

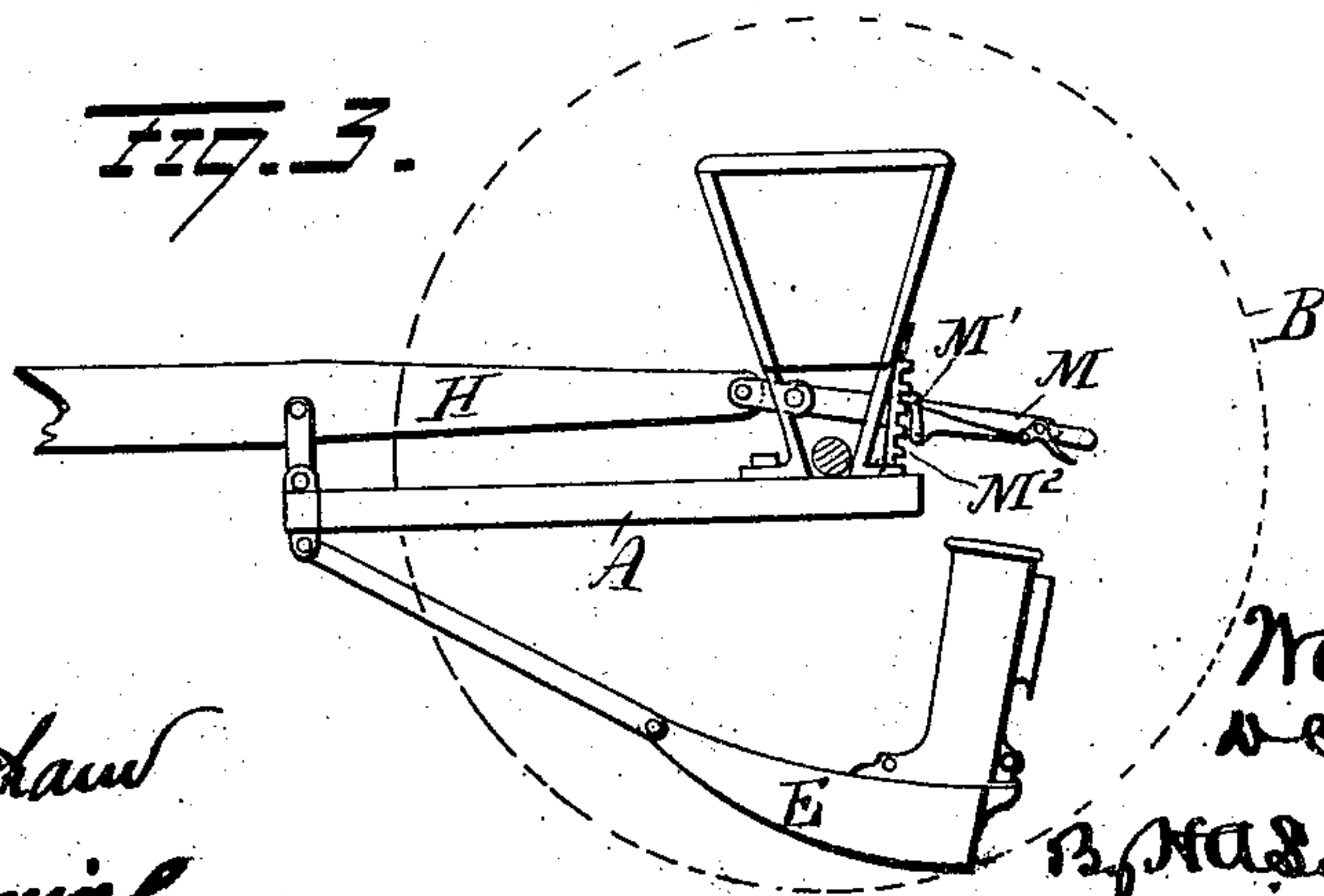
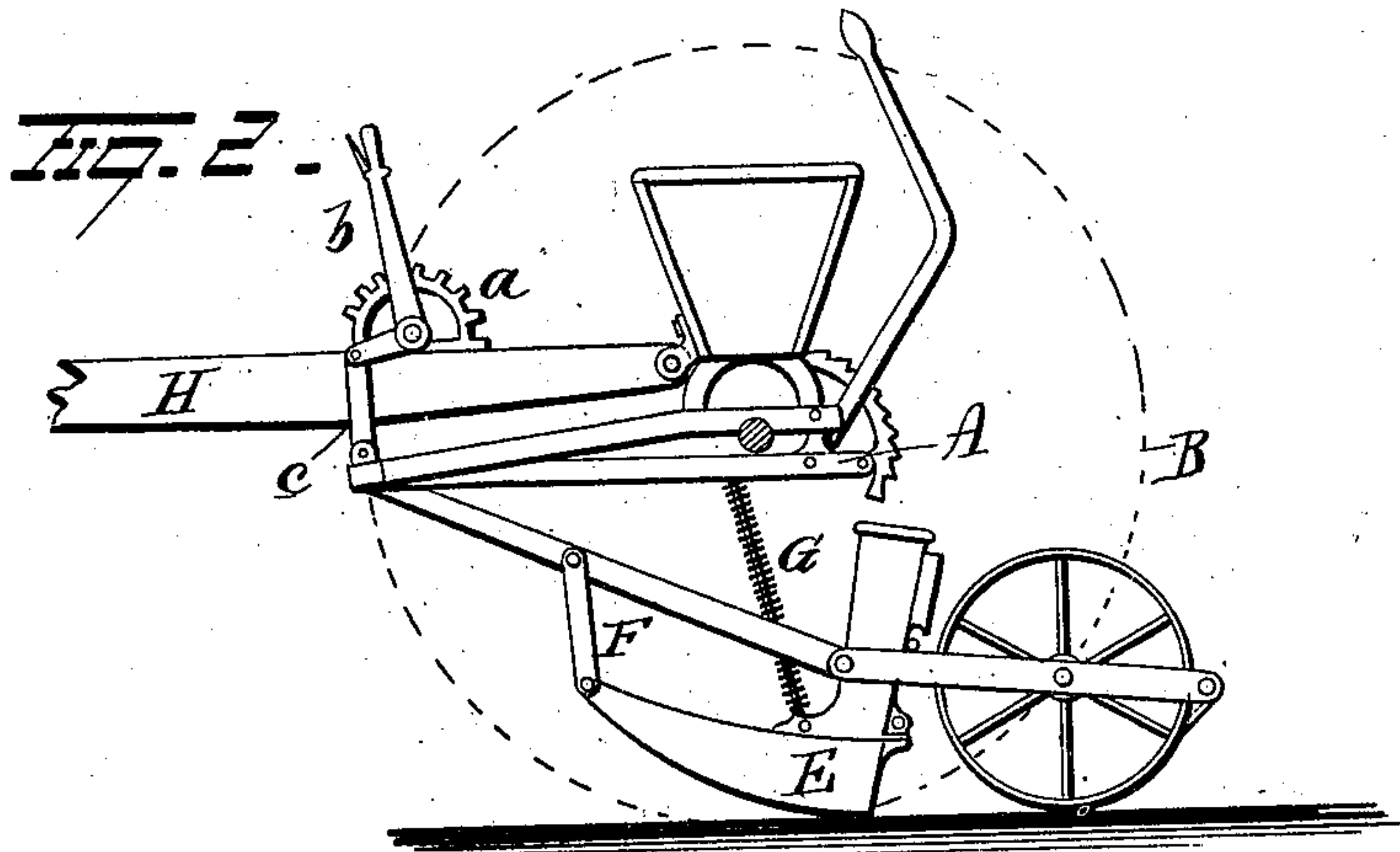
