

No. 661,028.

B. BENNETT & J. E. MOORE.
CLOD CRUSHER.

Patented Nov. 6, 1900.

(No Model.)

(Application filed June 11, 1900.)

2 Sheets—Sheet 1.

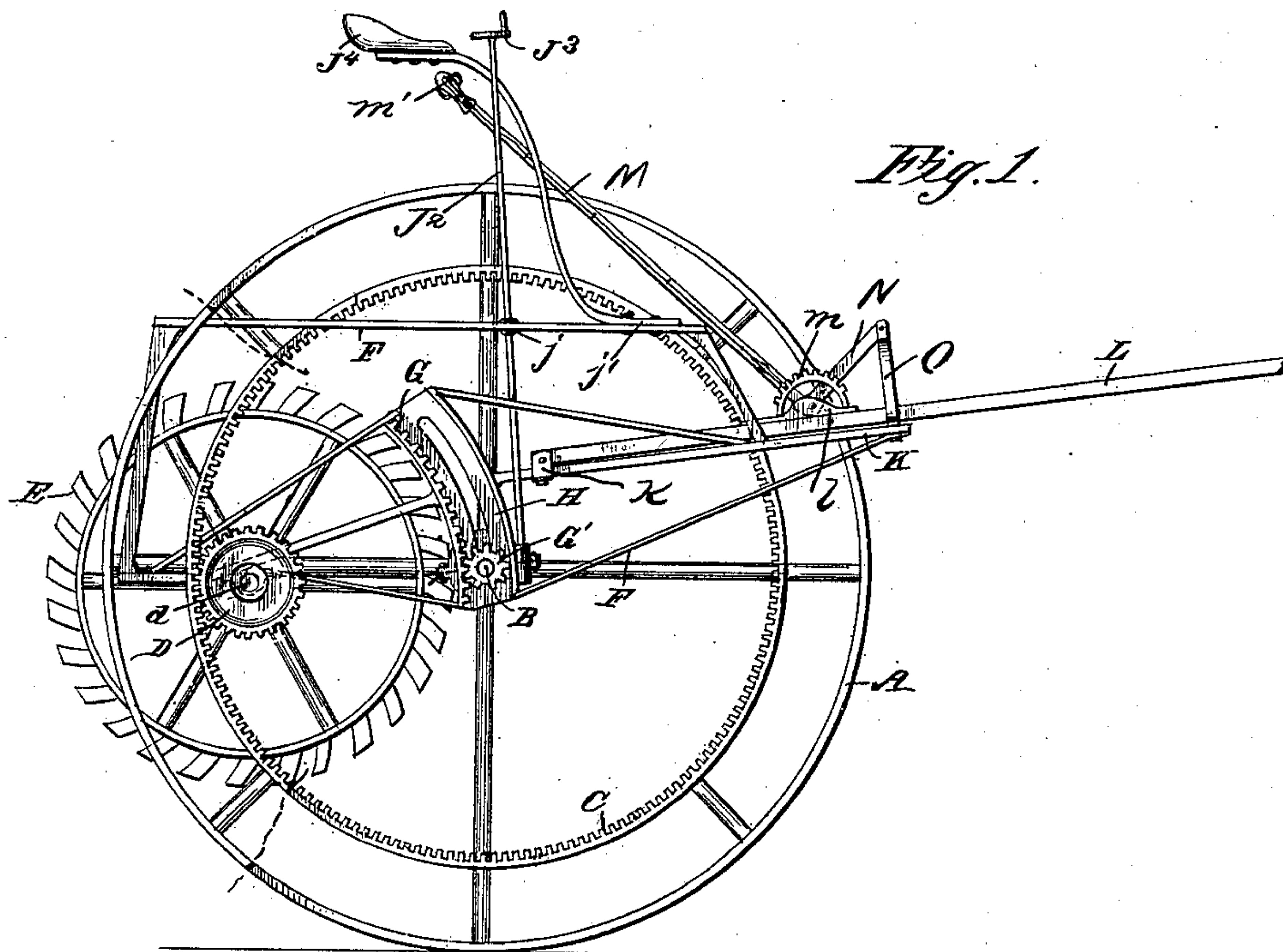


Fig. 1.

