

(No Model.)

D. W. BROWN.
ROTARY HARROW.

No. 294,112.

Patented Feb. 26, 1884.

Fig. 1.

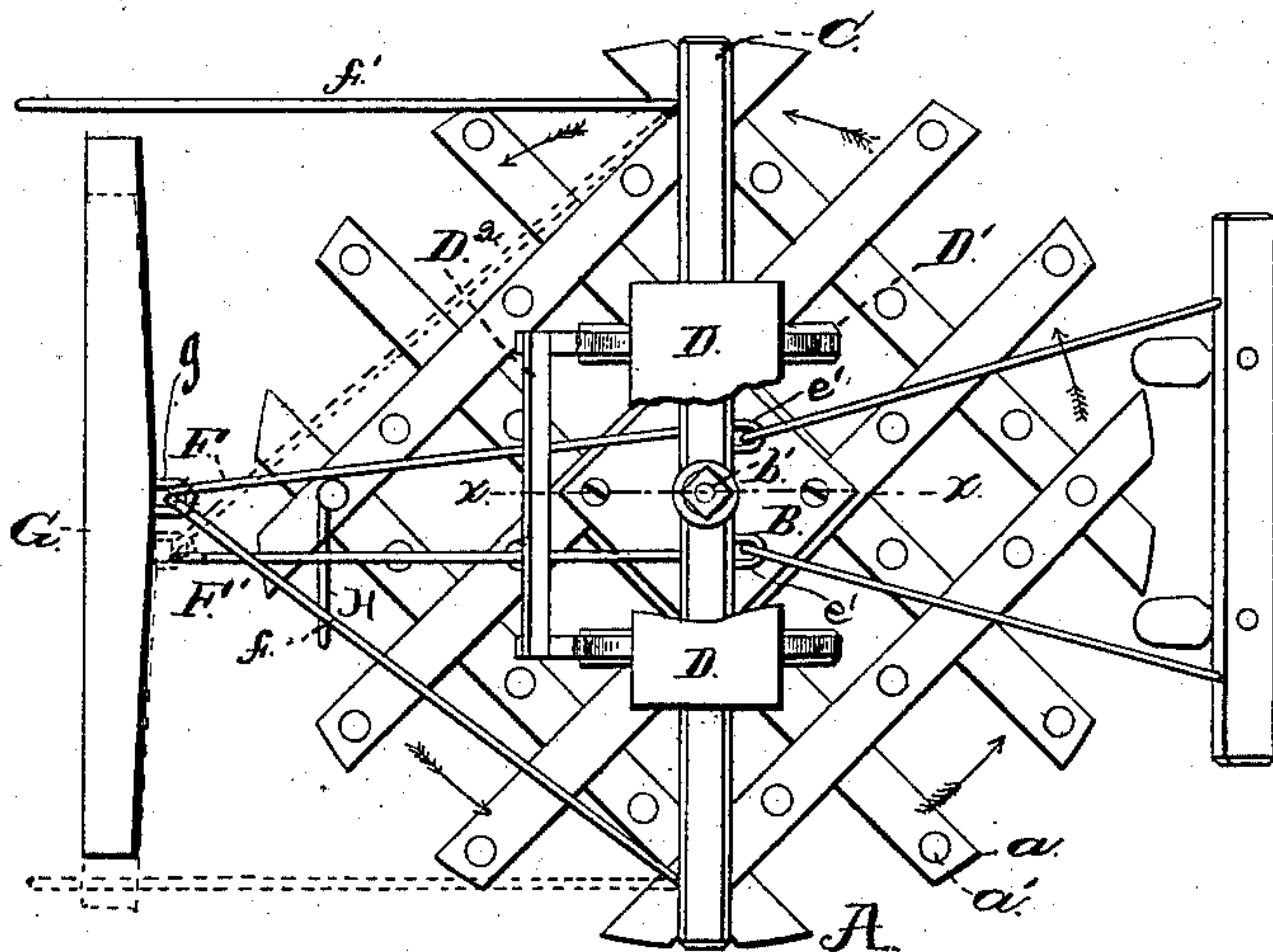


Fig. 2.

