

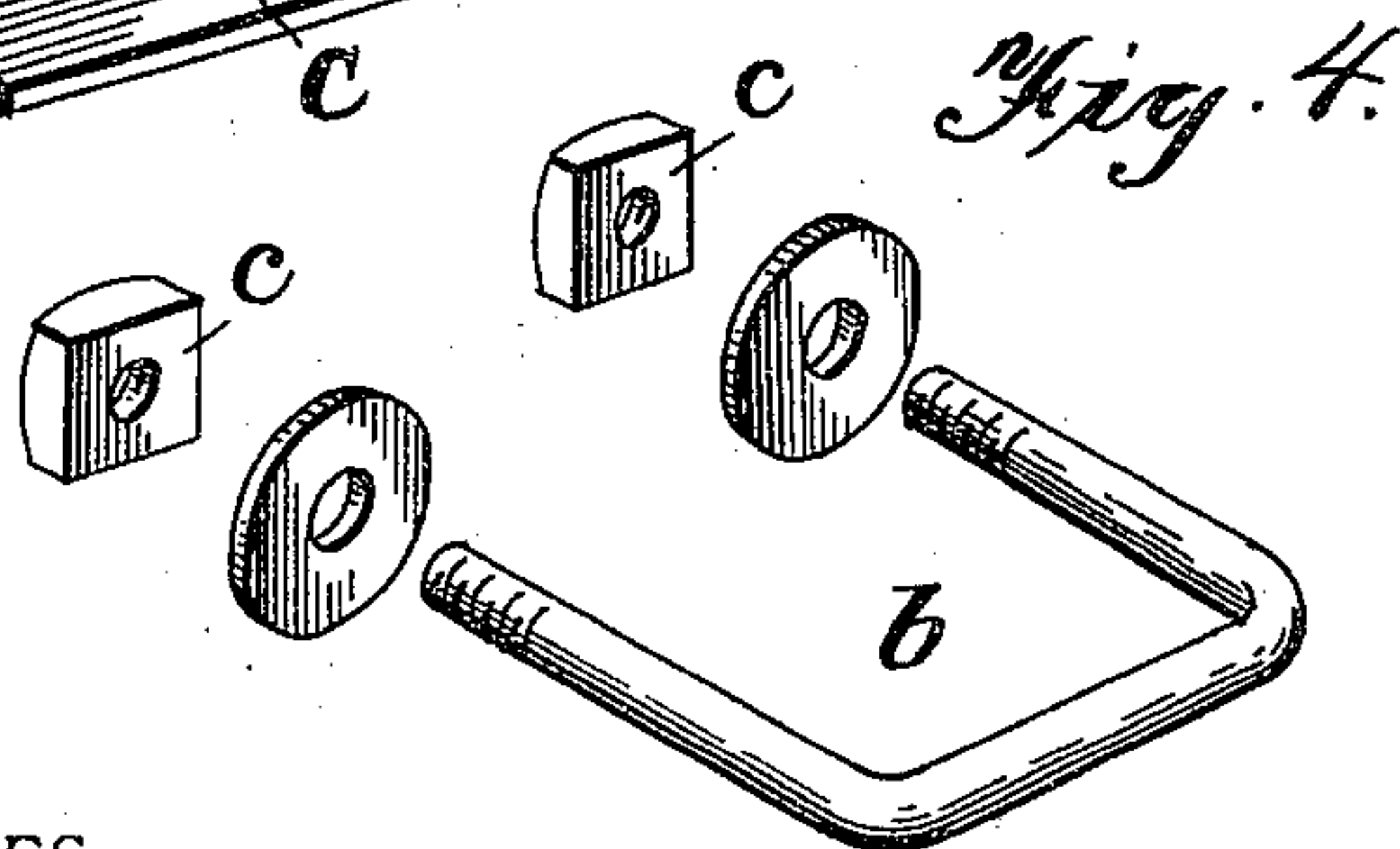