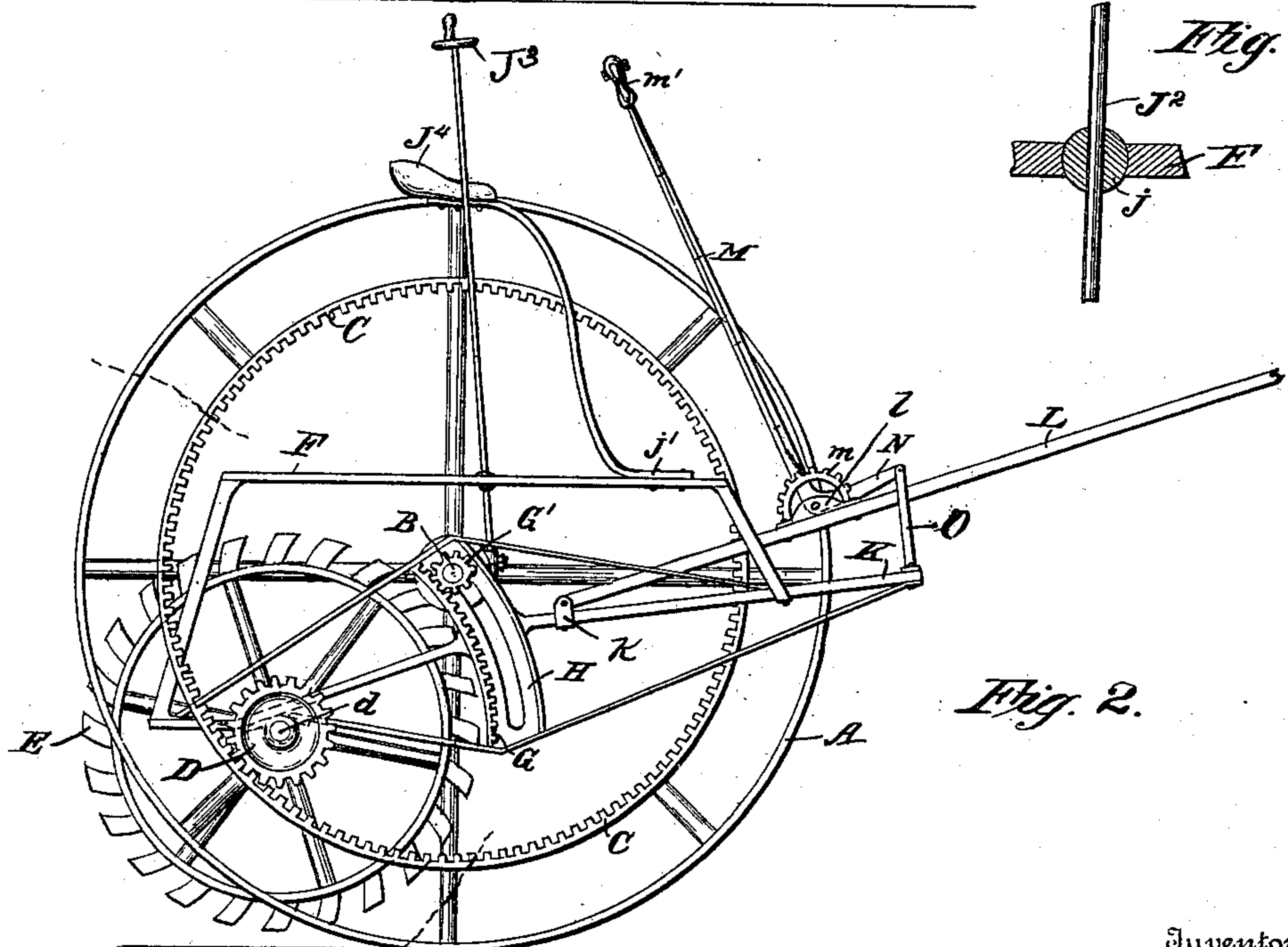


Fig. 2.

