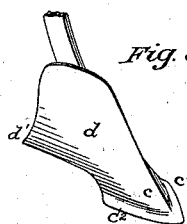
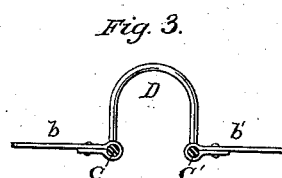
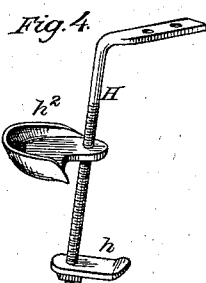
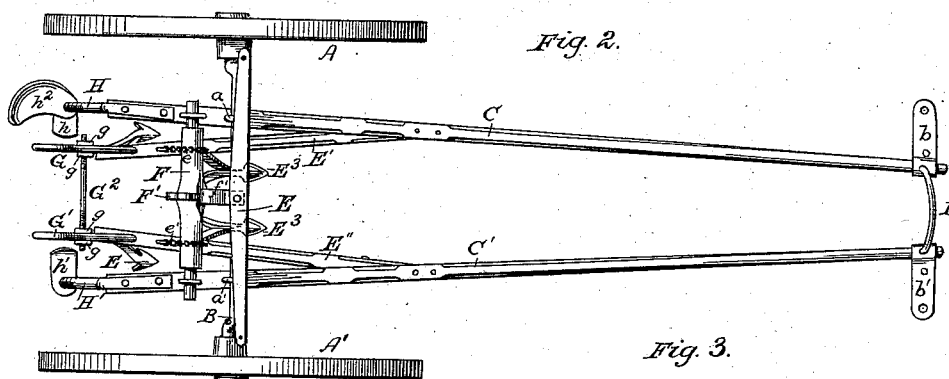
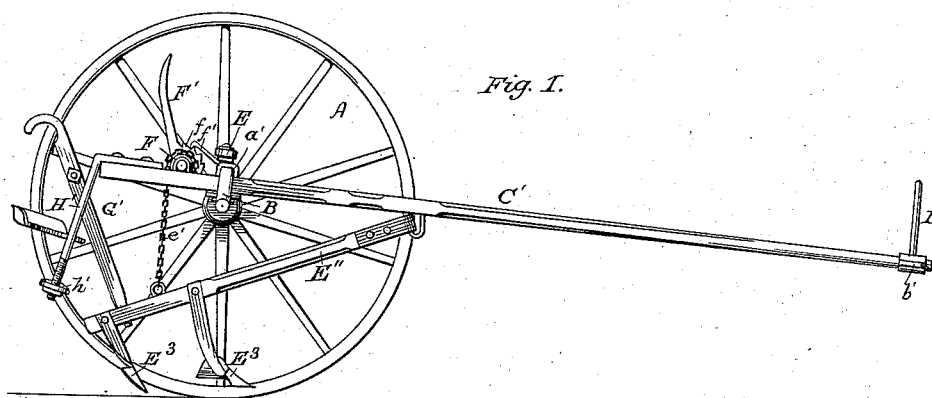


R. S. HARRIS.
Cultivator.

No. 217,282.

Patented July 8, 1879.



Witnesses:

Clarence Poole
R. T. Dyer.

Inventor:

Robert S. Harris
by Geo. W. Dyer &
Attys.

UNITED STATES PATENT OFFICE.

ROBERT S. HARRIS, OF DUBUQUE, IOWA.

IMPROVEMENT IN CULTIVATORS.

Specification forming part of Letters Patent No. **217,282**, dated July 8, 1879; application filed June 6, 1878.

To all whom it may concern:

Be it known that I, ROBERT S. HARRIS, of Dubuque, in the county of Dubuque and State of Iowa, have invented a new and useful Improvement in Cultivators; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Figure 1 is a side elevation of the cultivator with the nearest wheel removed; Fig. 2, a top view of the cultivator; Fig. 3, a separate view of the front ends of the shafts and the connecting-bow; Fig. 4, a view of the seat and one of the foot-rests with the arm for supporting such parts; and Fig. 5, a separate view of one of the plows.

Like letters denote corresponding parts.

A A' are the wheels, mounted upon an axle, B, the center of which is raised above the ends for the purpose of straddling a row of corn without breaking off the tops of the stalks.

