

E. & E. H. McNIEL.
Rotary-Harrow.

No. 204,354.

Patented May 28, 1878.

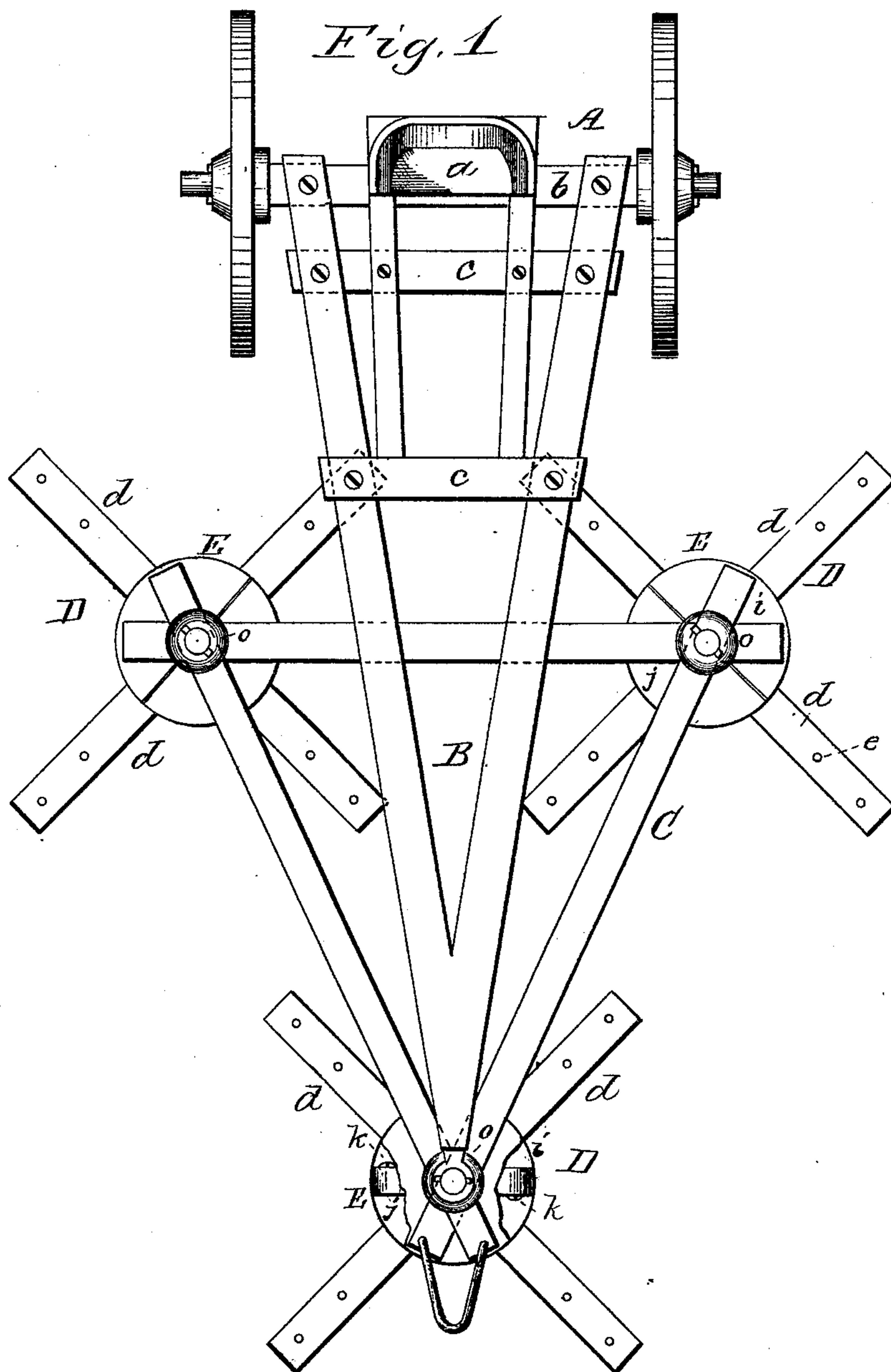
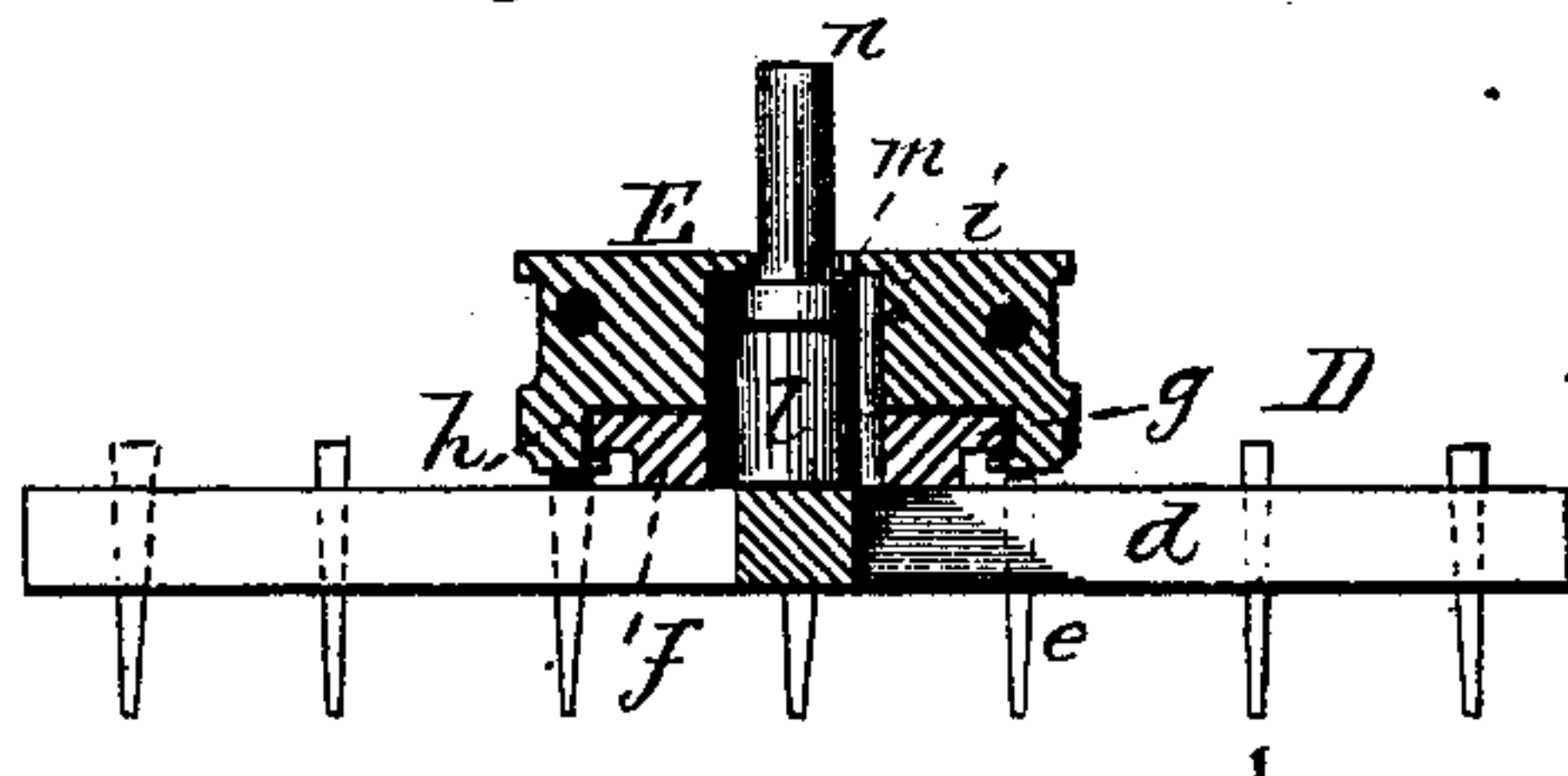


Fig. 2.



