S. L. ALLEN.
Cultivator.

No. 200,681. Patented Feb. 26, 1878.

Fig. 1.

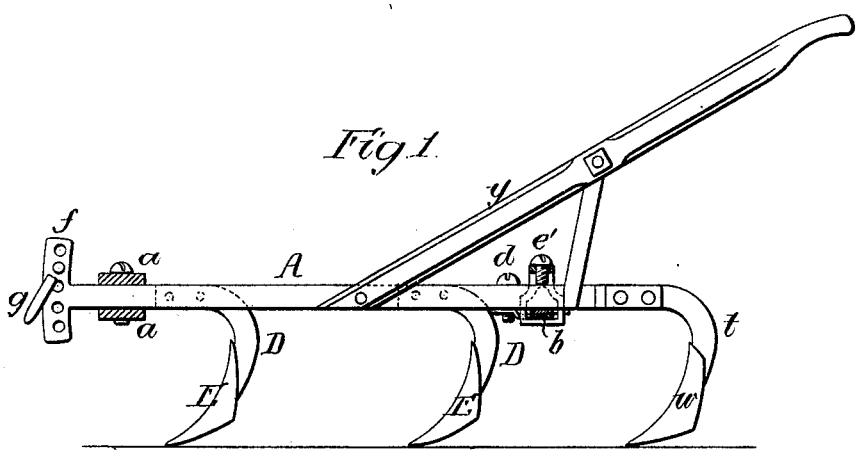


Fig. 2.

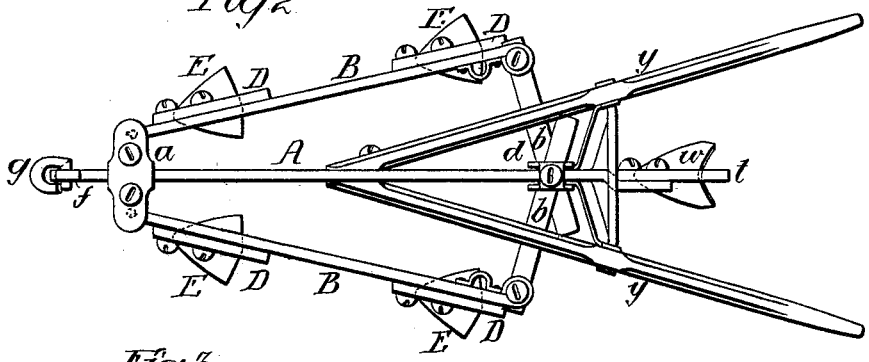


Fig. 3.

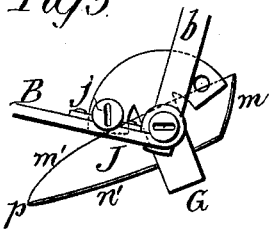


Fig. 4.

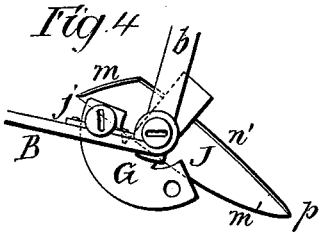


Fig. 9.

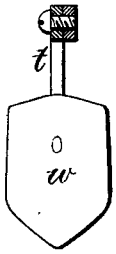


Fig. 6.

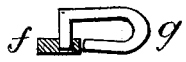


Fig. 5.

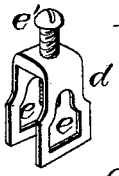
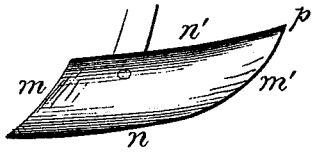


Fig. 7.

Fig. 8.



Witnesses
Harry Smith
John M. Clemmer

Inventor
Samuel L. Allen
by his Attorneys
Howson and Sons

UNITED STATES PATENT OFFICE.

SAMUEL L. ALLEN, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN CULTIVATORS.

Specification forming part of Letters Patent No. **200,681**, dated February 26, 1878; application filed December 8, 1877.

To all whom it may concern:

Be it known that I, SAMUEL L. ALLEN, of Philadelphia, Pennsylvania, have invented a new and useful Improvement in Cultivators, of which the following is a specification:

The objects of my invention are to make a cheap, strong, and compact cultivator, and to adapt it to different classes of work—objects which I attain in the following manner, reference being had to the accompanying drawing, in which—

Figure 1 is a longitudinal section of my improved cultivator; Fig. 2, a plan view of the same, and Figs. 3 to 9 detached views of parts of the same.

The frame of the cultivator consists of a central bar, A, and two side bars, B B, all of metal, these bars being held in place at the front end by clamping-plates *a*, and each side bar being furnished at the rear end with a pivoted strip, *b*, the inner ends of which cross each other at a point beneath the central bar A, to which they are secured by a yoke, *d*, Fig. 5, which fits over the bar, and has openings *e* for the reception of the strips *b*, this yoke being firmly clamped to the bar by means of the bolt *e'*. These strips *b*, when clamped to the central bar, serve to firmly brace the rear ends of the side bars B B, and yet, when loosened, permit said side bars to be moved toward or from each other in order to narrow or widen the cultivator-frame.

