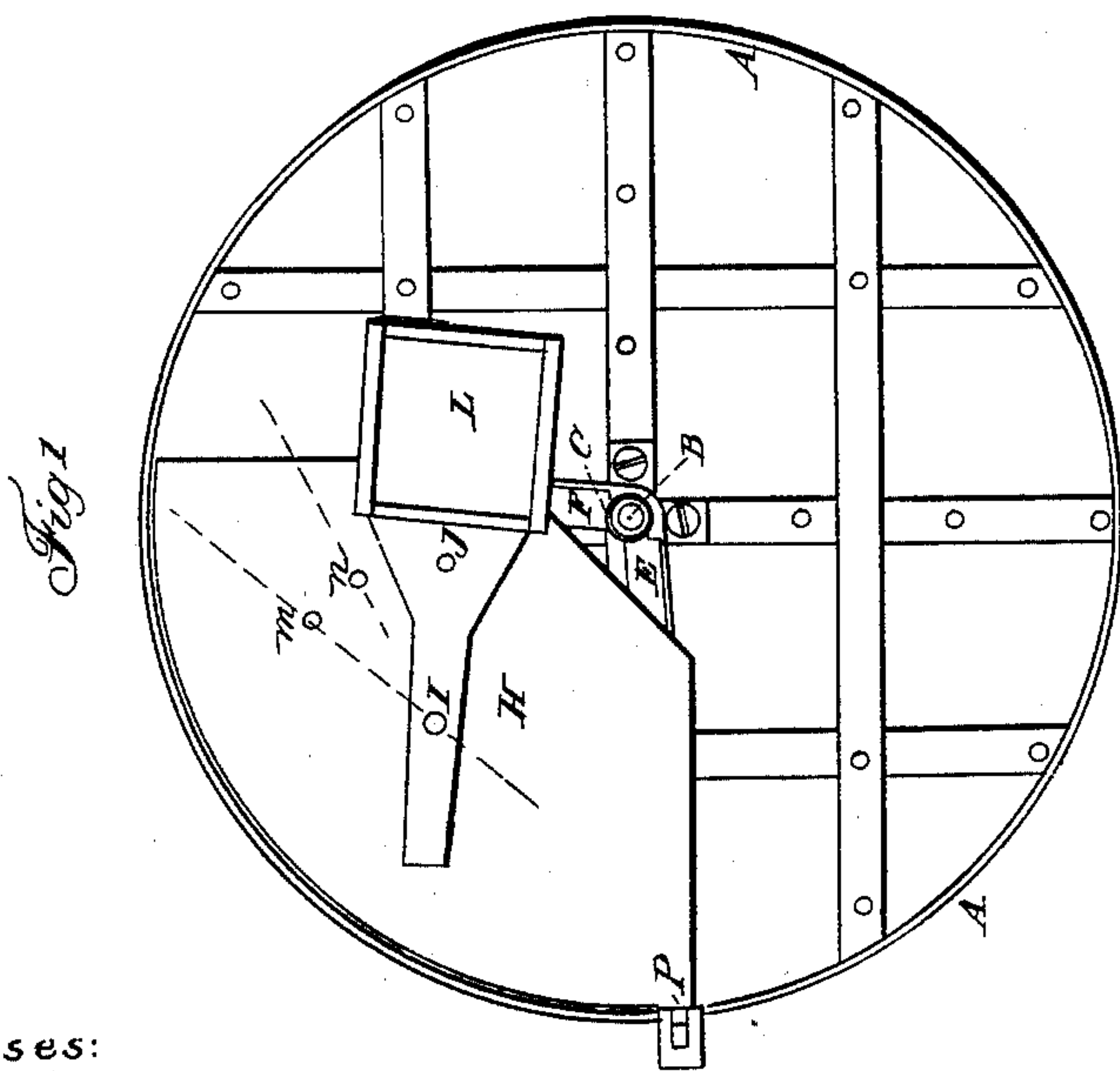
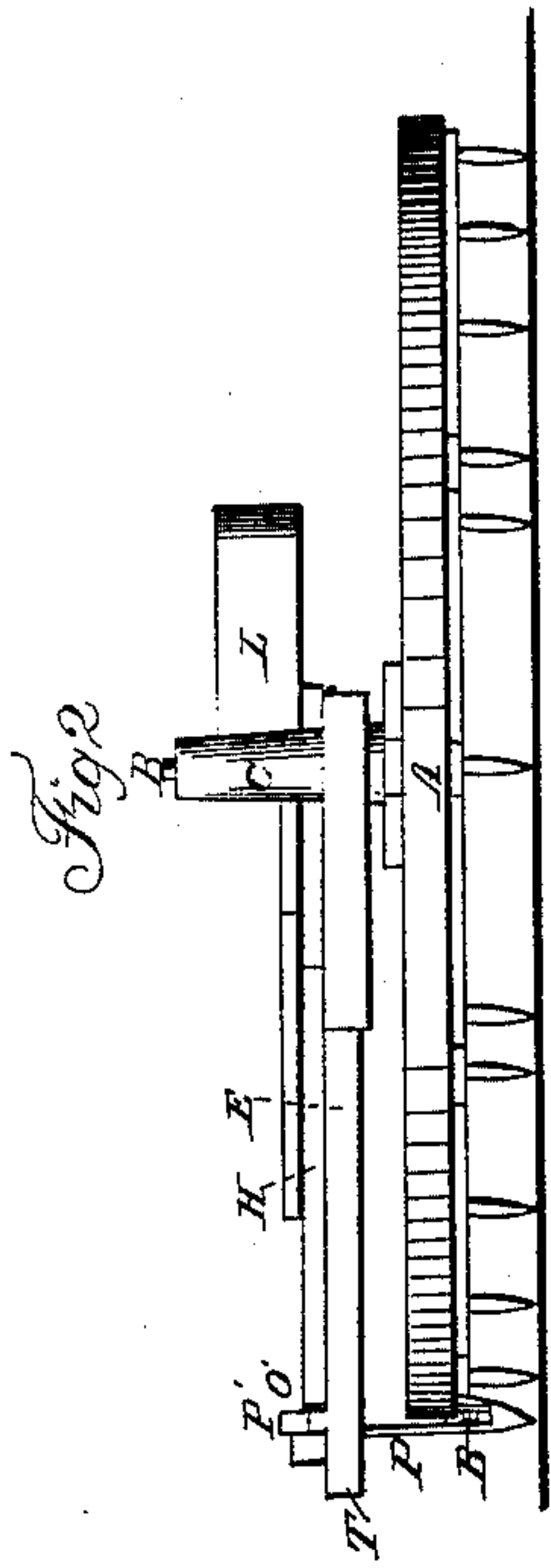