The shafts C C' extend under the axle, and are adjustably attached to the same by metal straps or loops a a', the ends of which pass through the shafts and are screw-threaded to receive nuts. By these means the shafts can be moved laterally to any desired points on the raised part of the axle, and rigidly held by tightening the nuts on the straps a a', for the purpose of regulating the distance between the forward ends of the plow-beams. The shafts C C', at their front ends, are connected together by a curved bow, D, which rises above the shafts and has its ends passed through such shafts and through holdback-arms b b' projecting outside the same.

An evener, E, is pivoted centrally upon the top of the axle, projecting outside of the shafts, the horses being harnessed to the cultivator, one outside of each shaft, so that they will walk between the rows of corn. The central portion of the axle has to be raised to such a height above the ground, in order to pass without injury over the rows of corn, that the shafts in use will tend downwardly to their front ends, as shown in Fig. 1. The bow D, therefore, by being curved upwardly, straddles the row, and at the same time holds the shafts the right distance apart.

To the under side of the shafts, forward of

the axle, are attached the front ends of the plow-beams E' E'', the connection being made by means of stirrups on the shafts, through which are passed straps on the ends of the beams. Each beam carries two plows, E³, which are supported on standards projecting downwardly from opposite sides of the beam, as shown, so as to throw the dirt against both rows between which each beam moves.

The plows or shovels E³ may be of the ordinary form, but are preferably constructed, as shown in Fig. 5, with the plow-point c and land-side c' diverging at the same angle from the colter, and situated entirely below the mold-board d, so that the mold-board will throw the earth against and over the hills without plowing into the same. The point and land-side are turned up at their lower edge, as shown at c'', and the edge of the mold-board is bent or curved out, as seen at d', for the purpose of more effectually lifting the earth.

On the shaft C C', behind the axle, is mounted in bearings a roller, F, to which are connected chains e e', secured at their lower ends to the plow-beams. A curved lever, F', projects from the center of the roller, the lower portion, f, of which is arc-shaped and cut with ratchet-teeth, with which engages a pawl, f', secured to the axle.

By pushing forward the lever F', the chains e e' will be wound on the roller and the plow-beams raised. The pawl f' will hold the beams in an elevated position, while, by disengaging such pawl, the beams will be dropped.

On the rear ends of the plow-beams are mounted guiding arms and handles G G¹, which are connected together by a screw-rod, G², passing through the arms, and having a nut, g, on each side of each arm to hold such arms at any point of adjustment on the screw-rod.

The distance between the rear ends of the plow-beams is regulated by the screw rod and nuts, while the space between their forward ends is adjusted by moving the shafts laterally upon the axle. To the rear ends of the shafts are rigidly attached downwardly-projecting arms H H', the lower ends of which, in use, are but a short step from the ground, and have foot-rests h h' supported thereby. Upon either or both arms, at a higher elevation than the

foot-rests, is mounted a seat, h^2 . The seat and foot-rests are adjustable upon the arms, which are preferably screw-threaded for that purpose. By these contrivances the driver can walk when tired of riding, and in riding can either stand up and allow the corn to pass between his legs or sit down on one side of the row, always having complete control of the plow-handles and being able to watch the corn closely.

By having the seat and foot-rests adjustable they can be arranged to suit men of any size.

What I claim as my invention is—

1. In a sulky-cultivator, the shafts or divided tongue $C C'$, having independent adjustment upon the axle B , and the front connecting-arch, D , in combination with the plow-beams $E' E''$, pivoted at their forward ends to the shafts, and provided with handles $G G^1$, adjustably connected together, all constructed and operating substantially as shown and described.

2. In a sulky corn-cultivator, the combination, with the laterally-adjustable shafts $C C'$, of the plow-beams $E' E''$, pivoted at their for-

ward ends to such shafts, and provided with handles $G G^1$, adjustably connected together by the screw-rod G^2 , constructed and arranged substantially as described and shown.

3. The equally-diverging point and land-side $c c^1$, having outwardly-bent lower edge c^2 , in combination with the mold-board d , situated entirely above the point and land-side, and provided with outwardly-curved edge d' , substantially as described and shown.

4. The downwardly-projecting arms carrying foot-rests and seat, situated at the rear of the cultivator and on each side of the row, substantially as and for the purpose set forth.

5. In a corn-cultivator, the combination of the arms $H H'$, placed substantially as shown, with the foot-rests and seat adjustable upon such arms, for the purposes set forth.

This specification signed and witnessed this 9th day of March, 1878.

ROBERT S. HARRIS.

Witnesses:

WILLIAM GRAHAM,
MONROE M. CADY.