

G. W. HILLS.
Circular Harrows.

No. 144,978.

Patented Nov. 25, 1873.

Fig. 1.

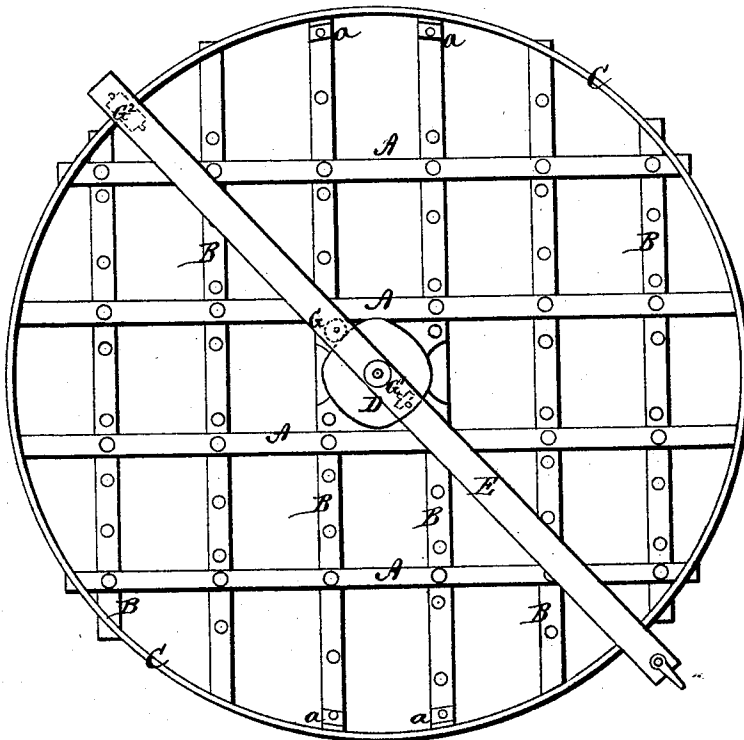
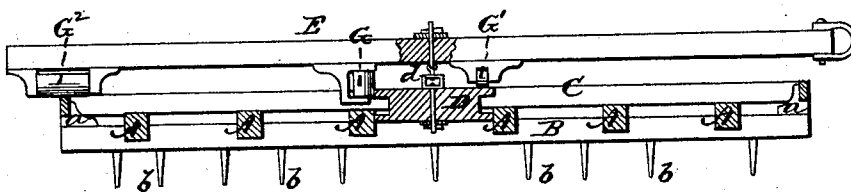


Fig. 2.



WITNESSES.

Henry N. Miller
C. L. Everts.

INVENTOR

By

George W. Hills
Alexander Watson

Attorneys.

UNITED STATES PATENT OFFICE.

GEORGE W. HILLS, OF DODGE CENTRE, MINNESOTA.

IMPROVEMENT IN CIRCULAR HARROWS.

Specification forming part of Letters Patent No. **144,978**, dated November 25, 1873; application filed October 3, 1873.

To all whom it may concern:

Be it known that I, GEORGE W. HILLS, of Dodge Centre, in the county of Dodge and in the State of Minnesota, have invented certain new and useful Improvements in Circular Harrows; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction and arrangement of a circular rotating harrow, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a plan view, and Fig. 2 a longitudinal section, of my improved harrow.

The harrow proper is composed of two series of bars, A A and B B, let into each other, and secured together at right angles, as shown in Fig. 1. These bars are of such length that their outer ends will be on, or nearly on, a circle, and upon the ends of the bars A A is secured a metallic rim, C. This rim is held up where it passes over the lower bars B B by means of bearers *a a*, for the purpose of preventing the rim from springing down and bending. In the center of the harrow is secured a block, D, in the center of which is pivoted the draft-bar E. On the under side of this bar, in suitable bearings, is attached a vertical draft wheel or roller, G, to bear against the edge of the center-block D, and with a horizontal wheel or roller, G¹, to bear on the upper surface of the center-block. The draft-bar E is also, on its under side, at the rear end, provided with a horizontal wheel or roller, G², to bear on the rim C. *b b* are the teeth in the harrow.

This harrow is calculated to revolve when it strikes any obstacle. If it strikes a stump, stone, or sod, it will revolve and clear itself without the trouble of lifting it over; or, if the teeth *b b* get loaded up with mud or stubble, the driver can step on one side of the

harrow, which will cause it to turn freely around and reverse the teeth, and its moving through the ground will clear them. This will save lifting and clearing with the hands.

The center-block D is cam-shaped, having four nearly straight sides with rounded corners. The machine is drawn forward by the draft-wheel G bearing against either side of center-block D, and if the machine comes against an obstacle it will easily turn, so that the rounded corner passes by the draft-wheel G, the swivel-jointed bolt *d* allowing the draft-bar E to give sufficiently for this purpose.

The draft-bar E is attached to the center-block D by means of a swivel coupling-bolt, *d*, so that when the harrow turns it will not cramp and break; and, also, when the harrow turns, so that the wheel G runs around the rounded corners of the block D, the whole bar can move back a little, and turn more easily.

The guide-wheel G¹ is calculated to steady the draft-bar E, to prevent the front end from tipping down. Two of these wheels may be put on, if necessary, one on each side of the bar E, to keep the same from tipping over sidewise.

The traveler-wheel G² is to bear down on the rim and keep the front end of the draft-bar from rising up too high.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a circular revolving harrow, A B, of the irregular cam-shaped center-block D, swivel-bolt *d*, draft-bar E, and draft-wheel G, as and for the purposes herein set forth.

2. The combination of the harrow-frame A B C, cam-shaped block D, beam E, swivel-bolt *d*, and rollers G G¹ G², all constructed substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 15th day of September, 1873.

GEO. W. HILLS.

Witnesses:

C. D. TUTHILL,
MARY AHERN.