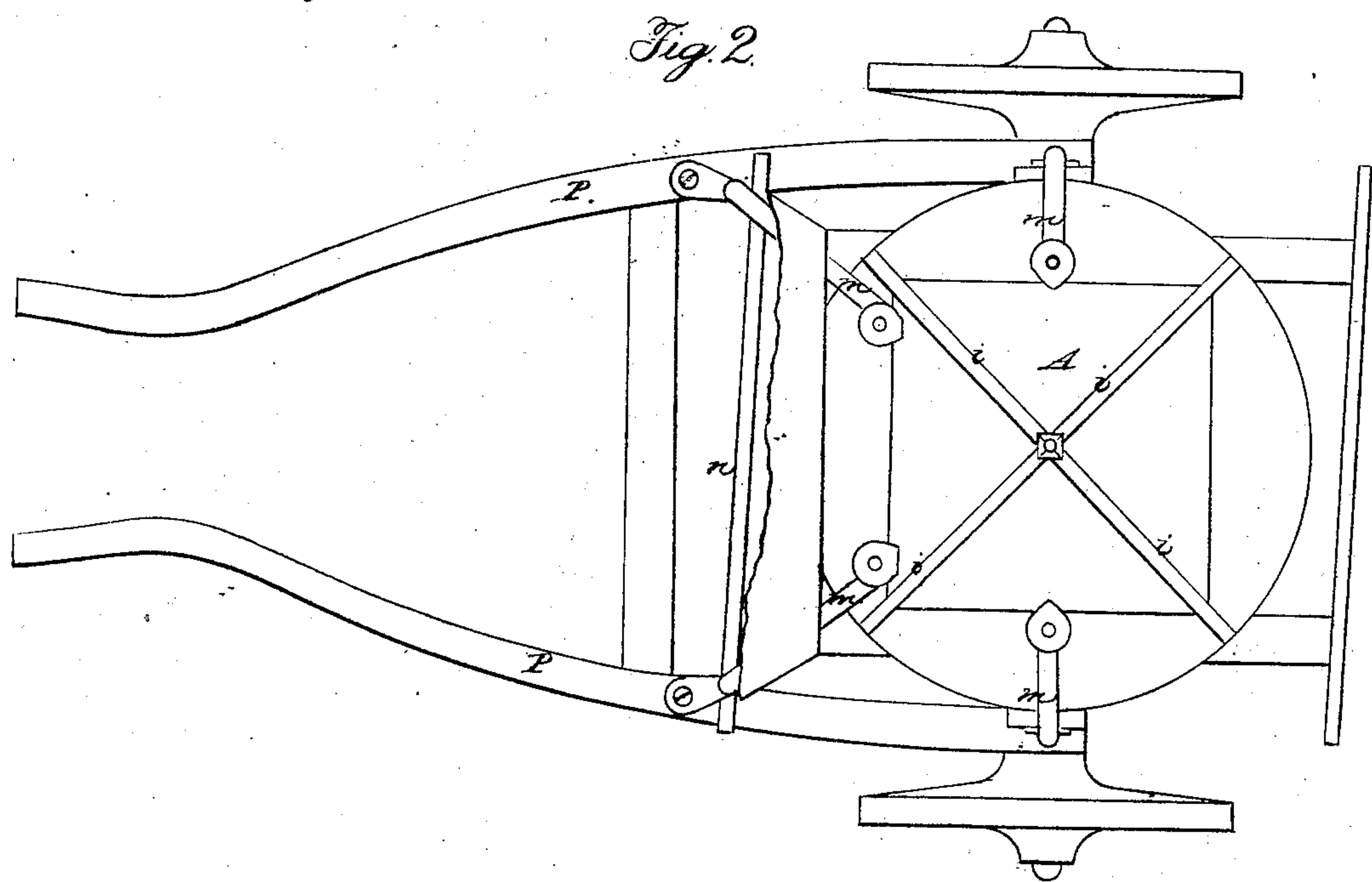
