

W. W. VANHORN.
Rotary-Harrow.

No. 223,965.

Patented Jan. 27, 1880.

Fig. 1.

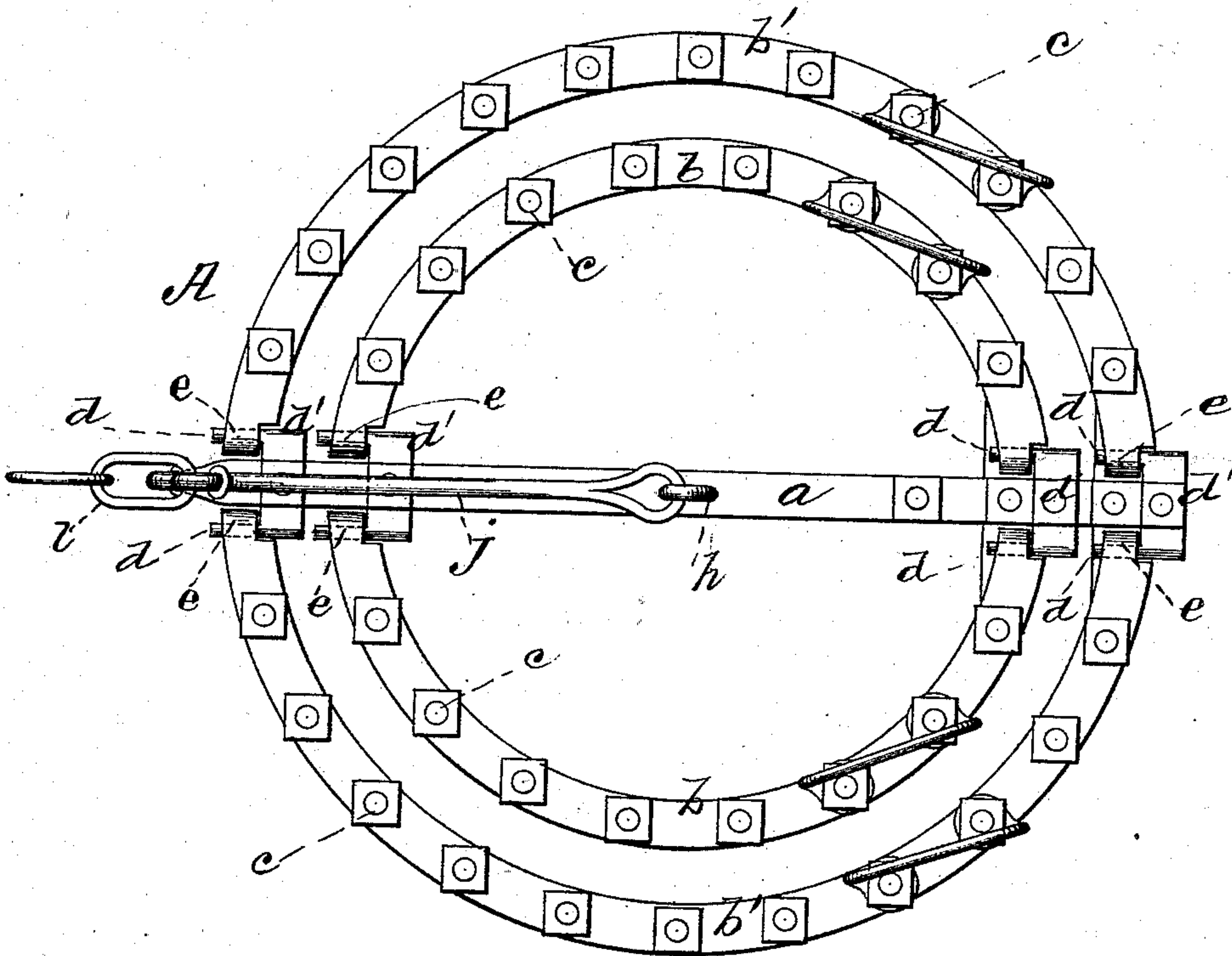
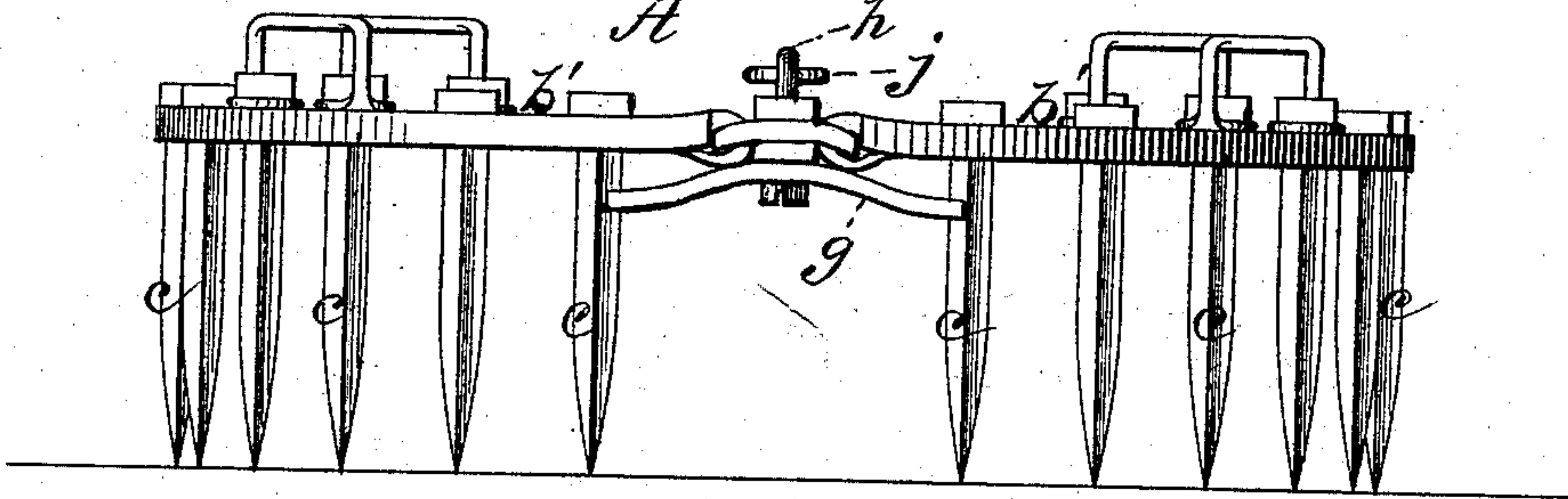


