(No Model.)

H. T. NOBLE.

HARROW.

No. 283,805. Patented Aug. 28, 1883.

Fig. 1.

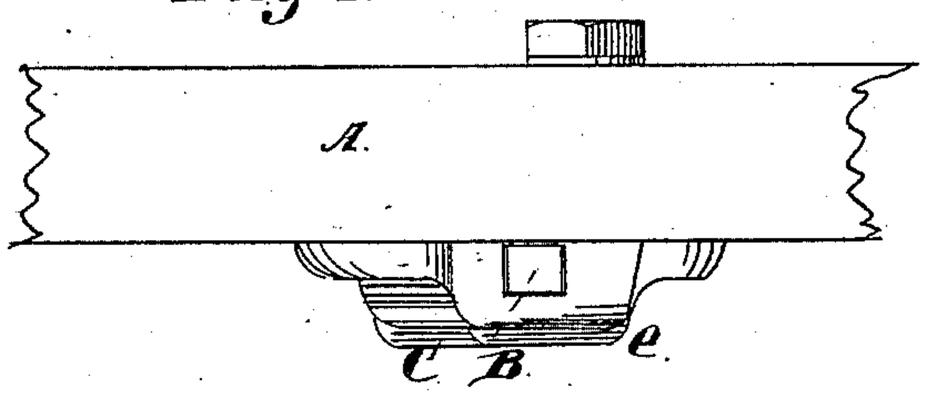


Fig. 2.

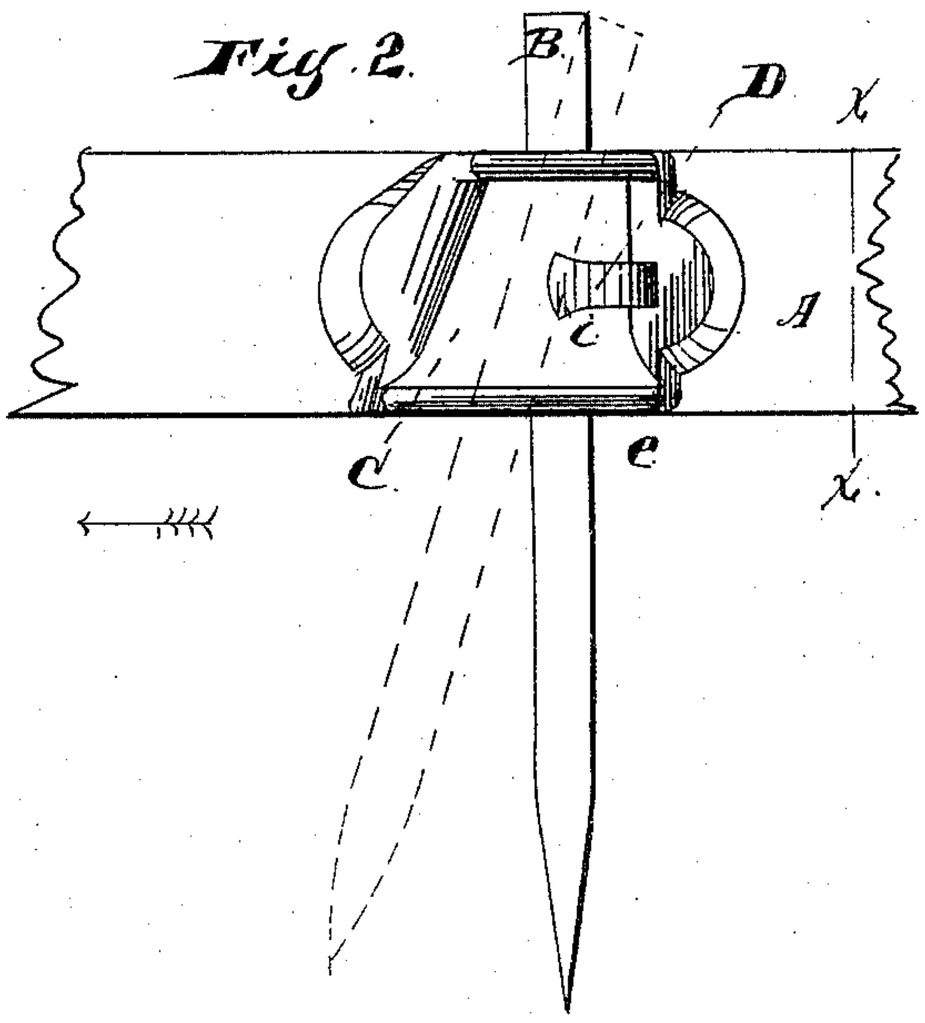


Fig. 3.

