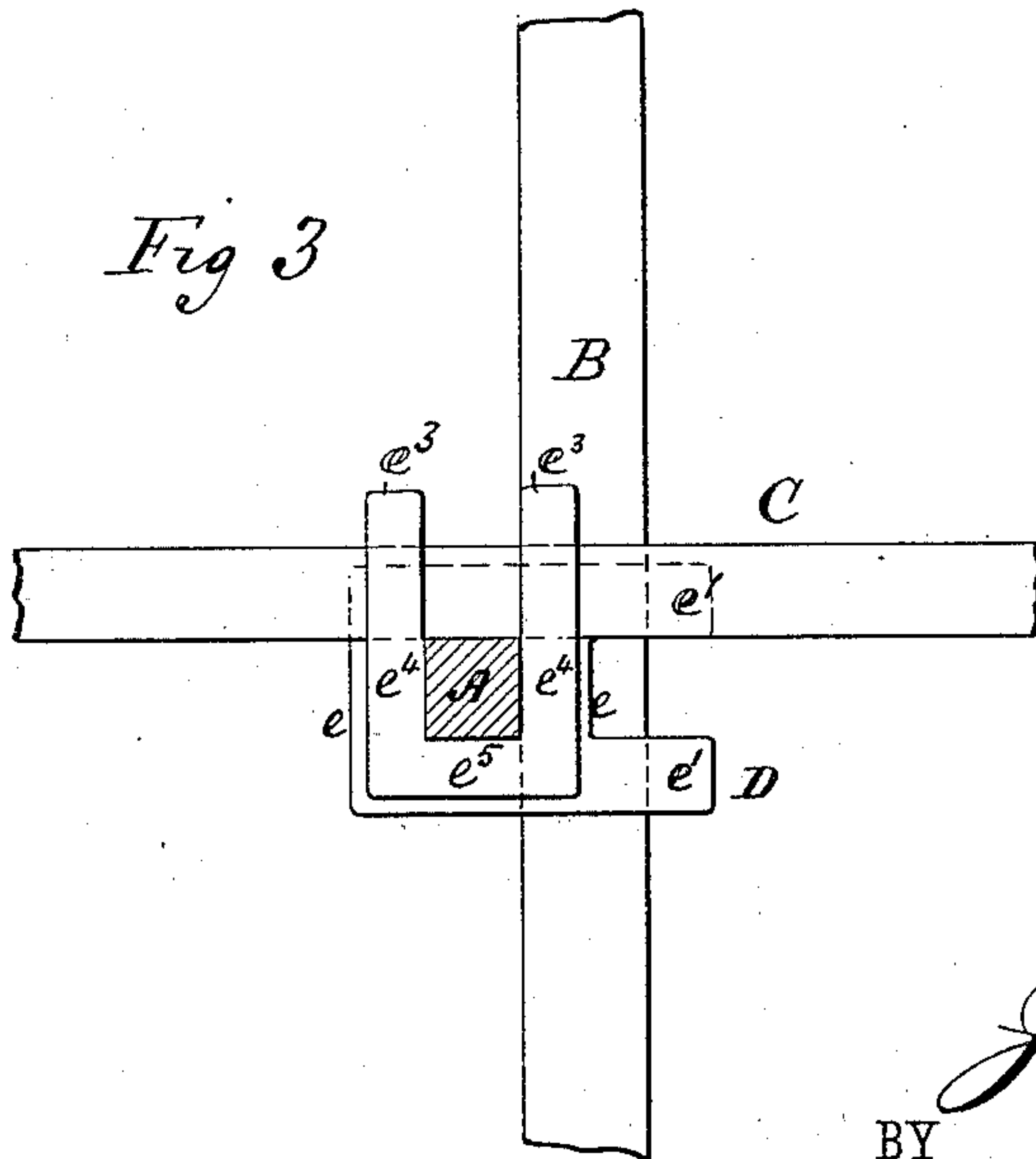


Fig 3



WITNESSES:

Sam Cook
C. Sedgwick

INVENTOR:

J. Miller
BY *Mum & Co*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

JAMES MILLER, OF ATWATER, MINNESOTA, ASSIGNOR TO HIMSELF AND
EDWIN E. BURT, OF SAME PLACE.

