

UNITED STATES PATENT OFFICE.

WINFIELD SCOTT MILLER, OF MILPITAS, CALIFORNIA.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 485,108, dated October 25, 1892.

Application filed May 3, 1892. Serial No. 431,683. (No model.)

To all whom it may concern:

Be it known that I, WINFIELD SCOTT MILLER, of Milpitas, in the county of Santa Clara and State of California, have invented certain new and useful Improvements in Cultivators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a new and improved cultivator; and it has for its object the production of a cheap, simple, and highly-efficient cultivator, in which the divergent beams can be readily adjusted and the cultivator-shovels constantly held in proper relation to the line of draft, and also to permit of the ready adjustment of the handle-bars, so that they will be held out of contact with the vines or shrubs.

The invention comprises a cultivator having a central draft-bar and two divergent beams pivotally connected at their forward ends to said draft-bar, adjustable connecting-plates between said beams and draft-bar, and means for locking said connecting-plates.

The invention further comprises a cultivator having a central draft-bar, divergent beams pivotally connected thereto, plates movable on said beams connected with and controlling the position of the cultivator-shovels, adjustable connecting-plates between said beams and plates and draft-bar, and handles pivotally connected to said connecting-plates, one of said handles carrying means for locking and unlocking said connecting-plates with said draft-bar.

The invention also comprises the detail, construction, combination, and arrangement of parts, substantially as hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of my improved cultivator. Fig. 2 is a transverse sectional view taken on the line $x x$, Fig. 1. Fig. 3 is an enlarged detail view showing the connection between the handle-bars and connecting-plate, and means for locking the latter to the central draft-bar. Fig. 4 is a view, with parts in dotted lines, of a portion of the shovel-controlling plate with one of the cultivator-shovels connected there-

with. Fig. 5 is a sectional view on the line $y y$, Fig. 1.

Referring to the drawings, A designates the central draft-bar, which extends longitudinally throughout the length of the cultivator and is provided at its forward end with a caster-wheel a , whose supporting spindle or rod is adjustably connected to said draft-bar, so as to regulate the depth of penetration of the cultivator-shovels.

B B designate two divergent beams pivotally connected at their forward ends by strap-irons b to draft-bar A. Through circular openings in these beams are passed the circular portions b' of the shanks of cultivator-shovels C. Above the circular portion of each shank the latter is reduced so as to form a neck b^2 , and above the latter the shank is made square in cross-section, as shown at b^3 , a flange or collar b^4 being at the inner end of the squared portion of said shank.

D D designate movable plates located on the upper surfaces of beams B, and they are provided with a series of slots d , which terminate at their rear ends in circular openings d' , which are designed to be coincident with the openings in beams B. The shanks of the cultivator-shovels are inserted through these openings, which are coincident when the beams are extended to their fullest extent, and the flange or collar b^4 of each shank is designed to overlap the sides of the slots d . The squared end of each shank projects through a square hole or opening in the adjacent one of a series of holding-plates d^2 , pivotally connected to movable plates D by nutted bolts d^3 , projected through circular openings in plates D, and through slots d^4 in said holding-plates. In this way the cultivator-shovels are held in fixed relation with the movable plates, and are made to present the proper face to the line of draft.

E E designate two sets of connecting-plates between the divergent beams and the central draft-bar, whereby the former can be adjusted in relation to the latter. Each adjusting-plate comprises upper and lower corresponding members $e e'$, having inner flattened ends provided with holes or openings e^2 , corresponding with holes or openings e^3 in draft-bar A. The inner ends of the members of both locking-plates are designed to over-

lap, so that the holes or openings will be coincident, and a hooked end f of a locking rod or lever F can be readily passed through said coincident holes, said locking rod or lever being fulcrumed on a rod f' , passed through members $e e'$. The upper members e have central curved or widened portions f^2 , the outer edges of which have teeth f^3 projecting therefrom, with which teeth are designed to engage the inner ends of spring-held pawls g , mounted on handle-bars $G G'$, which latter are pivoted at their inner ends to the center of the widened portions f^2 . The pawls g are operated by hand-levers g' , on handle-bars $G G'$, so that they can be readily disengaged from contact with the teeth and the handles adjusted in the desired direction. From the under side of each handle-bar projects a curved plate g^2 , which bears against the under side of the curved or widened portions f^2 , and serve as guides for said handle-bars. To the handle-bar G is fulcrumed a lever G^2 , which at its lower forward end is pivotally connected to the free end of locking rod or lever F . Hence by operating this lever G^2 the locking rod or lever F can be thrown into or out of engagement with the clamping-plates and central draft-bar, to permit of the adjustment of the divergent beams. The outer ends of the upper members e of connecting-plates E and likewise the outer ends of the lower members thereof are pivotally connected by nutted bolts h , passed through coincident holes or apertures in said ends and in the beams and movable plates thereon. Bayonet or L shaped slots h' are also formed in the outer ends of the upper members e , and through these slots and slots h^2 in widened portions h^3 of movable plates D are passed nutted bolts h^4 , which serve to permit of the adjustment of plates D .

