

(No Model.)

3 Sheets—Sheet 1.

S. L. ALLEN.
CULTIVATOR.

No. 466,282.

Patented Dec. 29, 1891.

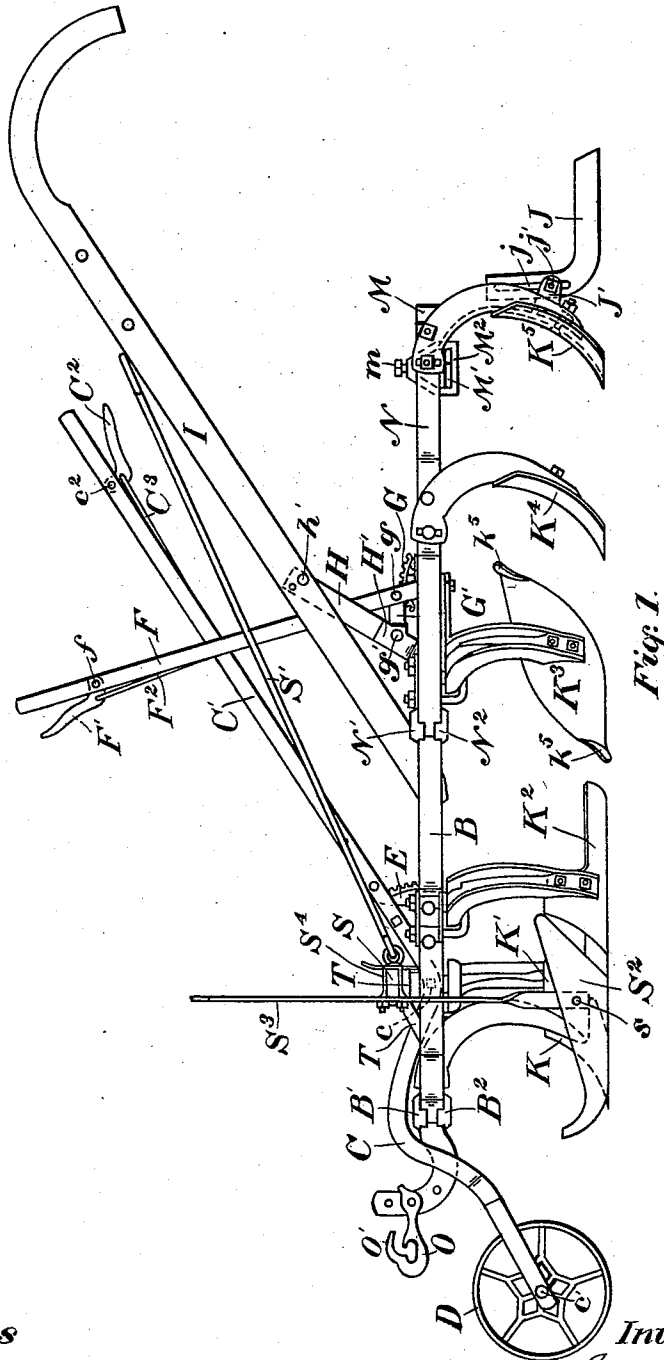


Fig. 1.

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Albert E. Leach

Inventor
Samuel L. Allen
by H. B. Moore
att'y.

