

H. A. Adams.

Cultivator.

No 103,537. Patented May 31, 1870.

Fig: 1.

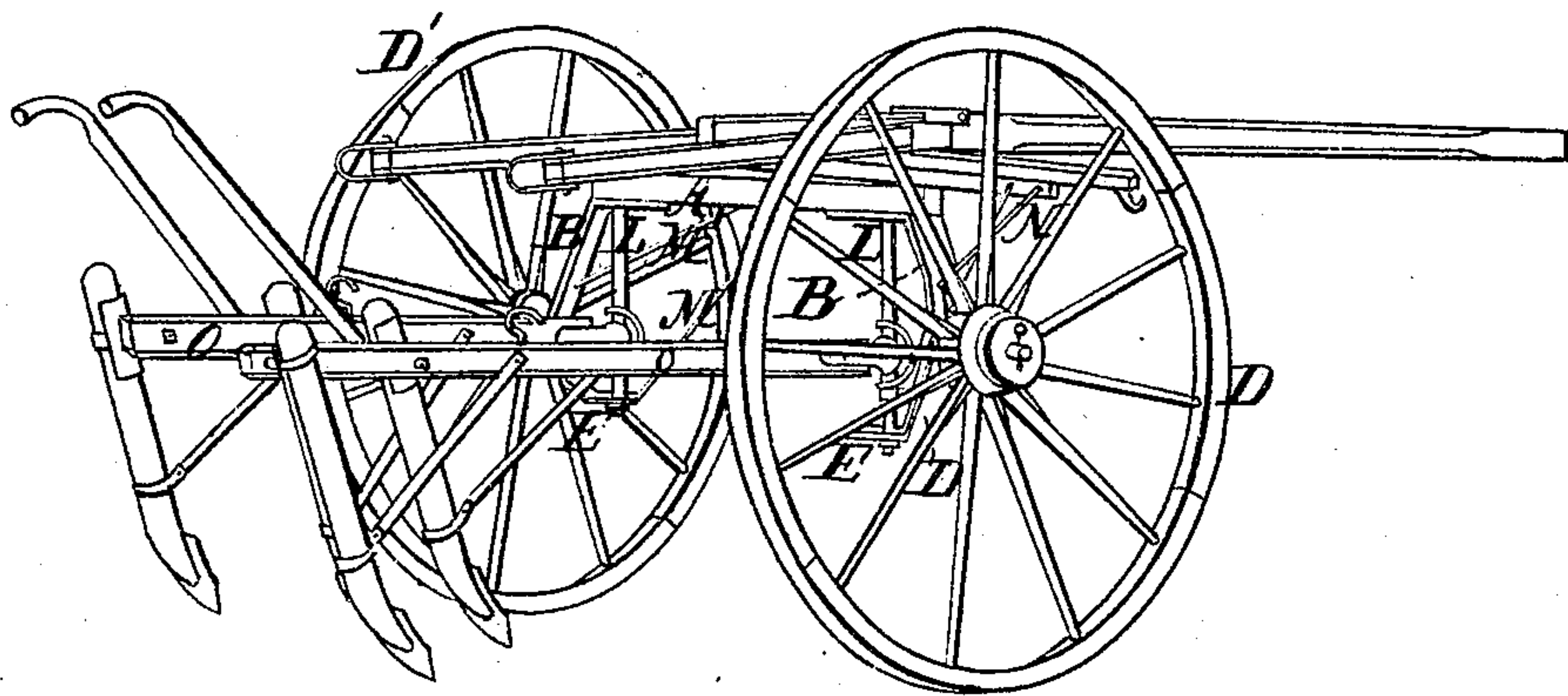


Fig: 2.