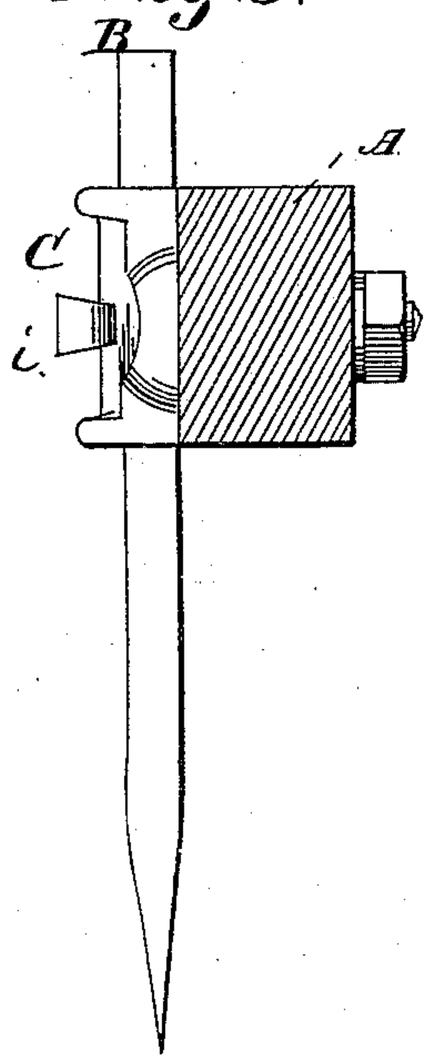


Fig. 7.

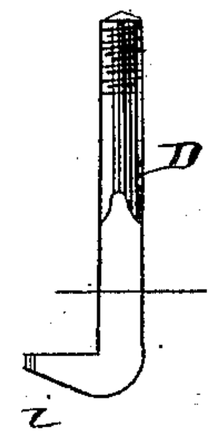


Fig. 4.

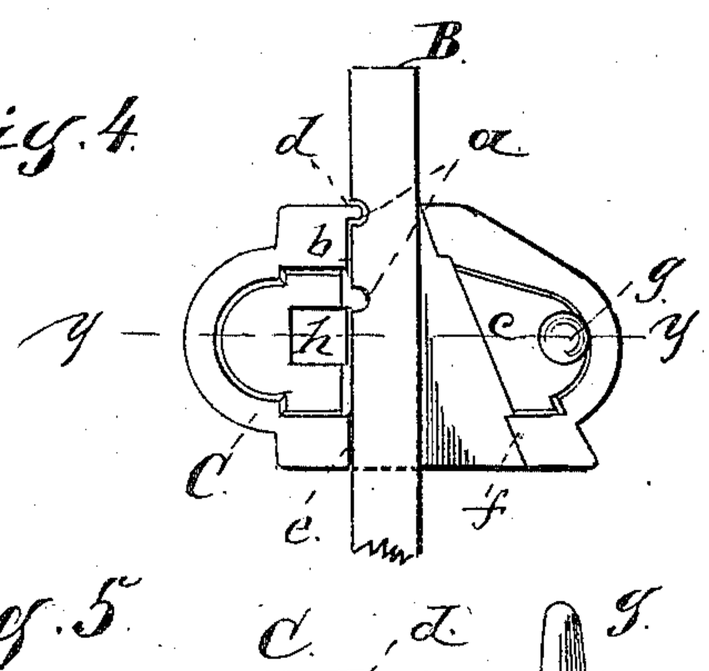


Fig. 6.

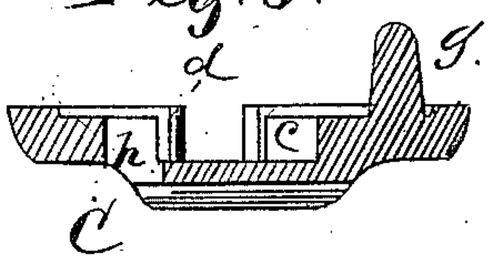
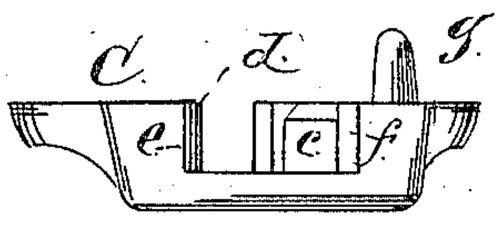


Fig. 5.



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Inventor:
Henry T. Noble
By Webb & Bond Attys.

UNITED STATES PATENT OFFICE.

HENRY T. NOBLE, OF DIXON, ILLINOIS.

HARROW.

