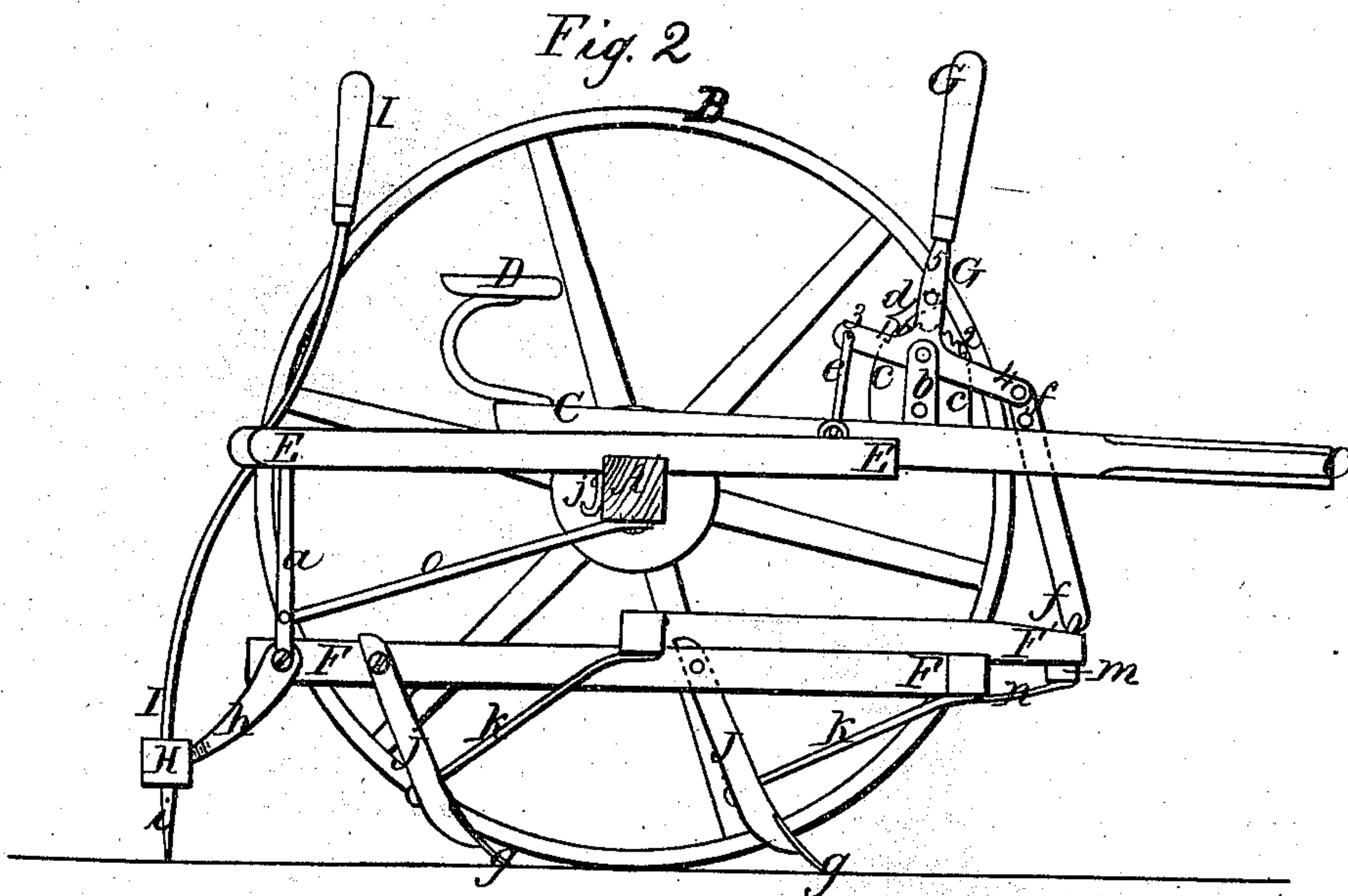