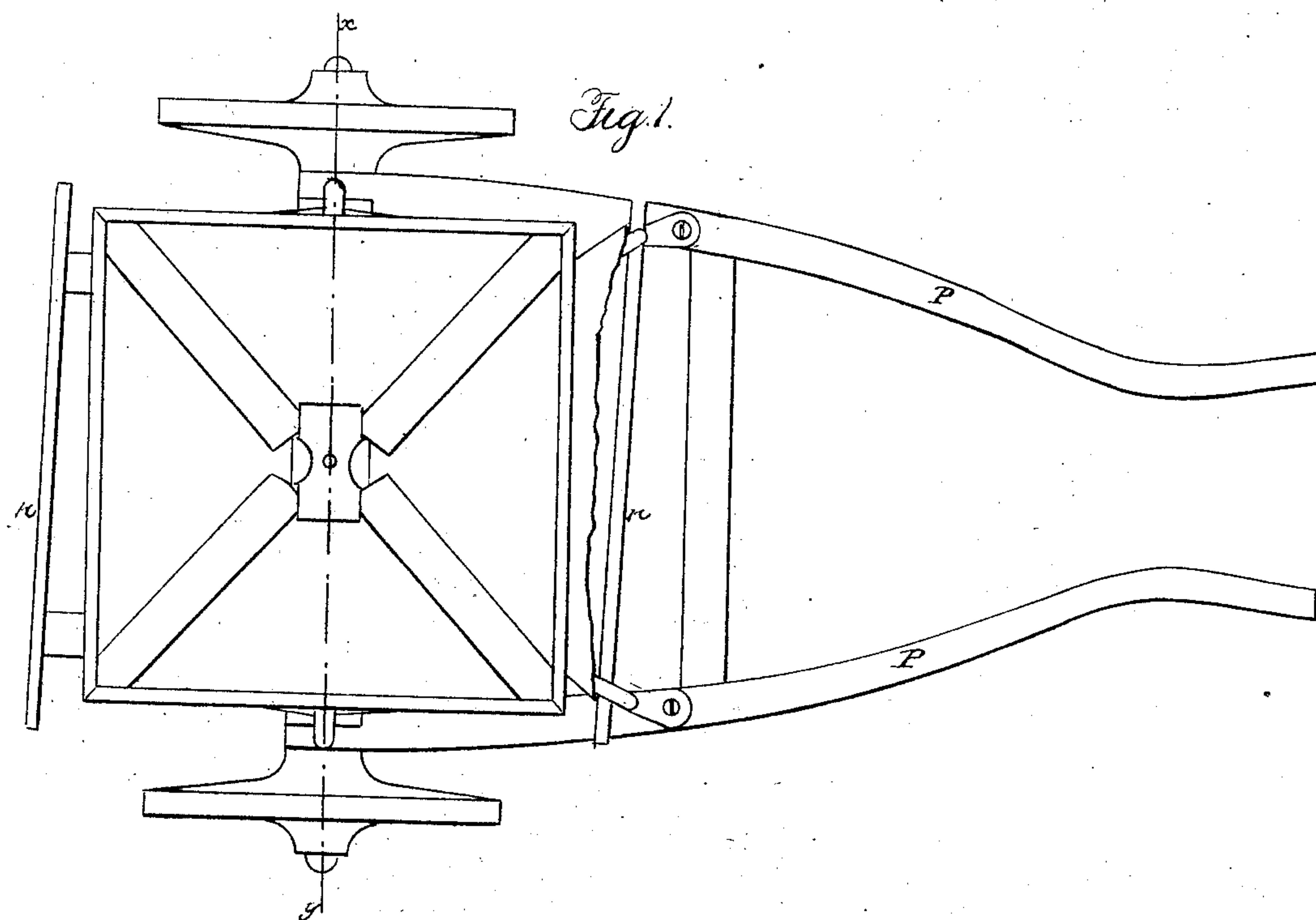


