2 Sheets—Sheet 1.

I. UTTER.
Cultivator.

No. 219,326. Patented Sept. 2, 1879.

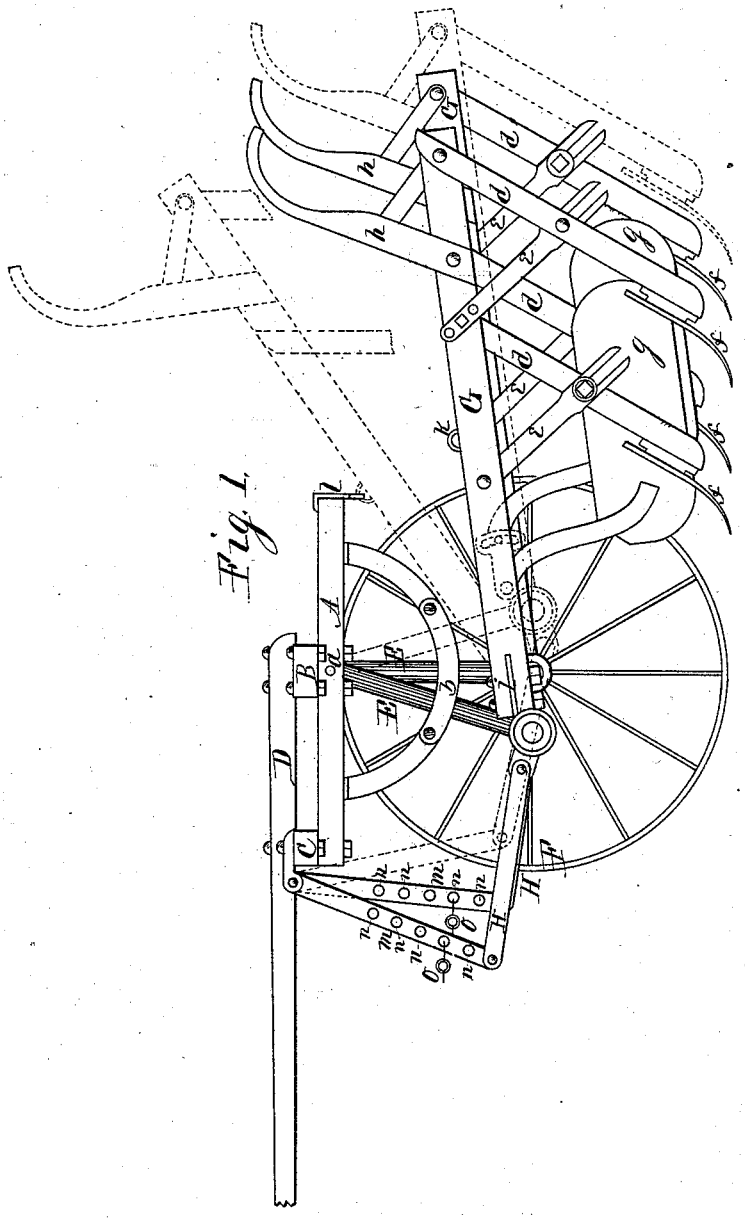

Fig. 1.

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Inventor.
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2 Sheets—Sheet 2.

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Fig. 2.