SPECIFICATION forming part of Letters Patent No. 283,805, dated August 28, 1883.

Application filed May 5, 1883. (No model.)

To all whom it may concern:

Be it known that I, HENRY T. NOBLE, residing at Dixon, in the county of Lee and State of Illinois, and a citizen of the United States, have invented new and useful Improvements in Harrows, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is a plan; Fig. 2, a side elevation; Fig. 3, a section at line *x* of Fig. 2; Fig. 4, an inside view of the casing C, with a tooth in place. Fig. 5 is a bottom view of the casting C. Fig. 6 is a section at line *y* of Fig. 4, the tooth being omitted. Fig. 7 shows the bolt.

It is desirable for ordinary purposes to have harrow-teeth when in use stand in a vertical position; but harrows are frequently used for the purpose of cultivating corn when small, and then it is desirable to have the teeth inclined backward, because when in that position the plants are not as liable to be injured as when the teeth are vertical.

My invention relates to that class of harrows in which the teeth can be made to stand in a vertical or in an inclined position; and the object of my invention is to provide improved devices for connecting harrow-teeth with the harrow-beams so that when the harrow moves in one direction the teeth will stand in a vertical position, and when it moves in the opposite direction the teeth will stand in an inclined position, which I accomplish as hereinafter fully described.

In the drawings, A represents a harrow-beam.

B is a harrow-tooth, having, as shown, two notches, *a*, upon one side.

C is a casting, the back side of which fits against the side of the harrow-beam. This casting is so formed that upon the back side there is an opening or recess, small at the top and large at the bottom, for the harrow-tooth, one side, *b*, of this opening or recess being perpendicular, the other side, *c*, being inclined, as shown in Fig. 4. One edge of the opening at the top of this casting is provided with a lip, *d*, which projects inward a little and fits into one of the grooves *a* in the tooth. The two ends of the opening or recess in the casting C at the lower side thereof form two stops, against either of which the tooth may rest. Upon the inside of the casting C, at or near one end thereof, is a lug or projection, *g*, which enters a corresponding hole in the beam A.

h is a hole through the casting C, near one end thereof, adapted to receive a bolt, D, which is provided with a hook, *i*, at one end and is screw-threaded at the other. The opening at the top of the casting C is not quite large enough to permit the tooth to pass through the same vertically, but the tooth can be passed into such opening from the back side of the casting, the projection *d* entering one of the grooves *a* in the tooth. The tooth can be applied to the harrow by inserting the same into the opening in the casting, the lip *d* entering one of the grooves *a*, and then placing the casting in position upon the side of the beam, the lug *g* entering the hole provided for it in the beam, and then the casting and tooth can be secured in place by means of the single bolt D.

In use, if the harrow be drawn in the direction indicated by the arrow, Fig. 2, the teeth will stand in a vertical position, as shown in such figure, the then back side of each tooth resting against the shoulder *e;* but if the harrow be drawn in a direction opposite to that indicated in Fig. 2, the teeth will stand in an inclined position, each tooth then resting against the shoulder *f* of the casting C.

It is common to attach a draw-bar to harrows by means of clevises or other suitable means, and harrows having my improvement are to be so made that the draw-bar can be attached at either end of the harrow at pleasure.

Since the opening at the top of the casting is not large enough to permit the tooth to move vertically therein, and since the lip or projection *d* enters one of the notches *a* in the tooth, the same cannot fall out of place or be forced upward, but it will be free to swing forward or back as if supported on a pivot.

I have shown two notches in the tooth, (more than two may be used, or only one,) the only object of having more than one being to provide for the vertical adjustment of the tooth.

I thus provide simple and efficient means for connecting harrow-teeth with their beams in such a manner that when the harrow moves in one direction the teeth will stand vertical and when it moves in the other direction they

will be inclined, the change of position being effected by changing the direction of movement only.

The casting C, which holds the tooth in place and limits its movement in either direction, is so constructed that it can be secured to the beam by a single bolt. The lip *d*, which enters a groove in the tooth, may be on either side of the opening for the tooth. There are other kinds of work besides cultivating small corn, in doing which the slanting teeth are preferred to those which are vertical, as is well known to farmers.

The part C is not necessarily to be made of cast-iron.

What I claim as new, and desire to secure by Letters Patent, is as follows:

The combination, substantially as described, of the casting C, having in its rear side a recess smaller at the top than at the bottom and constructed with the perpendicular side *b*, inclined side *c*, lateral lug *g*, lip *d*, and hole *h*, with the tooth B, having the notch *a* and the bolt D passing through the casting and the beam, and provided with a hook, *i*, which rests against the closed outer side of the casting, substantially as described.

HENRY T. NOBLE.

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