No. 687,120. Patented Nov. 19, 1901.

J. J. CALLENDER.

HARROW TOOTH FASTENING.

(Application filed Mar. 22, 1901.)

(No Model.)

Fig. 1.

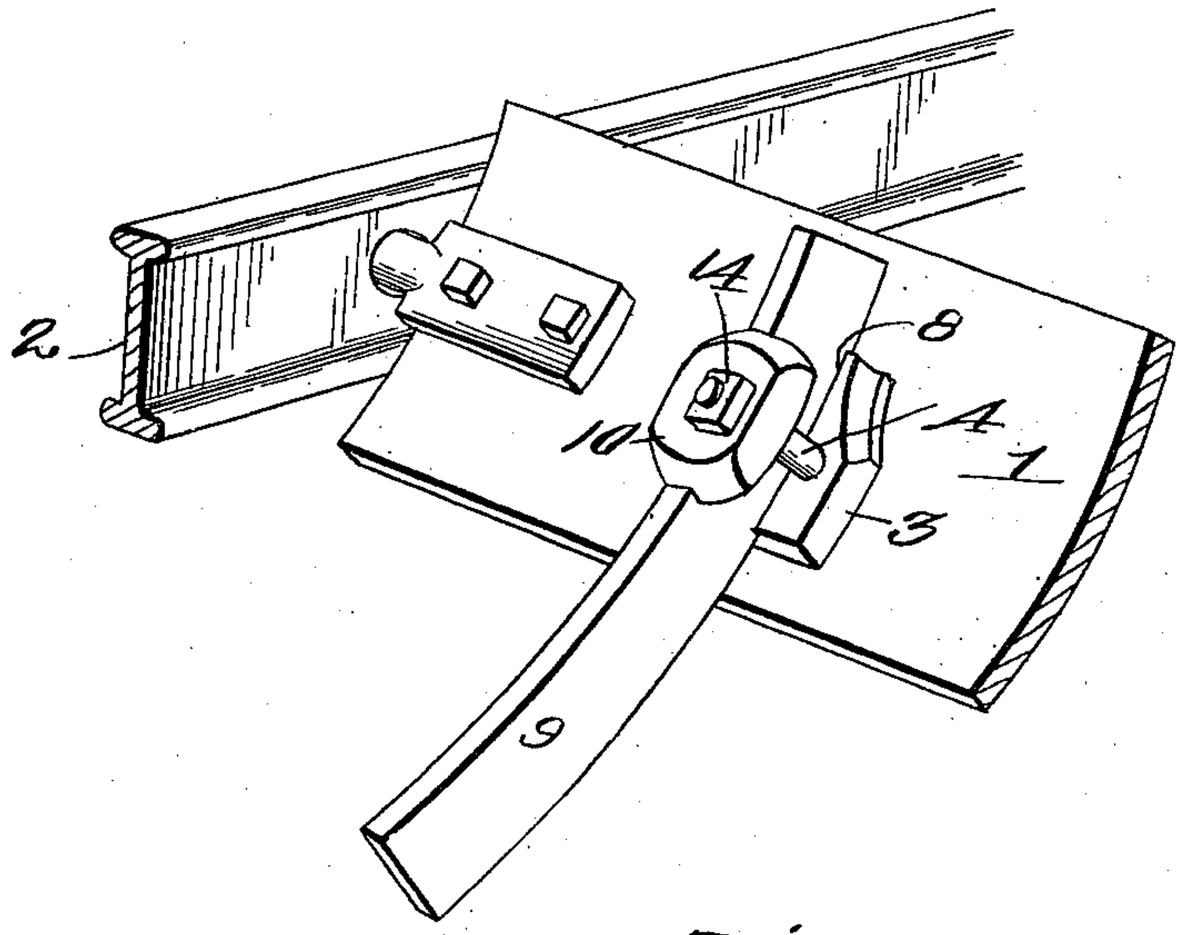


Fig. 2.