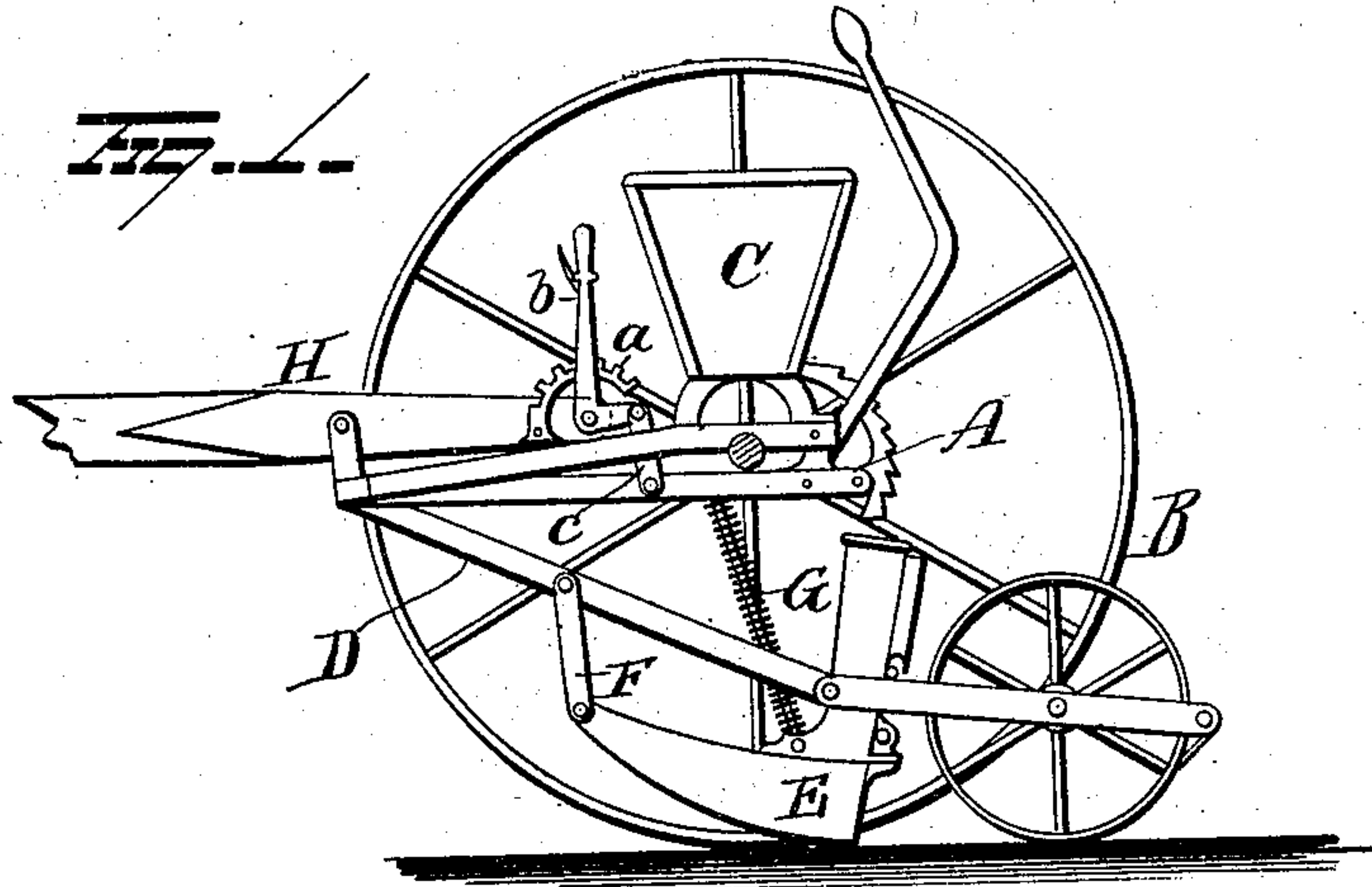
(No Model.)