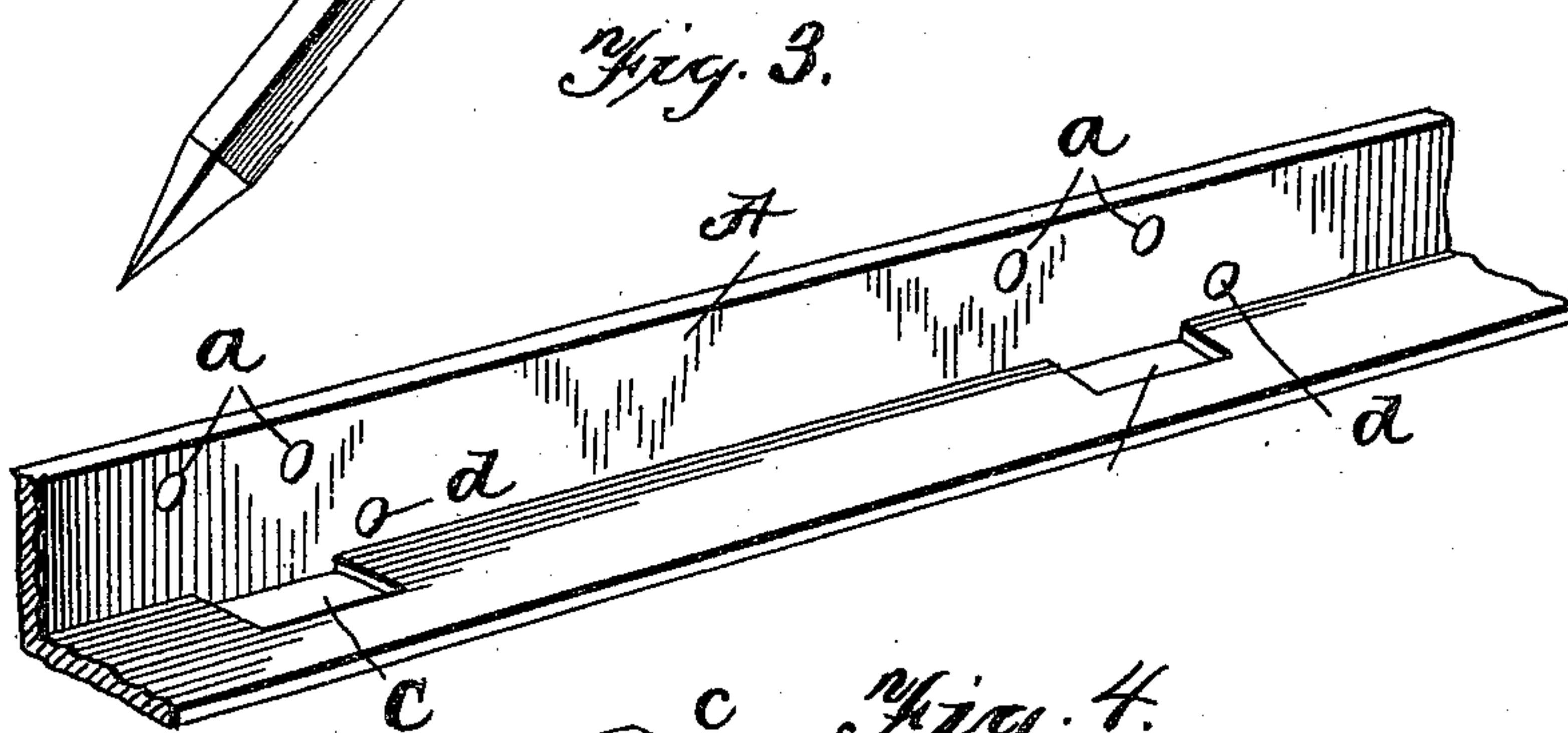
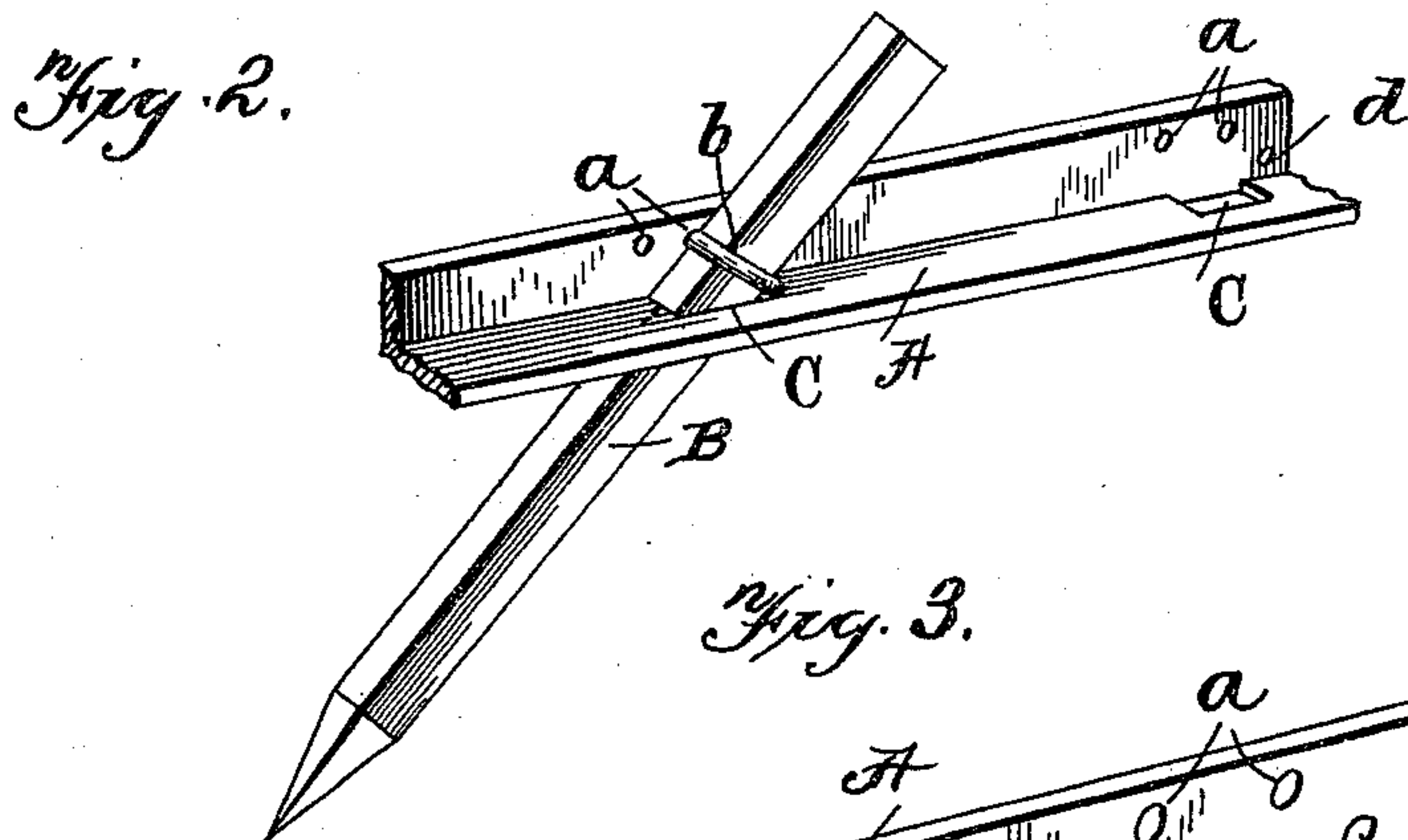