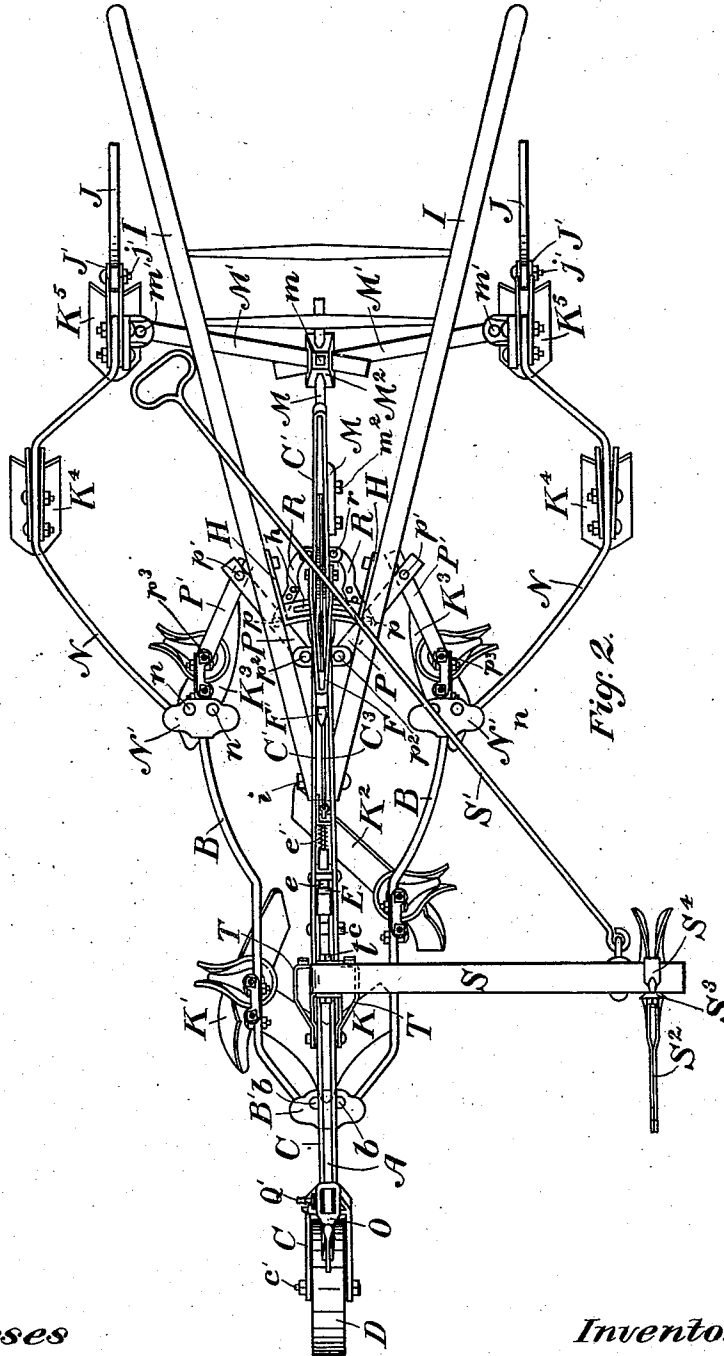
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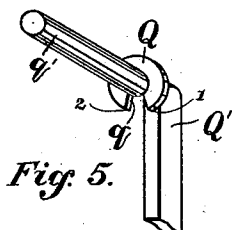
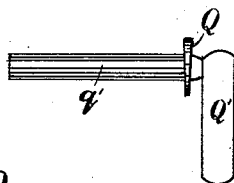
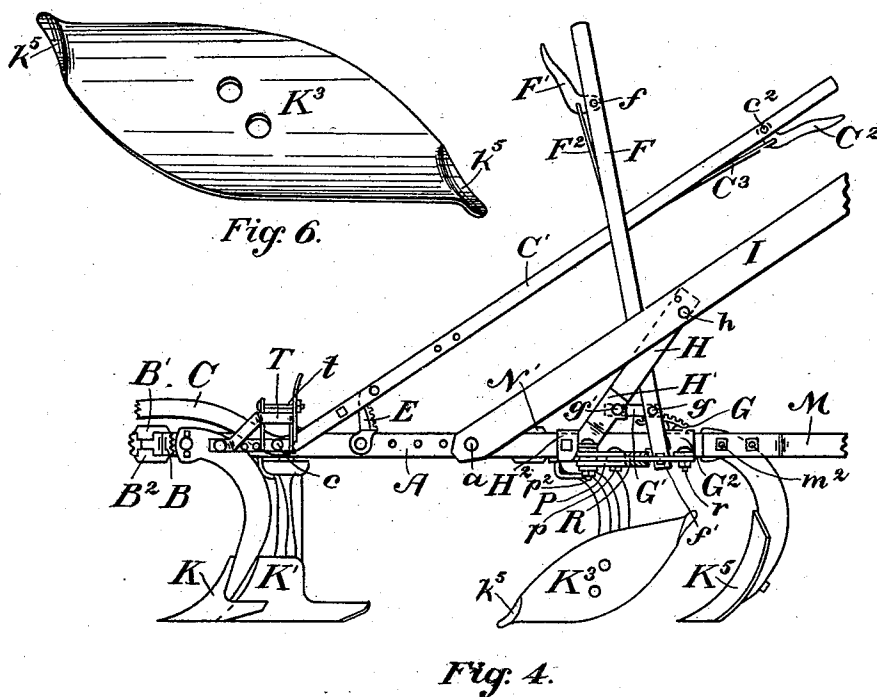
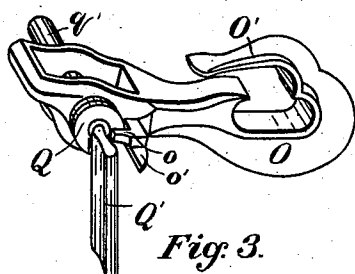
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UNITED STATES PATENT OFFICE.

