

(No Model.)

R. RAKESTRAW.
ROTARY HARROW.

No. 403,778.

Patented May 21 1889.

Fig. 1.

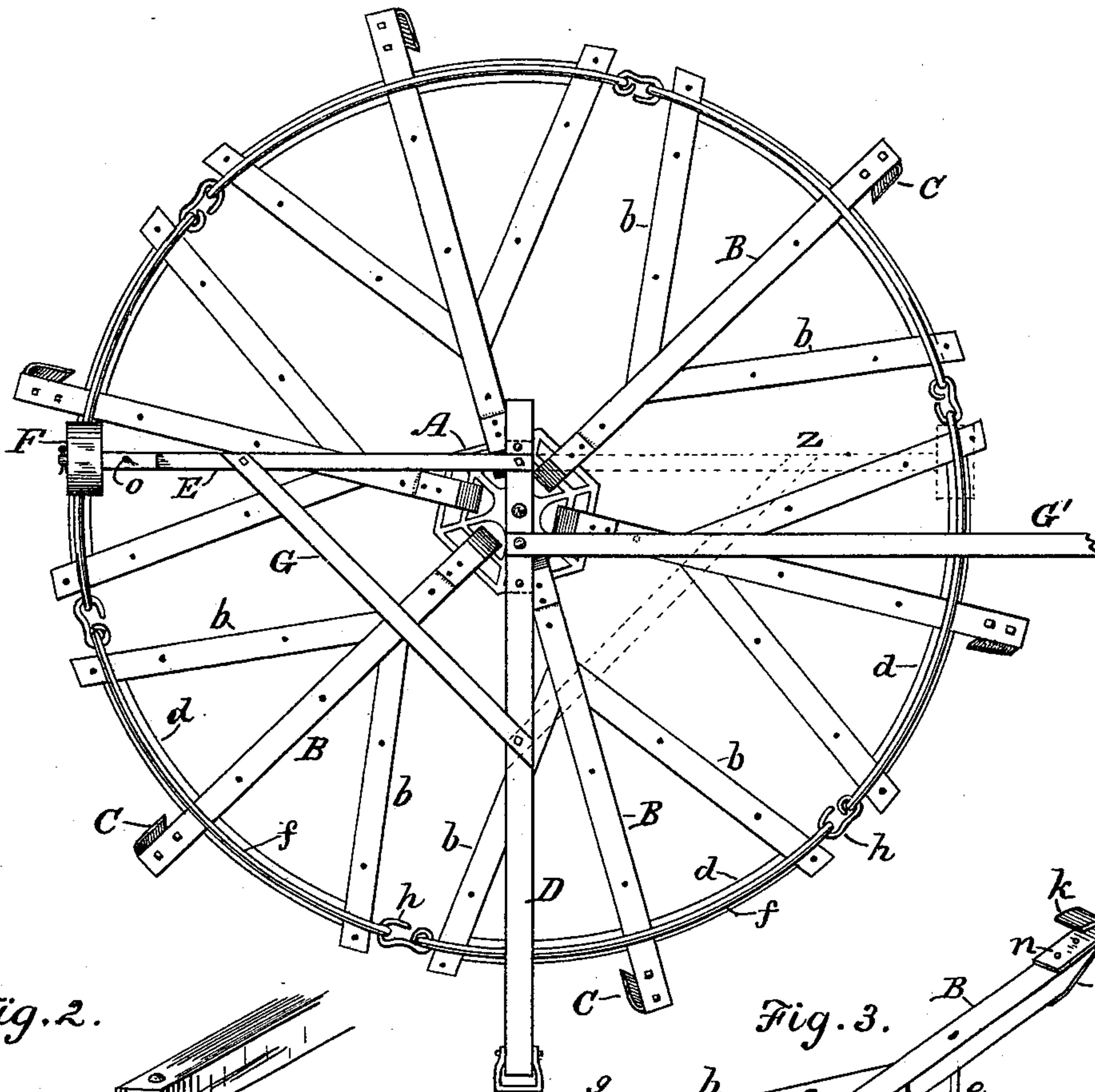


Fig. 2.

