(No Model.)

J. H. BARLEY.

HARROW.

No. 310,170. Patented Jan. 6, 1885.

Fig. 1.

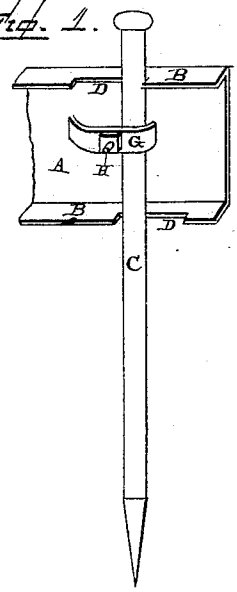


Fig. 2.

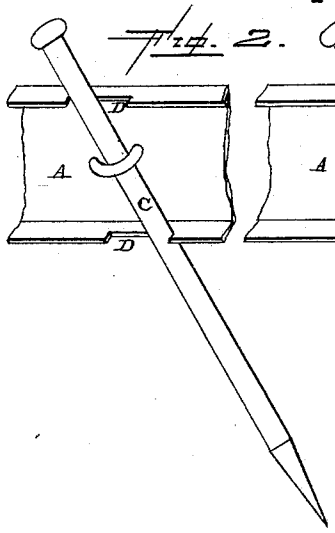


Fig. 3.

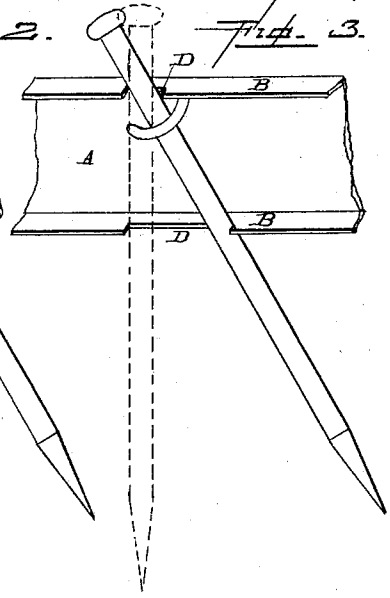


Fig. 4.

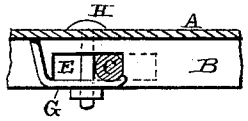


Fig. 7.

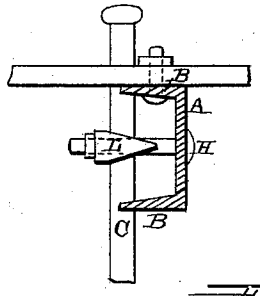


Fig. 5.

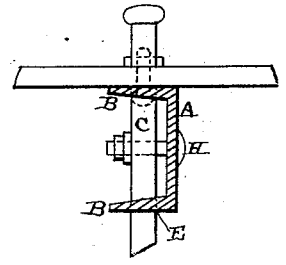


Fig. 6.

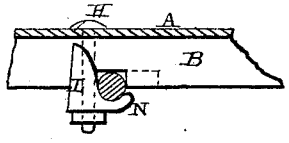
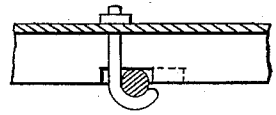


Fig. 8.



Witnesses.

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UNITED STATES PATENT OFFICE.

JAMES H. BARLEY, OF SEDALIA, MISSOURI, ASSIGNOR OF ONE-HALF TO THOMAS K. BARLEY, OF SAME PLACE.

HARROW.

SPECIFICATION forming part of Letters Patent No. 310,170, dated January 6, 1885.

Application filed April 2, 1884. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. BARLEY, of Sedalia, in the county of Pettis and State of Missouri, have invented certain new and useful Improvements in Harrows; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in harrows; and it consists, first, in the combination of the beams of the harrow, which are made of double-flanged iron, having suitable notches, recesses, or slots formed in their flanges, with the teeth and suitable clamping devices for securing them in the recesses, notches, or slots in such a manner that the teeth will stand vertically when the harrow is drawn from one end, and at a suitable angle when drawn from the other end.

The object of this part of my invention is to attach teeth directly to the side of the beams, by means of suitable clamping devices, without the intervention of holding-blocks of any kind.

Second, in the combination of suitable flanged beams having suitable notches, recesses, or slots made in or through the flanges, with suitably-curved clamping devices, the rear ends of which are curved or bent down at right angles until their ends rest against the side of the beam, and which devices are made to clamp the teeth tightly against the flanges of the beam, and yet allow them to automatically adjust themselves.