SAMUEL L. ALLEN, OF CINNAMINSON, NEW JERSEY.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 466,282, dated December 29, 1891.

Application filed March 13, 1891. Serial No. 384,888. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL L. ALLEN, a citizen of the United States, residing at Cinnaminson, in the county of Burlington and State of New Jersey, have invented certain new and useful Improvements in Cultivators, of which the following is a full specification.

My invention consists of certain improved features of construction in an implement to be used as a combined cultivator, horse-hoe, furrower, &c., my improvements serving to materially increase in various ways the utility of the implement.

Referring to the accompanying drawings, Figure 1 shows in side elevation a cultivator embodying my improvements. Fig. 2 is a plan view thereof. Fig. 3 shows in perspective the draft-hook and pin. Fig. 4 is a side view of a part of the implement with the side bar broken away to show the mode of connection of the parts to the central bar. Fig. 5 is a perspective view of the draft-hook pin. Fig. 6 shows the peculiar shape of the reversible hoe-blades, and Fig. 7 is a side view of the draft-pin.

The general construction and arrangement of the frame of the implement so far as the shape of the central bar and side bars is concerned and the connection of said bars together is similar to that shown in United States Letters Patent No. 424,946, issued to me April 8, 1890, to which reference is hereby made.

A is the central bar, and B B the side bars, hinged to the central bar between the hinge-plates B' B², bolted together and to the central bar.

I I are the handles, connected at *i* to the central bar, preferably by a joint allowing lateral adjustment of the handles.

H is the handle-brace, the upper arms of which are bolted at *h'* to the handles I I, the bottom of the brace resting upon and being bolted to the supporting-piece H', which is rigidly connected with the central bar in the manner presently to be seen. The bottom of the handle-brace is provided with the slot *h*, through which the bolt passes that secures the brace H and supporting-piece H' together, this arrangement with the joint at *i* admitting of the handles I I being clamped in any

position either central with the frame or to either side, as desired.

The side bars B B are opened apart and drawn together by means of the handle-lever F, acting upon the expanders P P'. G' are the fulcrum-pieces of the handle-lever F, said fulcrum-pieces being attached at *g'* to the seat-piece H' of the handle-brace. The handle-lever is fulcrumed at *g* to the pieces G' and at its lower end is pivotally attached at *f'* to the sliding piece G², (see Fig. 4,) which is guided to slide on the central bar A and which bears the toothed piece G.

H² is a clip, which is bolted or otherwise secured to the central bar and bolted to outward extensions or lugs, on which clip are pivoted at *p*² the inner ends of the expanders P P'. The expanders P P' on each side are pivoted together at *p'*, while the outer ends of expanders P are pivoted at *p*³ to connections of the side bars.