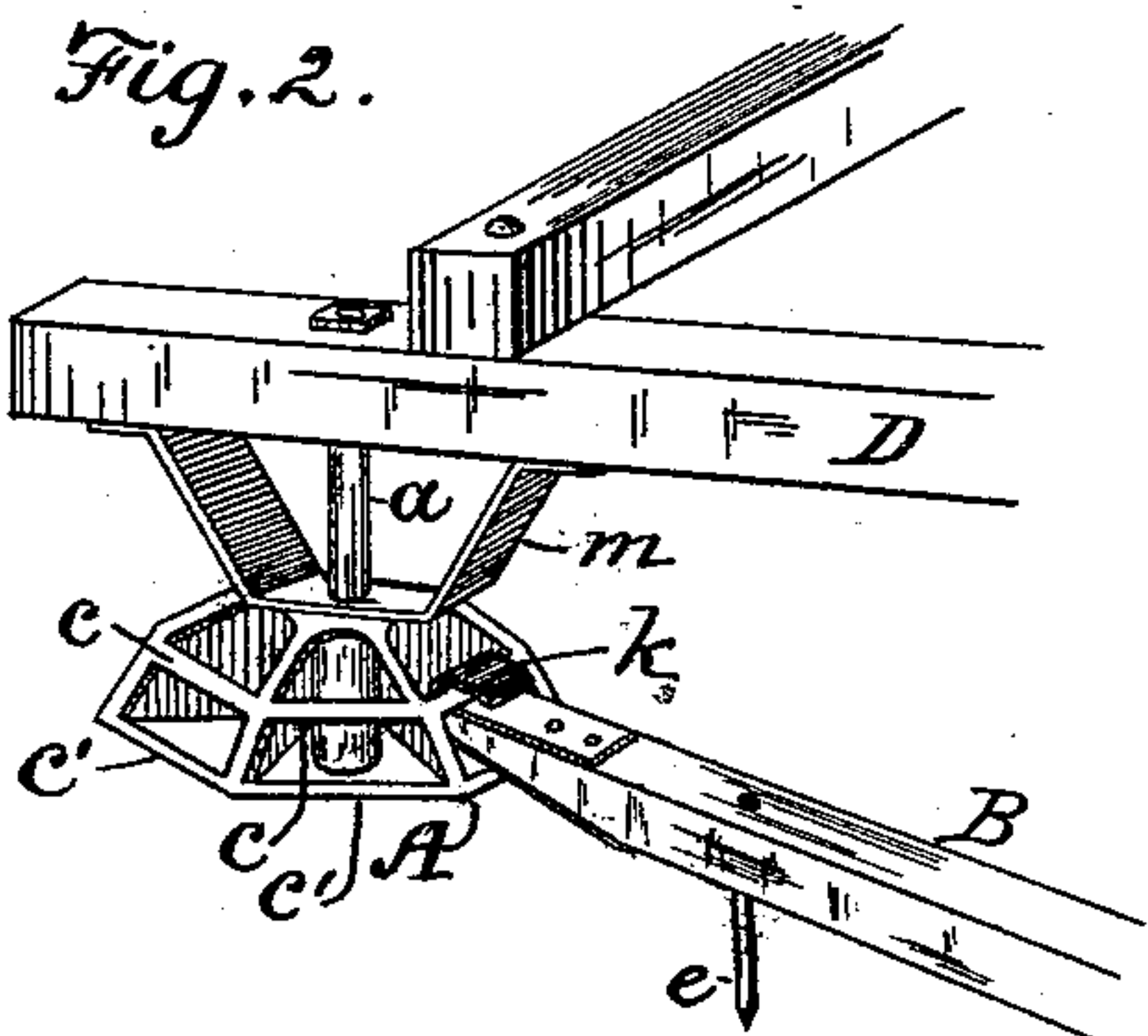


Fig. 3.