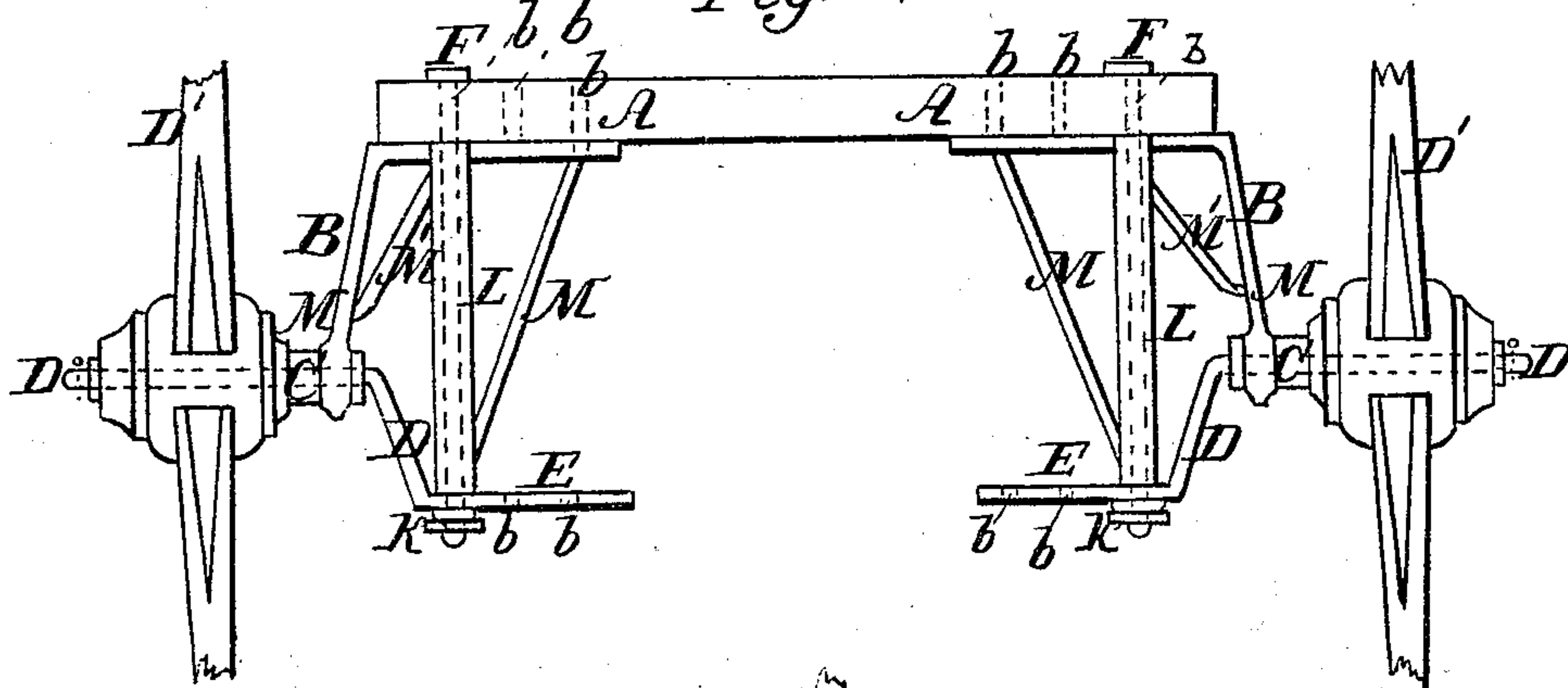


Fig: 3.