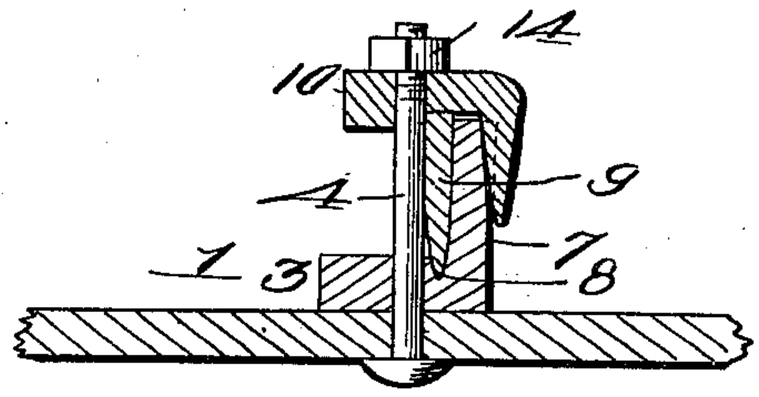
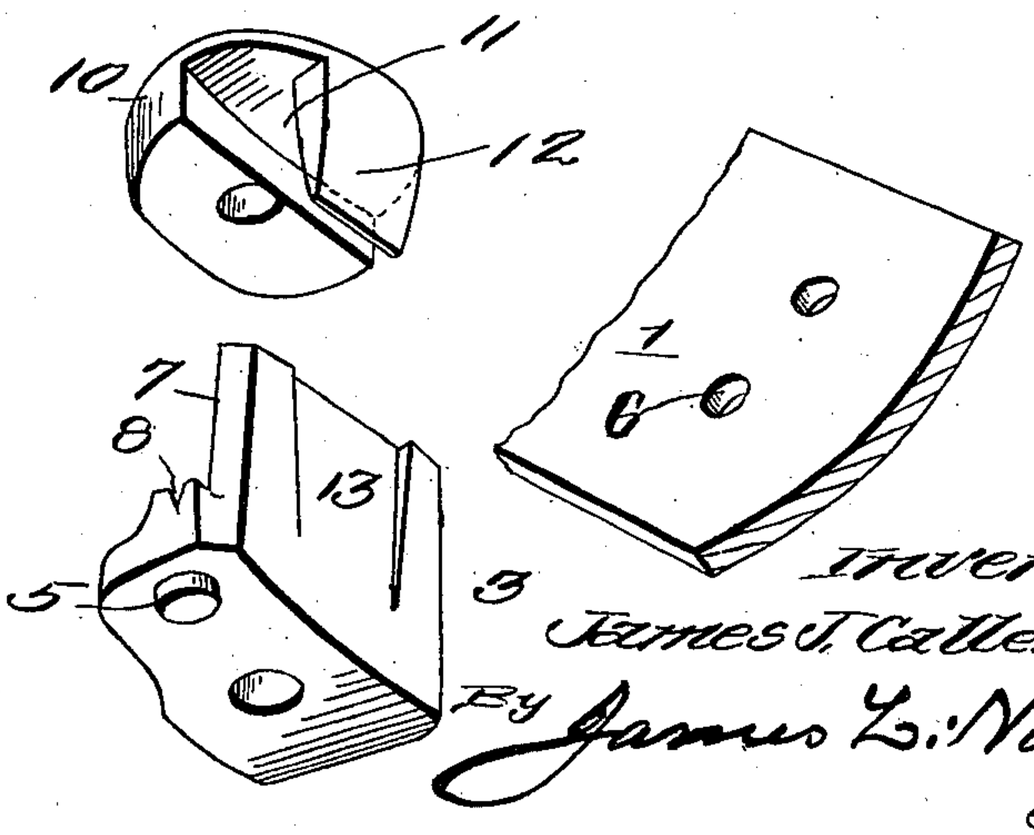


Fig. 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

JAMES J. CALLENDER, OF GALESBURG, ILLINOIS.

HARROW-TOOTH FASTENING.

SPECIFICATION forming part of Letters Patent No. 687,120, dated November 19, 1901.

Application filed March 22, 1901. Serial No. 52,373. (No model)

To all whom it may concern:

Be it known that I, JAMES J. CALLENDER, a citizen of the United States, residing at Galesburg, in the county of Knox and State of Illinois, have invented new and useful Improvements in Harrow-Teeth Fastenings, of which the following is a specification.

This invention relates to harrow-teeth fastenings, and is in the nature of an improvement on the harrow-tooth fastening for which I obtained Letters Patent of the United States on the 13th day of February, 1900, No. 643,465.

The present invention has for its especial object to provide novel means for attaching curved teeth to the concave side of a concavo-convex metallic tooth-bar; and it consists in the features and in the construction, combination, and arrangement of parts hereinafter described, and particularly pointed out in the claims following the description, reference being had to the accompanying drawings, forming a part of this specification, wherein—

Figure 1 is a perspective view showing a portion of the tooth-bar, draft-bar, and a curved harrow-tooth secured in place on the tooth-bar by means of my improved clip. Fig. 2 is a transverse sectional view, and Fig. 3 is a perspective view, of the clip separated.