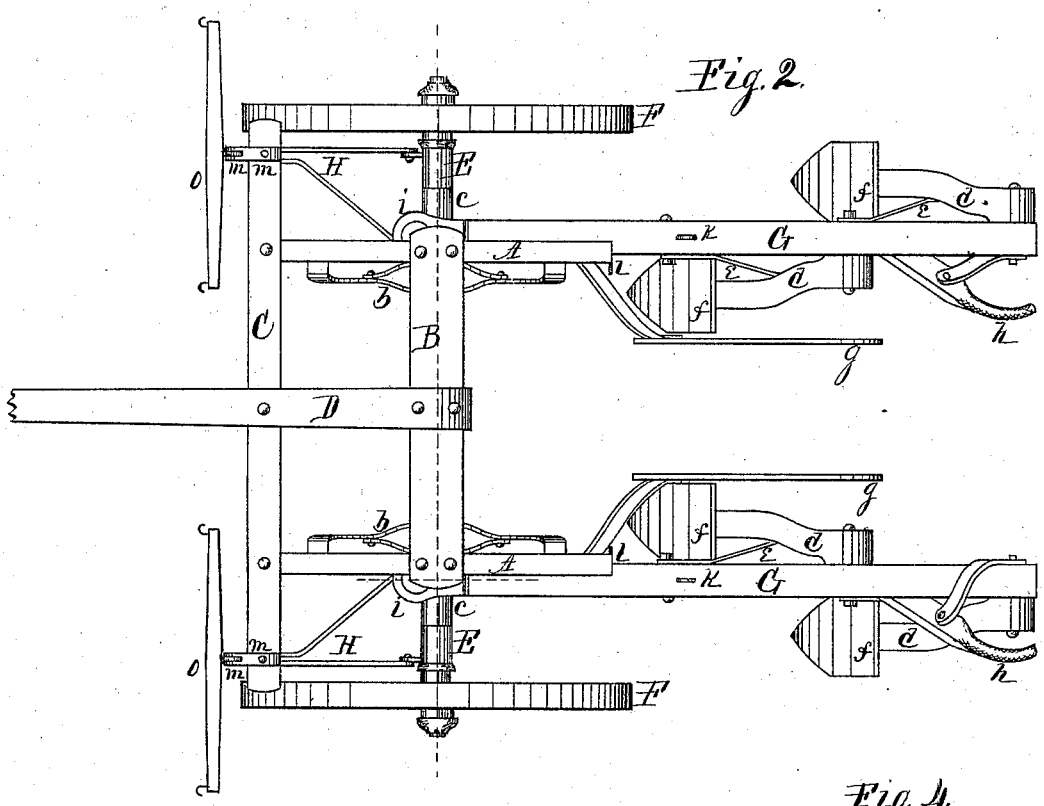


Fig. 3.

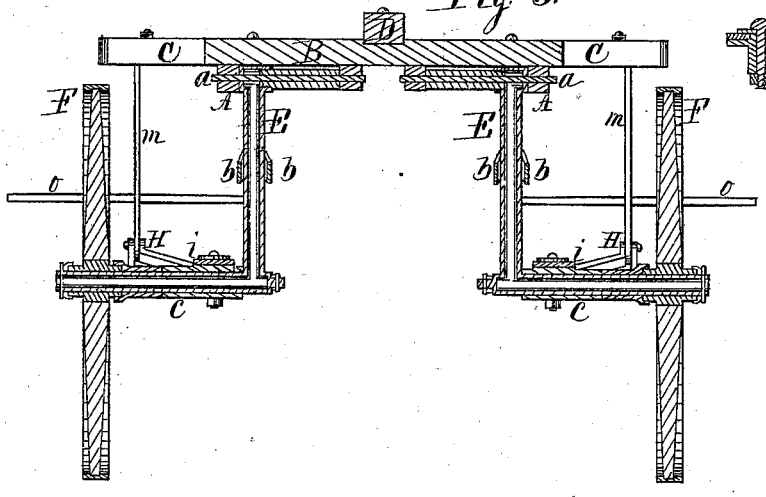
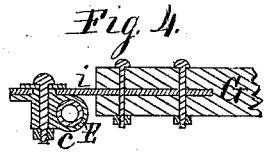


Fig. 4.



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UNITED STATES PATENT OFFICE.

ISAAC UTTER, OF ROCKFORD, ILLINOIS.

IMPROVEMENT IN CULTIVATORS.

Specification forming part of Letters Patent No. **219,326,** dated September 2, 1879; application filed February 8, 1879.

To all whom it may concern:

Be it known that I, ISAAC UTTER, of the city of Rockford, in the county of Winnebago and State of Illinois, have invented a new and useful Improvement in Cultivators, of which the following is a specification.

This invention relates to that class of cultivators known as the "straddle-row walking-cultivator," and of that variety in which the draft of the respective drag-bars with their attachments are independent.

The object of this invention is to produce a straddle-row walking-cultivator with drag-bars having an independent draft and a limited back-and-forth movement, and constructed with an adjustable draft attachment, by means of which the force required to operate the cultivator may be properly divided between the drag-bars and the main frame to properly regulate the downward draft on the neck of the team, whether large or small animals are employed to operate the machine; and, further, to separate the respective lines of draft to obtain sufficient distance between the inner ends of the whiffletrees to freely pass the plants without injuring them. These and other improvements, which will be hereinafter explained, are represented in the accompanying drawings, in which—

Figure 1 is a side elevation, in which the near carrying-wheel is omitted, and in which the dotted lines show some of the possible positions of some of the parts. Fig. 2 is a plan view embodying my invention. Fig. 3 is a central transverse vertical section on dotted line *x;* and Fig. 4 is a central lengthwise vertical section of the joint connecting the drag-bar with the axle of the carriage, taken on dotted line *y*.