HARROW-TOOTH FASTENER.

SPECIFICATION forming part of Letters Patent No. 318,195, dated May 19, 1885.

Application filed August 20, 1884. (No model.)

To all whom it may concern:

Be it known that I, JAMES MILLER, of Atwater, in the county of Kandiyohi and State of Minnesota, have invented a new and useful
5 Improvement in Harrow-Tooth Fasteners, of which the following is a full, clear, and exact description.

This invention relates to tooth-fasteners for harrows made of iron; and it consists in a
10 double-clip fastener for each tooth of peculiar construction, substantially as hereinafter described, and whereby not only are the teeth securely held in position, but other advantages are obtained, as hereinafter set forth.

15 Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 represents a side view of a harrow-tooth and its carrying-bars in part with my improved fastener applied; Fig. 2, a perspective view of the same, looking from the rear; and Fig. 3, a top or plan view with the tooth in section.

25 A indicates one of the teeth of an iron harrow, and B C side and cross bars thereof. D D' is the double-clip fastening, one of which is applied to each tooth and to the bars B C. This fastening is put on the bars hot and allowed to cool and shrink thereon, so as to
30 draw it tight and solid, and the tooth driven to its place through the fastening and down or alongside of the bars. The one or lower portion, D, of this double-clip fastening is composed of an upper plate-like part, e , having an aperture through it for passage or reception
35 of the tooth, and back downwardly-running parallel continuations e' e' , bent to form a slotted lower portion, e^2 , opening from the back, but closed in front and parallel with the
40 plate-like part e . This forms a clip open in front, that, when the fastening is applied to the bars and the tooth in its place, holds, by its parts e e^2 , the front and sides of the tooth
45 A and the bar B between the back of the tooth and the portions e e' e' e^2 of the fastening. The other portion, D', of said double clip is composed of upward continuations e^3 e^3 , bent by right-angled upper continuations, e^4 e^4 , and

a cross end piece, e^5 , to form a clip which is open 50 at one side of the fastening and serves to inclose the front, back, and one side of the tooth A, and to receive between the plate part e and parts e^4 e^4 and the one side of the tooth the cross-bar C. Thus the fastening, which is 55 all made in one piece, forms a right-angled or nearly right-angled double clip, which serves, in conjunction with the bars B C, to firmly grip or hold the tooth at distant or separated points on all its sides, and to bind the bars 60 and teeth all together.

A harrow-tooth fastening thus constructed is not only cheap and durable, but by its several and differently-distributed holding-surfaces it strengthens the tooth and admits of 65 its being left in its original form—that is, without a thread on it for the purpose of receiving a binding-nut, which is heretofore dispensed with. The tooth, too, is fastened into the harrow without punching holes in the harrow bars or irons, 70 that have a tendency to weaken the harrow. Thus the bars and teeth are left intact as they are originally constructed, and the bars of the harrow are held in their proper angling position. 75

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

1. In a harrow-tooth fastening, the clip composed of the lower portion having an apertured 80 upper plate-like part with downwardly-extended parallel continuations bent to form a slotted part opening from the back and closed in front, the said slotted part being arranged parallel with the plate-like part, and the upper 85 portion bent to form right-angled upper continuations with a cross end piece, substantially as and for the purpose set forth.

2. In a harrow-tooth fastening, the clip having the upper and lower loops or slotted arms, 90 the said arms or loops being disposed at right angles to each other, and having an intermediate apertured plate-like part, substantially as and for the purpose set forth.

JAMES MILLER.

Witnesses:

C. A. OLSON,

A. A. NARVERUD.