E. K. HAYNES.

Broadcast-Seeder.

No. 16,322.

Patented Dec. 23, 1856



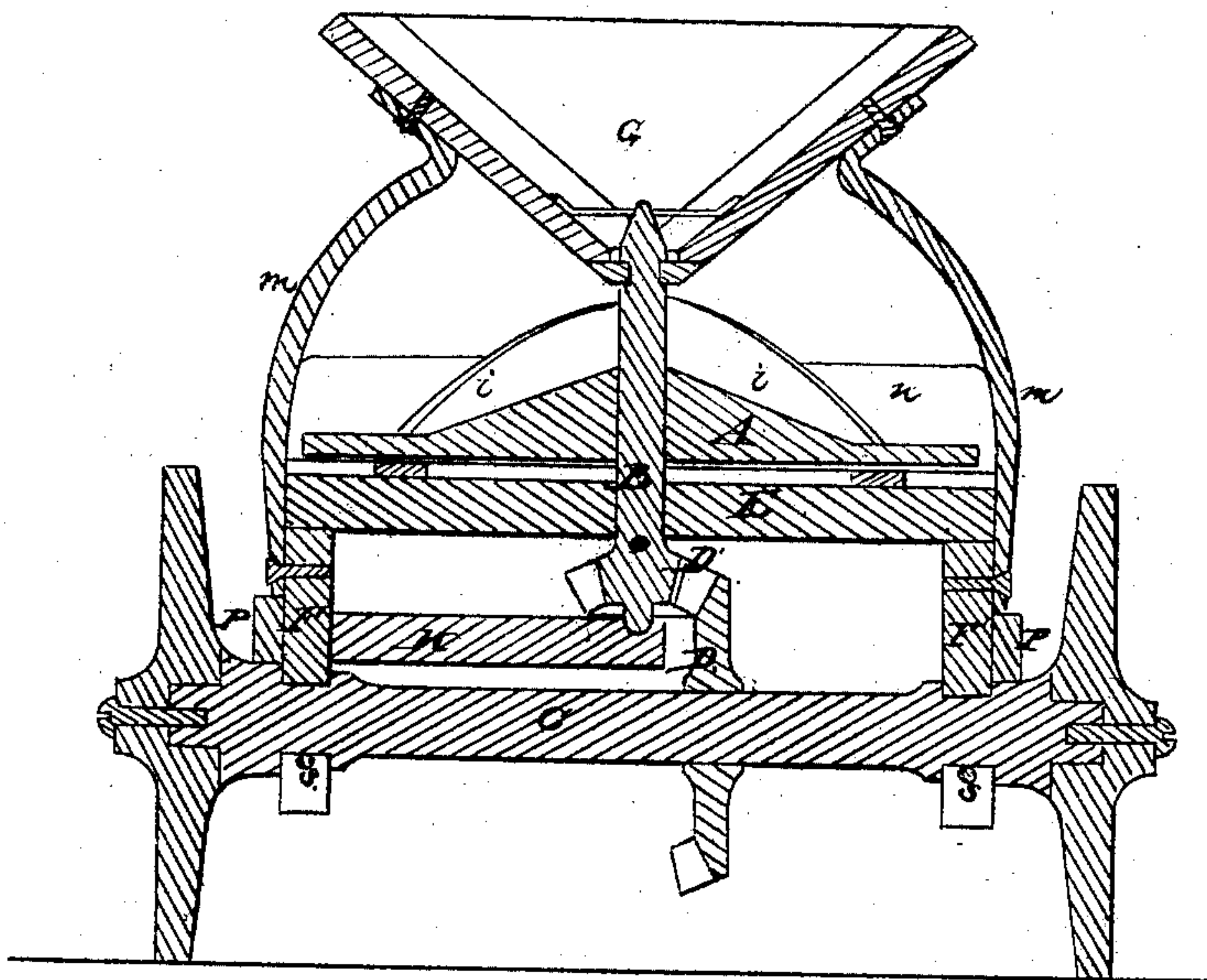