Referring to the drawings, the numeral 1 indicates a portion of one of the oscillatory metallic tooth-bars journaled in the draft-bar 2, it being understood, of course, that the tooth-bar is journaled at each of its ends in a draft-bar 2. As shown most clearly in Fig. 1 of the drawings, the tooth-bar is concavo-convex in cross-section, the convex side being disposed toward the ground, so that it will readily operate to level the soil and break up and crush the clods, and when the tooth-bar is turned in its bearings to raise the teeth out of the ground the convex under side of the tooth-bar will act as a runner to facilitate transporting the harrow to and from the field, all of which is clearly shown in my patent before referred to and in Letters Patent which were granted to me on the 9th day of April, 1895, and numbered 537,272.

To the concave upper side of the tooth-bar 1 are attached a number of metallic clips, one only being shown in the drawings, which are constructed as follows: The numeral 3 indicates a metallic block curved on its under side to conform to the curvature of the tooth-bar 1, to which it is secured by a bolt 4, which passes up through the tooth-bar and the base of the block 3. A projecting lug or teat 5 is formed on the under side of the block 3 and engages a corresponding recess 6, formed in the tooth-bar, and operates to hold the block rigidly in place. The block 3 is provided on one side with a vertical wall 7, and between the base of said wall and the block is formed a curved groove 8, in which rests the under side of the curved harrow-tooth 9. The vertical wall 7 is not quite equal in height to the harrow-tooth, and said tooth rests against the vertical wall, which forms a support for the tooth. Fitted over the upper edge of the harrow-tooth and over the said vertical wall is a clamp comprising a metallic block 10, provided on one side of its under surface with a curved groove 11, in which the curved upper side of the harrow-tooth and the curved upper edge of the vertical wall fit. At one edge the block 10 is provided with a depending lip or flange 12, that overhangs the vertical wall 7 and engages the outer side of the latter, said wall being provided with a recess 13, into which the flange or lip fits.

The upper threaded end of the bolt 4 passes through the block 10 and the parts are firmly clamped in place by a nut 14, which is screwed over the upper end of the bolt. Owing to the harrow-teeth being curved and also owing to the metallic blocks being provided with curved bearing-faces the harrow-teeth can be quickly adjusted lengthwise by loosening the nuts on the bolts and sliding the harrow-teeth back and forth between the clamp-blocks.

By causing the upper edge of the harrow-tooth to project slightly above the upper edge of the vertical wall 7 the clamp 10 when the nut 14 is screwed tightly thereover firmly clasps the harrow-tooth and securely holds it in place. As most clearly shown in Figs. 2 and 3 of the drawings, the adjacent faces of the recess 13 and the depending lip 12 are inclined or wedge-shaped, whereby when the harrow-tooth is clamped in place the clamp 10 is forcibly drawn laterally toward the vertical wall 7 and is tightly clamped between said wall and the opposite wall of the groove 11. The tooth is thus clamped in both a vertical and a horizontal direction.

Having described my invention, what I claim is—

1. The combination with a tooth-bar, of a tooth-fastening comprising two clamping-blocks, a curved harrow-tooth disposed between said blocks, the under block being provided on one side with a vertical wall extending to near the upper edge of the tooth, the upper block being provided on its under side with a recess in which the vertical wall and the harrow-tooth fit and having an integral depending flange which fits against the outer side of the said vertical wall, and a tightening-bolt passing through the tooth-bar and the clamping-blocks, substantially as described.

2. The combination with a tooth-bar, of a tooth-fastening comprising two clamping-blocks, a curved harrow-tooth disposed between said blocks, the under block being provided on one side with a vertical wall extending up to near the upper edge of the tooth and provided on its outer side with a recess, the upper block being provided on its under side with a groove in which the vertical wall and the harrow-tooth fit and having an integral depending flange which fits in the recess on the outer side of the vertical wall, and a tightening-bolt passing through the tooth-bar and the clamping-blocks, substantially as described.

3. The combination with a tooth-bar, of a tooth-fastening comprising two clamping-blocks, a curved harrow-tooth disposed between said blocks, the under block being provided on one side with a vertical wall extending up to near the upper edge of the tooth and provided on its outer side with a recess, the upper block being provided on its under side with a groove in which the vertical wall and the harrow-tooth fit and having an integral depending flange which fits in the recess on the outer side of the vertical wall, and a tightening-bolt passing through the tooth-bar and the clamping-blocks, the said recess and depending flange having oppositely-inclined faces, substantially as described.

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

JAMES J. CALLENDER.

Witnesses:

EDWIN CALLENDER,

G. R. DIMMITT.