4 Sheets—Sheet 1.

D. C. & W. A. VAN BRUNT.
GRAIN DRILL.

No. 461,292.

Patented Oct. 13, 1891.



Witnesses:
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G. F. Downing

Inventors:
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(No Model.)

4 Sheets—Sheet 2.

D. C. & W. A. VAN BRUNT.
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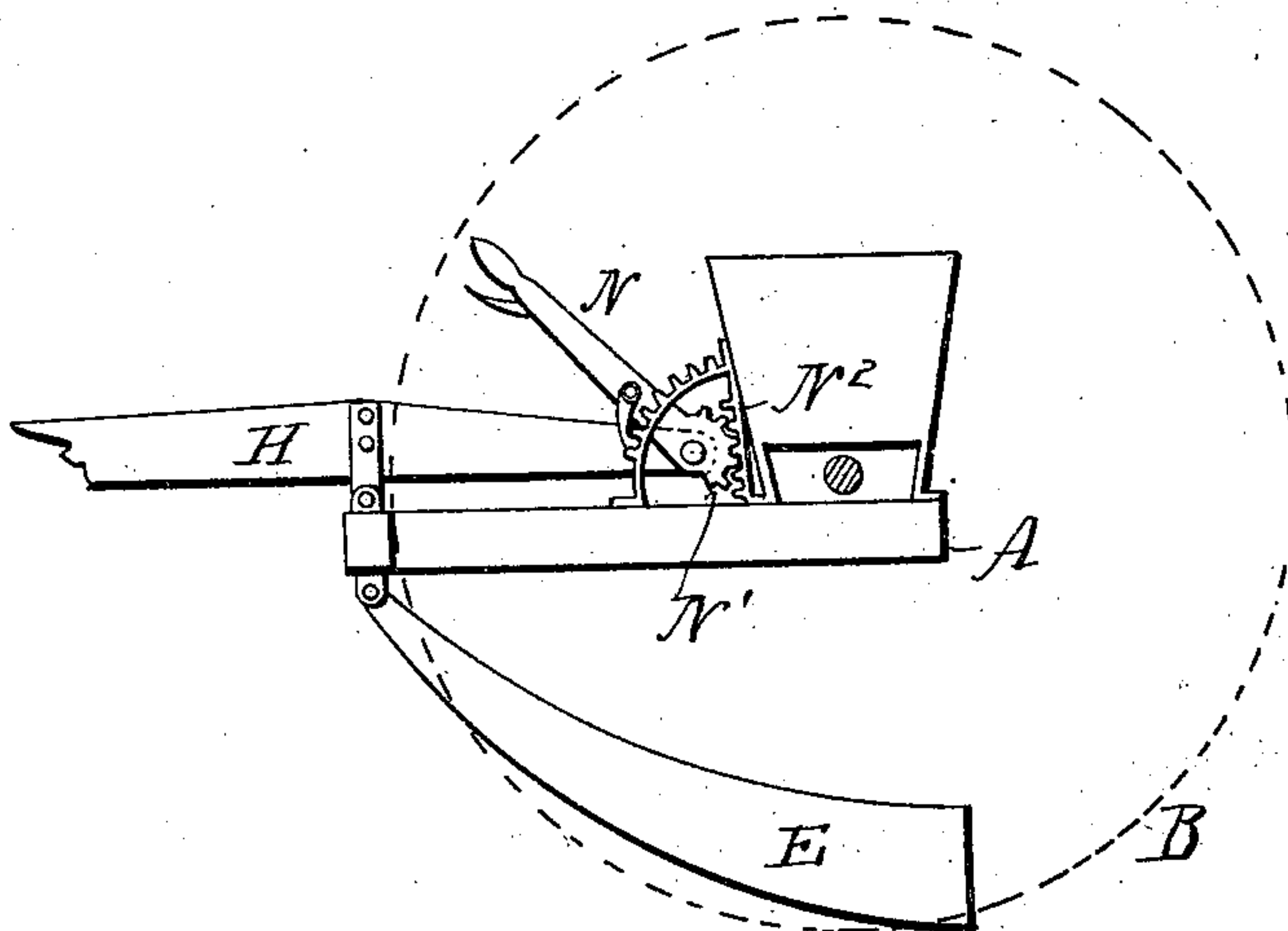


FIG. 4.

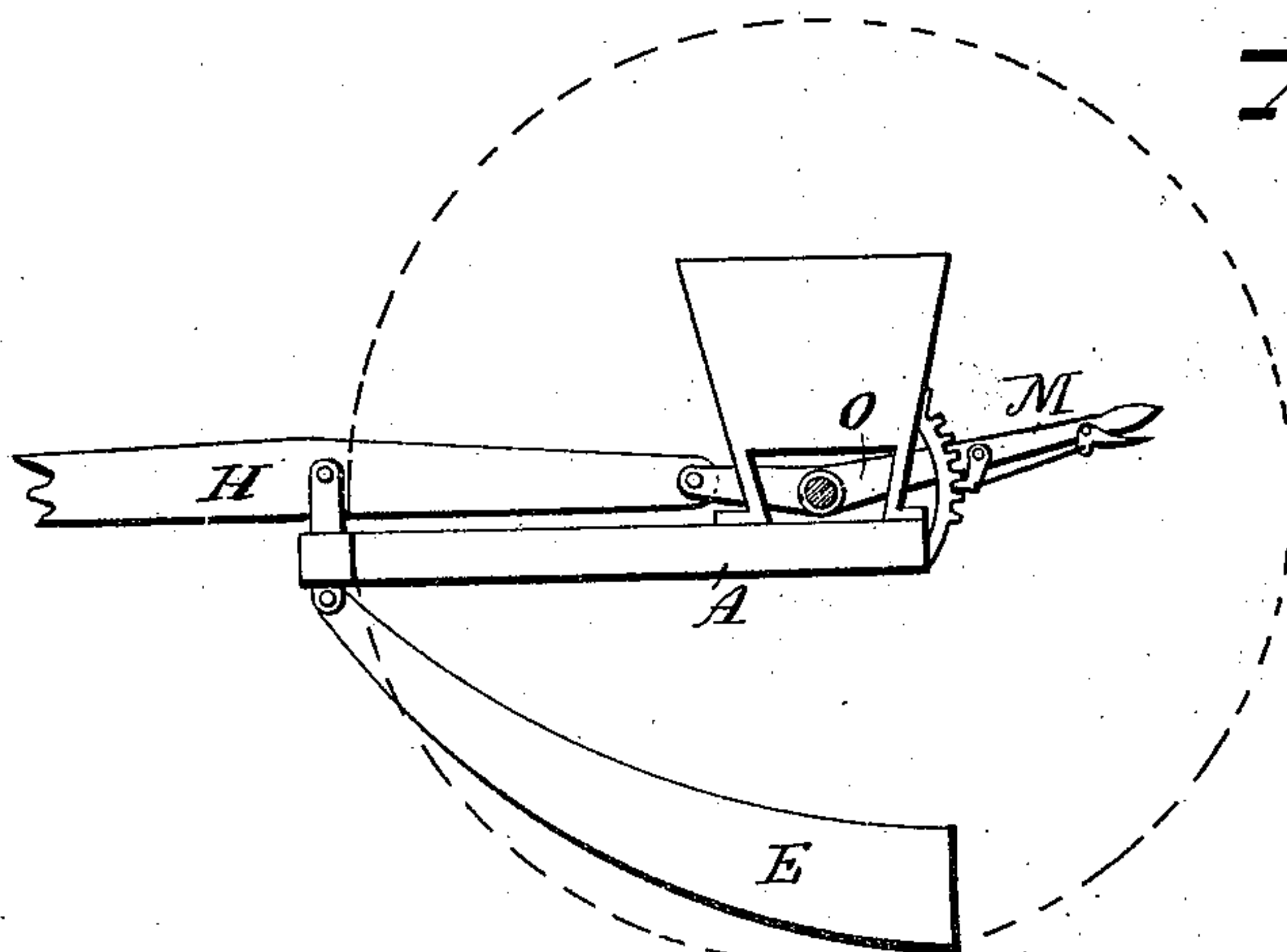


FIG. 6.