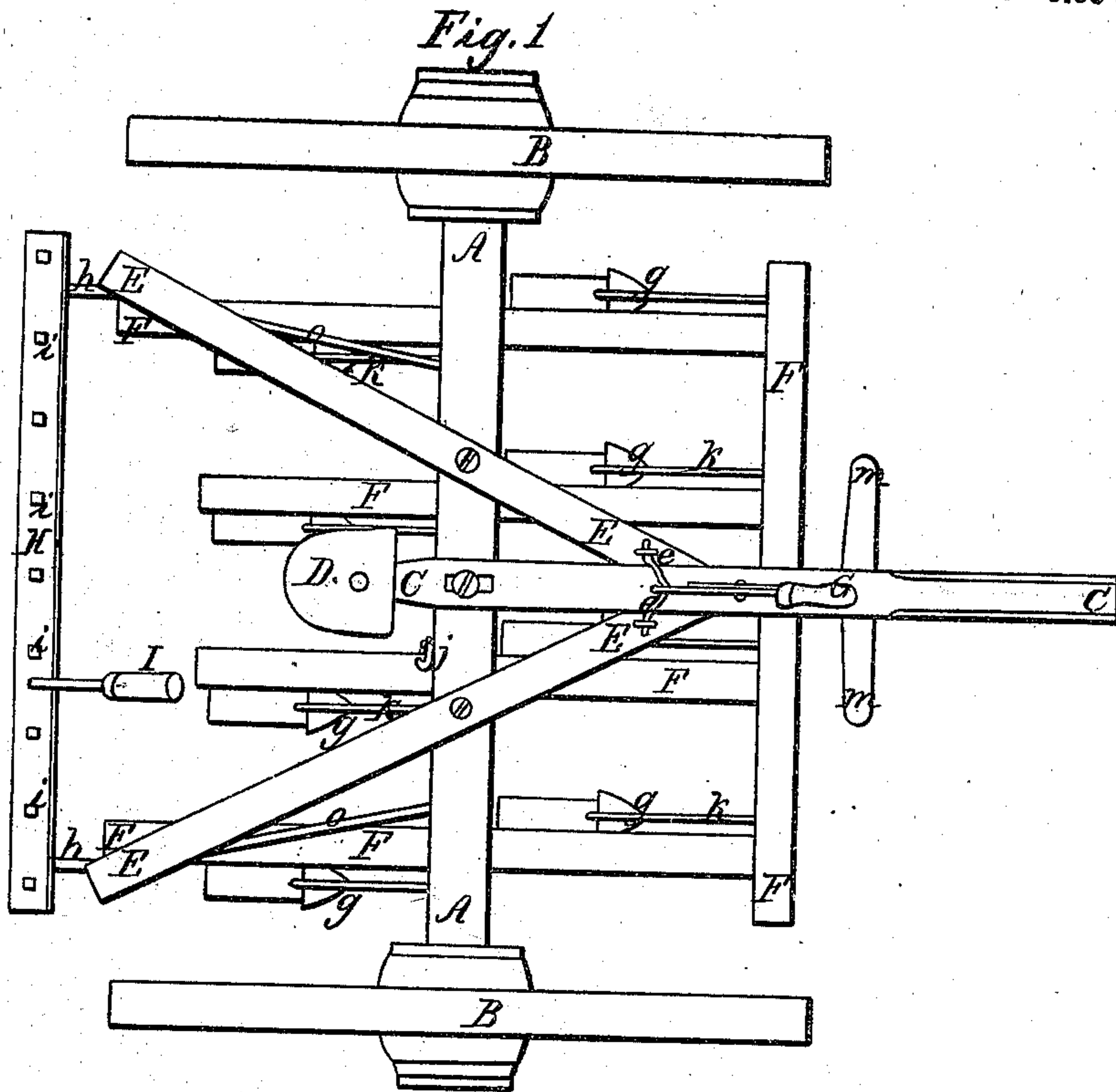


