

C. ROBERTS.
Wheel Cultivator.

No 45,861.

Patented Jan. 10, 1865.

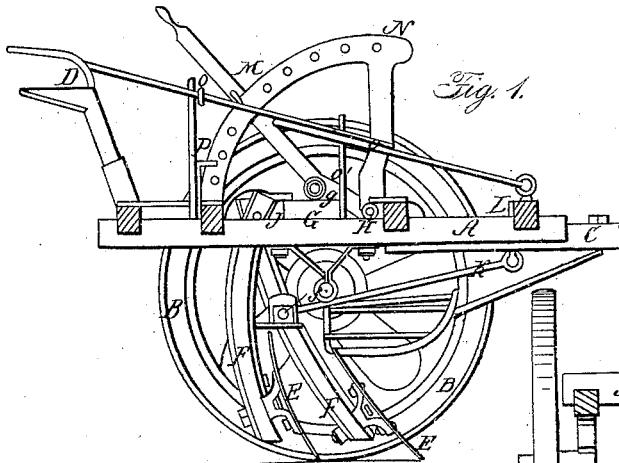


Fig. 1.

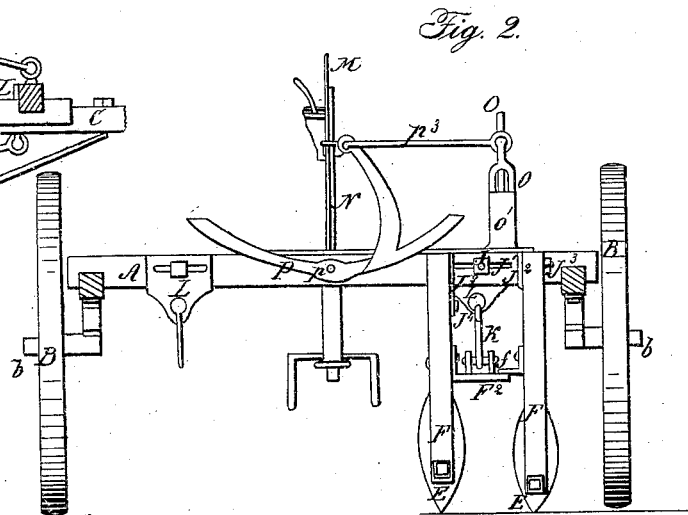


Fig. 2.

Fig. 3.

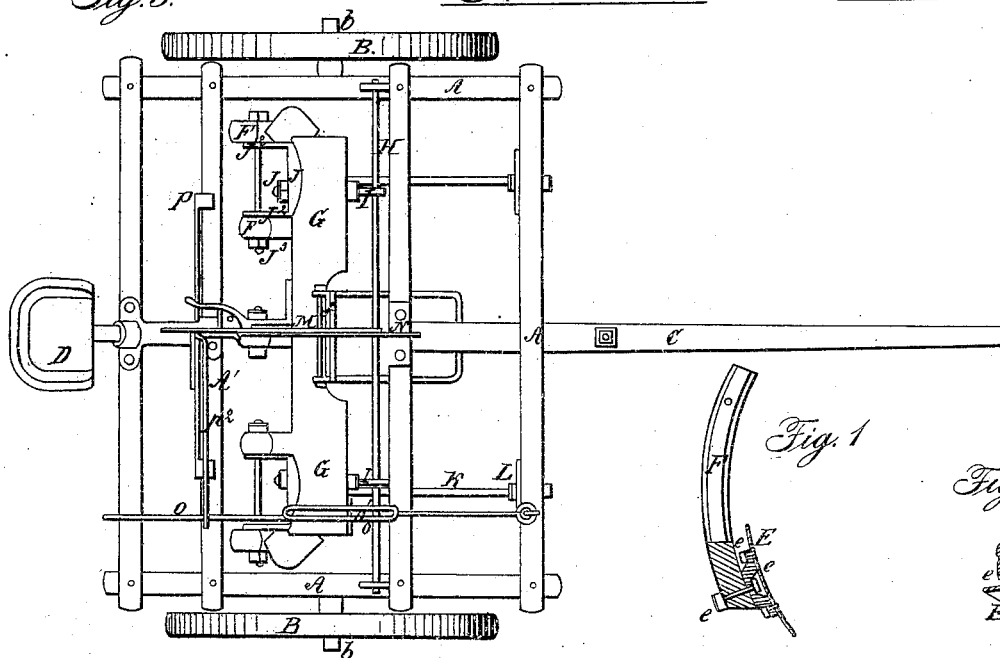


Fig. 1

Fig. 5.



Witnesses:

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UNITED STATES PATENT OFFICE.

CYRUS ROBERTS, OF THREE RIVERS, MICHIGAN.

IMPROVEMENT IN CULTIVATORS.

Specification forming part of Letters Patent No. 45,861, dated January 10, 1865.

To all whom it may concern:

Be it known that I, CYRUS ROBERTS, of Three Rivers, in the county of St. Joseph and State of Michigan, have invented a certain new and useful Improvement in Cultivators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which make part of this specification, and in which—

Figure 1 represents a view on elevation of one side of my improved cultivator with the near wheel removed. Fig. 2 represents a similar view of the same, as seen from the rear, with a portion of the frame and mechanism removed, as indicated by the red dotted line of Fig. 3. Fig. 3 represents a plan or top view of the entire machine. Fig. 4 represents a view partly in section of one of the shovel-stocks detached from the frame, and Fig. 5 represents a section through the same at the line *xx* of Fig. 4.