F. RAYMOND.
Rotary Harrow.

No. 30,759.

Patented Nov. 27, 1860.



Witnesses:

W H Burdette
Henry Voth

Inventor:

Francis Raymond

UNITED STATES PATENT OFFICE.

FRANCIS RAYMOND, OF SANDUSKY, OHIO.

IMPROVEMENT IN ROTARY HARROWS.

Specification forming part of Letters Patent No. **30,759**, dated November 27, 1860.

To all whom it may concern:

Be it known that I, FRANCIS RAYMOND, of Sandusky, in the county of Erie and State of Ohio, have invented new and useful Improvements in Rotary Harrows; and I do hereby declare that the following is a full and complete description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a top view. Fig. 2 is a side view.

Like letters denote like parts in the two views.

The nature of my improvement in rotary harrows relates to a certain arrangement of devices for the purpose of preventing side draft.

In the figures, A represents a metallic rim or band, inside of which is arranged the frame of the harrow, which may be of any suitable design. In the center of the frame is secured an upright arm, B, on which is placed the metallic socket or sleeve C. To the lower part of the socket C are connected two arms, E and F, that are at right angles to each other. On the top of these arms is placed and attached the platform H. About the center of this platform the box L, that contains the weight, is secured by a pin, I, on which it can be moved. This box can be kept in any desired position, near or farther from the center of the harrow, by means of the pin J and holes *m n* in the platform, as indicated by the dotted lines.

In a slot of the arm E, that extends beyond the platform H, is placed a metallic finger, P, the lower end of which is arranged with a small roller, R, on which the metallic rim A rests and moves as it revolves. The upper

end of the finger is kept in place by the key *o*, and it is prevented from slipping down by the piece P' of the finger resting on the pin O'. There can be a clevis secured to the end of the arm E at T, to which the team is attached. In this arrangement, the weight L being in the rear of the axis of rotation, and as it can be placed so near the center of the harrow, together with the finger P elevating the front, of course the side draft would be almost entirely removed, which overcomes the objection to rotary harrows.

I do not claim to be the inventor of rotary harrows, but what distinguishes my improvement from others is placing the adjustable weight in the rear of the axis of rotation and raising the forward end by the action of the draft, the rim A being supported and moving easily on the friction-roller R in the finger, which causes it to pass easily over obstructions, and in combination with the weight preventing side draft. The finger P, also extending into the ground in the form of a tooth, and being stationary as regards rotation, tends greatly, in combination with the other devices, to prevent a side draft of the harrow.

What I claim as my improvement, and desire to secure by Letters Patent, is—

The finger P and roller R, in combination with the adjustable box L, when these several parts are arranged and operated substantially as herein set forth.

FRANCIS RAYMOND.

Witnesses:

W. H. BURRIDGE,
HENRY VOLK.