Fig. 2.



WITNESSES

John A. Lewis.
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WILLIAM W. VANHORN, OF ORANGEVILLE MILLS, MICHIGAN.

ROTARY HARROW.

SPECIFICATION forming part of Letters Patent No. 223,965, dated January 27, 1880.

Application filed July 19, 1879.

To all whom it may concern:

Be it known that I, WILLIAM W. VANHORN, of Orangeville Mills, in the county of Barry and State of Michigan, have invented a new and valuable Improvement in Rotary Harrows; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a top view of my improved harrow, and Fig. 2 is a front view thereof.

This invention has relation to improvements in harrows; and it consists in a harrow constructed substantially as hereinafter shown and described.

In the annexed drawings, the letter A designates my improved harrow, consisting, essentially, of a draft-bar, *a*, and of two or more semicircular beams, *b b'*, carrying the harrow-teeth *c*. These are usually four-sided and taper to a point, and are provided each with a screw-threaded tang, forming with its body a square shoulder. This tang is passed from below through an aperture in the beams *b*, and is secured thereto by applying a nut upon the projecting end thereof.

The beams *b b'* are usually made of metal; but, if I so elect, may be made of wood and iron, or of wood alone. They are each provided with an eye, *e*, at each end, that engages a hinge-pin, *d*, on the draft-bar, so that they vibrate freely relative thereto. These pins project from a metallic plate, *d'*, rigidly bolted to the draft-bar, as shown in Fig. 1, and they are each provided near their ends with a feather.

The eyes *e* of the beams *b b'* are provided with a corresponding groove, so that the sections may be readily passed onto the pins *d*, and, the feathers being vertical, locked into position when they are thrown down into a horizontal position, the said pins inside of the feathers having sufficient length to receive the

eyes of the sections; or, in lieu of the feathers, the ends of the hinge-pins may have a vertical slot or orifice to receive a key or linch-pin.

It will be observed that the semi-annular sections *b* on each side of the draft-bar form a complete circle, as do also the sections *b'*, and that the said circles are concentric.

It will also be observed that each section is independently hinged to the draft-bar, and adjusts itself independently of the others to inequalities of the soil, and that the whole may be folded up in compact form when not in use.

Attached to the draft-bar at one or both ends are the transverse metallic stop-plates *g*, having in their ends an angular notch, which engages the correspondingly angular edge of the teeth of sections *b b'*. These plates are secured to the under side of the draft-bar, and, while they offer no impediment to the vibration upward of the harrow-sections, effectually maintain them in the same horizontal plane with each other against downward displacement.

h indicates a strong metallic eye secured firmly to the draft-bar, and having permanently secured thereto a metallic draw-rod, *j*, extending out beyond the outer end of the draft-bar, and connected therewith by means of a chain-hook or other equivalent device. The rod *j* is provided at its end with a short chain, *l*, to which is attached the double or single tree by means of which the team is hooked to the harrow.

The forward motion of the harrow, when in use, is in the direction of the length of the draft-bar, and in harrowing between hills of corn the sections of the apparatus accommodate themselves to the inclination of the rows independently of each other, effectually mellowing all parts of the soil between the hills.

In harrowing wheat-lands the teeth not only break up the clods and mellow the soil, but collect any weeds, grass, or other like growths.

By stopping the harrow and raising each individual section successively, the accumula-

tions of weeds may be cleared from the harrow, deposited in a heap, and carried away or burned, as may be desired.

What I claim as new, and desire to secure
5 by Letters Patent, is—

The combination, with the draft-bar and the semi-annular sections *b b'*, forming complete rings, provided with teeth *c* and hinged to said draft-bar, of the transverse stop-plates
10 secured to the under side of the draft-bar and

engaging with their notched ends the contiguous teeth of sections *b b'*, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence 15 of two witnesses.

WILLIAM W. VANHORN.

Witnesses:

JOHN REPLOGLE,
GEORGE REPLOGLE.