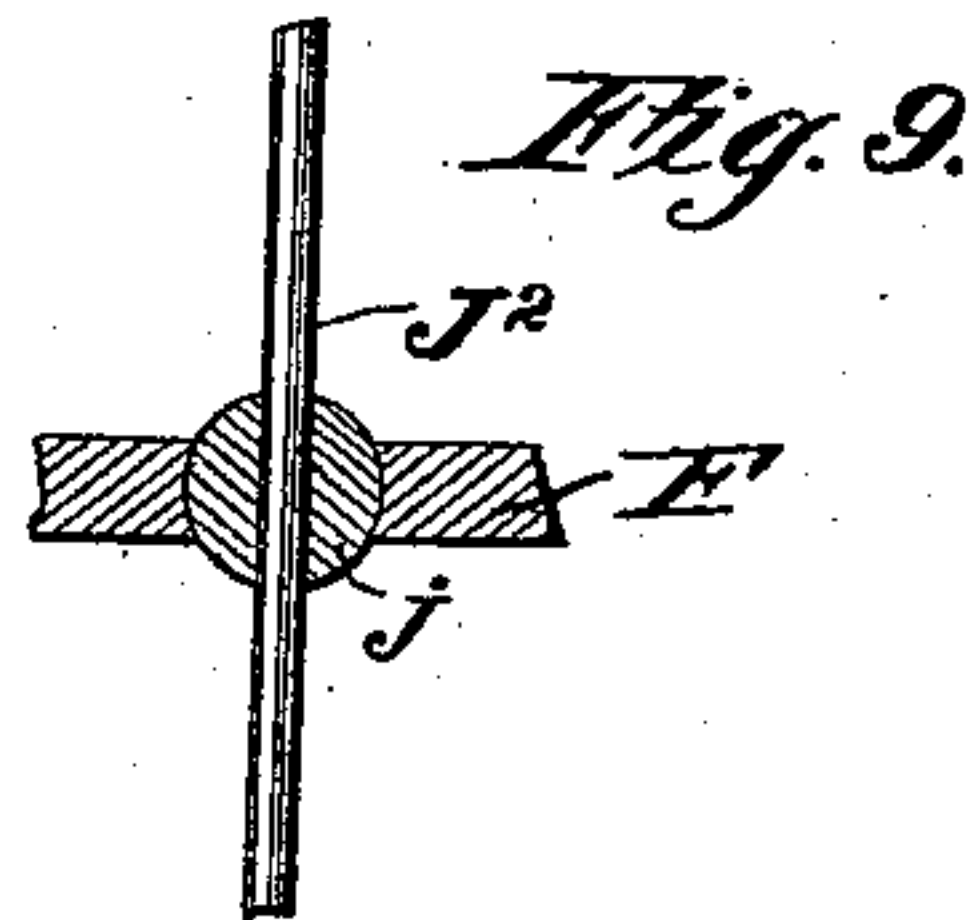


Fig. 9.

Witnesses

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2 Sheets—Sheet 2.

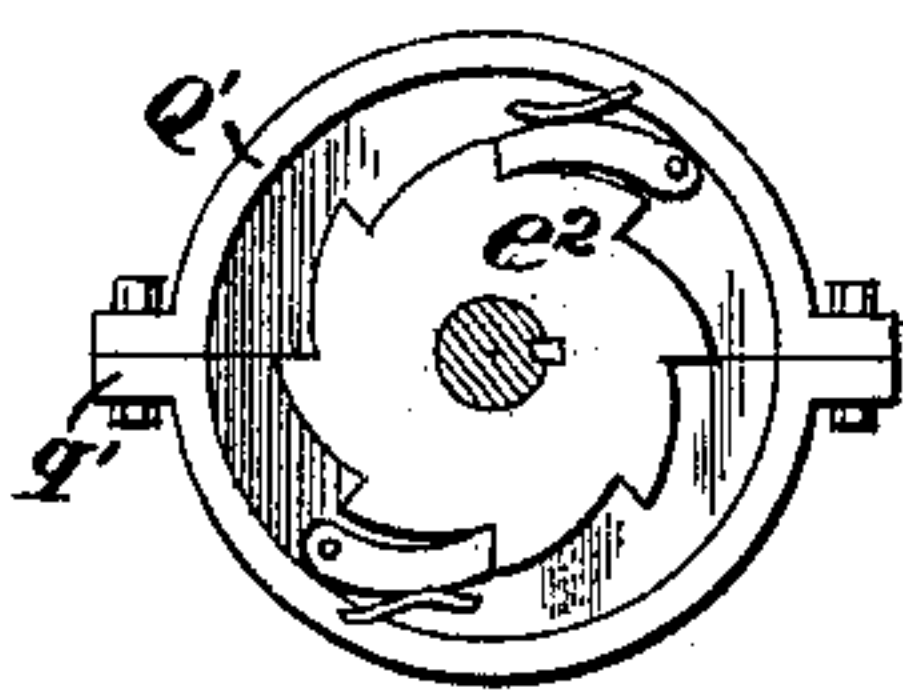


Fig. 8.