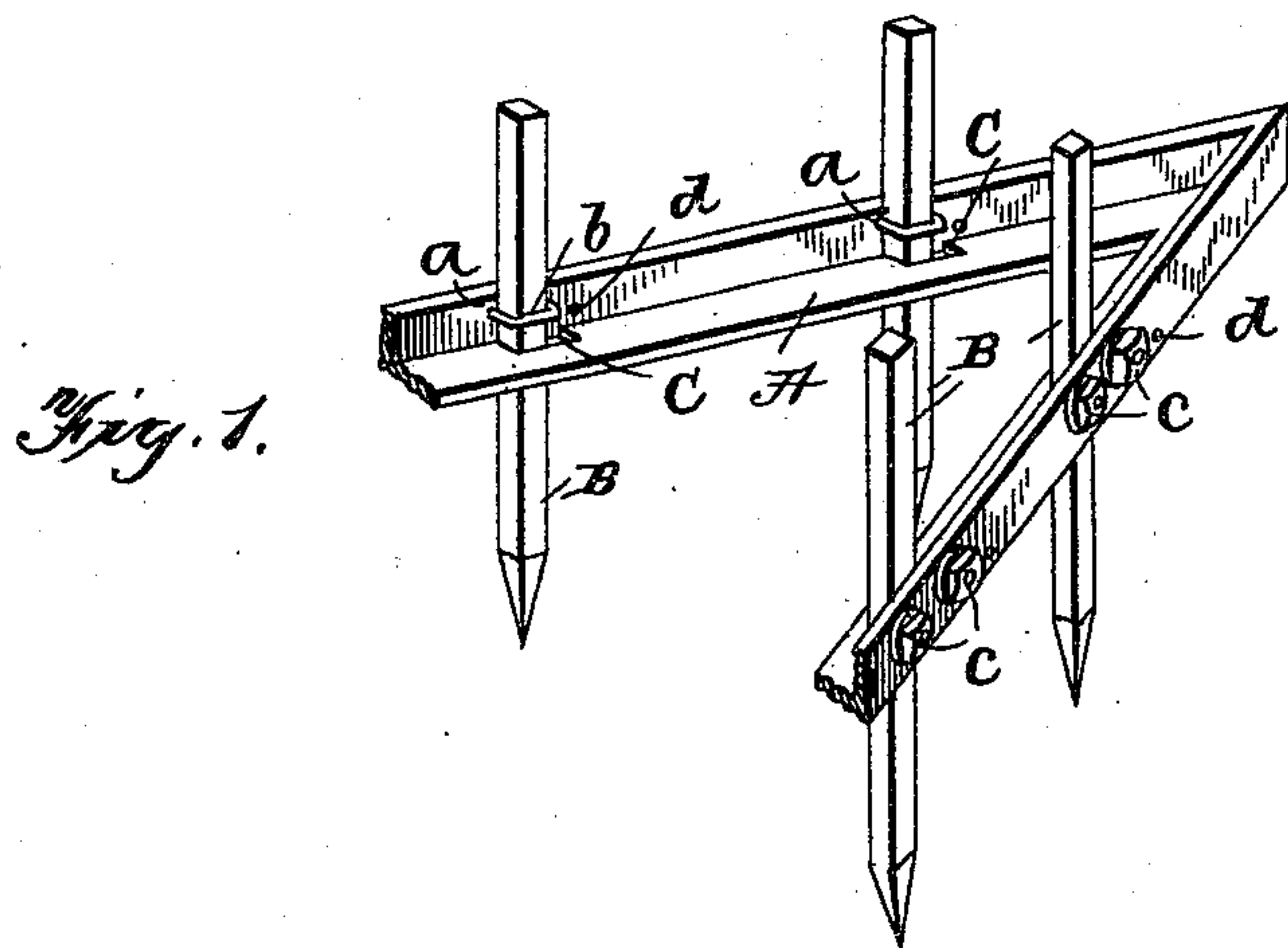
No. 640,090.

