

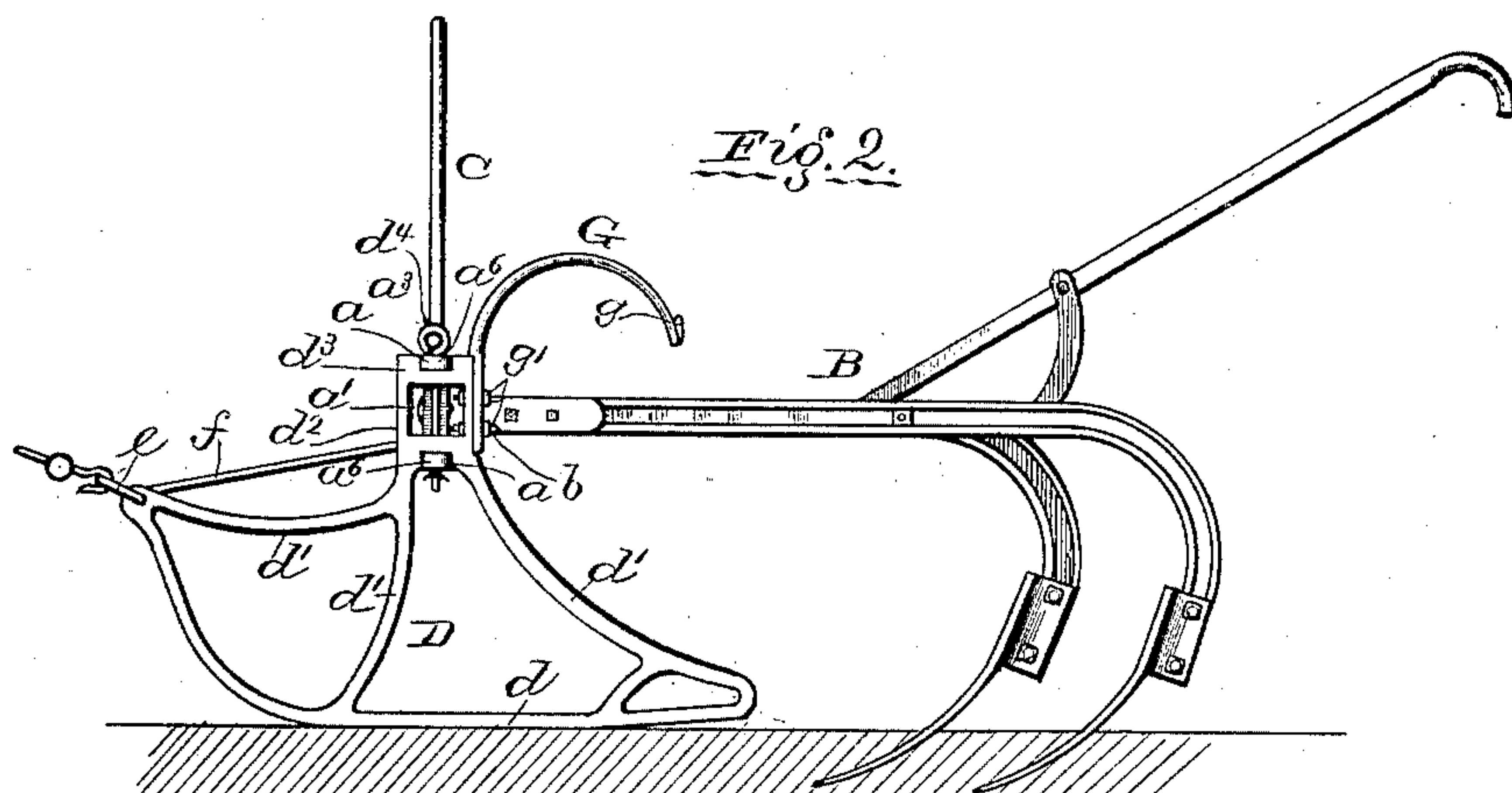