The improvement herein claimed consists, first, in attaching the shovels to their stocks by means of swiveling brackets, as hereinafter described, for the purpose of adjusting the shovels at various angles to throw the earth upon or away from the crop and for reversing them when worn or injured; second, in attaching the shovel-stocks to the frame by means of brackets, pins or bolts, and clips, as hereinafter described, by which means I secure a strong connection of parts, and yet allow the stocks to play freely on their pivots as the frame rises or falls; thirdly, in mounting the shovels in pairs in an auxiliary frame arranged above the plane of the axles, and having both a vertical and a lateral movement, the plows all being hinged on a common center and playing within the plane of the wheels, as hereinafter described; fourthly, in connecting the brackets to which the shovel-stocks are pivoted to the shifting frame by set-screws and slots, as hereinafter shown, whereby I am enabled to vary the distance between each pair of shovels without altering the other parts of the mechanism.

In the accompanying drawings, a stout rectangular main frame, A, is shown as supported by two wheels, B, mounted on independent short shafts or axles *b*, secured to brackets projecting beneath the frame. A tongue, C, is rigidly secured to and projects from the front of

the frame, while a seat, D, for the driver or attendant is secured in a corresponding position on its rear, so that the weight of the driver when in his seat counterbalances that of the tongue. The shovels or plows E are secured upon stocks or standards F, attached to a frame or bar, G, (arranged centrally within the main frame, and in the same horizontal plane with it,) the front end of which is pivoted to a rod or bar, H, (attached to the main frame,) by means of eyes or loops I, which traverse freely upon it. By this mode of construction the frame and plows are free to play both vertically and horizontally or laterally.

The shovel-stocks F are pivoted to flanged brackets J, which embrace the rear end of the movable bar or shifting frame G, and are secured to it by means of set-screws *j*, which pass through horizontal slots *j'* in the brackets, by which means the brackets (and consequently the shovel-stocks) can be adjusted laterally upon the sliding frame G when required. This device is shown in Fig. 2. The stocks F are pivoted in pairs to the projecting lugs or ears *j²* of the brackets J by means of bolts *j³* and nuts, the bolts passing through both the stocks and the brackets, so that the stocks are free to vibrate in a vertical plane parallel to the tongue.

The stocks are united in pairs, near their centers, by links or brackets F², having ears upon them through which a wooden pin passes, as well as through the eyes of the stay rod or chains K, the forward ends of which are secured to plates or brackets L, secured to the frame and rendered adjustable by slots and set-screws in the same manner as the brackets J, hereinbefore described. In case of encountering an obstacle, the wooden pin breaks and permits the stocks to yield, and thus prevents damage to the mechanism, some part of which otherwise must necessarily give way. By means of the brackets F² the distance between the two shovels of each pair can be adjusted, as desired, and when adjusted they are always maintained in their position relative to each other, but yet are free to vary their relation to the main frame.

In cultivating fallow ground a single stock, F', (shown in red lines in Fig. 2,) is used in the center of the machine, but is constructed and operates in all respects like the others.

The flanges or ears j^2 project below the frame G. Their lower edges are curved in the arc of a circle, and are embraced by clips j^4 , Fig. 2, on the stocks, by which means the stocks are firmly supported laterally, and yet are at liberty to play freely in a vertical plane parallel with the tongue, as hereinbefore described.

It will be observed that in my improved machine the plows, although free to move independently in pairs, are all pivoted in a common center, H, and are all arranged within the plane of the wheels, and in, or very nearly in, that of the axles, the shifting frame also being within the plane of the wheels, but above their axles. This arrangement preserves the balance of the machine, prevents any tendency of the plows to draw down the front or rear of the frame, enables me to cultivate tall plants over uneven ground with facility, and to manipulate the mechanism with rapidity and ease.

The shovels, spades, or plows E are bolted to reversible brackets e , which are secured to the stocks by nuts and bolts e' . Both ends of the shovels are made alike, so that they can be reversed when the points become worn or injured. The brackets e are provided with horizontal slots, in which the bolt e' traverses, and the brackets and stocks are curved in the arc of a circle of which the bolt-head forms the center, by which means the angle of inclination of the shovel to the path of the machine can be varied at pleasure to throw the earth more or less away from or toward the crop, as desired.

The details of this device are shown in Figs. 4 and 5.

The vertical movements of the frame G are controlled by a hand-lever, M, regulated by a stop, N, while its lateral movements are controlled by a suitable foot-lever, R.

In working young crops I employ a shield or guard, S, attached to the tongue at its forward end and to the plow-frame in its rear, so as to participate freely in both the vertical and lateral movements of the shifting frame.

It is deemed unnecessary here to describe in detail the construction of the other parts of the mechanism, as they are fully described in another application for Letters Patent by me filed simultaneously with this and marked A.

What I claim herein as new, and desire to secure by Letters Patent of the United States, is—

1. The combination of the double-ended shovels with their stocks by means of the reversible swiveling brackets e and bolts e' , in the manner described, for the purpose of reversing the shovels when worn or injured, and of turning them sidewise to throw the earth more or less toward or from the plants, as desired.

2. The combination of the shovel-stocks and shifting frame by means of the brackets J, bolts j^3 , and clips j^4 , as described, for the purpose set forth.

3. The combination of the shovels, the auxiliary or shifting frame, and the main frame, when constructed and arranged, as described, for the purposes set forth.

4. The combination of the plow-stocks and shifting frame by means of the brackets J, slots j' , and set-screw j , as and for the purpose described.

In testimony whereof I have hereunto subscribed my name.

CYRUS ROBERTS.

Witnesses:

S. CHADWICK,
S. S. HENICK.