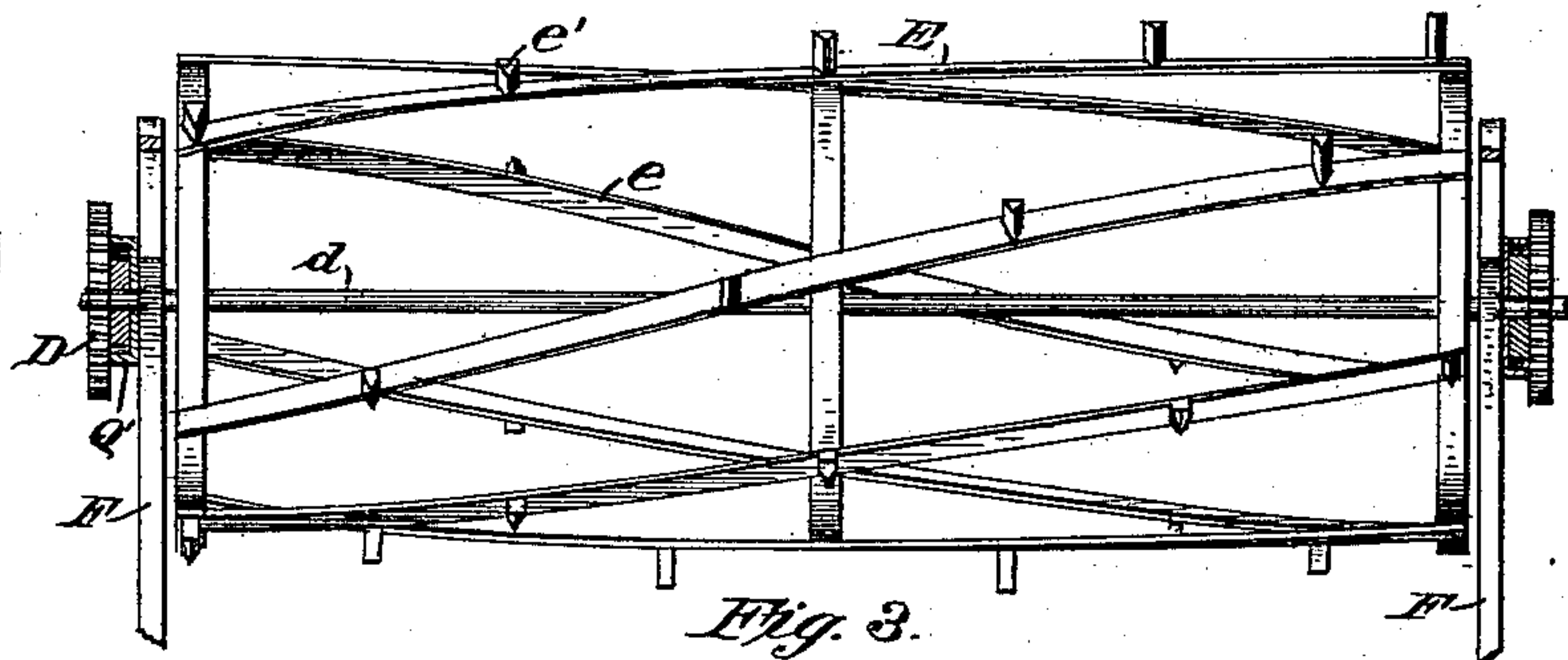


Fig. 3.

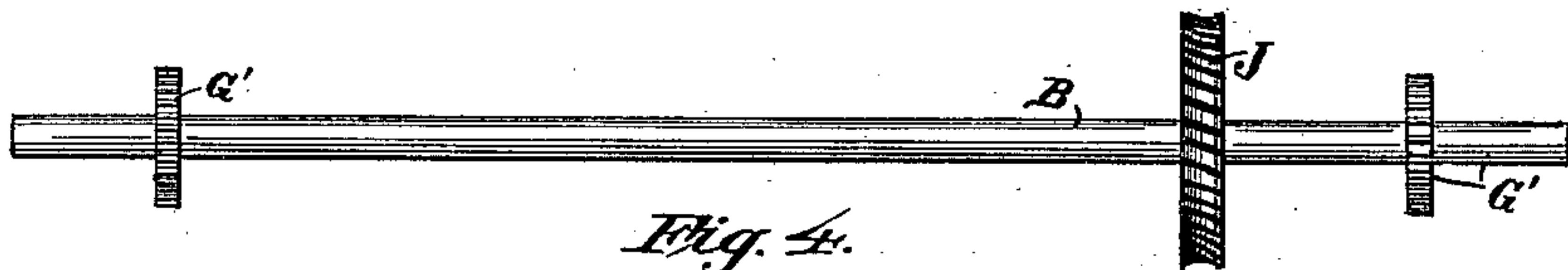


Fig. 4.