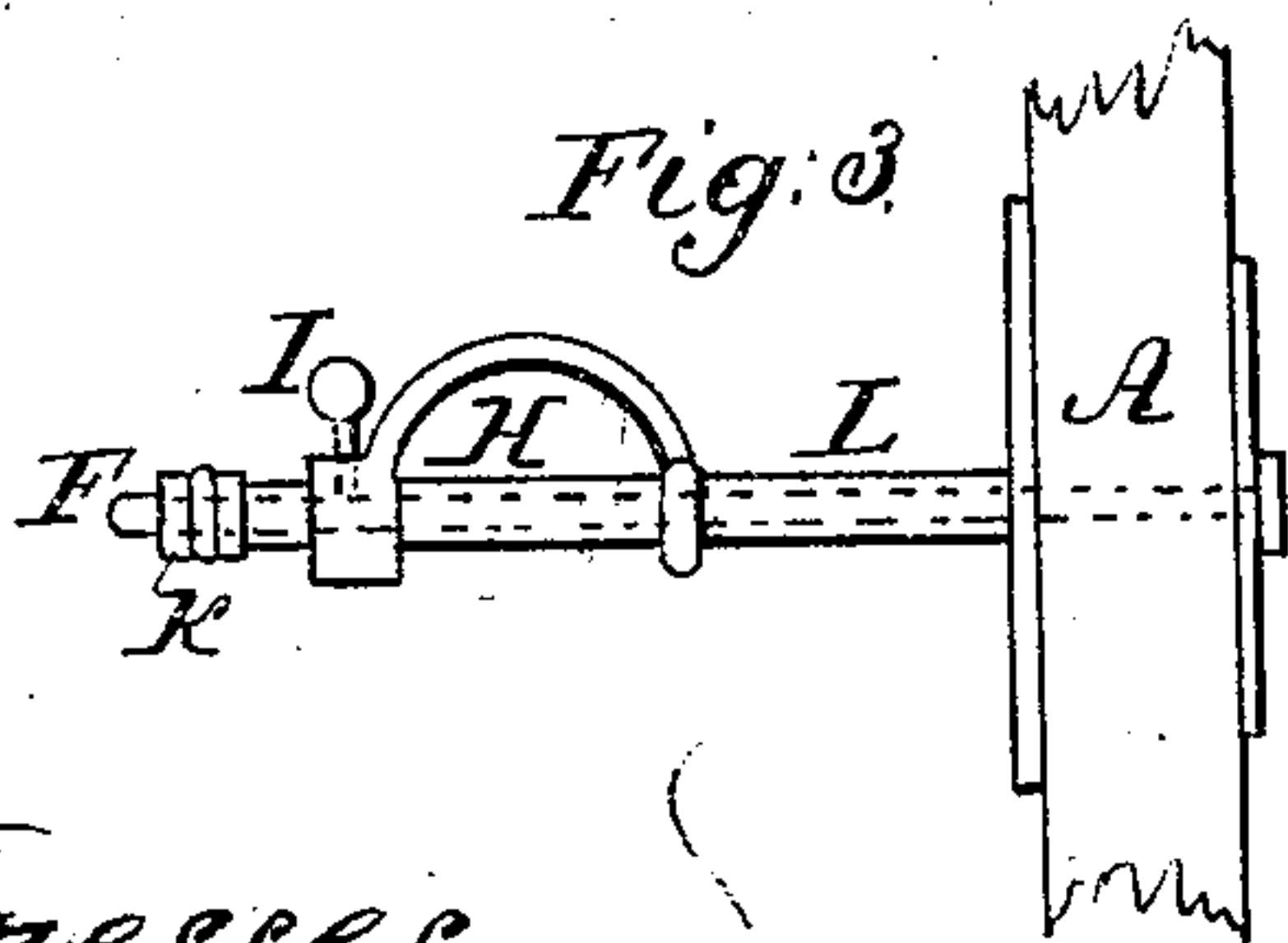
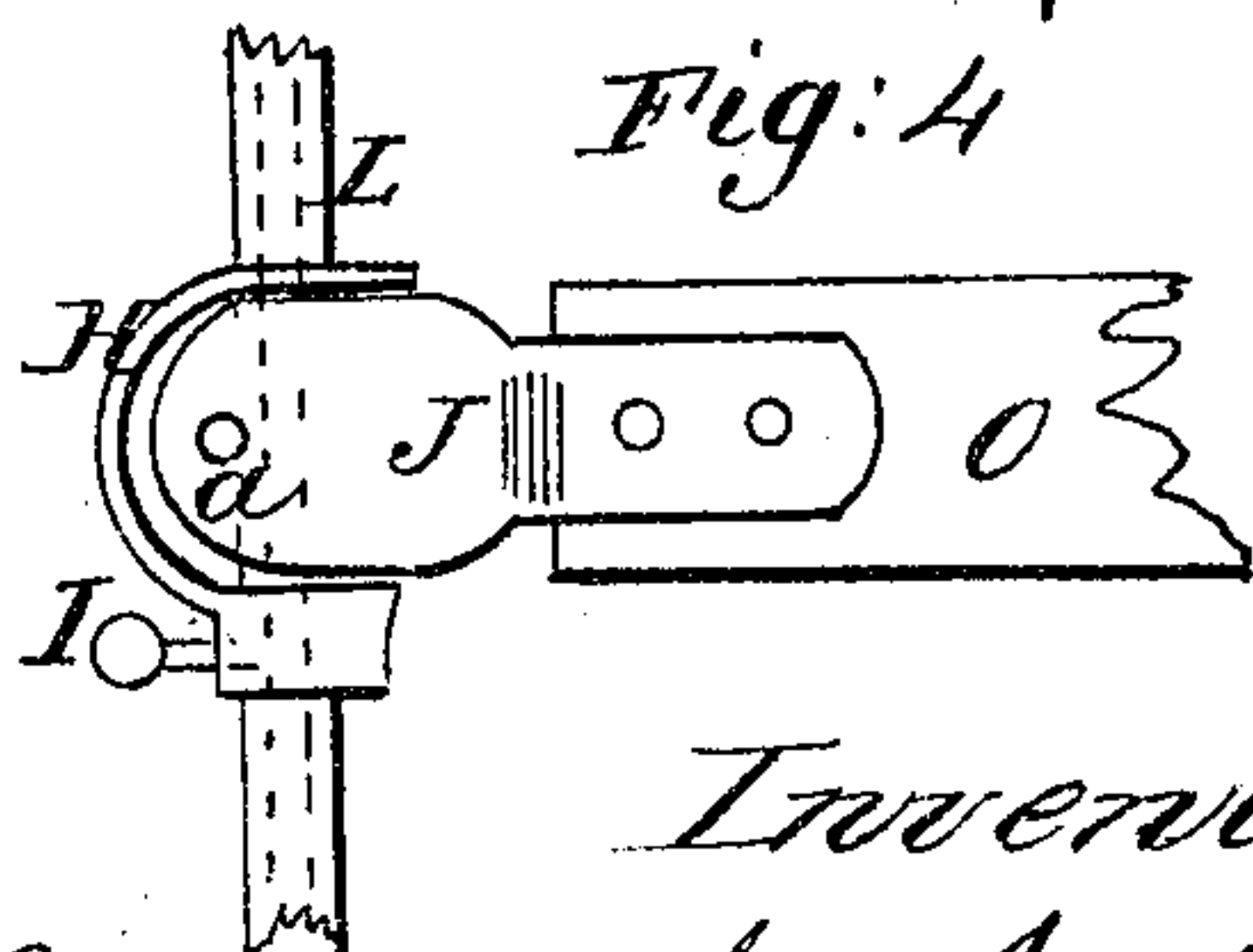


