(No Model.)

J. B. NEFF.

HARROW.

No. 361,229. Patented Apr. 12, 1887.

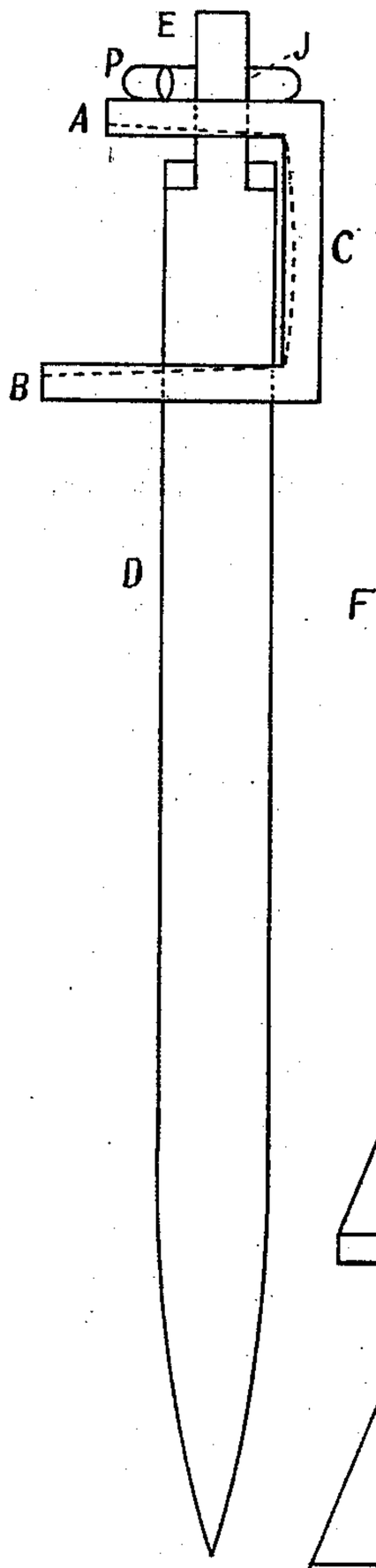


FIG. 1.