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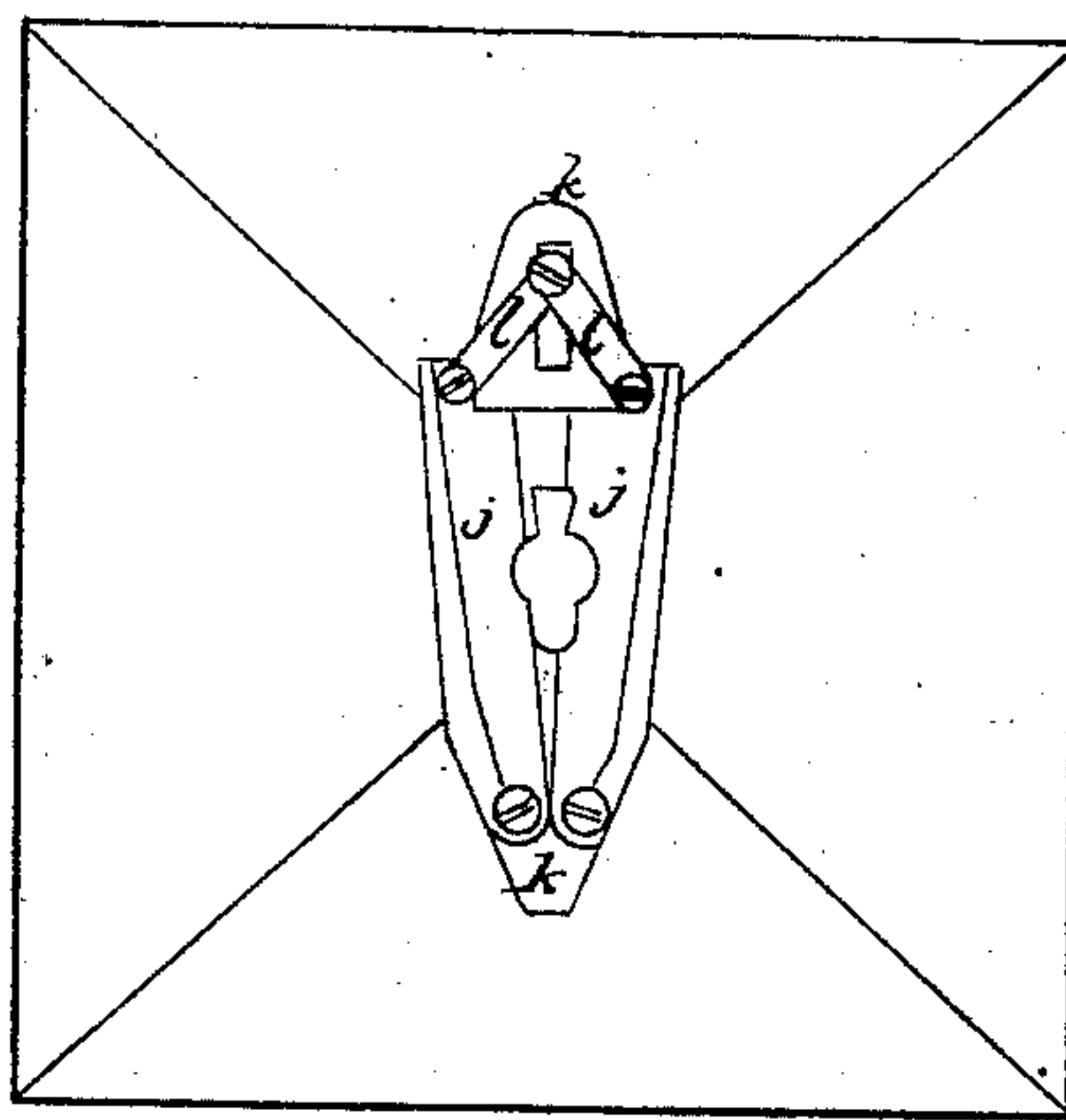
