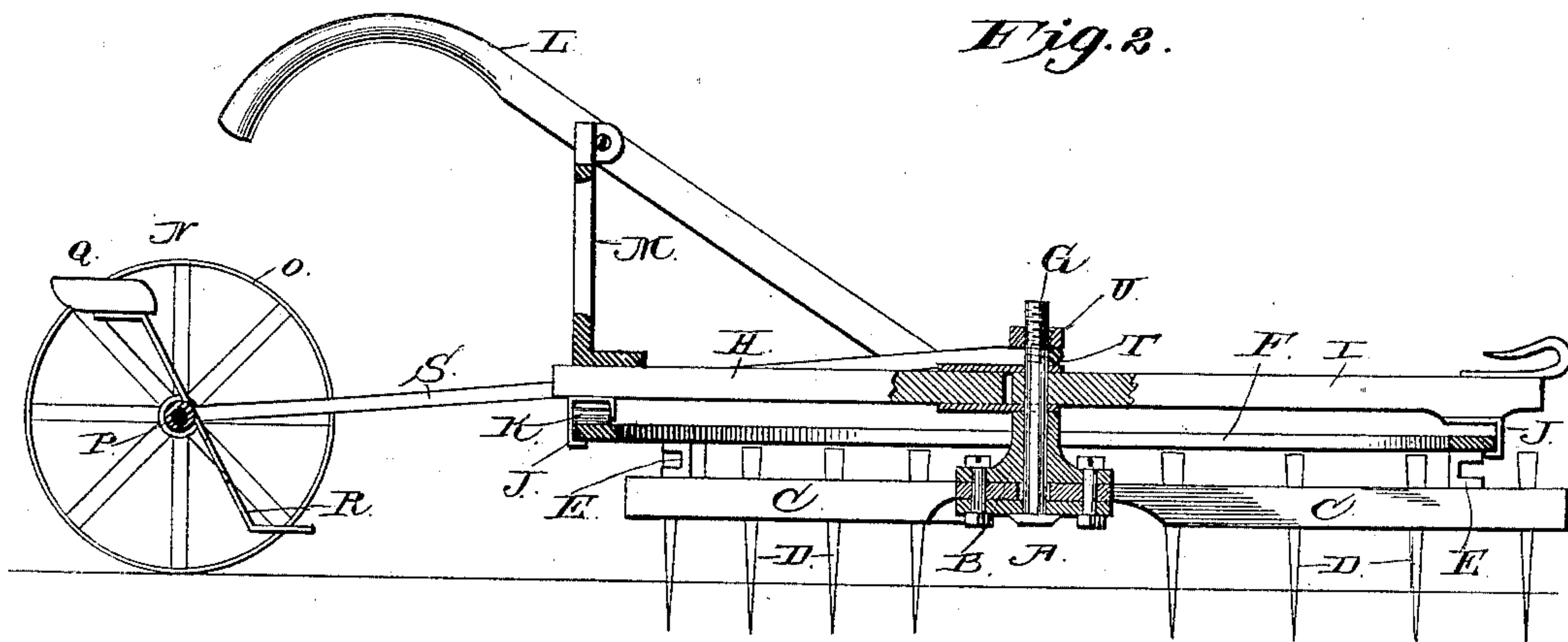
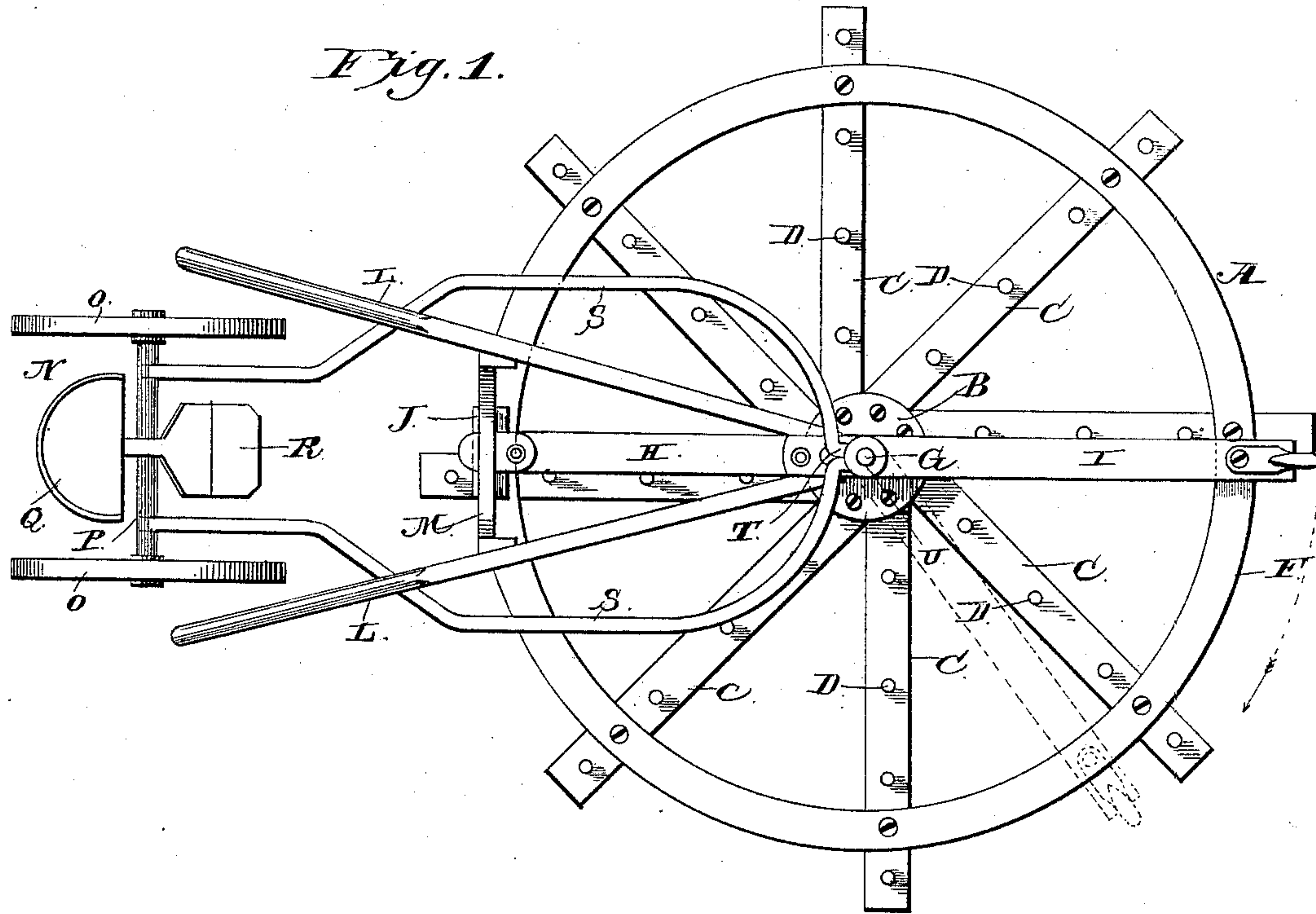