The expanders P are connected by arms R with the sliding piece G², said arms being pivoted at *r* to lugs on said sliding piece and at *p* to said expanders. The whole arrangement is such that moving the handle-lever back and forth opens out and draws together the side bars. A stop or pawl within the open-handle lever F is adapted to engage with the teeth of the piece G, thus acting to hold the side bars in any desired position with reference to the central bar, said stop or pawl being raised by means of the secondary handle F', pivoted at *f* in the handle-lever F and connected by a rod or wire F² to said handle F'. The bolts *p*², on which the inner ends of the expanders P are pivoted, also serve, as shown in the drawings, to secure the supporting-piece H' of the handle-brace H to the clip H² on each side. (See Fig. 4.) My object is to have the points of attachment of the handle-supporter to the central bar on each side practically identical with the inner pivots of the expanders, thus preventing the central bar from springing and securing great strength. I might accomplish this, moreover, by having the supporting-piece H' integral with the clip H² and in the same position as herein shown.

N N are outwardly-bent bars forming detachable extensions to the side bars B B and

hinged to said side bars near the rear thereof, each side bar being for this purpose provided with the hinge-plates $N' N^2$, which are bolted together at n , one above and one below the side bar, the extension-bar N being pivoted between said plates. These extension-bars are so shaped as to greatly increase the width of the frame, thus materially widening the track of the cultivator. As herein shown, four additional teeth are secured to said extension-bars.

M is a detachable central-bar extension rigidly secured, as at m^2 , to the rear of the central bar A . This central-bar extension is provided with a clamping device m , in which are secured the inner ends of the connecting-bars M' , pivoted at m' to connections on the extension side bars N . By simply removing the hinge-plates $N' N^2$ and unscrewing the bolts m^2 the rearward extension to the frame, consisting of the bars N , M , and M' , may be removed. The extension side bars $N N$ may be varied in width with respect to the central bar independently of the side bars B , as will readily be seen without further description.

I have shown my improved implement as provided with a front wheel D , journaled in one arm C of a lever, the other arm C' of which serves as a handle to raise and lower the wheel, the lever $C C'$ being pivoted to the central bar at c . The construction and operation of this lever are substantially identical with that shown and described in an application for United States Letters Patent for an improved cultivator, harrow, and pulverizer combined, filed by me February 28, 1891, the serial number of which is 383,160. The height of the wheel D is determined by a stop or pawl e , which engages with a toothed piece E , bolted to the central bar, and is operated by a handle C^2 , pivoted at c^2 in the handle-lever C' and connected with said stop or pawl by the rod C^3 . The use of this adjustable wheel is easily and quickly to regulate the depth to which the cultivator-teeth penetrate the ground even while the tool is in motion, to steady the tool, and to wheel it on from place to place. The depth is accurately regulated in the rear by means of a peculiar attachment to the rearmost teeth K^5 , consisting of a float or tail-piece J , which is L-shaped, one arm being adapted to rest upon the ground while the other is provided with a slot j .

J' is a piece firmly bolted to the blade or standard of the tooth K^5 , to which piece J' is rigidly secured at the desired height the float J by means of the bolt j' , which may be fastened at any desired height in the slot j . In this manner the depth of cut of the implement in the rear may be readily varied by simply adjusting the bolt j' to different positions in the slot j and fastening it tightly therein at the desired positions. The floats act, moreover, as steadiers to guide the implement in a straight track.

By means of the adjustable wheel in front and the floats J , also adjustable in height at

the rear, the whole implement may not only be readily made to cut at any desired depth in the ground, but also may be made to run perfectly level at that depth and run steadily.

I have shown the cultivator as supplied with various forms of teeth, adapting it for a great variety of uses. The forward teeth $K' K^2$ are inwardly-extending sweeps, having straight blades with curved shields at the junction of the blade to the standard. These standards are secured to the frame by the well-known staple-bolts and seats, whereby the blades are angularly adjustable.

The hoe-blades K^3 are of peculiar construction. The point that enters the ground is bent over near the extreme end thereof and curved, as at k^5 , (see Fig. 6,) to form a plowshare-like point. The blade being similarly though oppositely curved at top and bottom and provided with similar plowshare-points k^5 at opposite ends thereof, is reversible, and when one edge is worn out may be simply turned about on its standard to expose the opposite edge. These blades, like the hoe-blades $K' K^2$, are angularly adjustable.

