

F. M. ALLEN.  
CULTIVATOR.

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Francis M. Andle  
C. Sedgwick

Fr. Allen

Mum & Co

N. PETERS, Photo-Lithographer, Washington, D. C.

# UNITED STATES PATENT OFFICE.

FRANCIS M. ALLEN, OF KNOXVILLE, TENNESSEE.

## CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 273,426, dated March 6, 1883.

Application filed April 28, 1882. (Model.)

*To all whom it may concern:*

Be it known that I, FRANCIS M. ALLEN, of Knoxville, in the county of Knox and State of Tennessee, have invented a new and Improved Cultivator, of which the following is a full, clear, and exact description.

This invention consists of improvements in cultivators, whereby it is designed to construct them so that they will run upright on side-hills as well as on levels, and at the same time the several plows or teeth will work to an equal depth in the ground, whereby, when cultivating growing corn, the corn will be less injured by the machine than by those machines that incline with or work in a plane parallel with the surface of the ground.

The invention also consists of certain details of construction, hereinafter more fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is partly a plan view and partly a horizontal section of the machine. Fig. 2 is a transverse section of Fig. 1 on line *yy*. Fig. 3 is partly a side elevation and partly a sectional elevation of Figs. 1 and 2.

A and B represent plow stocks or beams, which are alike, except that the one marked B is a little longer than the other, A, the said stocks consisting of plain bars crooked at the rear ends suitably for serving for cultivator-teeth or as shanks for the attachment of plows of any approved form. These plows are to be used in gangs of two or more, and the outer ones have handles D, to be connected to the front end of the beams by clips G.

The rear connection of the handles to the beams is made by curved standards H, on which the handles can be shifted up and down on the centers G, according as it may be desirable to vary the height of the handles. To these standards H the handles are connected above the beams and at the required height therefrom by the clips I and keys J.

The two outside plows are to be connected across the space from one to the other by means allowing them to rise and fall independently of each other, also to vibrate lat-

erally, so as to be held upright on side-hills, and also allowing one or more intermediate plows to be applied between them, and to allow said intermediate plows to rise and fall and vibrate in the same manner as the other ones do. This is accomplished by the frame, consisting of angle-bars T, with blocks V between them at the ends, and pivoted at *x*, and the top plate, W, yoked to the upper ends of said blocks and secured by pins Y, the joints being slack, so that said frame will have lateral vibration to allow the plows to be held upright by the plowman. Upright bars P' will also be used with the frame, and they will be connected by a cross-bar, Z, at the top, and the top plate, W, will have the holes through it for the blocks V, extended so as to embrace the bars P' and H. This frame will carry yokes Q, also for the intermediate plows, but they will be suspended from the angle-bars T by roller-shaped bars *a*, reduced in size between the ends about the thickness of the yokes, so that the rollers, lying close together and touching one another from side to side between bars P', will keep the yokes employed in position, whether one or more is used, and being so that the yokes can be put in on one or the other of said rollers, as may be required.

The bars P' extend through the frame T W, allowing the same to vibrate, and these parts, projecting below, are designed to serve as pulverizing-teeth to act upon sods, lumps, and other matters of like character upon the surface, and, together with them, I propose to apply other points, *d*, by hanging them from rollers *a*, between the links Q, in which the plows are located. With these pulverizing-points I propose to employ fine teeth upon the plow-stocks, and thus practically convert the cultivators into a harrow.

The plows are interchangeable, so that they may be arranged in the order represented in the drawings, or in any other, and two, three, or more may be employed in a gang, as desired, using two hooks to connect each pair separately. When four plows are used, or when three are used, they may be coupled to a bar, *e*, having two hooks, as in Figs. 1 and 3, and in this case the three beams are coupled to-

gether at the front by oblique struts *g*, pivoted to the respective plows, so that they may rise and fall independently of each other. The clips connecting said bars *H* to the handles consist of side plates, *I*, and cross-plates *i*, connecting said side plates above and below the handles. Clips *G* consist of bands bent around and welded at the ends. Said bands are bent obliquely at the top and bottom of the beam to make the required taper form, and they are secured in position by set-screws *j*.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, in a cultivator, of plows *A*, handles *D*, standards *H*, and a frame connecting said plows in a gang, said frame having two or more yokes, *Q*, for intermediate plows, connected at the top by a bar, *z*, substantially as described.

2. The combination, in a cultivator, of plows *A*, handles *D*, standards *H*, and bars *P'*, said bars *P'* projecting below the connecting-frame and forming pulverizing-points *d*, substantially as described.

3. The combination, in a cultivator, of plows *A*, *B* and pulverizing-points *d*, suspended from the beams of the plows in advance of the plows, substantially as described.

4. The combination, in a cultivator, of plows *A*, handles *D*, standards *H*, and a connecting-

frame consisting of angle-bars *T*, bar *W*, and connecting - blocks *V*, substantially as described.

5. The combination, in a cultivator, of plows *A*, handles *D*, standards *H*, bars *P'*, and roller-bars *a*, substantially as described.

6. The combination, in a cultivator, with two or more gang-plows having parallel beams coupled to the bar *e* by hooks, of the oblique struts *g*, pivoted to the respective plow-beams, so as to rise and fall independently of each other, substantially as described.

7. The combination, in a cultivator, of plows *A*, handles *D*, standards *H*, connecting-frame *T* *W*, roller-bars *a*, and yokes *Q*, for intermediate plows, suspended from said roller, substantially as described.

8. The combination, in a cultivator, of plows *A*, handles *D*, standards *H*, connecting-frame *T* *W*, roller-bars *a*, and pulverizing-points *d*, suspended from said roller-bars, substantially as described.

9. The combination, in a cultivator, of plows *A*, handles *D*, standards *H*, bars *P'*, connecting-frame *T* *W*, gibs *M*, and clips *N*, substantially as described.

FRANCIS M. ALLEN.

Witnesses:

T. STEPHENSON,  
O. A. BROWN.