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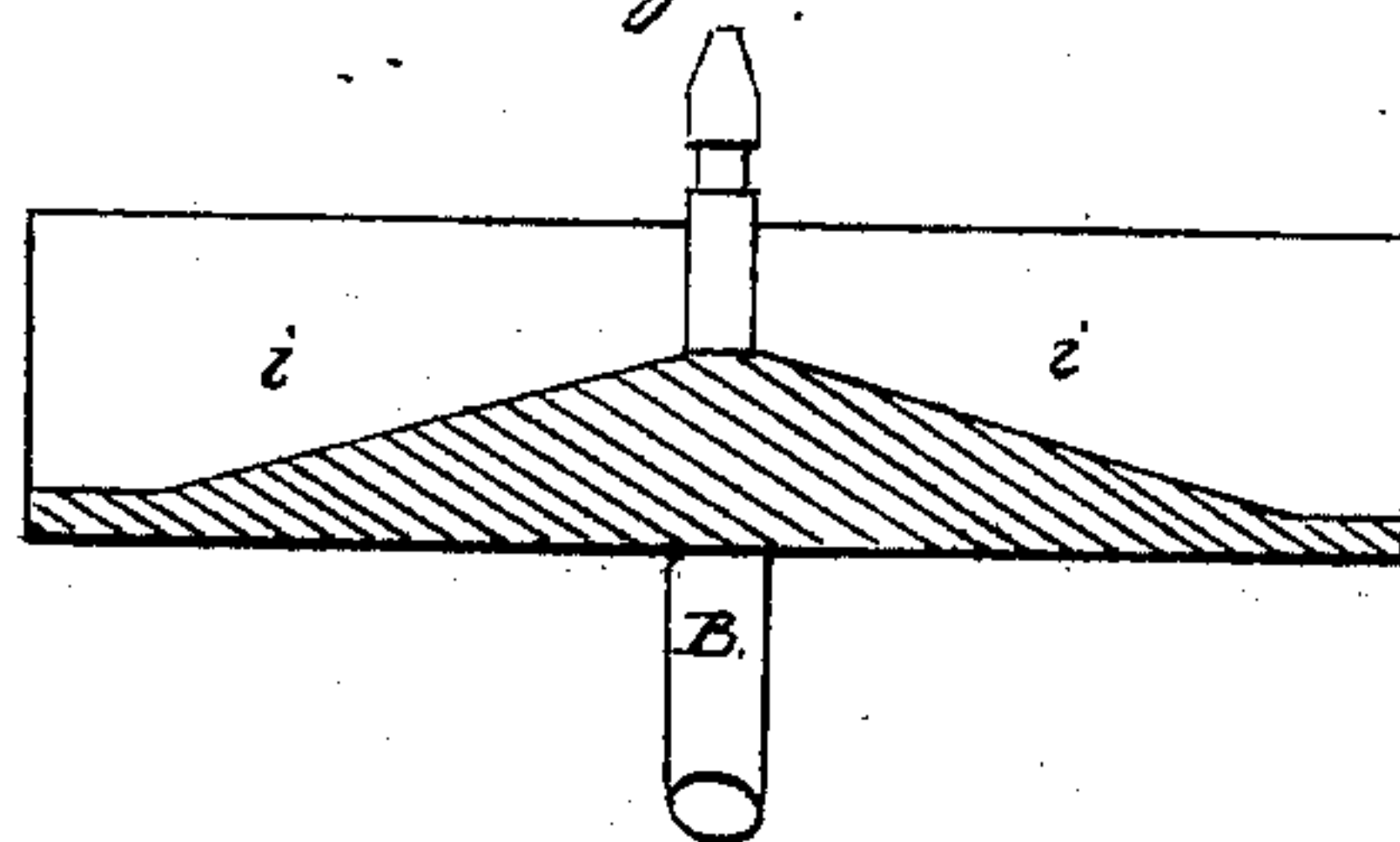
*Fig. 3*