S is the marker-arm, pivoted at its inner end at t to and supported by an appropriate seat T , connected to the central bar of the implement. This seat T is elevated sufficiently to allow the handle-lever C , operating the adjustable front wheel D , to have free play beneath the marker-arm and not interfere therewith. By means of the staple-bolt S^1 embracing the arm S the vertical bar S^2 is secured to said arm and may be clamped at any position thereon. This bar S^2 has pivoted thereto at s the marker-blade S^3 , which is formed of two pieces of struck-up steel bolted together in front, but spreading apart at the rear, as shown in Fig. 2, and presenting in side view the shape shown in Fig. 1. By this peculiar shape the marker-blade makes a distinct furrow, and by reason of its pivotal connection to the bar S^2 it has an oscillation whereby it adapts itself readily to unevenness in the ground. By means of the handle S' , swiveled to the arm S , the marker may be turned on its pivot t from one side to the other of the implement, the seat T being so high that it does not in this motion interfere with the handle-lever C beneath it.

The shape of the draft-hook O is such as to prevent the ring of the singletree when once inserted therein from being removed by any motion of the horse or implement. To this end the hook-slot, as shown in Fig. 3, is made quite narrow, so that the singletree-ring fits more or less accurately therein, the top of the hook running inward for a short distance from the front end, as it were, horizontally forming a guard, which prevents accidental removal of the singletree-ring from the hook-slot. The top then curves abruptly upward, as at O' , to enable the ring to be removed when desired by bringing said ring into the center of the hook-slot and then lifting it vertically out. The pin q' , which secures the draft-

hook to the forward hook-shaped end of the central bar A, has the button Q provided with the slot *g*, which, when the handle Q' of the pin is in the right position, slips over the lug *o*, so as to allow the pin to be turned with the button in a notch behind said lug *o*, the pin being thus held in place. The button Q may be thickened gradually from 1 to 2, (see Fig. 5,) so as to form a wedge-shaped button, as shown in Fig. 7, so that the button first turns easily in the notch, but may, by turning the handle Q', bind firmly therein, or by being carried beyond the high point reach a loosely-confined position beyond, thus preventing the pin from being accidentally removed from the draft-hook. The weight of the part Q' also prevents the pin from accidentally turning upward, so as to be unlocked. When fastened in place the draft-hook stands substantially horizontal, so as to be convenient for use.

I claim—

1. In a cultivator, the combination, with the central bar and hinged laterally-adjustable side bars, of detachable laterally-adjustable rearwardly and outwardly projecting side-bar extensions hinged to said side bars, connecting-bars secured to said extensions, and a clamping device on said central bar or a connection thereof, substantially as and for the purposes described.

2. In a cultivator, the combination, with the central bar and side bars, of detachable lat-

erally-adjustable side-bar extensions hinged to said side bars, a detachable central-bar extension secured to said central bar, connecting-bars secured to said side-bar extensions, and a clamping device on said central-bar extensions, substantially as described.

3. A cultivator provided with reversible hoe-blades K³, having at opposite extremities thereof the plowshare-points *k*⁵, bent back from the face of the tooth, the oppositely-curved edges of the tooth being smoothly convex from one plowshare-point to the other, substantially as described.

4. In a cultivator, the combination, with an adjustable lever-operated front wheel, of one or more rearwardly-extending L-shaped adjustable floats or tail-pieces secured to the rearmost tooth or teeth, whereby the depth of cut of the implement may be regulated both in front and in the rear, substantially as described.

5. The combination, with the draft-hook of a cultivator, of the pin *g*, having a slotted button Q, gradually increasing in thickness from one edge of the slot around the periphery of the button to the other, substantially as and for the purposes described.

In witness whereof I have hereunto set my hand.

SAMUEL L. ALLEN.

Witnesses:

A. L. JACOBY,
WM. H. ROBERTS.