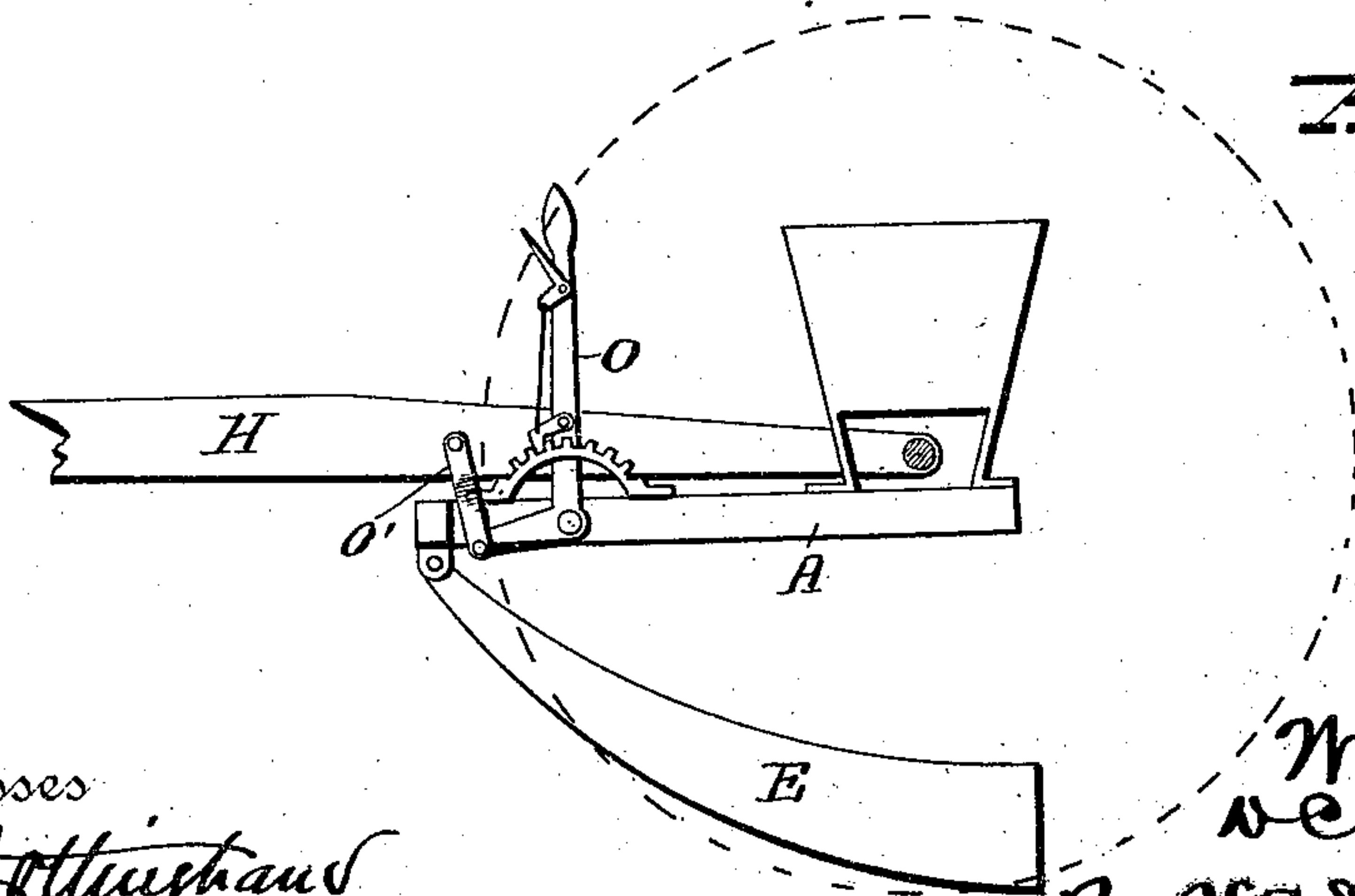


FIG. 5.