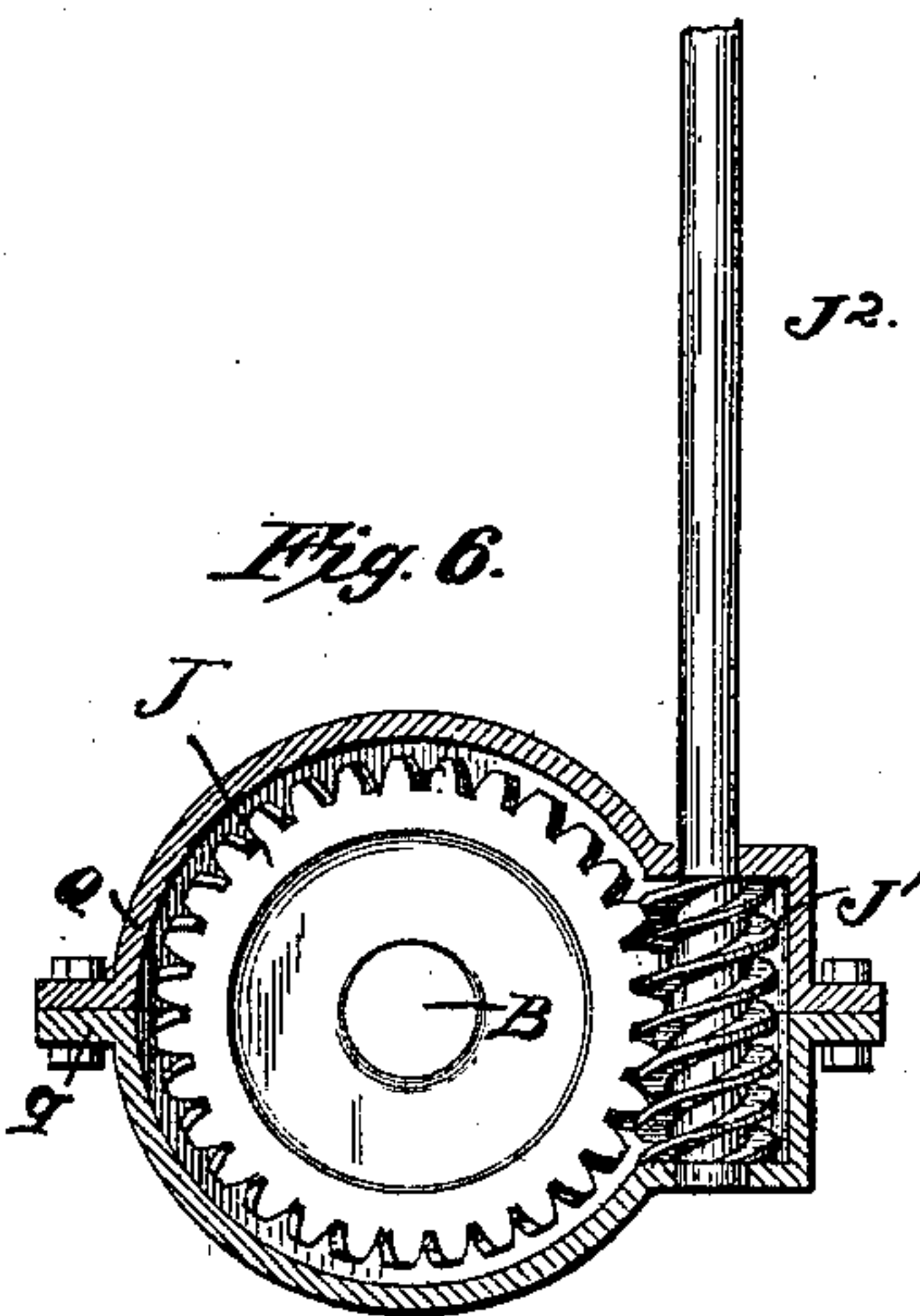


Fig. 6.