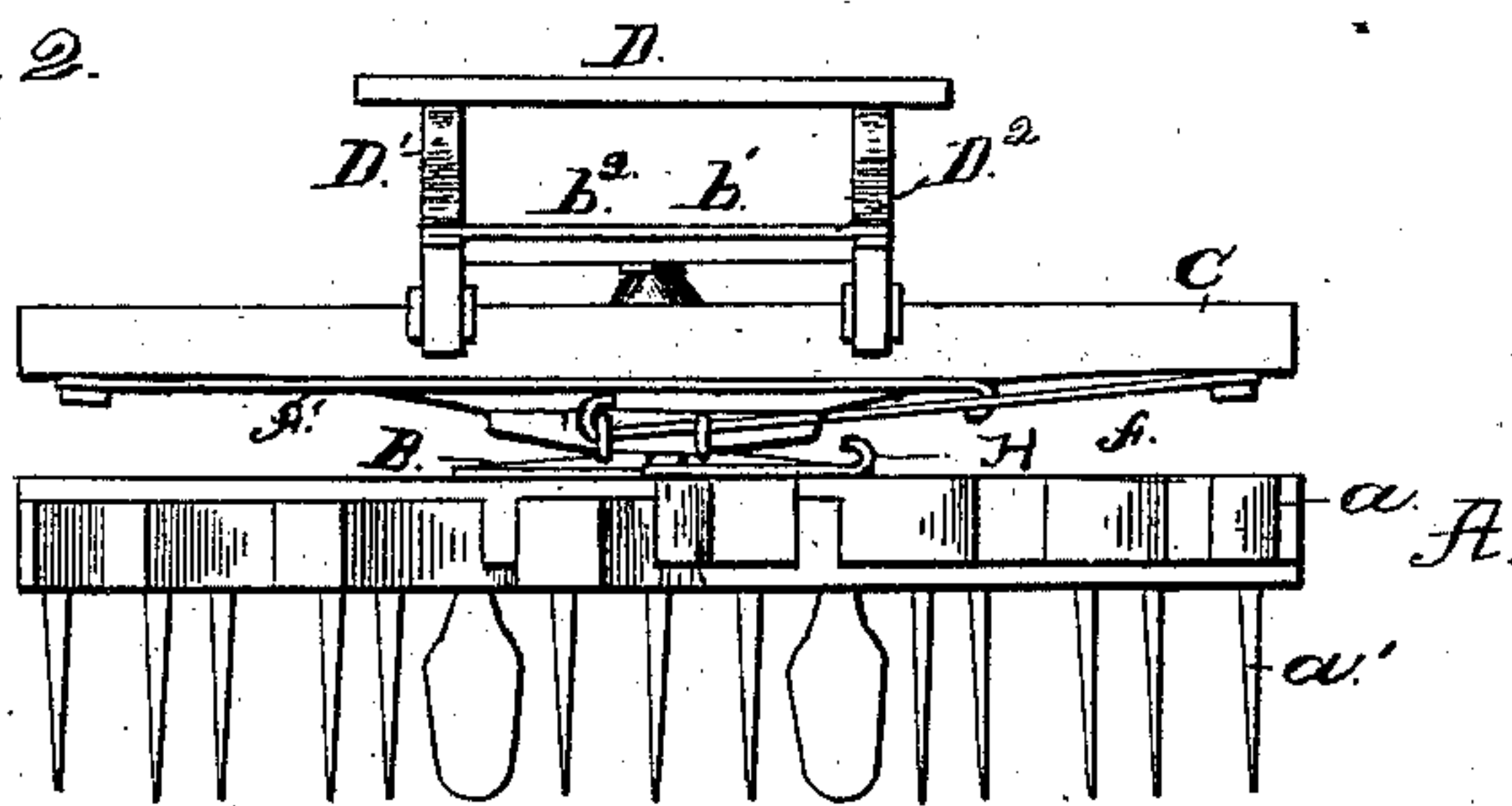


Fig. 3.

