J. C. BANNIGAN.

CULTIVATOR.

No. 181,302. Patented Aug. 22, 1876.

Fig. 1

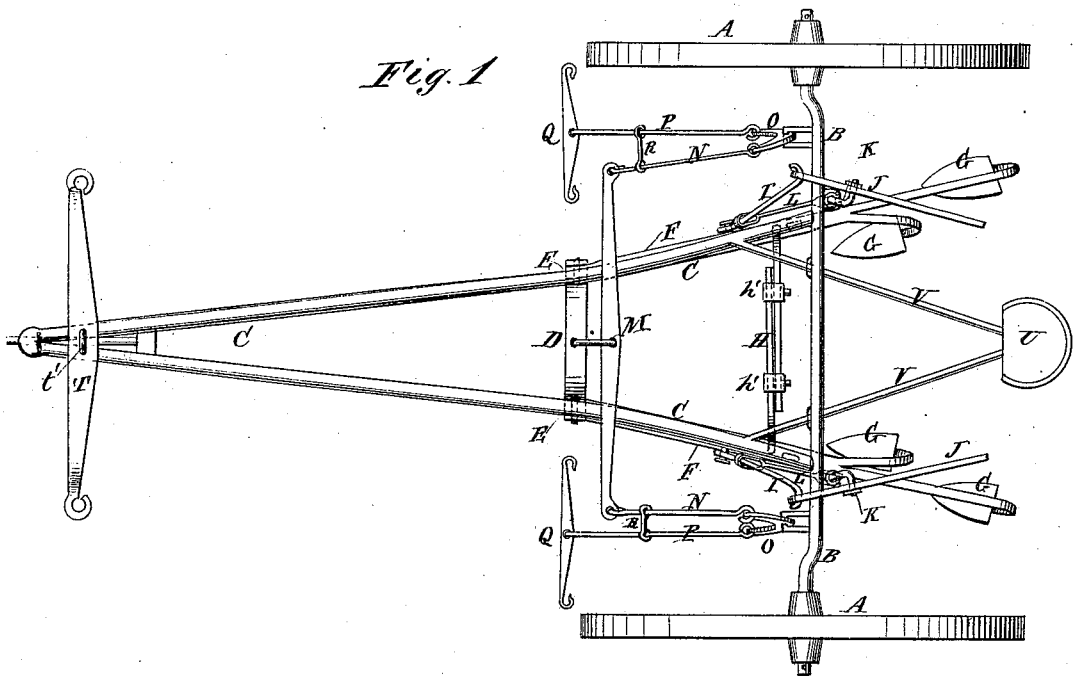


Fig. 2

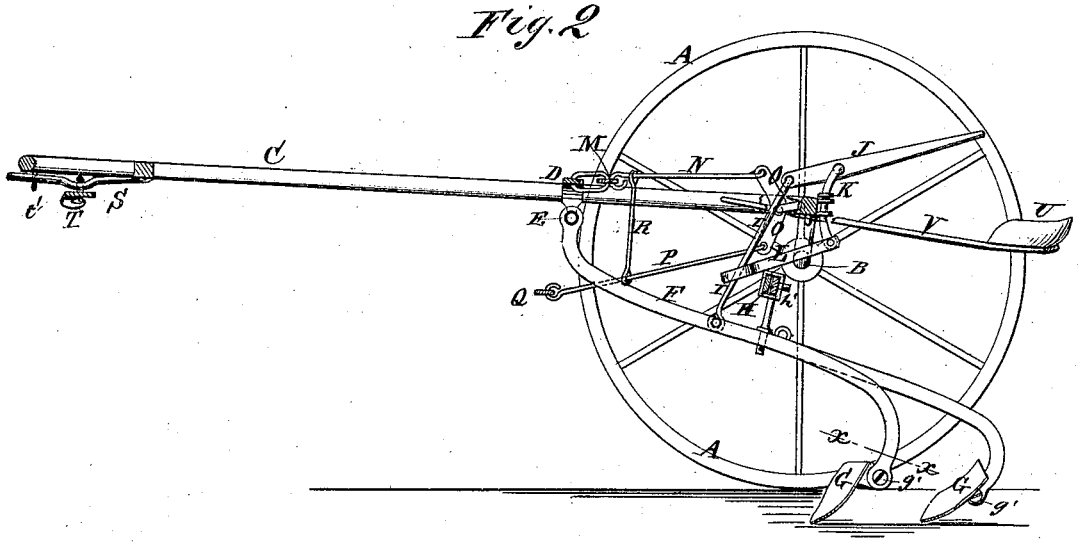
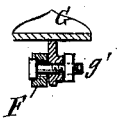


Fig. 3



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN C. BANNIGAN, OF DUNLEITH, ILLINOIS.