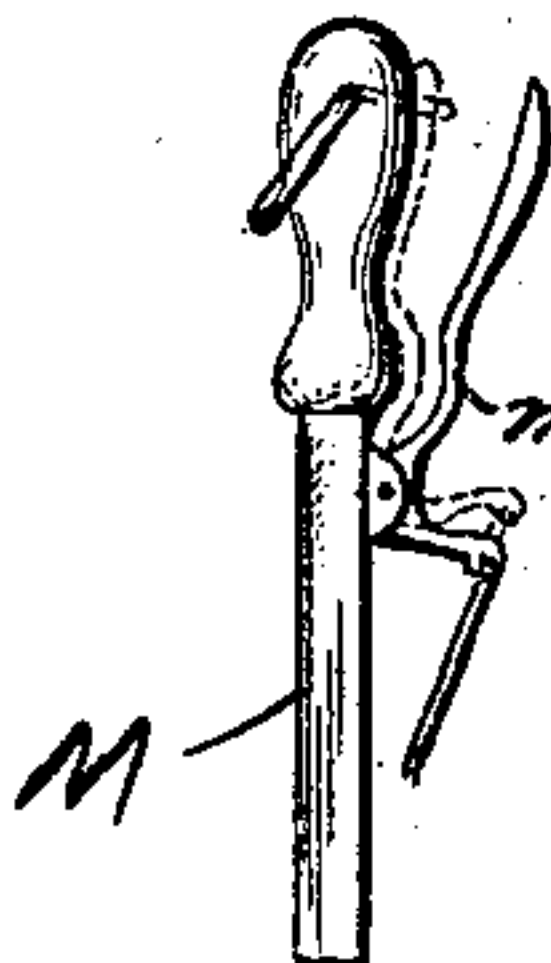


Fig. 7.

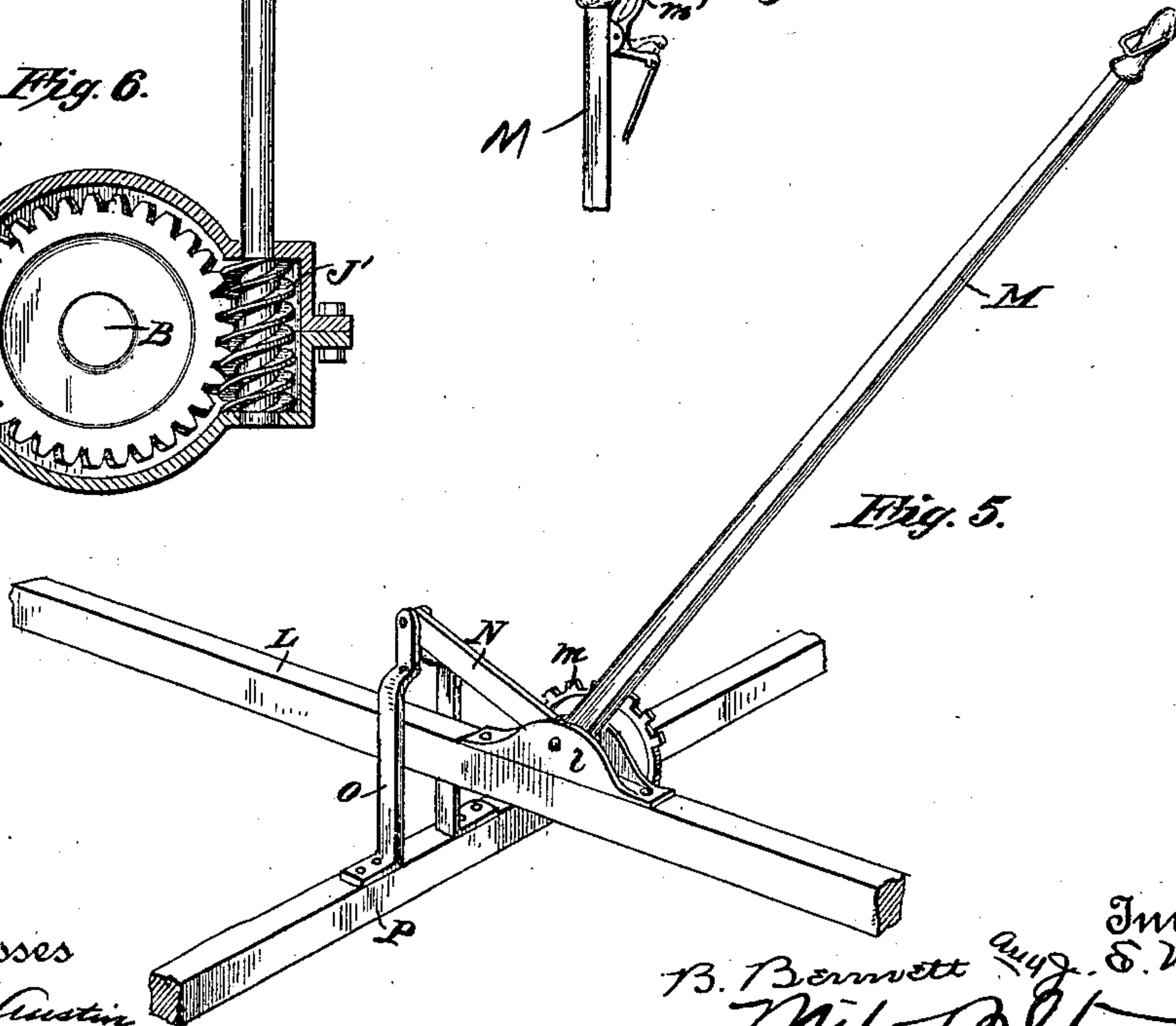


Fig. 5.