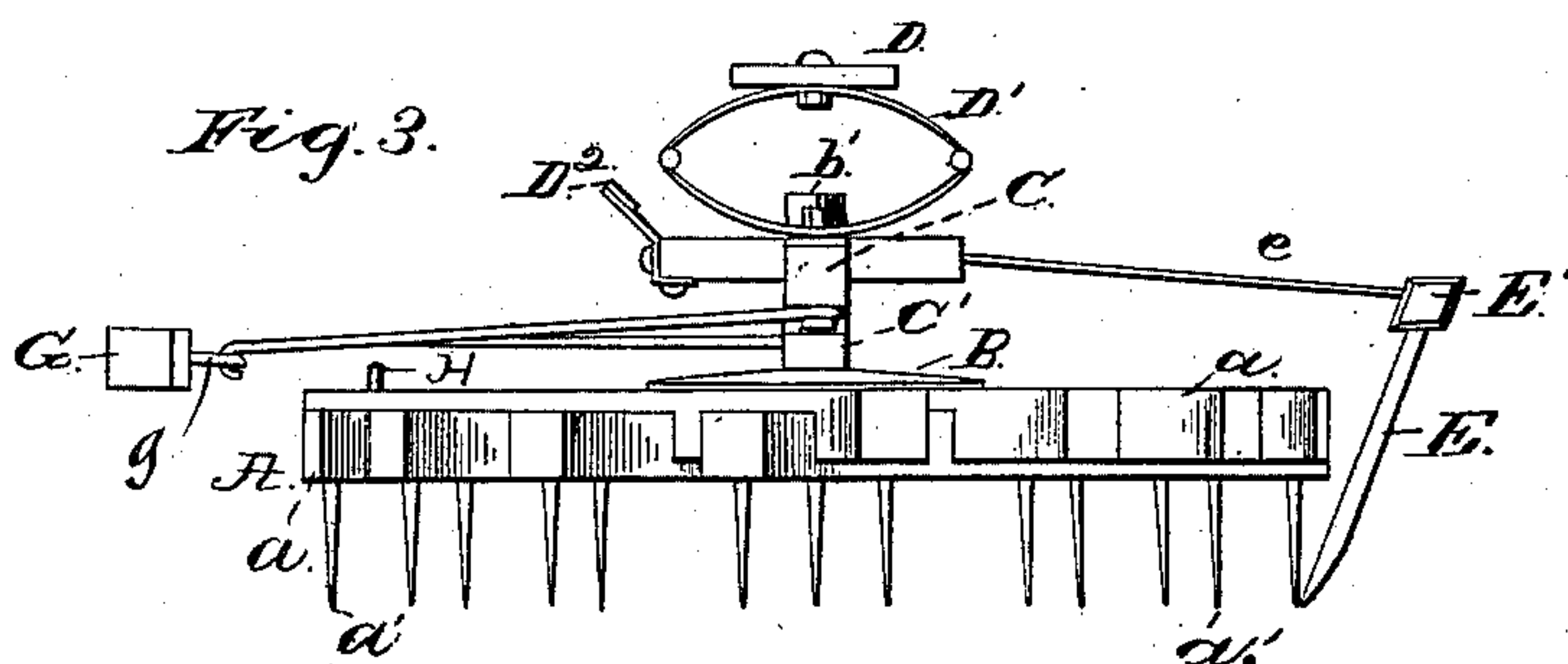
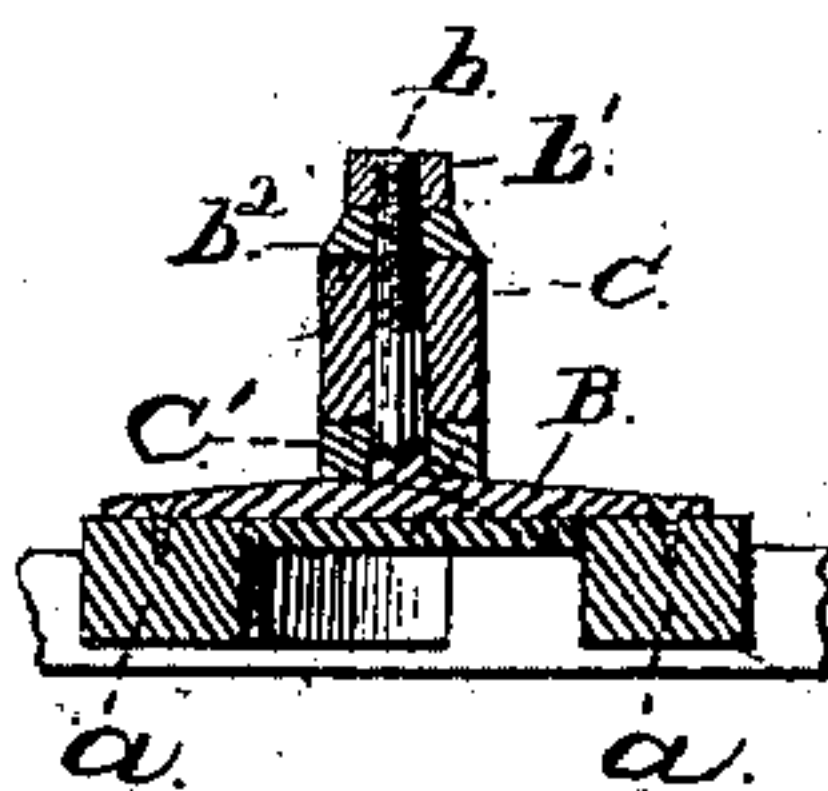