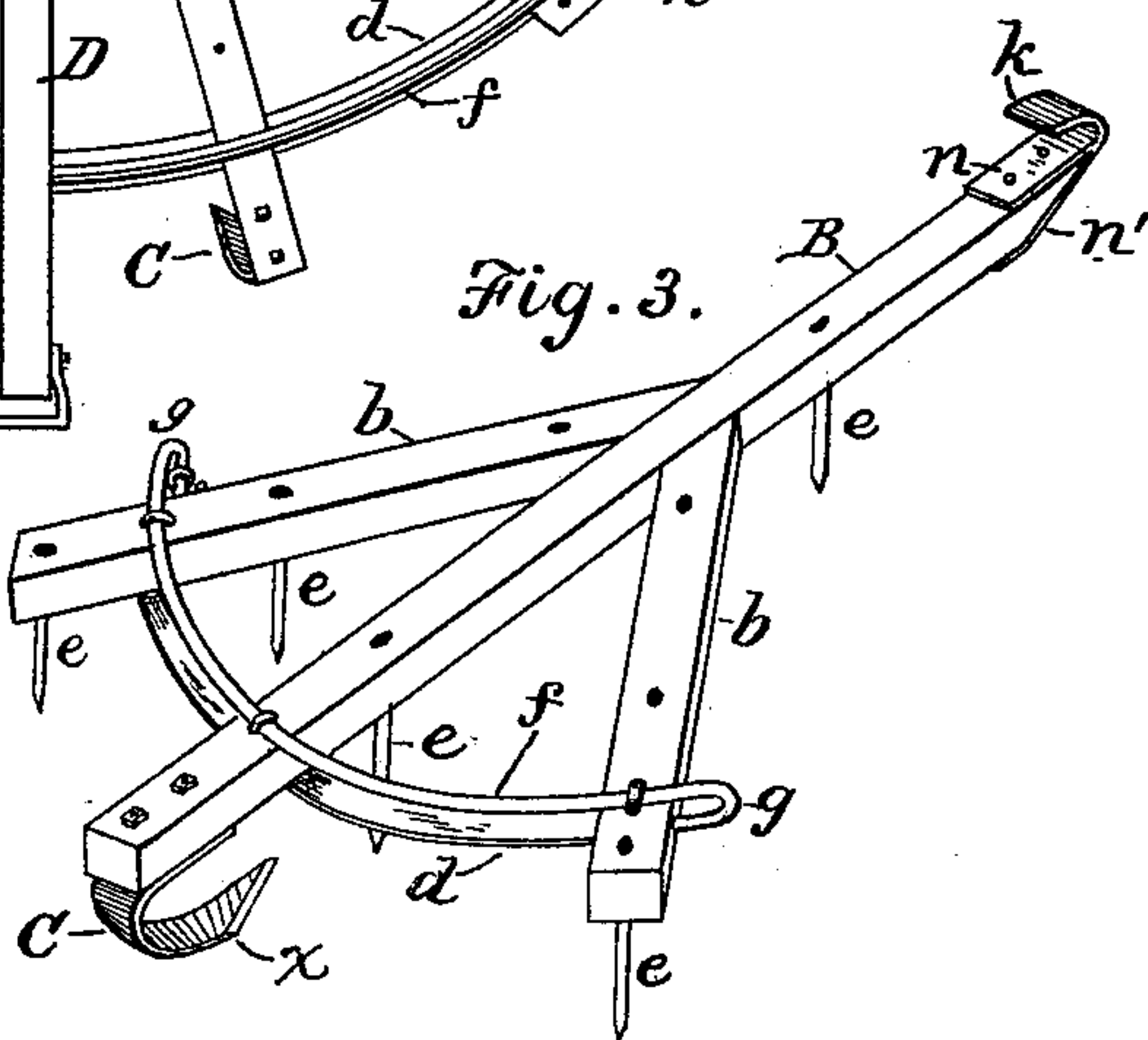
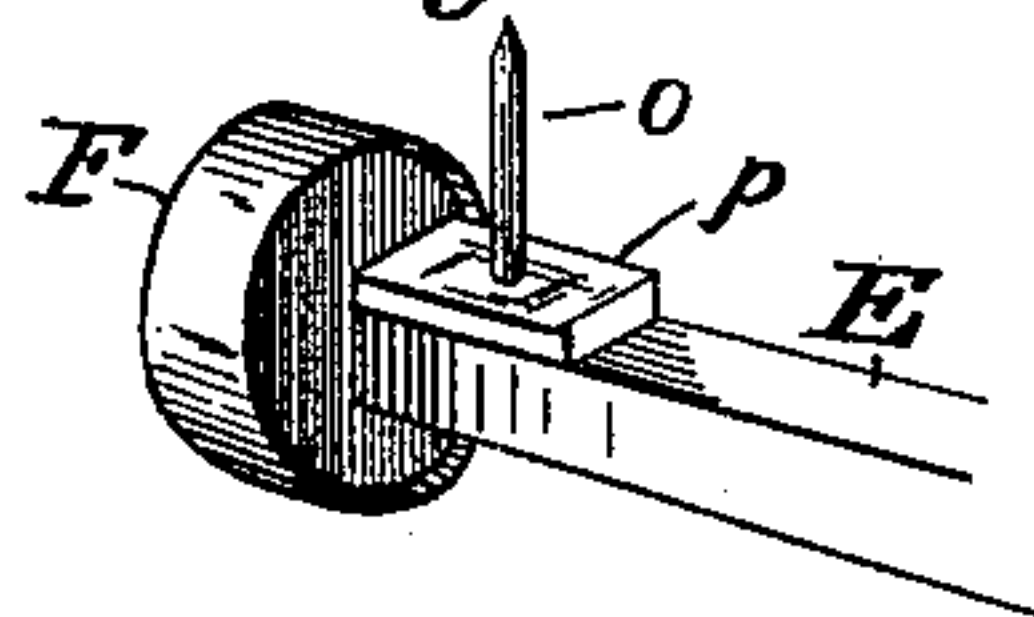