Patented Dec. 26, 1899.

J. H. BROWN.  
HARROW TOOTH FASTENING.

(Application filed Jan. 16, 1899.)

(No Model.)



WITNESSES

Geo. C. Truch,  
Chas. R. Wright.

INVENTOR

John H. Brown,  
by A. J. Pattison,  
Attorney



# UNITED STATES PATENT OFFICE.

JOHN H. BROWN, OF RURAL RETREAT, VIRGINIA.

## HARROW-TOOTH FASTENING.

SPECIFICATION forming part of Letters Patent No. 640,090, dated December 26, 1899.

Original application filed April 21, 1898, Serial No. 678,389. Divided and this application filed January 16, 1899. Serial No. 702,284. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN H. BROWN, a citizen of the United States, residing at Rural Retreat, in the county of Wythe and State of Virginia, have invented new and useful Improvements in Harrow-Teeth Fastenings, (a division of my application filed April 21, 1898, Serial No. 678,389,) of which the following is a specification.

My invention relates to improvements in harrow-teeth fastenings, and pertains to a means for adjusting the teeth thereof, all of which will be fully described hereinafter, and particularly referred to in the claims.

The object of my present invention is to provide an improved and simple means for changing the angle of and adjusting the teeth of a harrow.

In the accompanying drawings, Figure 1 is a perspective view of a front portion of a V-shaped harrow with my improved clamping means attached thereto. Fig. 2 is a perspective view of a section of the angle-plate of which the frame is formed, showing the tooth held in a slanting position. Fig. 3 is an enlarged perspective view of a section of the angle iron or plate of which the harrow-frame is composed. Fig. 4 is an enlarged detached perspective view of the clamping-bolts and nuts therefor.

Referring now to the drawings, A indicates an L-shaped angle-iron of which the harrow-frame is constructed. B is the tooth, which is of the spike type, and C is an opening made in the horizontal portion of the angle-iron, said opening being elongated in a direction longitudinal of the harrow a length greater than the thickness of the tooth, whereby the tooth can be placed in the inclined position shown in Fig. 2.