Witnesses

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UNITED STATES PATENT OFFICE.

BRUCE BENNETT AND JOHN E. MOORE, OF NEW HAVEN, ILLINOIS.

CLOD-CRUSHER.

SPECIFICATION forming part of Letters Patent No. 661,028, dated November 6, 1900.

Application filed June 11, 1900. Serial No. 19,894. (No model.)

To all whom it may concern:

Be it known that we, BRUCE BENNETT and JOHN E. MOORE, citizens of the United States, residing at New Haven, in the county of Galatin and State of Illinois, have invented certain new and useful Improvements in Clod-Crushers; and we do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates primarily to improvements in clod-crushers, land-rollers, and the like; but, as will be apparent from the description hereinafter, it is likewise applicable to many other classes of machinery.

The primary object of the invention is to provide a crusher so mounted upon suitable conveying apparatus that it may be readily raised and lowered into and out of contact with the ground and a means for suspending the crusher in elevated position and for forcing the same into operative position.

The invention also contemplates the provision of a framework capable of being raised and lowered with the crusher and a provision for keeping said framework in substantially a horizontal plane, so that its main weight will be borne by the main axle of the machine.

The invention also contemplates a suitable connection and operating means between the tongue or draft-pole of the machine and the framework, whereby the weight of the framework may at all times be supported by a part of the machine other than the tongue.

In the accompanying drawings an embodiment of the invention is illustrated, and in hereinafter referring to the same like letters of reference refer to corresponding parts in the several figures.

Figure 1 is a side elevational view of the machine, parts being broken away for clearness of illustration. Fig. 2 is a corresponding view, the elements of the machine occupying a different position from that shown in Fig. 1. Fig. 3 is a plan view of the crusher and its associated parts. Fig. 4 is a detail view of the axle of the machine and the gears secured thereto. Fig. 5 is a perspective view

of the lever for lowering the forward portion of the framework, showing its manner of attachment to the tongue; and Figs. 6, 7, 8, and 9 are details of several portions of the machine, which will be clear from an inspection thereof.

Referring more specifically to the drawings, A designates the conveying or traction wheels, preferably two in number, connected by a main axle B and designed to support and carry the crusher and its framework, operating mechanism, &c., as will be hereinafter pointed out. The wheels are free to turn upon their axle. The respective wheels have suitably disposed thereon toothed circular racks C, and arranged to engage with each of these racks and be constantly in mesh therewith is an operating-pinion D, carried by the axle *d* of the crusher E. The crusher may be of any usual or preferred construction, but, as shown in Fig. 3, it preferably comprises the somewhat spirally-arranged longitudinal bars *e*, provided with teeth *e'*, arranged alternately thereon. The axle *d* of the crusher is supported in a portion of a framework F, which carries the whole of the crusher apparatus, and is arranged to be elevated and lowered with the crusher in a manner to be described. Clutches *e*² are so arranged with relation to the operating-pinions of the crusher that when the crusher is elevated and the machine backed for any reason the pinions will be free to rotate without rotating the crusher, while the forward motion of the machine imparts a constant rotary motion to the crusher. About midway its longitudinal length the framework F carries toothed segments G, adapted to be engaged by pinions G', keyed to the shaft B at its respective ends. These segments are held in constant mesh with their pinions by means of the apertured guide-plates H, also carried by the framework and adapted to work over the axle B.

At a convenient point on the axle B is keyed a gear J of convenient size, and this gear is adapted to be turned by a worm J', formed on a substantially vertically disposed shaft J², passing upwardly through the framework F and capable of a slight pivotal movement therein through the medium of a ball connection *j*, Fig. 9. This rod is designed to be

turned by a hand-wheel J^3 or other suitable operating means located near the seat J^4 , secured at j' to the framework. From so much of the description it will be apparent that, by reason of its operating-pinions being in constant engagement with the circular racks on the respective wheels, when it is desired to raise or lower the crusher the operator merely turns the hand-wheel J^3 , and through the medium of the shaft J^2 , worm J' , and gear J imparts a rotary movement to the pinions G' , operating on the racks G , whereupon the racks will be carried upwardly or downwardly, as the case may be, and by reason of their curvature in relation to the curvature of the circular racks the crusher will consequently be correspondingly raised or lowered, the former position being clearly shown in Fig. 1 and the latter in Fig. 2.