Fig. 4.



Witnesses :

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ROTARY HARROW.

SPECIFICATION forming part of Letters Patent No. 403,778, dated May 21, 1889.

Application filed June 16, 1888. Serial No. 277,305. (No model.)

To all whom it may concern:

Be it known that I, ROLAND RAKESTRAW, a citizen of the United States, residing at Wyoming, in the county of Stark and State of Illinois, have invented certain new and useful Improvements in Rotary 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 appertains to make and use the same.

This invention relates to rotary harrows; and it consists in certain improvements in the construction of harrows of that class, as hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a plan view of a rotary harrow provided with my improvements. Fig. 2 is a perspective view of the center piece and other details. Fig. 3 represents a detached section of the harrow. Fig. 4 illustrates a weighted beam and roller connected with the harrow.

My improved harrow is made in sections, which are connected with a center piece of peculiar construction, from which the sections extend radially, their outer parts being firmly braced and connected, as hereinafter set forth.

A designates the center piece, which is preferably hexagonal in form, as shown, having a central tubular passage for the main bolt *a*, by which it is connected with the draft-beam. The said center piece is formed with radial division-walls to form recesses for the inward ends of the main beams of the sections and the cross bars or rundles *c* and *c'*, the lower rundles, *c'*, being somewhat farther outward from the center than the upper rundles, *c*, so that the sections may be readily attached and secured, as hereinafter stated.

Each section of the harrow consists of a main beam, *B*, and two branch beams, *b*, which extend divergently from the central beam, one being on each side of *B*, as shown. The beams of each section are provided with teeth *e*, which are inclined somewhat outward from the center of the harrow, so that any trash or rubbish caught by the teeth readily slips from them as the harrow is rotated. The beams *B* and *b* of each section are firmly braced by the curved iron braces *d*, which are fastened to the lower sides of the beams near their outer ends. The curved rods *f* are secured by sta-

ples to the sections, the ends of the rods being turned into the beams *b* to form loops *g* for the attachment of hooks *h*, which are severally attached, one to a loop of each rod *f*, and hooked to a loop, *g*, of a rod on the next section, all the sections being thus loosely connected.