In my improved cultivator the main frame is composed of like lengthwise beams A, to which are bolted the central crosswise beam, B, and the front crosswise beam, C. These beams form a rectangular frame, to the lengthwise center of which is bolted the tongue D, to project forward of the frame. These parts, framed and secured together as represented in the drawings, constitute the main frame of the machine.

E represents the divided axle-tree; which is composed of independent like halves of the crank form, as represented, and in this instance are made of tubular material, joined by suitable connections in substantially the same manner as it is common to connect such tubular parts. The upper horizontal portion of these independent like halves of the divided axle-tree are independently journaled to the main frame by means of a suitable metallic rod, *a*, passed through their tubular upper portions, and having their projecting ends fixed in suitable supports on the main frame. By means of this connection the independent like halves of the axle-tree are adapted to swing back and forth parallel with the line of draft independent of each other.

b are braces, of segment form, depending from the main frame, and having their depending central portion of slotted loop form, which receive the depending or vertical arms of the independent like halves of the divided axle-tree, to limit their back and forth swinging movements, and to give increased firmness thereto laterally.

At *c* are represented sleeves fitted to receive the lower horizontal portion of the independent like halves of the axle-tree, and from their forward sides projects the under portion of the hinge which connects the forward ends of the drag-bars to the axle-tree. The outer ends of the lower horizontal portion of the like halves of the divided axle-tree are fitted in axle form to receive the carrying-wheels F, to revolve thereon in the usual manner.

G are drag-bars, fitted with the usual appliances of shovel-standards *d*, adjustable slip-braces *e*, shovels *f*, adjustable shields *g*, and adjustable handles *h*, all of which are substantially the same as like parts now in common use in walking-cultivators. The forward ends of these drag-bars are slotted horizontally, into which is fixed the joint-plate *i*, which, by pivot-bolt connection with the lower portion, *e*, of the hinge, serves to connect the drag-bars to the wheeled carriage in the usual manner, to permit of a free lateral and vertical movement of the rear ends of the drag-bars and hold the shovel-standards in a vertical position, that by means of the handles the shovels may be carried by the operator to

either side to conform to the sinuosities of the rows of plants for thorough and equal cultivation.

At *k* are shown staples adapted to engage the hooks *l* on the rear ends of the lengthwise beams of the main frame, and serve to hold the plows suspended when required.

At H are represented branching draft-bars, having their rear branching ends pivoted to the lower horizontal portions of the divided axle-tree, from which they extend forward and meet in advance of the wheels, where they receive the lower end of the vertical draft-bars *m*, and are connected therewith by a pivotal joint. The upper ends of the vertical draft-bars *m* are connected to the outer ends of the forward cross-bar, C, by a pivotal joint, and the lower portions of these vertical draft-bars are provided with a series of holes, as at *n*, adapted to receive the center hook of the whiffletrees *o*, which are made vertically adjustable thereon to divide the draft of the team between the axle and the main frame, to properly balance the machine to regulate the downward draft on the necks of the team in the use of large or small animals. The whiffletrees are substantially the same as some whiffletrees now in use.

In the foregoing I have described the parted axle-tree as constructed of tubular material, which I prefer; but it may be constructed in part or in whole of solid bars of any suitable form, and of any proper material, and if the upper horizontal portion is of solid material it may be formed with suitable journals fitted to oscillate in suitable boxes or bearings on the main frame. I have also represented the drag-bars fitted with shovel-standards and slip-braces of a form that has been in use for many years; but other and later improved forms may be employed in their stead.

I claim as my invention—

The combination, with the main frame, the divided crank-axle journaled thereto, and capable of independent back-and-forth swinging movement, and the plow-beams, of the limiting slotted brackets *b*, the branching cross-bars, and vertical evener-bars, pivoted at their upper ends to the main frame, and at their lower ends connected with the forward ends of the branching draft-rods, substantially as set forth.

ISAAC UTTER.

Witnesses:
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