J. H. BROWN.

HARROW TOOTH FASTENING.

APPLICATION FILED DEC. 11, 1913.

1,168,930.

Patented Jan. 18, 1916.

2 SHEETS—SHEET 1.

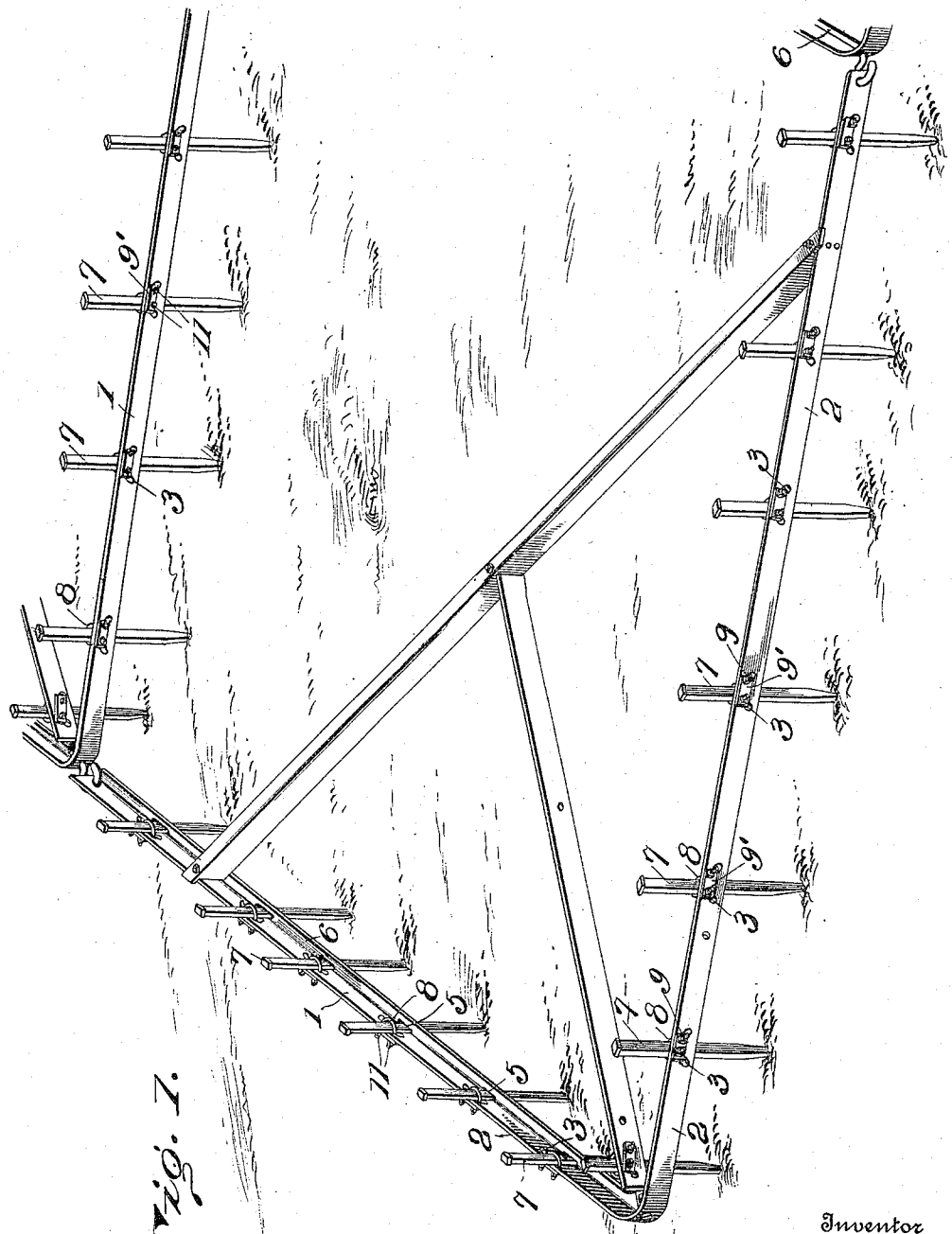


Fig. 1.