The inward end of each main beam *B* is provided with a hook, *k*, fastened to the beam for connecting it with the center piece *A*. The end of said beam is beveled, as shown, and the hook is formed with two flaps or lugs, *n* and *n'*, the lug *n* lapping on the upper surface of the beam and the lug *n'* closing against the under surface, thus forming a shoe for the beam's end. In attaching a section the hook *k* is passed into a recess of the center piece between rundles *n* and *n'*, and hooked on the upper rundle *n*, so that the inner end of the beam will rest on the lower rundle, and will be loosely but securely connected.

The outer end of each beam *b* is provided with a runner, *C*, which is formed of a flat piece of iron bolted to the beam, and bent under and inward, as shown. The free end of the runner is pointed and bent somewhat upward, and is also slightly twisted, so that it bears on the ground mostly at one edge, the bearing-point of the runner being indicated by *x* in Fig. 3. These runners move over the ground somewhat like the runners of a sled, and serve to sustain the harrow in position and prevent it being tipped when passing over ruts and furrows.

D indicates the draft-beam, which is connected with the center piece by the main bolt *a*. The said draft-beam is provided with a bearing-piece consisting of a stirrup or bent iron strap, *m*, which is made fast to the lower side of the beam, and rests on the center piece, the bolt *a* being passed through an aperture in the stirrup. (See Fig. 2.) The bearing thus formed for the draft-beam by the stirrup *m* raises the beam above the plane of the harrow-sections sufficiently to avoid all impinging between the beam and the sections during operation, and the beam at its rear end is brought nearer to a level with the draft-power. The center piece turns freely under the stirrup *m*, and the harrow is more readily rotated in operation.

E indicates a beam, which is bolted rigidly at one end to the draft-beam near the bolt *a*, and extends outward, the outer end having a wheel or heavy roller, F, placed thereon, which
 5 turns and rests on curved rod *f*. The beam E is further secured by a diagonal brace, G, the ends of which are fastened to said beam and to the draft-beam, respectively. Near the
 10 wheel F is a fixed pin, *o*, which extends upward from said beam and is intended to retain one or more weights, *p*, which are placed on the beam for regulating the rotation of the harrow, as may be desired. The weights are
 15 in the form of perforated blocks, and are placed on the beam with the pin *o* extending through them, more or less weight being thus added to the weight of the wheel F, as may be required. The beam E and brace may be
 20 so as to place the wheel at some other point, as indicated in dotted lines at Z, Fig. 1, thus making the harrow rotate in the opposite direction, as may be desired.

Two harrows of the construction described
 25 may be connected by means of a beam, G', which may be bolted at each end to the draft-beam of one of the harrows at a point near the main bolt *a*, and somewhat forward from it, as shown. By this means two harrows
 30 working on a larger ground-surface may be used at the same time and retained in proper relative positions.

I claim—

1. In a rotary harrow, the combination, with

a draft-beam, of a center piece provided with 35
 a central bolt-aperture, a series of division-walls and upper and lower rundles or cross-bars, and a series of harrow-sections provided with hooks to connect with said center piece, substantially as and for the purpose described. 40

2. The combination, with the center piece of a rotary harrow, of a series of harrow-sections, each of which is provided with a main beam, B, which is provided with a hook at its inward end, a beam, *b*, extending from each 45
 side of beam B, curved braces *d*, and rods *f*, provided with loops at their extremities, and hooks for connecting the said sections, substantially as and for the purposes described.

3. In a rotary harrow, a series of beams 50
 provided with teeth, said beams being provided with runners fastened to their lower sides and bent inward toward the center of the harrow, substantially as set forth and described. 55

4. The center piece provided with division-walls and bars *c c'*, in combination with the draft-beam provided with the stirrup *m*, which rests on the center piece, and a central securing-bolt, substantially as set forth and described. 60

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

ROLAND RAKESTRAW.

Witnesses:

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 A. KEITHLEY.