The object of this part of my invention is to provide a clamping device which will hold the harrow-teeth against the sides of the beams in such a manner that the teeth can automatically adjust themselves into the desired positions, and which will yet hold the teeth in place against the sides of the beams.

Figures 1, 2, and 3 are perspectives of portions of the beams, showing the different forms of recesses in their edges. Figs. 4 and 5 are sections taken at right angles to each other, showing the teeth held in slots which are made through the flanges. Figs. 6, 7, and 8 are sections of the beams, showing the teeth held in recesses in the edges of the beams.

A represents the beams out of which the sections of the harrow are formed, each one of which is provided with a flange, B, at its top and bottom edges.

The harrow-teeth C, which will preferably be made of the form shown in Figs. 1, 2, and 3, may either be clamped in suitable slots or recesses, D, made in the flanges B, or may be passed down through the slots E, made in the flanges, as may be preferred. Where the recesses D are used to receive the teeth, they may be made either of the same angle in both flanges, or the recesses in the lower flange may be made the longest, and the flanges may be placed entirely out of line with each other, as may be preferred. In Fig. 1 the flanges are shown as about the same length, and placed out of line with each other just far enough to allow the front end of one of the recesses and the rear end of the other to hold the tooth C in a vertical position when the harrow is drawn from one end, and yet allow the tooth to incline backward at any suitable angle when the harrow is drawn from the opposite end. In Fig. 2 the recesses in the upper flange are shown as slightly shorter than the lower one, while in Fig. 3 the upper recesses are just long enough to receive the tooth and allow a slight movement. In each case the recesses in the lower flange of the beam will be made of a length proportioned to the angle at which the tooth is to be inclined.

Instead of the recesses D, which are made in the flanges, suitable slots, E, may be made through the upper and lower flanges, as shown in Figs. 4 and 5, and in that case the teeth will be passed down through the slots, which I regard as only an equivalent for the recesses D. Whether the recesses D or the slots E are used, the action of the teeth is the same.

In order to clamp the teeth against the sides of the beams in such a manner that the teeth will automatically adjust themselves into the desired position and yet remain in position upon the beams, suitable clamping devices are used. In Figs. 1 and 4 a curved rod or bar, G, which has one of its ends bent so as to bear against the side of the beam, and the other

end formed so as to fit against the outer side of the tooth, is used. The clamping-bolt H is then passed through the beam and the outer end of the bent part G, and a nut is then applied to the bolt H, as shown. By screwing up upon this bolt any desired pressure can be brought to bear upon the tooth, and yet, owing to the shape of the bent bar G, the tooth can turn as upon a pivot without becoming displaced. In Figs. 6 and 7 a curved clamping device is shown, which consists of a sleeve, L, through which the clamping-bolt passes, and which sleeve is provided with a hook or horn, N, for catching over the side of the tooth. When the nut is screwed tightly upon the bolt, the horn N is forced tightly against the outer side of the tooth, so as to clamp it in place against the two flanges of the beam. In Fig. 8 a curved clamping-bolt is shown having the nut applied to the bolt upon the flat side of the beam.

I am aware that heretofore wide channel or U-shaped metal beams similar to what is here shown have been used in harrows; but the holes through which the teeth pass are made vertically through the sides of the channel-iron, and are formed the size of the diameter of the teeth, and in which the teeth are held rigidly in a vertical position, so that they are capable of use in but a single position only. By means of my construction the teeth are arranged in relation to the beams, so that they will be self-adjusting, and can be used in two or more positions, at the will of the operator.

I am also well aware that a cast-metal plate for each tooth has been bolted to the sides of solid beams, and that these plates are provided with stops formed around their edges to regulate the different angles of the teeth, and this I disclaim. By means of my construction here shown the cast plates, which have been heretofore used in connection with the teeth, are entirely dispensed with, and the flanges of the beam itself are made to regulate and control the movement of the teeth.

Having thus described my invention, I claim—

1. In a harrow, the doubly-flanged or channeled beam having slots or recesses in the flanges thereof, adapted to hold the teeth in either a vertical or an inclined position, as described.

2. In a harrow, the combination of the double-flanged beams, the harrow-teeth, and suitable clamping devices for holding the teeth in position against the beam, the flanges of the beams being provided with slots or recesses for regulating the angle at which the harrow-teeth shall stand, substantially as shown.

3. The combination of the double-flanged beams provided with recesses or slots in the flanges to receive the harrow-teeth, and curved clamping devices which hold the teeth against the side of the beam, and yet allow them to change position in relation to the beam, substantially as described.

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

JAMES H. BARLEY.

Witnesses:
HENRY C. LEVENS,
GEO. FERRELL.