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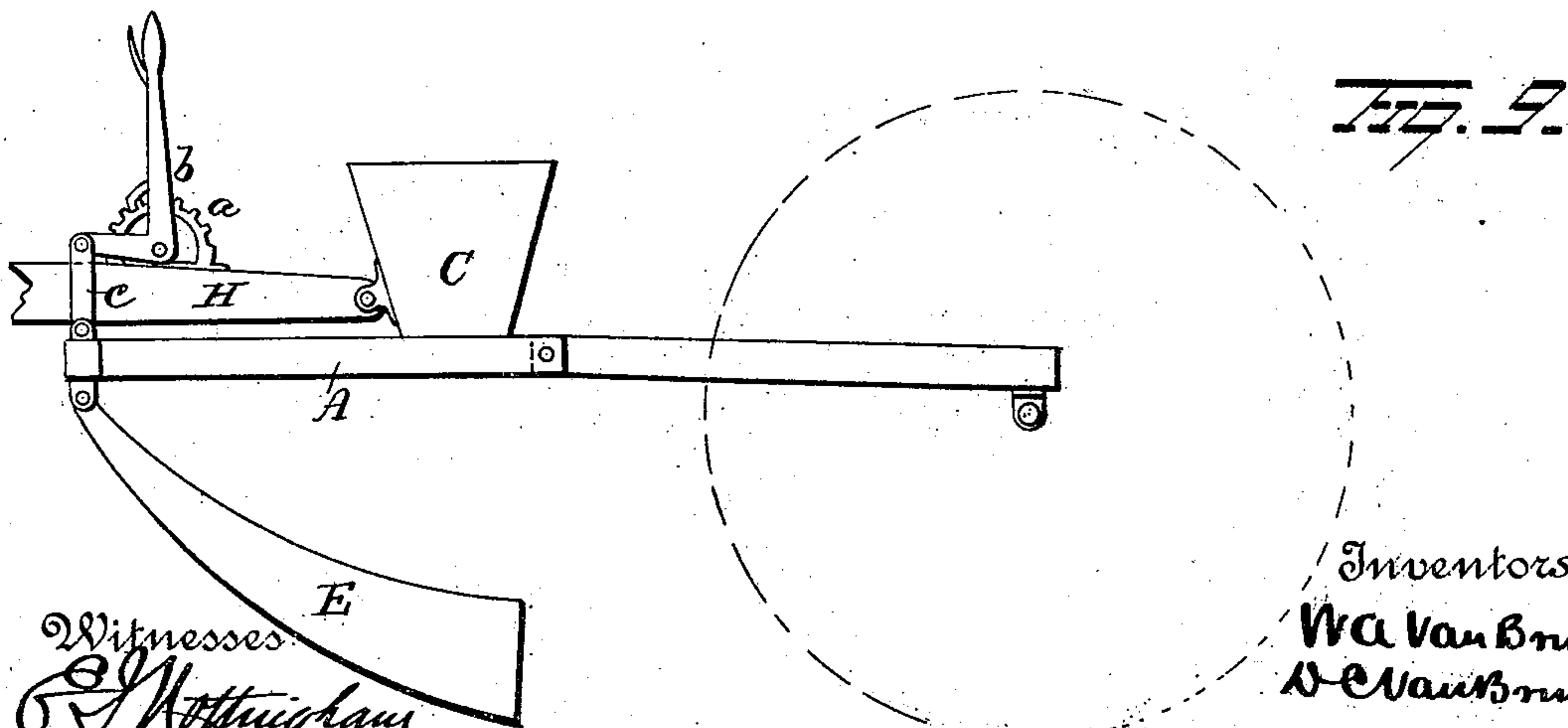
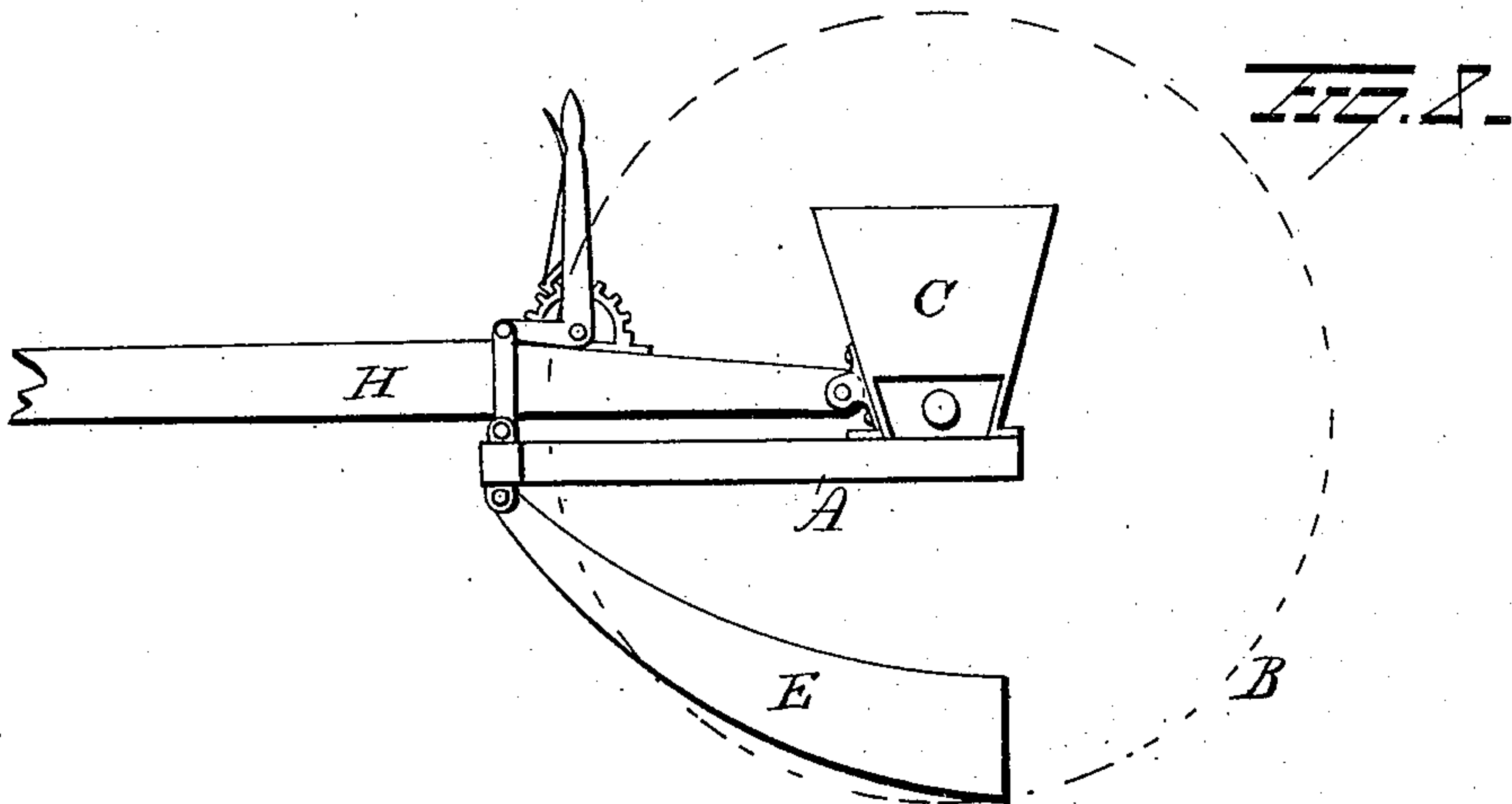
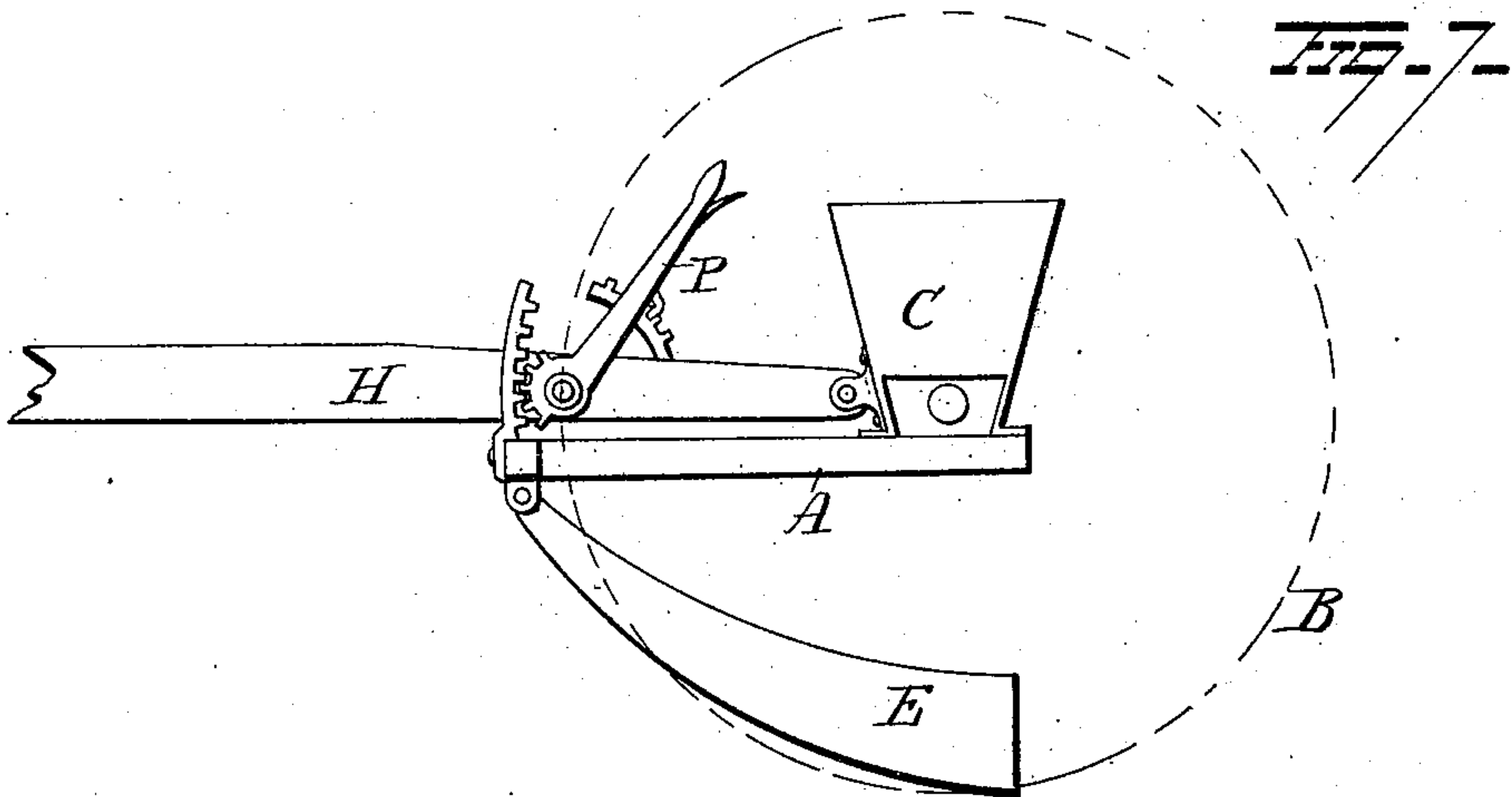
(No Model.)