(No Model.)

M. D. BRONNER.
ROTARY HARROW.

No. 387,136.

Patented July 31, 1888.



Witnesses:

M. Fowler.
E. Siggy.

Inventor,
Manty D. Bronner.

By His Attorneys

C. A. Howard & Co.

UNITED STATES PATENT OFFICE

MANLY D. BRONNER, OF ILION, NEW YORK, ASSIGNOR OF ONE-HALF TO
W. K. JENNER, OF SAME PLACE.

ROTARY HARROW.

SPECIFICATION forming part of Letters Patent No. 387,136, dated July 31, 1888.

Application filed January 19, 1888. Serial No. 261,280. (No model.)

To all whom it may concern:

Be it known that I, MANLY D. BRONNER, a citizen of the United States, residing at Ilion, in the county of Herkimer and State of New York, have invented new and useful Improvements in Rotary Harrows, of which the following is a specification.

My invention relates to rotary harrows; and it consists in certain improvements on the harrow for which Letters Patent No. 320,455 were granted to me on June 23, 1885.

In the accompanying drawings, illustrating my invention, Figure 1 is a plan view, and Fig. 2 is a vertical sectional view.

Referring to the drawings by letter, A designates a circular harrow composed of the hub B and the arms or beams C extending therefrom. The harrow-teeth D are secured in the beams in any desired manner, and upon the upper sides of the beams near their outer ends I secure the short D-shaped standards E. A flat ring or circular band, F, is secured upon and supported by these standards, and its outer edge projects past the ends of the upper arms of the standards.

G designates the king-bolt inserted upward through the hub, and H I are the guide and draft beams, respectively, independently pivoted on the said king-bolt. On the under sides of the guide and draft beams, near the outer ends of the same, I secure the keepers J, which pass around the edge of the ring and under the same, as clearly shown. The ends of the tops or upper portions of the keepers project past the sides of the beams, and are provided with friction-rollers K, which bear on the upper side of the band F and reduce the friction and wear on the same.

L designates the handles secured to the guide-beam and braced by a bracket, M.

N designates a sulky composed of the wheels O mounted on an axle, P, and the seat Q and foot-rest R also secured to said axle. The draft-bars S of the sulky are attached to the axle

near the ends of the same, and thence extend forward past the handles of the harrow, and are brought together in front of the same, their forward ends being connected by a loop, T, which is passed down over the king-bolt and fits loosely around the same. A nut, U, is fitted on the king-bolt above the loop T and prevents the said loop and the guide and draft beams from rising thereon.

The handles of the harrow extend back within convenient reach of the driver's seat, and the driver is thus enabled to control the harrow without leaving the sulky, and by slightly twisting the handles to one side or the other he is enabled to throw more or less weight to one side of the center of the harrow and thereby regulate the direction of rotation of the same.

The device is simple and efficient, and it is thought its operation will be readily understood without a detailed reference thereto.

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

In combination with the rotary harrow, the guide-beam H, the draft-beam I, the king-bolt G, on which the guide and draft beams are independently pivoted, the handles connected to the guide-beam, and the detachable sulky having its draft-bars fitted loosely over the king-bolt of the harrow and arranged on the outside of the handle so as to inclose the same, the seat of the sulky being arranged between the outer or rear ends of the handles, so as to be within convenient reach of the same.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

MANLY D. BRONNER.

Witnesses:

GEORGE O. RASBACH,

ARLEIGH D. RICHARDSON.