*Fig. 4*



*Fig. 5*





# UNITED STATES PATENT OFFICE.

E. K. HAYNES, OF HANOVER, NEW HAMPSHIRE, ASSIGNOR TO HIMSELF  
AND A. M. MOWE.

## IMPROVEMENT IN MACHINES FOR SOWING SEED BROADCAST.

Specification forming part of Letters Patent No. **16,322**, dated December 23, 1856.

*To all whom it may concern:*

Be it known that I, E. K. HAYNES, of Hanover, in the county of Grafton and State of New Hampshire, have invented a new and Improved Machine for Sowing or Scattering Seeds or other Articles Broadcast; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making a part of this specification—

Figure 1 being a top view of said machine complete; Fig. 2, a top view of the same, with the grain-box detached; Fig. 3, a section in the line *x y* of Fig. 1; Fig. 4, a view of the under side of the grain-box detached from the machine; and Fig. 5, a section of a modified form of the scattering-wheel detached.

Similar letters indicate like parts in all the figures.

A frame composed of the shafts P P, the uprights F F', the horizontal connecting-bar E, and the short horizontal arm H, combined with each other as represented in the drawings, rests upon the axle of the machine and supports the various parts thereof. The forked lower ends of the uprights F F' rest loosely in annular grooves in the axle, and are prevented from being thrown out of place by the pins *s s*. (Shown in Fig. 3.) One of the bearing-wheels of the machine is made fast to the axle, which causes it to rotate with said wheel, and thereby to impart motion to the scattering-wheel A, whose shaft is geared to the bevel-wheel D on said axle by means of the bevel-wheel D'.

To enable the machine to be easily turned around without imparting motion to the axle and the scattering-wheel, I generally place one of the bearing-wheels upon the axle in such a manner that it will rotate freely thereon.

The bearing-box of the shaft B of the scattering-wheel A is placed at the extremity of the arm H, which projects inwardly from the upright F. The upper end of said shaft passes through an oblong opening in the bottom of the seed-box, and the said shaft has a pretty deep annular groove formed in it near its upper end, which is embraced by the connected gates *j j*, that are so arranged as to open laterally in such a manner as to form discharging-openings in front and at the rear of the

said shaft B, through which the seeds or other articles pass from the box to the scattering-wheel, while at the same time the said gates prevent anything from escaping from the seed-box between the sides of the oblong opening and the shaft of the scattering-wheel.

The central portion of the upper surface of the scattering-wheel is of a conical form, and the outer portion of said surface is a flat horizontal plane. The said upper surface of the scattering-wheel is armed with a series of wings, *i i*, whose upper edges may be horizontal, as shown in Fig. 5, or may be inclined, as represented in Fig. 3. The said wings must rise a sufficient distance above the face of the scattering-wheel to create strong currents of wind when said wheel is rotated. The air thus put in motion by the wings of the scattering-wheel, immediately before and behind said wheel, is concentrated and thrown obliquely outward to the right and left by means of the inclined directing-boards *n n*, which rise parallel with each other before and behind the scattering-wheel. The oblique position of the directing-boards *n n* with reference to the axle causes the forward directing-board to throw the air that is driven against it powerfully to the left, which current of air carries with it and widely scatters the seeds or other articles that may be discharged upon and thrown off from the front portion of the scattering-wheel. The after directing-board causes the air which is driven against it by the wings of the scattering-wheel to pass as powerfully to the right and to carry with the said current the seeds, &c., which may be discharged from the seed-box onto the after side of the scattering-wheel.

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

The scattering-wheel armed with air-agitating wings, when located between obliquely-arranged parallel directing-boards *n n*, for the purpose substantially as herein set forth.

The above specification of my improved machine for sowing seed broadcast signed by me this 5th day of November, 1856.

E. K. HAYNES.

Witnesses:

ISRAEL O. DEWEY,  
THOMAS W. VOSE.