The vertical portion of the angle-iron is provided with two openings *a*, just above the opening C in the horizontal portion, through which the tooth passes, and these openings *a* are formed one in a horizontal line with the other and receive a U-shaped clamping-bolt *b*, which is provided with the clamping-nuts *c* upon the outer screw-threaded ends thereof.

When the tooth is clamped in a vertical position, as shown in Fig. 1, the U-shaped bolt has its legs or stems passed through the two

openings *a*, which are arranged in a horizontal line, and the tooth has its rear face or edge abutting against the rear wall or edge of the opening C in the horizontal portion of the angle-iron.

To clamp the tooth in an inclined position, I provide a third bolt-opening *d*, which is situated in front of the bolt-openings *a* and in a plane below them, whereby the stem of the U-shaped clamping-bolt is placed in the forward opening *a* and the other stem placed in the opening *d*, which is in a plane below the openings *a*, thus setting the U-shaped clamping-bolt at an angle, and the tooth when placed in this position spans the elongated opening C and is clamped tightly in this position, as will be readily understood.

The object in having the opening C elongated is to enable the tooth to be placed in an inclined position, as illustrated in Fig. 2. It will be noted that the rear opening *a* is in a line with the rear edge of the tooth-opening C, and the front opening *a* is in a vertical line above the opening C and slightly in rear of its front edge, whereby the U-shaped clamping-bolt fits snugly the tooth for clamping it in its vertical position. It will also be noted that the bolt-opening *d* is in a plane below the openings *a* and in front of them, and also at a point in front of the front edge of the tooth-opening and is the same distance from the adjacent opening *a* as the openings *a* are from each other, whereby the same U-shaped bolt may be used for passing through the opening *d* and the adjacent opening *a* when the tooth is to be clamped in an inclined position.

From this description it will be noted that the rear edge of the opening C forms a stop for the tooth when in a vertical position and is also the bearing-fulcrum for the tooth when it is in its inclined position, so that the rear edge of the tooth rests against the rear edge of the openings, whether the tooth be in a vertical or inclined position, and hence the rear wall or edge of the opening C forms an abutting or fulcrum point for the said tooth in either of its positions.

This construction is simple, but very effective, durable, and strong.

It will be readily understood that while I



here show the opening  $d$  at a point in front of the two openings  $a$  this opening may be placed in rear of these openings and accomplish the adjustment of the teeth in the opposite direction. It will be also readily understood that instead of having the horizontal portion of the angle-iron at the lower edge of the vertical portion it may be at the upper edge thereof, and in this instance the opening  $d$  will be in a plane above the openings  $a$  instead of below it, if it is desired to give the tooth a rearward inclination. I do not, therefore, limit myself to the exact construction here shown, the main idea being the three openings—two in a horizontal line and the third in a different plane—together with the U-shaped bolt whereby the adjustment described is accomplished.

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

1. In a harrow, the combination of an angle-iron tooth-beam, having a longitudinally-elongated opening in the horizontal flange thereof, and a series of apertures in the vertical flange thereof, a tooth, and a bolt adapted to embrace the tooth and pass through the said openings for holding the tooth in the desired adjustment, substantially as described.

2. The combination of a harrow-frame formed of an L-shaped angle-iron, the horizontal portion of the angle-iron having a vertical tooth-opening, the vertical portion of the angle-iron having two openings in a horizontal line and a third opening in a different plane therefrom, and a U-shaped bolt adapt-

ed to be placed through the said openings for clamping the tooth either in a vertical or inclined position, substantially as described.

3. The combination with a harrow-frame consisting of an L-shaped angle-iron having the horizontal portion at its lower edge, the horizontal portion of the angle-iron provided with an elongated opening, the vertical portion of the angle-iron provided with two bolt-openings in a horizontal line and above the said opening in the said horizontal portion of the angle-iron, and a third bolt-opening situated in a plane below the said openings and in front thereof, of a bolt adapted to enter said openings and embrace a tooth, substantially as described.

4. The combination of a harrow-frame consisting of an L-shaped angle-iron the horizontal portion thereof provided with an elongated opening, two openings in the vertical portion of the angle-iron and in a horizontal line above the opening in the horizontal portion thereof, and a third bolt-opening in a line below the two said openings and in front thereof and also at a point in front of the elongated opening in the horizontal portion of the angle-iron, and a U-shaped bolt adapted to span the tooth, the parts coöperating as and for the purpose described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOHN H. BROWN.

Witnesses:

EDWIN D. MYERS,  
WILLIAM J. WAMSLEY.