From what has been said it will be seen that by moving the inner ends of the connecting-plates D back and forth the divergent beams can be adjusted to the desired pitch or angle, and at the same time the movable plates D will be made to move over said beam by reason of the connection between said connecting-plates and said movable plates, and the movement of these latter plates will, through the instrumentality of the holding-plates d^2 , effect the proper adjustment of the cultivator-shovels, so that the latter will be in the line of draft.

The advantages of my invention are apparent to those skilled in the art to which it appertains, and it will be especially observed that by means thereof the adjustment of the divergent beams carrying the cultivator-shovels can be readily and easily effected and that in the adjustment of the beams the cultivator-shovels themselves are adjusted. It will also be seen that the handle-bars can be readily adjusted and rigidly held in any desired position. It is obvious that if it be desired to throw the earth away from instead of toward the plants or shrubs being culti-

vated the cultivator-shovels of one beam can be transferred to and take the place of those of the other beam. To effect this, it is only necessary to open the beams to their fullest extent, when the circular openings in the beams and movable plates will be coincident and the shanks of the shovels can be readily slipped out of place.

I claim as my invention—

1. The herein-described improved cultivator, comprising the draft-bar, the divergent beams pivotally connected thereto at their forward ends, the movable plates on said beams, the shovels having their shanks engaged by or connected with said movable plates, and the adjustable connecting-plates connecting said draft-bar with said divergent beams and movable plates, and means for locking said connecting-plates to said draft-bar, substantially as set forth.

2. The herein-described improved cultivator, comprising the draft-bar, the divergent beams pivotally connected thereto at their forward ends and having holes or openings therein, the movable plates on said beams having slots therein, the cultivator-shovels having their shanks projected through said holes or openings and slots, the holding-plates connected to said shanks, and means for adjusting said beams and movable plates with relation to said draft-bar, substantially as set forth.

3. The herein-described improved cultivator, comprising the draft-bar, the divergent beams pivotally connected thereto at their forward ends and having holes or openings therein, the movable plates on said beams having slots therein, the cultivator-shovels having their shanks projected through said holes or openings and slots and provided each with a flange or collar and an upper squared end, the holding-plates pivotally connected to said movable plates and having square slots for said squared ends of said shanks, the adjustable connecting-plates connected to said beams and movable plates, and means for locking said connecting-plates to said draft-bar, substantially as set forth.

4. The herein-described improved cultivator, comprising the draft-bar having holes or openings therein, the divergent beams pivotally connected to said draft-bar and carrying the cultivator-shovels, the movable plates, the holding-plates secured thereto and engaging the shanks of said cultivator-shovels, the connecting-plates pivotally secured at their outer ends to said beams and movable plates and having inner-apertured overlapping ends, the locking rod or lever having a hooked end for projecting through said overlapping ends and the holes or openings of draft-bar, the pivoted handle-bars, and the lever fulcrumed on one of said handle-bars and connected to said locking rod or lever, substantially as set forth.

5. The herein-described improved cultivator, comprising the draft-bar having holes

or openings therein, the divergent beams pivotally connected to said draft-bar and carrying the cultivator-shovels, the movable plates, the holding-plates secured thereto and engaging the shanks of said cultivator-shovels, the connecting-plates composed of upper and lower members pivotally secured at their outer ends to said beams and movable plates and having inner-apertured overlapping ends, said upper members having curved toothed portions, the locking rod or lever fulcrumed on one of said upper members, the pivoted han-

dles having spring-held pawls engaging said toothed portions, and the lever fulcrumed on one of said handle-bars and engaging said locking rod or lever, substantially as set forth. 15

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WINFIELD SCOTT MILLER.

Witnesses:

WILLIS E. MILLER,
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