Fig: 4.



Witnesses
G. H. Ford
L. W. Farwell

Inventor
Henry A. Adams
By Farnell, Ellsworth & Co.
Attorneys

UNITED STATES PATENT OFFICE.

HENRY A. ADAMS, OF SANDWICH, ILLINOIS.

IMPROVEMENT IN CULTIVATORS.

Specification forming part of Letters Patent No. **103,537**, dated May 31, 1870.

To all whom it may concern:

Be it known that I, HENRY A. ADAMS, of Sandwich, in the county of De Kalb and State of Illinois, have invented certain new and useful Improvements in Cultivators; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to which my invention appertains to make and use the same, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 is a perspective view of a two-wheeled cultivator, showing my improvements applied thereto. Fig. 2 is a rear elevation, showing the axle, draft-bolt, &c., detached from the frame. Fig. 3 is a detached view of one of the draft-bolts; and Fig. 4 is a detached view of one of the draft-bolts and plow-beam, showing the method of connecting the two together.

Similar letters of reference indicate corresponding parts in the several figures of the drawing.

My invention has for its object to improve the construction of cultivators, for the purpose of rendering them more efficient in their operation.

To this end it consists, first, in the means for producing an extended vertical adjustment of the plow-beams to regulate the depth of the plows; secondly, in the combination of the draft-bolts and thimbles with the upper axle and the lower axle-extensions, for the purpose of regulating the width of the rows; thirdly, in the method of attaching the plow-beams to the draft-bolts, so that the former shall be capable of vertical and lateral motion, as well as vertical adjustment upon the bolts; fourthly, in the combination of tie-bolts or strengthening-rods with the draft-bolts and forward portions of the machine, by which the lower ends of the draft-bolts are brought in the direct line of draft of the team; lastly, in the combination of tie and strengthening-rods with various portions of the machine, and the provision of an adjustable tie rod or bolt, capable of adjustment to correspond with the adjustment of the draft-bolts, as will be hereinafter more fully described.

In the accompanying drawings, A is the main axle, and D the axle-arms, which receive

the cultivator-wheels D'. F F are draft-bolts, to which the forward ends of the plow-beams are attached.