4 Sheets—Sheet 3.

D. C. & W. A. VAN BRUNT.
GRAIN DRILL.

No. 461,292.

Patented Oct. 13, 1891.



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(No Model.)

4 Sheets—Sheet 4.

D. C. & W. A. VAN BRUNT.
GRAIN DRILL.

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FIG. 10.

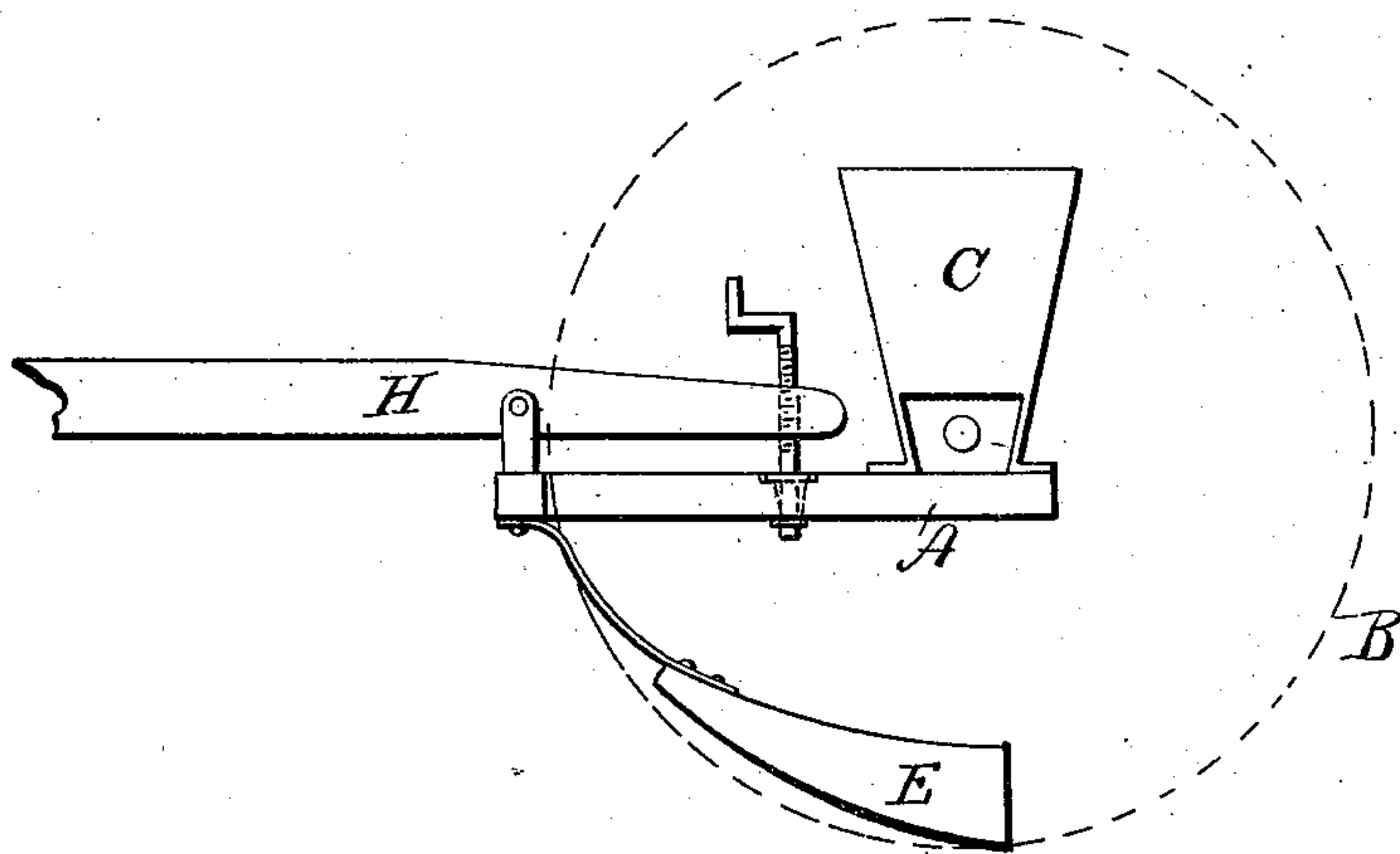
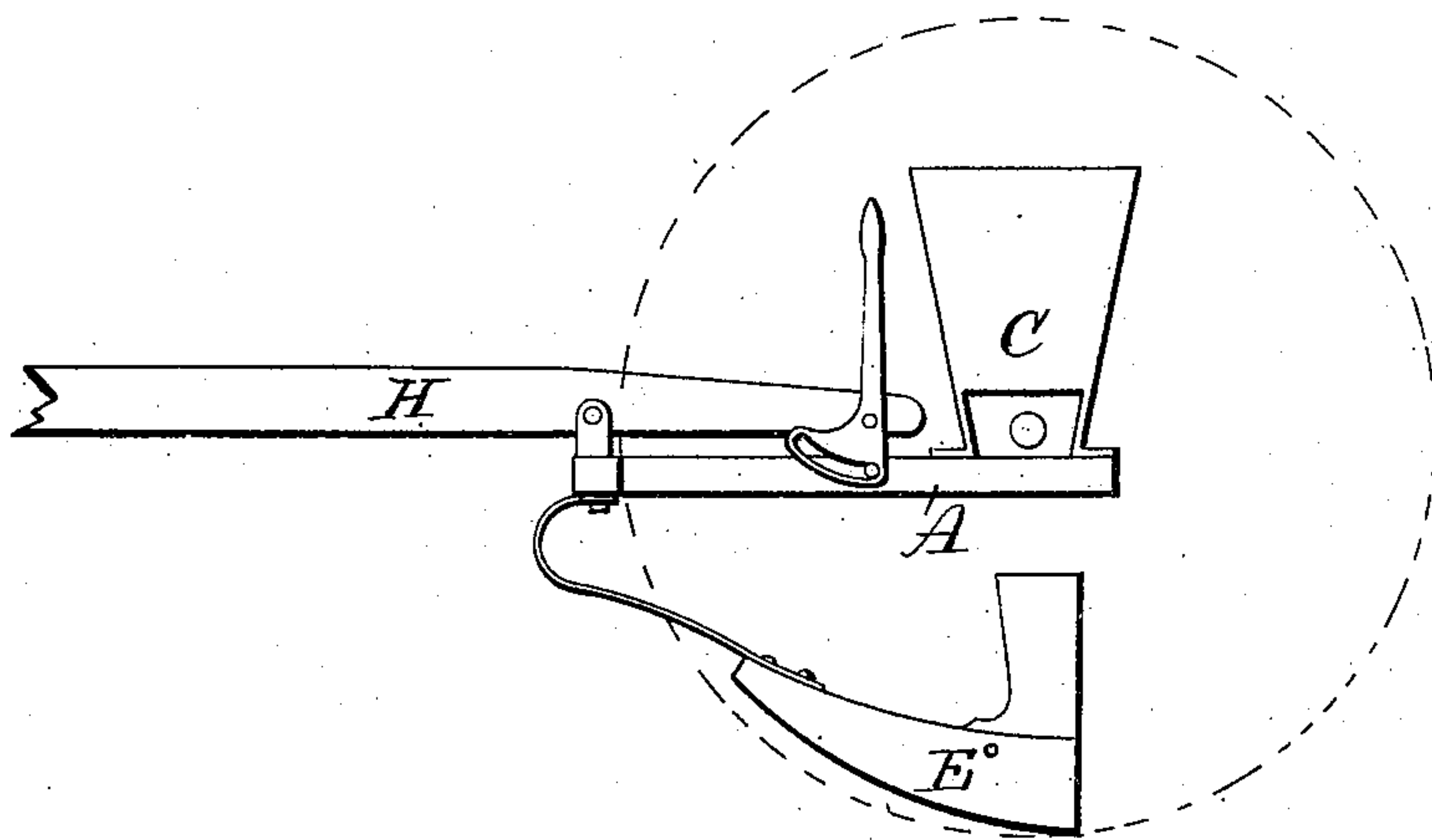


