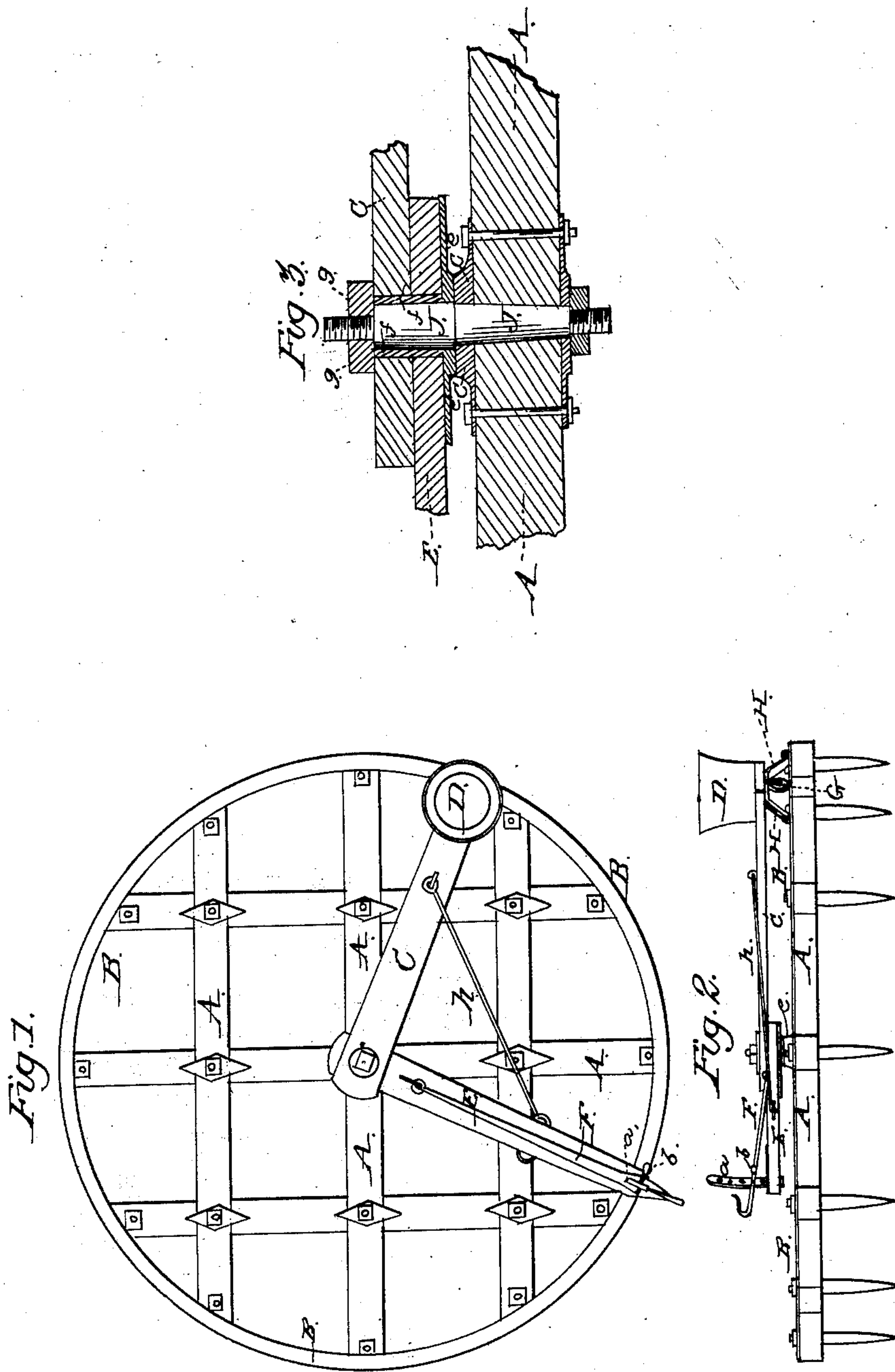


C. & J. K. GINGRICH.

Rotary-Harrow.

Patented June 28, 1859.

No. 24,554.



Witnesses:
J. M. Rauh
Joseph G. Kim

Inventors:
Sebastian Gingrich
Joseph K. Gingrich

UNITED STATES PATENT OFFICE.

CHRISTIAN GINGRICH AND J. K. GINGRICH, OF ANNVILLE, PENNSYLVANIA.

IMPROVEMENT IN ROTARY HARROWS.

Specification forming part of Letters Patent No. **24,554**, dated June 28, 1859.

To all whom it may concern:

Be it known that we, CHRISTIAN GINGRICH and JOSEPH K. GINGRICH, both of Annville, in the county of Lebanon and State of Pennsylvania, have invented a new and useful Improvement in Rotating Harrows; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, of which—

Figure 1 shows a plan view of the harrow. Fig. 2 is a side view of the same. Fig. 3 is an enlarged view, showing in section the manner of connecting the parts to the center of the harrow.

The nature of our invention consists in arranging clearers upon the weighted arm of a rotating harrow so as to precede the traveler or friction-roller, which supports the weight, and keep the annular ring upon which the traveler rolls clear of dirt in using the harrow.

A represents a common circular harrow-frame, armed with teeth in the usual manner, and B the circular ring, secured by bolts to the frame A.

C is a weighted arm, pivoted to the center of the harrow, and on the end of which is a box, D, for receiving the weights.

E is a shaft, also pivoted to the center of the harrow below the arm C. A bar or draft-pole, F, is attached to this, near the center of motion of the harrow, which extends out to the extremity of the shaft E, and has a slot in it into which passes a curved plate, *a*, which is fixed to the end of the shaft E. This, being perforated, receives a pin, *b*, which holds the pole F rigidly in any position desired upon the plate,

so as to change the line of draft of the team and preserve a level draft to the harrow. To the end of this bar a crook is formed for attaching the team to the harrow.

G is a traveler or friction-roller, which supports the end of the arm C, carrying the weight, and travels upon the ring B as the harrow is drawn forward and revolved. From either side of the arm C are bent plates H H, one of which precedes the friction-roller G in either direction of the harrow. These plates come near the surface of the ring B and keep it clear of dirt, &c., which would materially hinder the turning of the harrow.

The shaft and weighted arm are pivoted to the shaft J in the center of the harrow, which passes through the harrow-frame and receives a nut upon its lower end, which holds the shaft firmly in position. The portion J' of the shaft is enlarged, forming a shoulder which rests upon a plate, *c*, fixed to the harrow by bolts. Upon this plate rests a similar plate, *e*, fixed to the shaft E, and having a collar, *f*, around which the shaft E and arm C turn. The whole are then secured together by a nut, *g*, and the arm and shaft are fixed at right angles to each other by a connecting-bar, *h*, and the harrow is ready for operation.

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

The clearers H, in combination with roller G and ring B, when arranged substantially as and for the purposes herein set forth.

CHRISTIAN GINGRICH.
JOSEPH K. GINGRICH.

Witnesses:

JNO. B. RANCH,
JOSEPH GLEIM.