G. J. Hayes,
Wheel Cultivator.

No. 87,492.

Patented Mar. 2, 1869.



Witnesses
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GEORGE J. HAYES, OF IONIA, MICHIGAN.

Letters Patent No. 87,492, dated March 2, 1869.

IMPROVEMENT IN CULTIVATORS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, GEORGE J. HAYES, of Ionia, in the county of Ionia, and State of Michigan, have invented certain new and useful Improvements in Wheeled Cultivators; and that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a top plan of the cultivator, and

Figure 2 represents a side elevation, with the rear wheel removed or cut away, to better show the parts behind it.

Similar letters of reference, where they occur in the separate figures, denote like parts of the machine in both of the drawings.

My invention consists in the manner in which I have constructed and arranged the tongue, axle-frame, cultivator-frame, and drag, or harrow, so that the attendant may have the cultivator and drag entirely within his control, by means of the hinged connections between the several parts, and levers connected to them, as will be hereafter explained.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

The axle A is supported in two wheels, B B, in the usual well-known way.

The tongue C is pivoted to the axle, so that it may have some motion independent of the axle, and upon a portion of the tongue, extended in rear of the axle, is placed a seat, D, for the driver, or conductor, when riding upon the machine.

Two pieces E E are permanently framed in or fastened to the axle A, and so inclined toward each other, at their front ends, as to serve the purpose of hounds or lateral braces to the tongue, but not fastened to the tongue; and their rear ends are so spread as to form supports for the rear end of the cultivator-frame F, which is suspended thereto by rods a a.

The axle A, and the oblique pieces E E, secured to it, I term the axle-frame. The tongue is not included in this frame, for, though united to the axle, it is not rigidly connected to it.

On the tongue C is placed a standard, b, to which is permanently fastened a plate, c, that has reversed ratchet-teeth, 1 2, on its upper edge; and to this standard is pivoted a three-armed lever, G, to which a reversible dog, d, is pivoted, so as to take into the teeth of either of the ratchets, as the case may be.

The arm 3 of the lever G is connected to the front ends of the pieces E E, by a bail or bracket, e, and to the arm 4 of said lever is pivoted a rod or bar, f, to the lower end of which the cultivator-frame F is pivoted and suspended, said bar f projecting forward of a perpendicular line drawn through its connection with the arm 4, as seen in fig. 2, so that the raising up of the cultivator-frame shall also give it backward direc-

tion, and freeing the points of the cultivator-teeth g from the soil, and, notwithstanding the machine may be moving forward, allow them to freely clear any obstruction.

From this construction, it will be perceived that the front of the cultivator-frame is suspended to the tongue C, whilst the rear of said frame is suspended to the pieces E E of the axle-frame.

The arm 5 of the lever has a handle upon it, so that the operator, from his seat, by drawing the lever toward him, raises the cultivator-frame upward and backward, and then, by throwing the dog over on to the ratchet 2, the said frame will be held in its raised-up position for transportation, or for turning the machine around; and when the teeth g are let down into working-position, the dog is thrown over on to the ratchet 1, and this prevents the frame from rising when the teeth run into hard ground, or the frame tends to rise by meeting any resisting obstruction.

The rear of the frame F is raised up by forcing down the forward ends of the pieces E, and raising their rear ends by the rolling of the axle in its wheels.

To the rear of the cultivator-frame F is hung, by arms h, so that it may swing thereon, a bar, H, in which there is set a series of teeth, i, so as to form a drag, or harrow, for pulverizing the soil that the cultivator passes over.

To this bar, or harrow, is connected a lever, I, which extends upward, and within the reach of the rider upon the seat D, so that he may seize it, and raise up the drag, or harrow, and, by means of a catch, j, on the axle, hold it up permanently, when desired to do so, or let it down again.

When the cultivator-frame is raised up or let down, the harrow moves with it, but the harrow can be thrown up out of action, whilst the cultivator-teeth continue to cultivate the ground.

J are standards, or stocks, for the cultivator-teeth g, and these stocks are braced by rods k k.

The double-tree m is connected to the cultivator-frame F through the piece F' and strap n, which are attached to said frame.

If the attendant desires to walk behind the machine, he can do so, and raise and lower the teeth by a very simple change of parts, and the addition of one lever, placed upon the rear of the tongue, and inclining rearward, to which a rope, or cord, is united, and extends to and united with the lever G, so that, by operating the one on the tongue, he can operate the one, G, as readily as though he were in the seat D; and, when walking, the lever I may be removed from its seat on the top of the bar H, and put into a similar seat, or hole, in the rear of said bar, so as to raise and lower the drag.

o o are braces, for bracing the suspension-straps a a to the axle.

Having thus fully described my invention,

What I claim, is—

1. The combination of the tongue, axle-frame, and cultivator-frame, when united to each other, and the cultivator-frame is capable of being raised upward, and swung slightly backward, by a lever and its appliances, operating as herein described and represented.

2. Also, in combination with a cultivator-frame, that is moved backward as it is raised upward, as herein de-

scribed, a drag, or harrow, attached thereto, and moving therewith, but capable of being raised or lowered independent of the cultivator, substantially as and for the purpose described.

GEO. J. HAYES.

Witnesses:

O. S. COWER,

C. O. THOMPSON.