FIG. 11.

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UNITED STATES PATENT OFFICE.

DANIEL C. VAN BRUNT AND WILLARD A. VAN BRUNT, OF HORICON,
WISCONSIN.

GRAIN-DRILL.

SPECIFICATION forming part of Letters Patent No. 461,292, dated October 13, 1891.

Application filed August 6, 1891. Serial No. 401,866. (No model.)

To all whom it may concern:

Be it known that we, DANIEL C. VAN BRUNT and WILLARD A. VAN BRUNT, of Horicon, in the county of Dodge and State of Wisconsin, have invented certain new and useful Improvements in Grain-Drills; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to an improvement in grain-drills, the object of the same being to provide devices for readily and quickly changing the angle of the cutting-edge of the shoe or runner without stopping the team; and it consists, broadly, in devices for tilting or changing the angle or inclination of the shoes, independently of the lifting devices.

In the accompanying drawings, Figure 1 is a view in side elevation of a drill embodying our invention. Fig. 2 is a similar view of a modified form of same, and Figs. 3, 4, 5, 6, 7, 8, 9, 10, and 11 are views of modifications.

A represents the frame of the machine, mounted on wheels B and provided with hopper C, which latter discharges grain in drills in the usual manner. Projecting rearwardly and downwardly from the front of the frame are a series of drag-bars D, pivotally secured at their front ends to the frame and attached at their rear ends to the shoes or cutters E at or near the rear ends of the latter. The shoes or cutters E are rigidly secured at their front ends to the drag-bars D by the braces F, and are yieldingly held in contact with the ground by the springs G.

From the foregoing it will be seen that the inclination of the shoe or cutter is dependent on the position of the front end of the frame A. If the front end of the frame be elevated, the front ends of the shoes or runners will also be elevated, and hence in a better position to ride more easily over the soil and over any accumulation of trash in its path.

Ordinarily the tongue H is rigidly secured to the frame and is carried by the team. Hence there is no provision for changing the relative position of the tongue and the front end of frame A, and hence no provision for changing the angle or inclination of the shoes or runners. In order to accomplish this

change of inclination or angle of the shoes or runners, we pivotally secure the tongue at a point in advance of its rear end to the front end of the frame and provide the rear end of said tongue with a toothed sector *a* and bell-crank lever *b*, the latter being pivoted to the tongue concentric with the arc of the toothed sector and provided with a latch for engaging the teeth of the sector and means for disengaging the same from the teeth. The short arm of the bell-crank lever is connected to frame A by link *c*, and hence it follows that when the long arm of the lever is pushed forwardly the rear end of the tongue is depressed and the front end of the frame A, and necessarily the front ends of the shoes or runners, elevated. By moving the lever in the opposite direction the movements of the parts are the reverse. This movement of the parts is accomplished independently of the devices employed for lifting the parts, and hence does not affect in the slightest the feed of the grain. The same result can be accomplished by the mechanism shown in Fig. 2. In this device the tongue is pivoted to the frame at its rear end, and the segment and bell-crank lever are located over the forward end of frame A.

By the mechanism above described, we can change the angle of the shoes or runners to meet the conditions of the soil, and this without any delay and without stopping the team. As an example, trash gathered in front of the runners or shoes could be passed over without lifting the shoes or runners by simply moving the tilting-lever, thus giving the shoes or runners an angle best adapted to ride over the trash. Then, as soon as the obstruction has been cleared, they can be returned to their original position or a position where best results can be obtained.