Witnesses

W. A. Williams.

C. P. Wright, Jr.

Inventor

John H. Brown

By A. S. Pattison,

Attorney

THE COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

J. H. BROWN.

HARROW TOOTH FASTENING.

APPLICATION FILED DEC. 11, 1913.

1,168,930.

Patented Jan. 18, 1916.

2 SHEETS—SHEET 2.

Fig. 2.

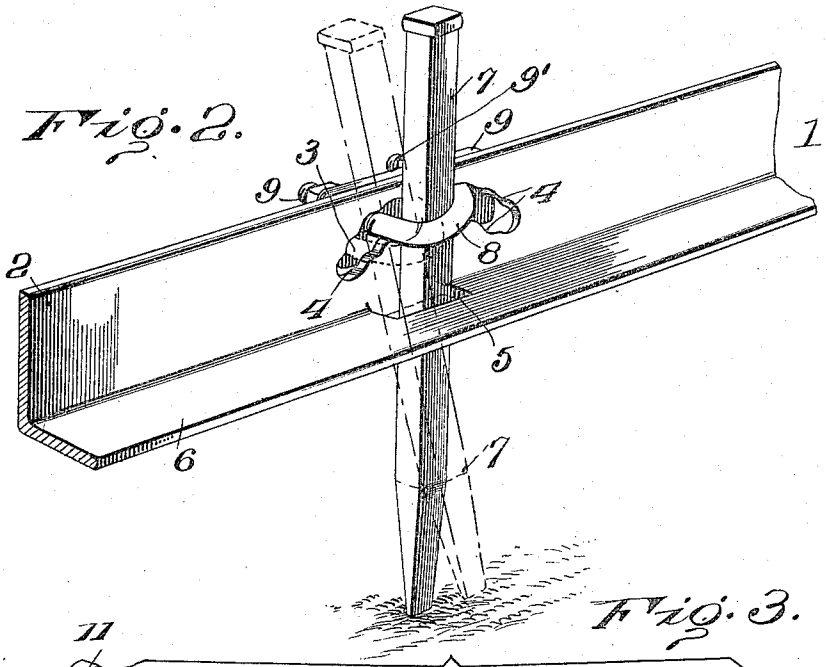


Fig. 3.

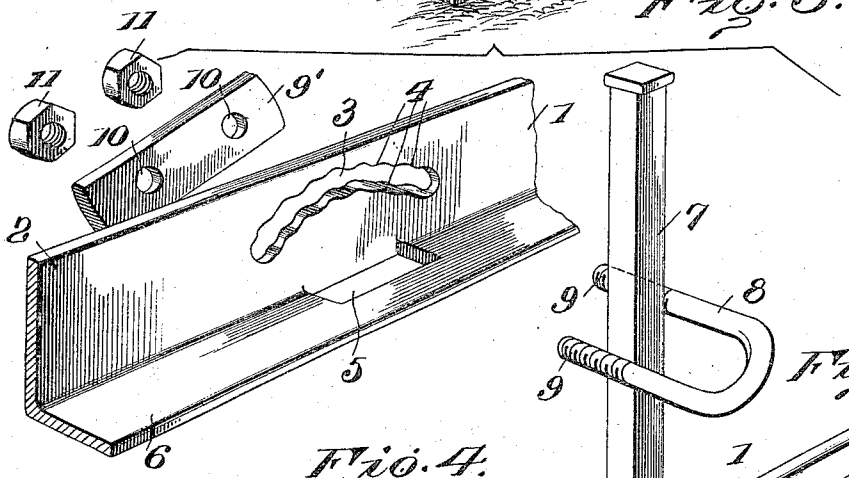


Fig. 4.

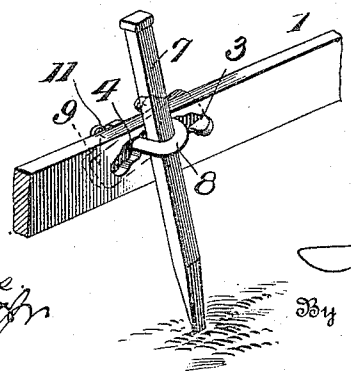
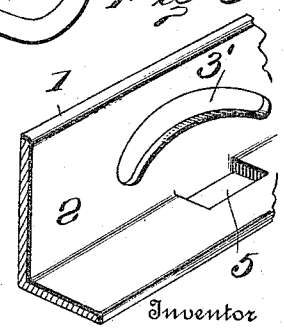


Fig. 5.