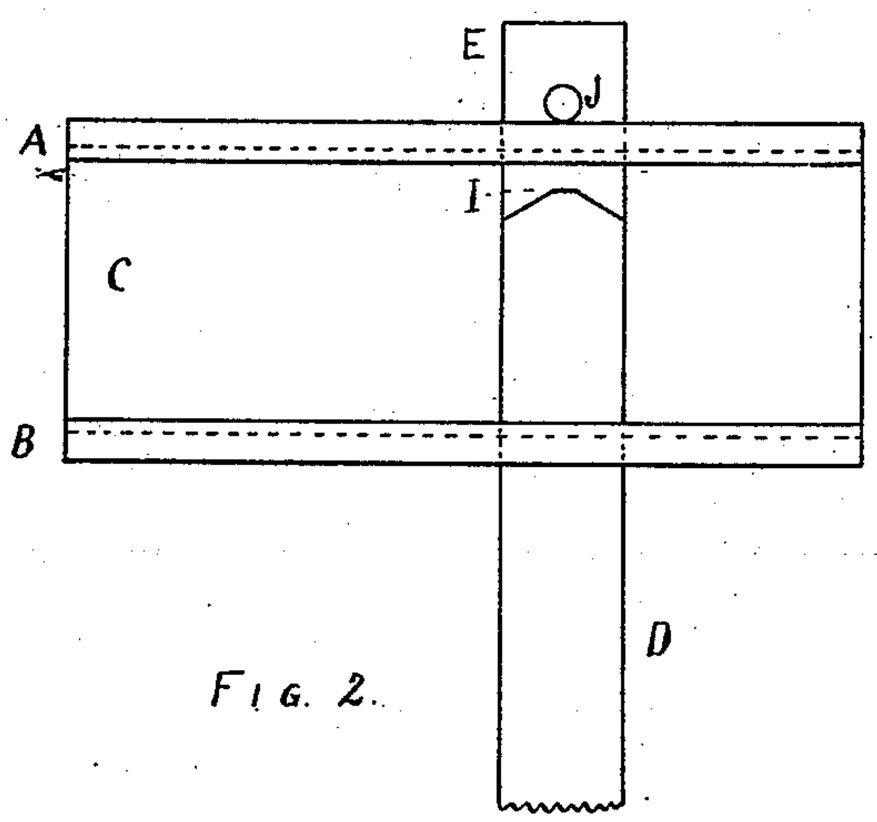
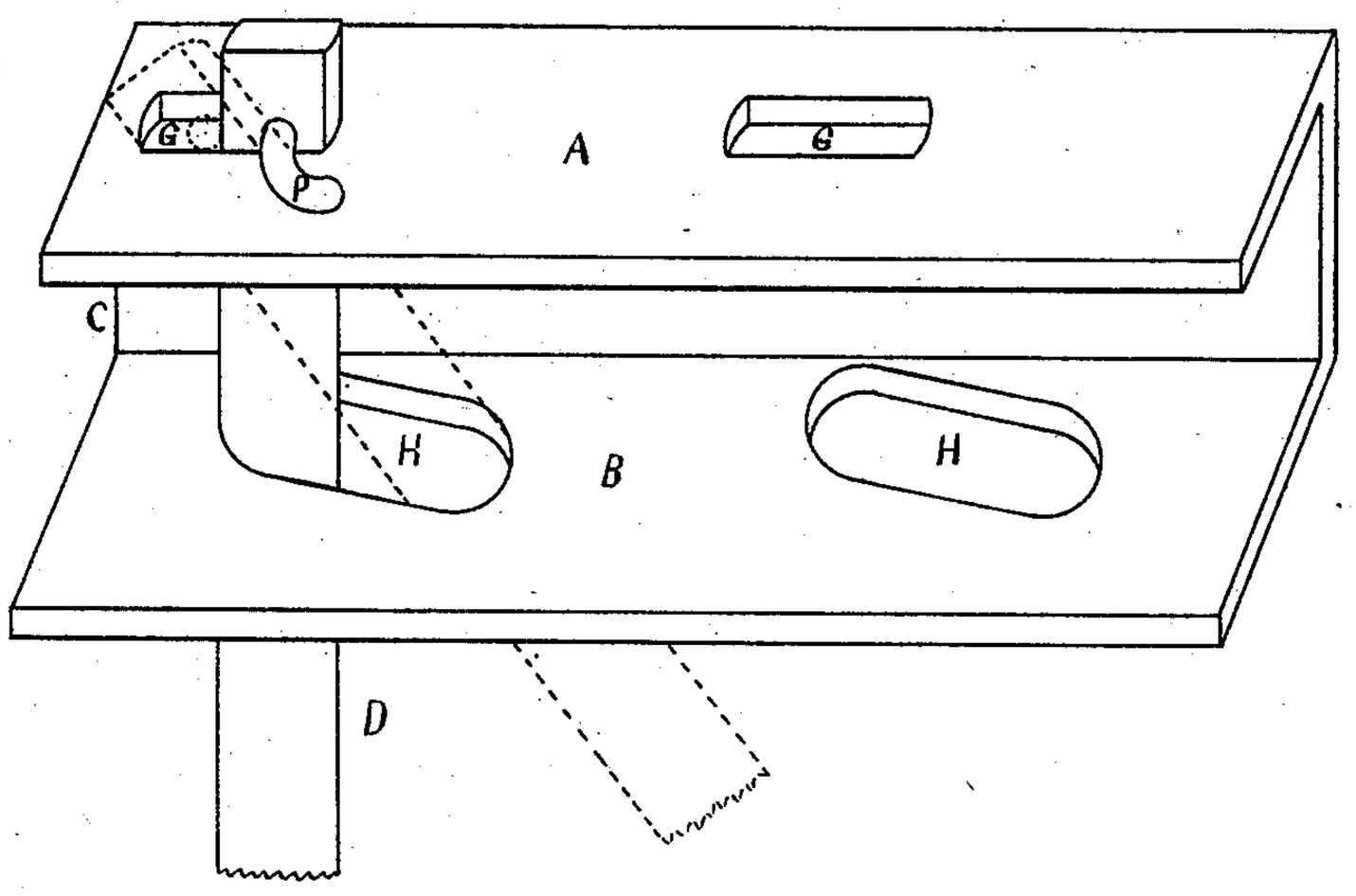


FIG. 2.

FIG. 3.



Witnesses:-

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JOSEPH B. NEFF, OF BURLINGTON, IOWA, ASSIGNOR OF ONE-HALF TO JAMES H. AND THOMAS K. BARLEY, OF SEDALIA, MISSOURI.

HARROW.

SPECIFICATION forming part of Letters Patent No. 361,229, dated April 12, 1887.