IMPROVEMENT IN CULTIVATORS.

Specification forming part of Letters Patent No. **181,302**, dated August 22, 1876; application filed March 21, 1876.

To all whom it may concern:

Be it known that I, JOHN C. BANNIGAN, of Dunleith, in the county of Jo Daviess and State of Illinois, have invented a new and useful Improvement in Cultivators, of which the following is a specification:

Figure 1 is a top view of my improved cultivator. Fig. 2 is a vertical longitudinal section of the same. Fig. 3 is a detail cross-section, taken through the line *x x*, Fig. 2.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish an improved cultivator, simple in construction and convenient in use, being easily adjusted, guided, and controlled, and provided with a device for the attachment of the draft to protect the plants from being injured.

The invention will first be fully described in connection with the drawing, and then pointed out in the claims.

A are the wheels, which revolve upon the journals of the axle B. To the axle B is rigidly attached the tongue C, to which, at a suitable distance in front of the axle B, is attached the cross-bar D. To the ends of the cross-bar D are attached, or upon them are formed, ball-headed arms E, the balls of which are inserted in sockets formed in the split or slotted forward ends of the plow-beams F. The ends of the plow-beams are secured to the balls E by clamps or bolts. This coupling allows the rear ends of the plow-beams to have a free lateral and vertical movement. The forward ends of the plow-beams F are curved upward to bring them into proper position to be placed upon the balls E. The rear parts of the plow-beams F are branched, and the branches are made of different lengths, and are curved downward, to adapt them to serve as standards to receive the plows G. The plows G have lugs upon their rear sides, which are clamped against the sides of the ends of the beams F by bolts *g'*, so that by loosening the bolts *g'* the plows G may be adjusted at any desired pitch. The plow-beams F are adjusted to work closer to or farther from the row of plants by the two bars H, the outer ends of which are bent downward and secured to the said beams F. The inner parts of the bars H overlap each other, and are secured together by bolts or clamps *h'*, so that by loosening the said bolts or clamps the said bars may be slid out and in upon each other to adjust the plows. To the middle parts of the beams F are pivoted the lower ends of the connecting-rods I, the upper ends of which are pivoted to the forward ends of the levers J. The levers J are pivoted to the upper ends of the arms K, which are swiveled at their middle part to the axle B, and to their lower ends are pivoted the rear ends of the connecting-rods L, the forward ends of which have eyes formed in them to receive the lower part of the connecting-rods I. The upper and lower parts of the swiveled arms K are bent outward, so that by operating the levers J vertically the plow-beams and plows may be raised and lowered, and by operating the said levers J laterally the plows may be moved to one or the other side, as may be desired.

To the middle part of the cross-bar D is pivoted the center of the double-tree M, to the ends of which are pivoted the forward ends of the connecting-rods N. The rear ends of the rods N are pivoted to the upper end of levers O, which are pivoted to the axle B, and to the lower ends of which are pivoted the rear ends of the connecting-rods P. To the forward ends of the connecting-rods P are pivoted the single-trees Q. The rods P and the single-trees Q are supported in a horizontal, or nearly horizontal, position by the rods R, the lower ends of which are connected with the forward parts of the rods P, and their upper ends are connected with the forward parts of the rods N, or with the ends of the double-tree M. To the lower side of the forward part of the tongue C is attached a rod, S, to receive the ring or staple *t'* of the neck-yoke T. This construction raises the forward end of the tongue C, and brings it into a much more favorable position for controlling the plows. U is the driver's seat, which is attached to the rear ends of the bars V, the forward ends of which are attached to the tongue C, and which rest upon and are supported from the axle B. The axle B thus serves as a fulcrum, and enables the down draft upon the forward part of the machine to be balanced by the driver's weight.

Having thus described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with single-trees M Q, of the connected rods N P, and lever O, the latter pivoted to axle, as shown and described.

2. The combination, with tongue and yoke, of the pin S and ring t', connected and arranged as and for the purpose set forth.

3. The combination of the plow-beams, having front ends held by a ball-and-socket joint, and with each other, by adjustable bars H, as and for the purpose specified.

4. The combination of the pivoted levers J, the swiveled arms K, and the connecting rods I L, with the axle B and the plow-beams F, substantially as herein shown and described.

JOHN CHRISTOPHER BANNIGAN.

Witnesses:

HERBERT REES,

JOSEPH C. PAINE.