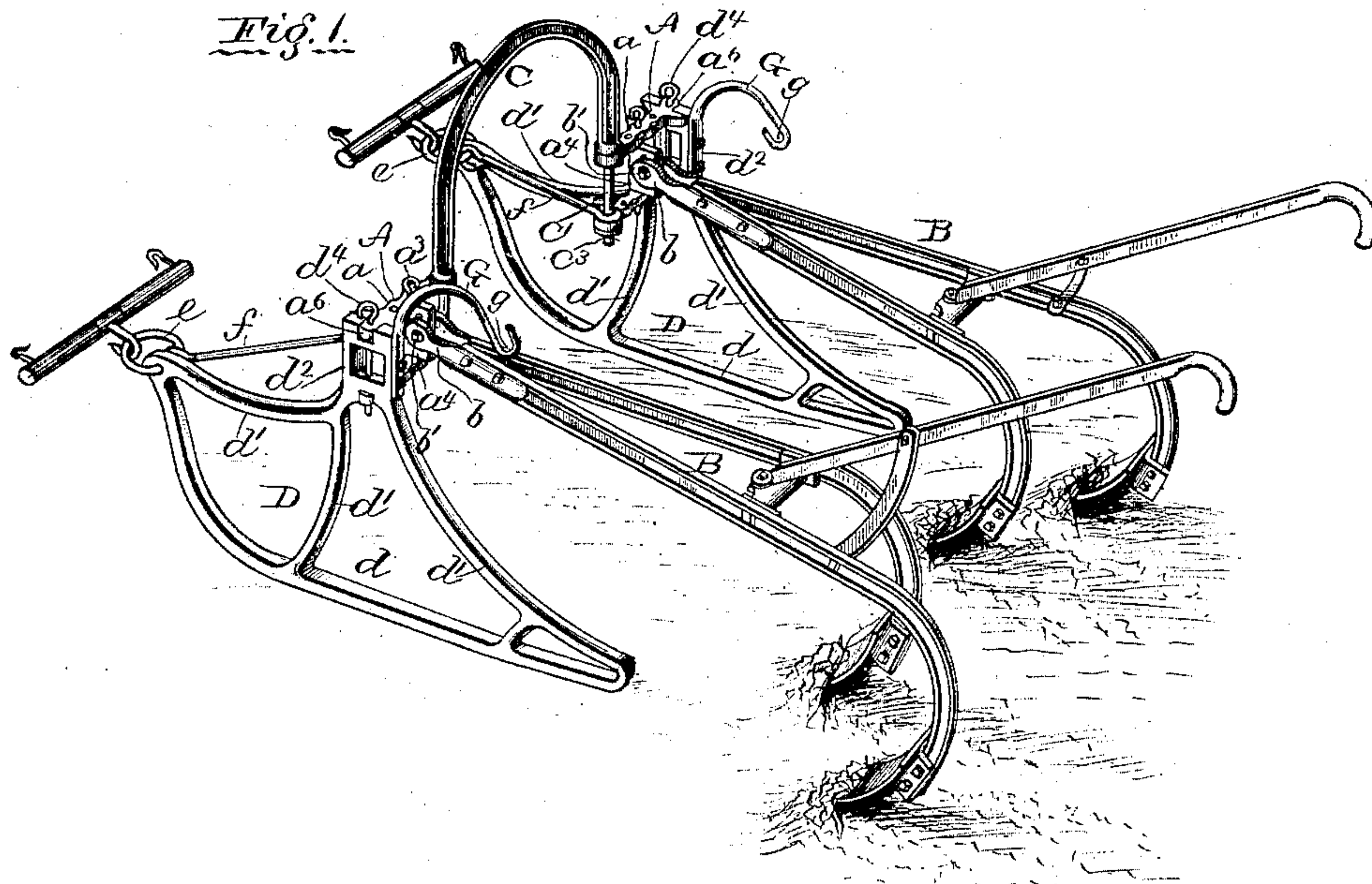
(No Model.)