The object of placing the braces *b* below the bars A and B is to bring them as close as possible to the points upon which the strain is exerted when the machine is in use—namely, the blades at the rear end of the arms B.

The front end of the central bar A has a T-head, *f*, in which are formed openings, to either of which the clevis *g* may be adapted so as to regulate the draft. The clevis is split at one side, as shown at *i*, Figs. 6 and 7, and the distance between the rear edge of the T-head *f* and the openings in the same is such that when the clevis is turned backward, as shown in Fig. 6, it may be slipped laterally into position in either of the openings, and when turned to the front will be retained in this position, owing to the greater depth of metal intervening between the openings and the front edge of the T-head *f*. (See Fig. 7.) By this means the ready application or removal of the clevis may be effected, yet it is perfectly secure when in use.

To each of the side bars B, near the front end, is bolted a curved arm, D, which carries at its lower end an ordinary cultivator-blade, E, the curved arm being well calculated to resist all longitudinal strains to which it may be subjected. When the machine is to be used for ordinary cultivating, a similar arm, D, and blade E, is secured to each bar B near the rear end of the same, as shown in Figs. 1 and 2; but when the machine is to be used for hoeing, hilling, or covering, these arms D are removed, and a frame, G, carrying a blade, J, is pivoted to the rear end of each bar B by the same bolt which serves as a pivot for the braces *b*. The blades J are peculiarly constructed, the body of each blade being curved throughout its entire length, and having one end, *m*, slightly inclined, while the other end, *m'*, is curved, as shown in Fig. 8, so as to merge into the lower edge *n* of the blade, and form with the upper edge *n'* a point, *p*, both ends *m* and *m'* being ground to a sharp edge.

When the machine is to be used for hoeing, the frame G is turned to the position shown in Fig. 3, so that the curved end *m'* of the blade J projects forward and outward, thereby enabling the point *p* of the blade to work close up to the plants without danger of tearing up the row, owing to the fact that the shape of the blade causes it to shave along the side of the row, instead of digging into the same like an ordinary cultivator blade or plow. The earth removed by the blade J falls over the inclined rear edge *m* of the same into a position close to the side of the row, the final heaping up of the earth being accomplished by the blade *w*, which is carried by an arm, *t*, secured to the rear end of the central bar A, and is so hung to the said arm as to be readily reversed, for a purpose described hereinafter. It will be seen that after this operation the only portion of the row which has to be hoed by hand is the extreme top of the same.

When the machine is to be used for hilling or covering, the frame G is reversed, as shown in Fig. 4, so that the inclined end *m* of the blade J projects forward and inward, the pointed end *p* extending upward and rearward. The

blades now gather the earth from the space between two rows and throw it upward and outward on each side, so as to deposit it on the top and side of each row. The frame G may be retained in either of its extreme positions by means of a bolt, *j*, adapted to openings formed in the upper part of the frame.

It is not absolutely necessary that the blades J should be carried by a pivoted frame, G, as they may be secured to rigid arms, which, when it is desired to reverse the blades, may be removed from the machine, turned around, and reapplied, without, however, being transferred from one side of the machine to the other, as is usual in machines having blades intended for doing different classes of work.

The use of the pivoted frame G is preferred, partly on account of the ease with which the reversal can be effected and partly on account of the rigidity with which the blade is held by the frame when the latter is secured in either of its extreme positions.

The lower end of the blade *w* is pointed, while its upper end is slightly curved, as shown in Fig. 9, so that it may be either used with the point down when hoeing, or with the curved end down for throwing the earth more forcibly when hilling or covering.

The machine has the usual handles *y* secured to the central bar A, and strengthened by suitable braces.

The machine, being made almost entirely of wrought-iron or steel, is necessarily very strong and compact, while, owing to its simplicity of construction, it can be manufactured very cheaply.

I claim as my invention—

1. The within-described reversible blade J, curved throughout its length, having an inclined end, *m*, and a curved end, *m'*, the latter merging into the lower edge *n* of the blade, and forming with the upper edge *n'* a point, *p*, and both ends *m m'* being sharpened, as specified.

2. The combination of the frame of the machine and a furrowing-blade with a pivoted frame, G, as described, whereby, without changing the point of connection of said device, the blade may be reversed, so as to cause it to throw either from or toward the row, as specified.

3. The combination of the T-head *f*, having openings nearer the rear edge than the front, as described, with the clevis *g*, having an opening, *i*, as set forth.

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

SAMUEL L. ALLEN.

Witnesses:

RICHARD L. GARDINER,

HARRY SMITH.