Application filed June 16, 1884. Serial No. 134,929. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH B. NEFF, a citizen of the United States, residing at Burlington, in the county of Des Moines and State of Iowa, have invented a new and useful Improvement in Harrows, of which the following is a specification.

My invention relates to harrows of the kind having teeth adapted to be moved to either a vertical or an inclined position.

Heretofore when channel-iron has been used in harrow-beams the teeth have been held rigid in their position by mortises, being in both the top and bottom flanges the size of the tooth, or larger, and the tooth secured in position by a wedge, or by providing long-slot mortises in both the top and bottom flanges larger than the teeth, with a clamp secured to the body or web of the beam to clamp and hold the tooth in its position. Such have been found objectionable, first, in the mortises being as large or larger than the tooth, weakening the beam so as to require a heavy iron, and second, in the teeth being clamped rigid in their position, requiring to have the clamp loosened when desired to move the teeth from vertical to an incline, or vice versa, as a change of draft from end to end would not move the teeth when properly held sufficiently tight to hold them from falling out of the harrow. All these objections my invention obviates and overcomes; and, further, it is desirable in such combined harrows that the teeth shall be loosely held in their position, and they may be so loosely held as to wabble about with good results in more thoroughly stirring the ground.

The object of my invention is to provide a harrow having channel-iron beams with teeth loosely held in their position and adapted to be either vertical or inclined; and it consists in the peculiar construction, arrangement, and adaptation of parts, as hereinafter set forth, and referred to in the drawings.

Figure 1 is an end or sectional view of the harrow-beam with a tooth attached. Fig. 2 is a side elevation view showing the open side of the beam with a tooth in position, also showing the construction of the tooth; and Fig. 3 is a perspective view of the said beam, showing the mortises in both the top and bottom flanges, with a tooth in position.

The harrow may be composed of any desired number of beams having any desired number of teeth in a frame, as ordinarily.

A B C represent the harrow-beam, in which A is the top flange, B is the bottom flange, and C the body or web connecting the said top and bottom flanges in a solid bar. In the bottom flange, B, is a series of long-slotted mortises, H, larger in size than the tooth, to allow said tooth to move freely and loosely from a vertical to an incline. Preferably said mortise H is made diagonal with the beam, so that the tooth will move with the line of draft, while the beam is set oblique to it. In the top flange, A, is a series of slotted mortises, G, smaller in size than the size of the body of the tooth, as shown, of sufficient size only to receive the reduced end of the top end of the tooth, as will be understood by the drawings.

D represents the tooth provided with a reduced-size top end or tenon, E, to loosely enter the small mortise in the said top flange, the shoulder I, seated under the said flange to stop the tooth from moving up above its position, and the pin or key P, seated above the flange to hold the tooth from falling out of its position. Instead of the key P, any equivalent device may be used without departing from my invention.

In operation it will be observed that the mortise in the top flange is smaller than heretofore, consequently the beam is stronger, and a lighter beam may be used than heretofore; that the tooth is loosely pivoted in the said small mortise in the top flange and loosely swings through the larger mortise in the bottom flange, so that by a reversal of the draft the teeth will adapt and move to the new position, and, avoiding the heretofore practice of loosening clamps, moving the teeth, and again tightening the said clamps, and that by reason of thus loosely attaching said teeth it may be so loosely attached as to wabble and work a zigzag line, if desired, to more thoroughly stir the ground. It will be observed that the beam rests upon the said shoulders, and that said key holds the tooth from falling away from the beam.

Having thus set forth my invention, I claim—

1. In a harrow, the beam consisting of channel-iron having a top flange and a bottom

flange connected by a web, the said top flange provided with a mortise smaller than the body of the tooth, the bottom flange provided with a mortise larger than said tooth, substantially as and for the purpose set forth.

2. In a harrow, the beam consisting of the web having the top flange provided with the smaller mortise and the bottom flange provided with the larger mortise, the combination of the tooth provided with the reduced top end and shoulder, substantially as and for the purpose set forth.

3. The combination of the beam consisting of the flange A, provided with a small mortise, G, the flange B, provided with a larger mortise, H, and the web C, with the tooth D, provided with the shoulder, the reduced top end, E, and the pin or key P, all constructed, arranged, and adapted to operate substantially as and for the purpose set forth.

JOSEPH B. NEFF.

In presence of—
E. J. RIZER,
E. F. TUTTLE.