It is necessary to successful cultivation that the plows should be capable of adjustment, so as to enter the earth at a greater or lesser distance, according to the nature of the soil and the article to be cultivated. In order to regulate the depth of the plows, the draft-bolts must be of sufficient length to permit a somewhat extended vertical adjustment of the front ends of the plow-beams. For this purpose the axle-arms D are bent downward and inward, as shown, the portions or extensions E of the same furnishing supports for the lower ends of the bolts, and the main axle A extended above the axle-arms, by means of the bent arms B, whose lower ends form sleeves C, fitting around the axle-arms immediately upon the inner sides of the cultivator-wheels.

By this construction sufficient length of the draft-bolts is obtained for the necessary vertical adjustment of the plow-beams. This would not be the case if the axle were on a line with the center of the wheels, because the bolts would then depend from the under side of the axle or extend above the same but a very short distance, and if extended both above and below the axle the vertical adjustment would be interrupted by the axle.

Elevated axles have been used with the draft-bolts affixed to their under sides; but the bolts were not supported at their lower ends in such a manner as to prevent lateral displacement—that is to say, any irregularity in the line of draft of the plows from one side to the other would, when the beams are set low, cause the draft-bolts to yield, and thereby destroy their effective operation.

L is a thimble or tube surrounding each of the draft-bolts between the axle A and the extensions E of the axle-arms, for the purpose of forming shoulders bearing against these parts, so that when the nut K upon the lower end of the bolt is set up all the parts shall be drawn firmly together. The thimbles also permit the removal of the bolts when, for any cause, this becomes necessary by withdrawing the latter through the former. This could not be the case if the bolts and thimbles were made in one piece—that is to say, if shoulders were

formed directly upon the bolts the latter could not be removed, because the axle A and extensions E could not be spread apart sufficiently to clear the ends of the bolts.

H is a clip or yoke placed upon the thimbles L, and capable of vertical adjustment thereon by the set-screws I. Between the arms of this clip the plow-beams O are attached by means of two plates, J, firmly secured to the two opposite sides of the beams, and having their front ends rounded to correspond with the curvature of the clips. These parts straddle the thimbles upon the draft-bolts, and are secured in place by a pin or bolt, *a*, passing through the plates in front of the thimbles. By this arrangement the plow-beams are securely attached to the bolts for draft purposes, at the same time forming free-acting joints, capable of both vertical and lateral adjustment. The depth of the plows is regulated by the vertical adjustment of the clips H.

The plows are adjusted, to regulate the width of the rows in cultivating, by changing the draft-bolts in the series of holes *b*, formed in the axle A and extensions E, as shown.

In order to bring the lower ends of the draft-bolts in the direct line of draft of the team, and at the same time impart additional rigidity and strength to the supports of said bolts, the lower ends of the latter are attached, by means of eyebolts or rods M, to a cross-tree, N, placed upon the tongue of the machine near the double-tree. If desired, the forward ends of these rods may be attached directly to the tongue or other convenient forward portion of the frame.

The rear ends of the eyebolts are slipped over the ends of the draft-bolts, and held firmly in place by means of the nuts K, as shown in Fig. 2. The rear ends of these bolts

are capable of adjustment to correspond with the lateral adjustment of the draft-bolts in regulating the width of the rows.

To still further strengthen the parts and distribute the draft of the team evenly, rods M' are employed to connect the cross-tree N with the arms B above the axle-arms. The rods M and M' act jointly and make the whole structure substantial and strong, in the most simple and efficient manner.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the extensions E with the bent axle-arms D and elevated axle-tree A, for the purpose specified.

2. The combination of the thimbles L and the draft-bolts F with the upper axle-tree and the lower axle-extensions, for the purpose specified.

3. The adjustable yoke H, in combination with the thimble L, for the purpose specified.

4. The combination of the plates J J and the adjustable yoke, for attaching the plow-beams to the draft-bolts, with a flexible connection capable of vertical adjustment, for the purpose specified.

5. The combination, with the axle-extensions E and draft-bolts F, of the eyebolts or draft-rods M, for the purpose specified.

6. A tie-rod having its forward end attached to the cross-tree or tongue of the cultivator and its rear end laterally adjustable, in combination with a laterally-adjustable draft-bolt, for the purpose specified.

HENRY A. ADAMS.

Witnesses:

JOHN W. CASS,
S. B. STINSON.