Fig. 4.



Witnesses
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By
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UNITED STATES PATENT OFFICE.

DAVID W. BROWN, OF BUCKHANNON, WEST VIRGINIA.

ROTARY HARROW.

SPECIFICATION forming part of Letters Patent No. 294,112, dated February 26, 1884.

Application filed November 9, 1883. (No model.)

To all whom it may concern:

Be it known that I, DAVID W. BROWN, a citizen of the United States, residing at Buckhannon, in the county of Upshur and State of West Virginia, have invented certain new and useful Improvements in Harrows, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to revolving harrows; and it consists in the construction, combination, and arrangement of the several parts, as will be hereinafter described and claimed.

In the drawings, Figure 1 is a plan view, Fig. 2 a front elevation, and Fig. 3 a side elevation, of a machine constructed according to my invention; and Fig. 4 is a detached sectional view on line *x x*, Fig. 1.

The harrow A is composed of the beams *a*, crossing each other, as shown, and provided with suitable teeth, *a'*. The harrow is preferably made in the approximately circular form shown, in order to render the revolution thereof smoother and easier in the operation of the machine presently described.

The bearing base-plate B is secured by screws or otherwise on the harrow, at the center of the latter. It is provided with the upwardly-projected shaft or pintle *b*, which is threaded on its upper end to receive the retaining-nut hereinafter described.

The draft-beam C is provided midway its ends, on its under side, with the metallic bolster C', which is beveled on its under side from its center to its opposite ends. This bevel or inclination is made for the purpose of reducing the bearing-surface of the said bolster on the bearing-plate B before described. A vertical pivot-opening is formed centrally through the bolster and the draft-beam, which are placed down on the pintle, as most clearly shown in Fig. 4. The parts are secured by nut *b'*, which bears preferably against the interposed washer *b''*.

The driver's seat D is supported on springs D', mounted on the draft-beam, and a suitable foot-rest, D², is provided, as shown.