WITNESSES

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UNITED STATES PATENT OFFICE.

EUGENE McNIEL AND ELIAS H. McNIEL, OF GROTON, NEW YORK.

IMPROVEMENT IN ROTARY HARROWS.

Specification forming part of Letters Patent No. **204,354**, dated May 28, 1878; application filed April 2, 1878.

To all whom it may concern:

Be it known that we, EUGENE McNIEL and ELIAS HARVEY McNIEL, of Groton, in the county of Tompkins and State of New York, have invented a new and valuable Improvement in Revolving Harrows; and we 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-plan view of our invention, and Fig. 2 is a vertical section of the coupling-head, showing the manner of connecting it to the drag.

This invention has relation to rotary harrows; and the object or purpose thereof is to construct such an agricultural machine as will do its work perfectly and at the same time be easily operated, the arrangement and combination of the several parts being hereinafter described, and subsequently pointed out in the claims.

In the accompanying drawings, A represents the carriage or sulky, provided with a suitable seat, *a*. To the axle *b* of the sulky A is secured, by bolts or other suitable means, a bifurcated tongue, B, braced by cross-pieces *c* upon the upper and under sides of said tongue.

Pivoted to the extreme front end of the tongue B is an angular frame, C. This frame, it will be noticed, is pivoted to the tongue at the apex or point at which two of the angles meet.

To each point or end of the angular frame C is pivoted a drag, D, consisting of cross-beams *d*, to which are secured, in any convenient manner, teeth *e*, either square, round, or of other suitable form. Upon the upper side of the cross-beams *d* is a bed-piece, *f*, of circular form, having a circumferential flange, *g*, over and upon which fits the groove *h*, upon the under side of an annular head, E, said head being formed in sections *i j*, and secured together by bolts or screws *k*, or other

suitable means found most convenient, which will allow the sections to be separated and taken apart when required.

Upon the beams *d*, at the point where they cross each other, is a pivotal rest, *l*, passing through and above the bed-piece *f*, and upon which rests the head *m* of a pivotal bolt, *n*, which passes up through the head E and the frame C, and is secured thereto by a key or other suitable fastening, a washer, *o*, being interposed between the frame and the key to prevent the frame from becoming worn.

It will be seen that by the above means employed to secure the drags to the frame, they are left free to move in either direction, and, having a slightly-yielding motion, as well as a longitudinal rotary motion, the drag will not fasten to or carry with it any stone or other obstacle; and access may be readily had to the pivotal bolt and the other parts connected with the drag by simply detaching the two sections of the head E when it is found necessary to lubricate the parts or repair them.

It will be further noticed that the manner of connecting the frame C to the tongue of the sulky admits of the frame having a side-wise or lateral motion, and also allows the sulky to move in either direction in turning without interfering with the frame and drags, thereby making in every respect an easy and perfectly-working harrow, as well as being durable in its construction, and not readily gotten out of order.

The sulky may be of any suitable form and construction; also, the tongue B may be modified in form, as circumstances may require.

The angular frame C may also be changed, both in form and construction, and connected to the end of the tongue in various ways or in any manner that will allow the frame to have a sidewise motion together with the tongue.

Having now fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The sulky A and tongue B, in combination with the frame C, carrying horizontally-rotating drags D, said drags being connected

to the frame by bed-piece *g*, sectional head E, and pivotal bolt *n*, substantially as and for the purpose set forth.

2. The drag D, having bed-piece *f*, with shoulder *g*, in combination with head E, formed in sections *i j*, and pivotal bolt *n*, substantially as and for the purpose specified.

In testimony that we claim the above we have

hereunto subscribed our names in the presence of two witnesses.

EUGENE McNIEL.

ELIAS HARVEY McNIEL.

Witnesses:

DANA RHODES,

LELL S. RHODES.