Witnesses

W. A. Williams

C. P. Wright Jr.

Inventor

John H. Brown,

By A. S. Pattison

Attorney

THE COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN HOOD BROWN, OF MORLEY, MISSOURI.

HARROW-TOOTH FASTENING.

1,168,930. Specification of Letters Patent. Patented Jan. 18, 1916.

Application filed December 11, 1913. Serial No. 806,009.

To all whom it may concern:

Be it known that I, JOHN H. BROWN, a citizen of the United States, residing at Morley, in the county of Scott and State of Missouri, have invented certain new and useful Improvements in Harrow-Tooth Fastenings, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to improvements in harrow tooth fastenings, and pertains to a means for connecting a harrow tooth to a harrow, and also means for adjusting the said tooth after it has been attached.

The object of my present invention is to provide an improved and simple means for both changing the angle of the harrow tooth and also for adjusting the length of the tooth which will penetrate the ground to be cultivated.

By my invention a harrow tooth may be easily and quickly applied and detached from a harrow frame. My improved means of attachment also permits a simple and rapid adjustment of the harrow tooth from one angle to another, and also allows a vertical adjustment of the said tooth. By this it will be seen that my improved means combines both an attachment and an adjustment.

In the accompanying drawings—Figure 1 is a perspective view of a harrow composed of a plurality of V-shaped sections to which is applied my improved form of harrow tooth fastening. Fig. 2 is a perspective view of a section of the angular plate, of which the harrow frame is constructed showing my improved fastening applied thereto. Fig. 3 is a perspective view of a section of the angular iron or plate of which the harrow is formed and showing my improved fastening and adjusting means applied thereto, said adjusting means and harrow tooth are shown in disassembled relation. Fig. 4 is a perspective view of a section of a modified form of a harrow frame showing my improved fastening and adjusting means applied thereto. Fig. 5 is a perspective view of a section of the angular plate showing a modified form of quadrant slot therein.

Referring now to the drawings in which like reference numerals designate similar parts, 1 represents the frame of the harrow which is here shown constructed of an L-shaped beam which has its longer leg 2 arranged in a vertical position. Arranged at regular intervals in the long leg 2 of the bar 1, are slots 3. These slots as shown are of a quadrant shape, but as will be apparent as hereinafter pointed out these slots may readily be of a semi-circular form without departing from the spirit and scope of my invention. I provide corrugations 4, on the inner edges of the said slots 3, the objects of which will be hereinafter described and pointed out.

At regular intervals a rectangular slot 5, is cut in the shorter leg 6, of the L-shaped beam 1. These slots 5, are arranged directly below the quadrant slots 3. They are of a length considerably longer than the thickness of the harrow teeth 7 which are adapted to be placed therewithin.

My attaching and clamping means for securing the harrow tooth to the frame, consists of a U-shaped clamping bolt or staple 8 having its extremities 9 externally screw threaded. This U-shaped bolt 8, is adapted to straddle the harrow tooth 7, and then pass through the quadrant slot 3. In order to hold the staple in any desired position within the quadrant slot, I provide a rectangular plate 9′ having two openings 10 adapted to receive the ends 9 of the bolt, the said plate being adapted to be clamped against the outer face of the portion 2 of the beam by nuts 11. The rectangular plate is provided in order to prevent the U-shaped bolt from spreading and prevents all liability of the harrow tooth moving within the quadrant slot after the nuts 11 have once been screwed down tightly.

When it is desired to attach the harrow tooth to the frame, the tooth is first inserted within the slot 5, the pointed end placed below the slot as will be readily understood. The U-shaped bolt 8 is then slipped over the tooth and its outer ends passed through the quadrant slot 3. The plate 9′ is then slipped over the screw threaded ends 9 of the U-shaped bolt 8, the ends 9 passing through the holes 10 of the plate. The nuts 11 are then screwed on the ends 9 and as the nuts 11 work down on the screw threads of the ends of the bolt, they will draw the curved portion of the U-shaped bolt tightly around the harrow tooth and clamp the plate firmly against the outer side of the portion 2 of the L-shaped beam 1.