2 Sheets—Sheet 1.

G. W. BROWN & O. A. JOHNSON.  
CULTIVATOR.

No. 476,976.

Patented June 14, 1892.



Witnesses:

Arthur J. Durand  
H. M. Richards.

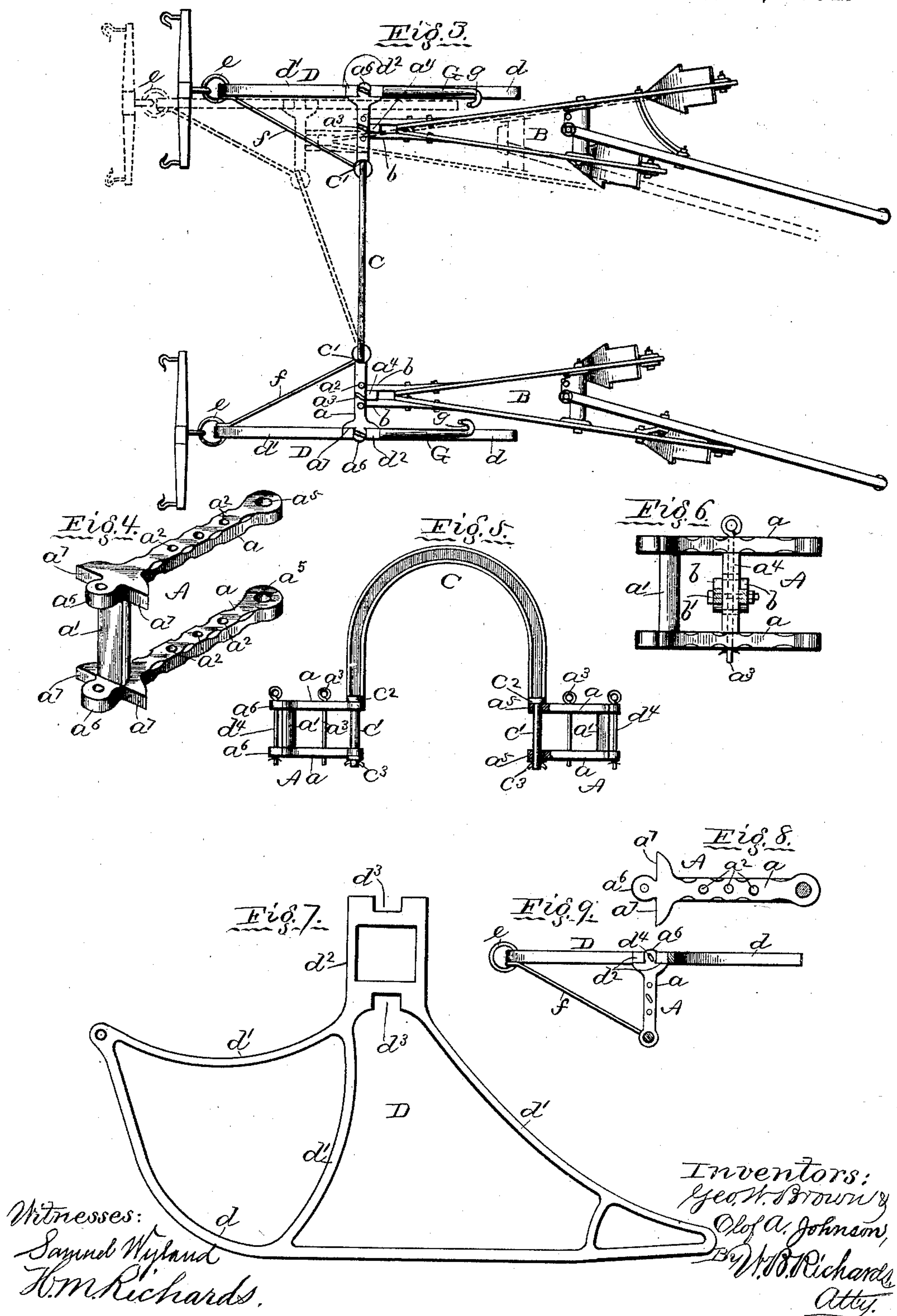
Inventors:

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# UNITED STATES PATENT OFFICE.

GEORGE W. BROWN AND OLOF A. JOHNSON, OF GALESBURG, ILLINOIS.

## CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 476,976, dated June 14, 1892.

Application filed January 28, 1892. Serial No. 419,505. (No model.)

*To all whom it may concern:*

Be it known that we, GEORGE W. BROWN and OLOF A. JOHNSON, citizens of the United States, residing at Galesburg, in the county of Knox and State of Illinois, have invented certain new and useful Improvements in Cultivators, of which the following is a specification.

Our invention relates to parallel or tongueless cultivators of that class or type in which runners are used as the supporting parts of the truck to which the plow-gangs are hinged and after and by which they are dragged and in which the supporting-runners are pivotally connected with the other parts of the truck, so that the runners may be held substantially in the line of draft and by the draft or some construction of the truck-frame when either runner is advanced or re-  
ceded with reference to the other; and our present improvements have for their object to provide for use a cultivator of the type referred to which shall be efficient in its operation, economic of manufacture, strong, durable, and readily and easily managed in use in the field by any person at all skilled in such work.

To this main end and object our invention consists in mechanisms embodying novel structural peculiarities and in combinations of parts which are hereinafter more fully described, and specifically pointed out in the claims hereto appended.

In the accompanying drawings all our improvements are shown as embodied in the best way now known to us and as carried into effect in that precise form of cultivator in which we have so far practiced it, though as to some or all of the several novel structural features the form of the parts may be more or less modified.

The preferred construction of parts and combinations referred to are illustrated in the accompanying drawings, in which—

Figure 1 is a perspective of the cultivator made and used by us; Fig. 2, a side elevation; Fig. 3, a top plan; Fig. 4, a perspective of one side frame; Fig. 5, a rear elevation of the side frames connected by the arch, showing one side frame partly broken away to more clearly show its hinge to the arch; Fig. 6, a rear

elevation of a side frame and sectional elevation of the forward end of a plow-gang; Fig. 7, a side elevation of one of the supporting-runners; Fig. 8, a top plan of a side frame; Fig. 9, a top plan of a runner, side frame, and brace as connected with each other.

The several reference-letters hereinafter used are each used in the different figures of the drawings to designate the same part.

Each side frame A is formed of two parallel bars  $a$ , united at or near one end by a vertical bar  $a'$ , which is preferably integral therewith. The bars  $a$  have ordinary coincident holes  $a^2$  for the pin  $a^3$ , which passes through them and through a block  $a^4$ , that swings horizontally on said pin and to which the plow-beam plates  $b$  are hinged by a bolt  $b'$ , by which ordinary means the plow-gangs B can be adjusted at different distances apart and be swung laterally and vertically in the ordinary manner when in use. The vertical ends  $c'$  of the yoke or arch C are rounded and journaled or pivoted in the coincident holes  $a^5$  in the inner ends of the bars  $a$ , as shown particularly at Fig. 5. A shoulder or collar  $c^2$  on each arch end  $c'$  above the upper bar  $a$  and a pin  $c^3$  through each end  $c'$  below the lower bar  $a$  serve to maintain the connections between the arch or yoke and the side frames A, while permitting said frames to swing or sway laterally on the ends  $c'$  of the arch as journals.

The supporting-runners D are each formed of a sled-runner-shaped part  $d$ , with curved braces  $d'$  extending upwardly to form supports for the rectangular part  $d^2$ , the upper and lower sides of which contain recesses  $d^3$ . The outer ends  $a^6$  of the arms  $a$  are fitted in the recesses  $d^3$  in the runner-frames, the upper arm  $a$  in the upper recess, and the lower arm  $a$  in the lower recess, and are held in such fixed position by a bolt  $d^4$ . The outer end of each arm  $a$  has also shoulders  $a^7$ , which rest against the inner side of the runner-frame and in an evident manner aid in making the connection between the runners and frames A fixed, rigid, and secure, while at the same time easily separable by simply removing the bolts  $d^4$ .