Furrow-shovels E are supported on the underside of bar E', which is connected by rods *e* with the draft-beam. The rods *e* are of such length as to support the bar E' beyond the edge

of the harrow, where it operates in rear of the draft-beam. The said rods *e*, being connected with eyes *e'* in the manner shown; enables the vertical movement of the bar E' necessary for adaptation to inequality in the ground surface; yet it (the connection with the draft-beam) is such as to prevent any lateral displacement of the furrow-bar and hold same at all times in rear of the draft-beam.

The hitching-rods F F' have their rear ends made fast to the draft-beam close to and on opposite sides of the center thereof, as most clearly shown in Fig. 1. These rods are made of equal length, and extend forward from the draft-beam to a point beyond the harrow, and are bent at their forward ends to form hooks to facilitate connection with the double-tree G. Near the outer ends of the draft-beam I secure the guy-rods *f f'*. The connection of the guys with the draft-beam is pivotal, so the said guys may be swung across to bring their forward ends adjacent the forward end of the corresponding hitching-rods, and are also bent to form hooks on their forward ends. The rods F *f* are arranged on opposite sides of the beam's pivotal center; so, likewise, are the rods F' *f'*, the said rods F *f* and F' *f'* being used in conjunction in the manner presently described.

The double-tree G has an eye, *g*, to which are connected the hitching and guy rods.

In practice, when it is desired to have the harrow revolve in one direction—say that indicated by arrow in Fig. 1—the hitch-rod F on the side of the pivot corresponding to said direction and its guy-rod *f* are coupled to the eye of the double-tree, and the line of draft on the harrow is such as to cause its revolution when dragged over the ground in the direction indicated. When it is desired for the harrow to revolve in the other direction, the other hitch and guy rod are connected with the double-tree, as will be readily understood. When no revolution of the harrow is wished for, the two hitch-rods are passed through a hook or staple, H, secured on the outer edge of the harrow, and connected with the double-tree, whereby a straight draft is had. This overcomes the positive revolution of the harrow caused by the devices above described, and any involuntary revolution is prevented by the connection with

the harrow through the hook or staple, as set forth.

It will be seen that where so desired a single central hitch-rod could be employed and the different lines of draft secured by the guy-rods. I prefer, however, the use of the two hitch-rods, as thereby a better action is secured. This revolution of the harrow in one or the other direction, at will, is desirable, as is well understood. By it the harrow will follow the direction of draft of a team on a hillside, and will not work or slide down the hill. The draft of the harrow is also rendered much lighter by the revolution thereof. The furrowers or shovels are so arranged with reference to the harrow that the lap of the latter will regulate the distance between rows. Any number of these shovels may be used, and, where so desired, may be adjustable along their supporting-bar. I prefer the number and arrangement of shovels shown.

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

1. In a rotary harrow, the combination, sub-

stantially as described and shown, of the harrow, the draft-beam pivoted centrally thereon, the draft-bars secured to the said beam, and one on each side of and near the center thereof, and the guy-rods secured to the draft-beam near the opposite outer ends thereof, as and for the purposes specified.

2. The improved rotary harrow herein described, composed of the harrow proper, the draft-beam pivoted centrally on and supported thereby, the draft-bars $F F'$, secured to forward side of the draft-beam and near to and on opposite sides of the pivot thereof, and the guy-rods, secured one near each end of the draft-beam, the bar E' provided with shovels E , and the rods $e e$, connecting said bar E' and the beam C , all substantially as and for the purposes specified.

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

DAVID W. BROWN.

Witnesses:

N. M. FERNELL,

JACKMAN COOPER.

It is hereby certified that in Letters Patent No. 294,112, granted February, 26, 1884, upon the application of David W. Brown, of Buckhannon, West Virginia, for an improvement in "Rotary Harrows," an error appears in the printed specification requiring the following correction, viz: The word "hammer," in line 13, page 2, should read *harrow*; and that the Letters Patent should be read with this correction therein to make it conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 4th day of March, A. D. 1884.

[SEAL.]

M. L. JOSLYN,
Acting Secretary of the Interior.

Countersigned:

BENJ. BUTTERWORTH,
Commissioner of Patents.