If after the harrow tooth has been applied it is desired to make the said tooth

slant backward the nuts 11 are loosened, which allows the U-shaped bolt to be moved forward along the edges of the quadrant. This movement of the U-shaped bolt carries the harrow tooth with it, and as the upper portion of the tooth is moved forward, the lower portion, striking against the forward end of the rectangular slot 5, forces the lower portion of the harrow tooth backward as is clearly shown in dotted lines in Fig. 2. When it is desired to slant the tooth backward, it is readily apparent that the operation is simply reversed.

Whenever it is desired to adjust the digging depth of the tooth it is simply necessary to loosen the bolts 11 as has been described above and the harrow tooth is then free to be moved up or down through the rectangular opening 5 and then by tightening the nuts 11 it may be clamped in any desired position.

The corrugations 4 on the inner edges of the slots 3 are provided to overcome and obviate the tendency of the bolt 8 to slip, after it has been clamped in any desired position, and in slipping consequently let the tooth 7 move out of its adjusted position. Inasmuch as there is considerable pressure against the end of the harrow tooth 7 when it is in operation, these corrugations together with the plate 9′ and the bolts 11 firmly clamp the tooth and hold it against any movement.

My specific form of harrow frame arrangement and also the arrangement of the teeth thereupon form the subject matter of a co-pending application and are here shown only to indicate the manner in which my improved tooth fastening device may be attached.

Fig. 4 makes it apparent that my improvement may be attached to a harrow beam of rectangular form and, many other forms of beams may be used in conjunction with my improved adjusting and fastening means without departing from the spirit and scope of my invention.

In the modification shown in Fig. 5 the quadrant slot 3′ is shown without any corrugations for the reason that under some circumstances the corrugations on the slot are not necessary to hold the tooth in its adjusted position.

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

1. The combination with a harrow frame, the said frame constructed of an L-shaped beam, a quadrant slot cut in the vertical portion of the beam and extending longitudinally thereof, a rectangular slot cut in the horizontal portion of the beam, the said slots arranged one above the other, said horizontal slot arranged between the ends of the quadrant slot, of a harrow tooth, and means engaging the harrow tooth passing through the quadrant slot for holding the said tooth thereto.

2. The combination with a harrow frame, the said frame constructed of an L-shaped beam, a quadrant slot cut in the vertical portion of the beam and extending longitudinally thereof, a rectangular slot cut in the horizontal portion of the beam, said slots arranged one above the other, of a harrow tooth, and means engaging the harrow tooth passing through the quadrant slot for holding the said tooth thereto.

3. The combination with a harrow-frame, the said frame constructed of an L-shaped beam, a quadrant slot having corrugations on the edges thereof cut in the vertical portion of the beam and extending longitudinally thereof, a rectangular slot cut in the horizontal portion of the beam, the said slots arranged one above the other, of a harrow tooth passing through the rectangular slot in the horizontal portion, a U-shaped bolt embracing and engaging said tooth and having its ends projecting through the said quadrant slot, and a plate having oppositely arranged openings adapted to receive the extending ends of the U-shaped bolt, and nuts threaded on the ends of the said bolts, whereby the said plate may be clamped against the outside of the vertical portion of the beam and thereby hold the U-shaped bolt and the harrow tooth in its adjusted position, the parts arranged as and for the purpose described.

4. The combination with a harrow frame, the said frame constructed of an L-shaped beam, a quadrant slot having corrugations on the edges thereof cut in the vertical portion of the beam and extending longitudinally thereof, a rectangular slot cut in the horizontal portion of the beam, the said slots arranged one above the other, of a harrow tooth passing through the rectangular slot in the horizontal portion, a U-shaped bolt embracing and engaging the said tooth and having its ends projecting through the said quadrant slot and means applied to the said projecting ends of the U-shaped bolt to prevent the spreading thereof and to adjustably clamp the harrow tooth to the beam.

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

JOHN HOOD BROWN.

Witnesses:
BRIGGS CARSON,
C. W. FULWOOD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."