The forward ends of the runners D are each perforated for the reception of a ring



e, to which a draft-animal may be attached, and each of these rings is interlocked with an eye on the forward end of a brace-rod *f*, which diverges from the runner as it extends rearwardly of the cultivator and is fixed to the vertical end of the arch or yoke C by encircling it. These rods *f* serve as braces to further strengthen the attachment of the runners to the side frames A and to maintain the runners and side frames at substantially right angles to each other, whereby, the runner when in use in cultivating plants being, as in all parallel cultivators, in line with the draft, the side frames A will be held thereby at right angles to said line of draft or forward movement of the cultivator not only when the arch or yoke C is at right angles with the line of draft, as shown by full lines at Fig. 3, but also when by the advance of either draft-animal relatively to its fellow draft-animal or from other causes one side frame and runner are advanced relatively to the other side frame and runner and the arch or yoke C is moved into a position oblique to the line of draft, as shown by dotted lines at same figure, which dotted lines show one such oblique position of the arch or yoke, with the runners in the line of draft and the side frames each at right angles with the runner to which it is affixed.

The plow-gangs are suspended with their shovels above the ground on hooks *g* at the rear ends of rods *G*, the other or forward ends of which rods are fixed by bolts *g'* one to the rear side of each rectangular part *d*<sup>2</sup> of a runner, and the lower parts of the runners extend to such distances in rear of the couplings of the plow-gangs to the side frames A that they will support the plow-gangs when so elevated without tilting or falling backwardly.

The combination of the runners D and side frames A, rigidly connected with each other, and said side frames pivotally connected at their inner ends with the vertical ends of the arch or yoke C produces a simple, cheap, strong, durable, and in operation a very effective truck-frame for a cultivator of the class shown, and in which when either runner is turned shortly it will swing on the pivot at the end of its side frame next to the arch or yoke C, and hence be drawn in, so turning to a certain extent lengthwise of itself, and not be dragged around sidewise of itself to destroy small plants in turning, as is the case when the pivotal point on which the runner turns laterally or horizontally is at the runner, and in which the liability of the runners to swing or oscillate laterally, and thus the swinging or swaying of the runners at every obstruction and at every slight sway of either draft-animal is reduced to a minimum, as when the pivotal point of the run-

ner is at the end of the side frame next the arch and the plow-gangs are attached to the side frames, as in our improvements, the swinging movement of the runners is to a certain extent resisted by the plow-gangs, which are moved forwardly by each swing of the runner in one direction and pressed against rearwardly by each swing of the runner in an opposite direction.

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

1. In combination, in a parallel cultivator, side frames to which the cultivator-gangs are hinged or journaled, runners rigidly fixed one to the outer end of each side frame to support said frame and swing or sway with it, and an arch or yoke the vertical ends of which are pivotally connected with the inner ends of the side frames, substantially as described.

2. In combination, in a parallel cultivator, side frames A, yoke or arch C, pivotally connected with the inner ends of the side frames, and runners D, rigidly affixed to the outer ends of said side frames, substantially as described.

3. In combination, the arch or yoke C, having vertical journal ends *c'*, the side frames A, having parallel bars *a*, with coincident holes *a*<sup>5</sup>, in which the ends of the yoke or arch are journaled, the coincident holes *a*<sup>2</sup> for the pin *a*<sup>3</sup>, to which the plow-gangs are hinged or journaled, the bars *a'*, connecting the outer ends of the bars *a*, the runners D, constructed substantially as described and having a rectangular upper portion *d*<sup>2</sup>, with recesses *d*<sup>3</sup> in its upper and lower sides, which receive the ends of the bars *a*, the bolt *d*<sup>4</sup>, and the shoulders *a*<sup>7</sup> on the bars *a*, substantially as described, and for the purpose specified.

4. In combination, the arch or yoke and the side frames having their inner ends journaled to said yoke and their outer ends fixed to runners D by a bolt *d*<sup>4</sup>, substantially as described.

5. The combination, substantially as hereinbefore set forth, in a parallel cultivator, of an arch or yoke and side frames pivotally connected at their inner ends with said yoke and at their outer ends rigidly connected with runners from the forward ends of each of which a brace-rod extends to the vertical part of said arch or yoke to stay and brace the runner and side frame each with the other.

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

GEO. W. BROWN.  
OLOF A. JOHNSON.

Witnesses:

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H. M. RICHARDS.