In the two figures of drawings above referred to we have shown the shoe connected to the frame by means of drag-bars. Drag-bars are not, however, essential to the operation of our device, as the shoes can be secured at their front end to the frame, as shown in Figs. 4, 5, 6, 7, and 8, to be hereinafter referred to. Nor are pressure-springs essential, as our invention comprehends, broadly, means for adjusting the pole and the frame carrying the

hopper and shoes, whereby the angle or inclination of the shoes can be varied at pleasure and without stopping the team. In Figs. 1 and 2 we have shown the ground-wheels supporting the frame carrying the hopper and shoes, whereas in Fig. 9 we have shown our improvement applied to a drill in which the ground-wheels and main axle are connected to and carry a separate frame from the one to which the shoes and hopper are attached and in the rear thereof.

In Figs. 3, 4, 5, 6, 7, and 8 nothing but the parts material to our invention are disclosed. In Fig. 3 the shoes are connected at their forward ends to the frame by means of drag-bars and the pole pivoted at a point in advance of its rear end, as in Fig. 1. In this device, however, we have dispensed altogether with the bell-crank lever and pivoted the free rear end of the pole to the straight lever M, the latter being pivoted to the hopper or to a bracket projecting upwardly from the frame. The lever M is provided with a hook M' for engaging the teeth of the straight rack-bar M², located in the rear of the hopper for holding the lever M in position. Instead of using the rack-bar, as shown, it is evident that a toothed sector can be employed therefor and answer all purposes.

In Fig. 4 we have shown the pole pivoted at a point over the front of the frame and the rear end thereof carrying a lever N, provided with a toothed sector N' for engaging a rack-bar N², secured to the front of the hopper or other convenient part. By turning the lever the engagement of the sector with the rack-bar moves the rear end of the tongue up or down, and consequently causes a corresponding depression or elevation of the front end of the frame and the shoes or runners. The lever is provided with suitable locking devices adapted to engage a toothed sector carried by the frame or hopper or both.

Fig. 5 shows the tongue or pole pivoted at its rear end to the axle of the ground-wheel or to bearings concentric with said axle, and a bell-crank lever O, pivoted at its elbow to the frame and connected to the tongue by link O'. In this instance the frame is provided with a toothed sector adapted to be engaged by the devices for locking the lever against movement.

The construction disclosed in Fig. 6 is similar to that shown in Fig. 3, the main difference being that in Fig. 3 the lever M is pivoted at a point in advance of the axle, while in Fig. 6 it is journaled on the axle.

Fig. 7 discloses the tongue pivoted at its rear end and carrying a lever P, having a toothed segment, which latter engages a slightly-curved toothed bar secured to the front end of the frame.

In Fig. 8 and also in Figs. 4, 5, 6, and 7 we have shown the shoes connected directly to the frame, the drag-bars of Figs. 1, 2, and 3 being dispensed with.

By means of the devices disclosed we are

enabled to change the angle of the shoe to the tongue and face of the ground by means of a lever without raising or lowering the shoes or affecting the weight or pressure applied to said shoes to force it into the soil.

In Fig. 10 we have shown the shoe and boot connected to a drag-bar made of spring metal, while in Fig. 11 we have shown the rear end of the tongue connected to the frame by a screw swiveled at its lower end.

Some machines are made double—that is to say, with two frames and two poles for four horses. In such machines the runners or shoes are raised in sections or gangs, and we prefer in such cases to employ independent devices for tilting the gangs in the same way. It is sometimes desirable to tilt one end of a wide machine to clear a clod or bunch of trash or to level up a machine when a large team is attached to one pole or tongue and a small team is attached to the other pole or tongue. In this case the machine would have to be leveled up or adjusted in some shape to offset the irregularity in the height of the tongues at the front end. Some prefer and do arrange the frame in sections, and hence the desirability of tilting in sections.

While we have described several forms of accomplishing the desired end, it is evident that other slight changes might be resorted to without departing from the spirit and scope of our invention. Hence we do not wish to confine ourselves to the details shown, but consider ourselves at liberty to make such slight changes and alterations as fall within the spirit and scope of our invention.

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

1. In a grain-drill composed substantially of a series of runners arranged to admit of their conformity to the face of the soil and provided with boots through which the seed is distributed, and a seed-hopper, feed mechanism, frame, and hinged tongue, a means for tilting the runner during the operation of the machine independent of the ordinary lifting device, and consisting, essentially, of a lever and locking mechanism or their equivalent operating upon the hinged tongue and frame, substantially as described, whereby the runners in gangs or all at once may be placed and retained at any angle desired.

2. In a grain-drill composed substantially of a series of runners arranged to admit of their conformity to the face of the soil and provided with boots through which the seed is distributed, and a seed-hopper, feed mechanism, frame, and hinged tongue, a means for raising and lowering the front end of the runners during the operation of the machine independent of the ordinary lifting device, and consisting, essentially, of a lever and locking mechanism operating upon the hinged tongue and frame, substantially as described, whereby the runners in gangs or all at once may be placed and retained at any angle desired.

3. In a grain-drill composed substantially of a series of runners provided with boots through which the seed is distributed, drag-bars arranged to admit of the runners rising and falling, a seed-hopper, feed mechanism, frame, and hinged tongue, a means independent of the ordinary lifting device, consisting, essentially, of a lever and locking mechanism or their equivalent, operating upon the hinged tongue and frame, substantially as described; for tilting the runners in gangs or all at once during the operation of the machine and retaining them at the desired angle to the face of the soil.

4. In a grain-drill composed substantially of a series of runners provided with boots through which the seed is distributed, drag-bars hinged to admit of the runners rising and falling, a seed-hopper, feed mechanism, frame, and hinged tongue, a means independent of the ordinary lifting device, consisting, essentially, of a lever and locking mechanism, operating upon the hinged tongue and frame, substantially as described, for raising and lowering the front end of the run-

ners in gangs or all at once during the operation of the machine and retaining them at the desired angle to the face of the soil.

5. In a grain-drill composed substantially of a series of runners provided with boots through which the seed is distributed, drag-bars arranged to admit of the runners rising and falling, a seed-hopper, feed mechanism, frame, and hinged tongue, a means independent of the lifting device, consisting, essentially, of a lever and locking mechanism or their equivalent, operating upon the hinged tongue and frame, substantially as described, for raising or lowering the front end of the runners in gangs or all at once during the operation of the machine and retaining them at the desired angle to the face of the soil.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

DANIEL C. VAN BRUNT.
WILLARD A. VAN BRUNT

Witnesses:

F. E. MARSH,
JOHN BODDEN.