Some mechanism must be employed for maintaining a proper position of the framework and for relieving the tongue or draft-pole from all strain whatever incident to the weight of the framework and crusher, and this feature may now be described.

Extending forwardly from the guides H are rods K , rigidly secured to the framework and properly connected at their forward ends. To these rods at the point k is pivoted a tongue or draft-pole L , and upon the draft-pole in suitable brackets l is pivoted a lever M , provided with the usual pawl and ratchet m and releasing-grip m' . The extended portion N of this lever is pivoted at its outer end to an inverted-U-shaped bracket or support O , working over the tongue L and rigidly secured to the beam P , connecting the forward portions of the rods K . From this construction it will be seen that when the crusher is in elevated position the lever M will be drawn backward and the parts will occupy the position shown in Fig. 1, while, on the other hand, when the frame is lowered the lever will then be thrown forward and the parts will occupy the positions shown in Fig. 2, with the framework still in substantially horizontal position and the weight of the apparatus still supported by the main axle of the machine. By this arrangement it will be seen that the tongue, by reason of its pivotal connection, may always occupy a proper relative position to an animal drawing the machine, irrespective of the position of the crusher and its framework, and also that any strain incident to the weight of the crusher and the framework will be borne by the axle of the machine and its traction-wheels, rather than, as is usually the case, be imparted to a greater or less extent to the tongue of the machine.

To protect the gear J and its operating-worm J' from dirt and the like, it is preferably confined within a two-part casing Q , bolted together at q , and the clutches e^3 are correspondingly protected by casings Q' , bolted together at q' .

It is to be understood that whenever the word "crusher" appears herein it is used for the purpose of affording a clear description of one application of the combination set forth in the claims and that such term is to be considered broad enough to cover not only clod-crushers, but also the various styles of pulverizers and other agricultural implements in connection with which the combination may be as readily used.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a machine of the character described the combination with supporting and conveying wheels, of circular racks on said wheels, a crusher, pinions on the crusher for engaging the racks on the wheels, a framework supporting the crusher, racks on the framework, pinions in engagement with the racks on the framework, and means for operating said last-mentioned pinions for causing the racks to be raised and lowered and the crusher correspondingly operated, substantially as described.

2. In a machine of the character described, the combination with suitable supporting and conveying wheels, of a framework and crusher, means for raising and lowering the framework and crusher, and means for maintaining the framework in horizontal position comprising a tongue or rod pivoted thereto, and means operating substantially as described, to shift the rod and framework relative to each other.

3. In a machine of the character described, the combination with suitable supporting and conveying wheels, of toothed racks on said wheels, a crusher in mesh with the toothed racks of the wheels, a movable framework supporting the crusher, racks carried by the framework and guided by the axle of the machine, pinions in engagement with said racks, and means for operating said last pinions to raise and lower the framework and crusher comprising an operating-lever, a worm on the lever and a gear on the axle of the machine, substantially as described.

4. In a machine of the character described, the combination with suitable supporting and conveying wheels, of a crusher, a movable supporting-framework for the crusher, means for raising and lowering the framework and crusher, a tongue pivoted to said framework, and means carried by the tongue for raising and lowering the forward portion of the framework to maintain the horizontal position of the framework, substantially as described.

5. In a machine of the character described, the combination with suitable supporting and conveying wheels, of a crusher, a movable support for said crusher, means for raising and lowering the support and crusher, a tongue pivoted to the support, and means on the tongue for maintaining the support in proper horizontal position, comprising a suit-

ably-controlled operating-lever, and a connection between said lever and the support, substantially as described.

6. In a machine of the character described,
5 the combination with a suitable framework, of a crusher, and means for varying the position of the crushers comprising racks carried by the framework, pinions in engagement with the racks on the framework, means
10 for operating the pinions for causing the racks to be raised and lowered and the crusher correspondingly operated comprising a worm-

and-pinion mechanism, an operating-rod for the worm, and a universal connection between the rod and the framework adapted to
15 operate substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

BRUCE BENNETT.
JOHN E. MOORE.

Witnesses:

J. H. DAVIS,
J. L. GREENLEE.