W. L. HOPPER.

Cultivator.

No. 164,372. Patented June 15, 1875.

Fig. 1.

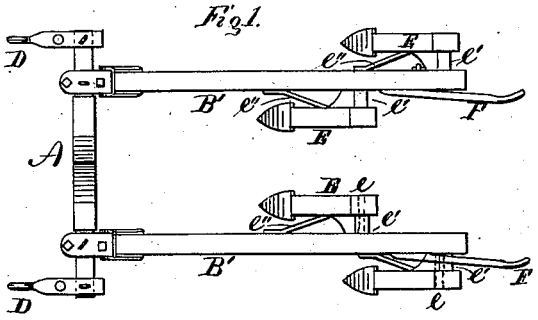


Fig. 2.

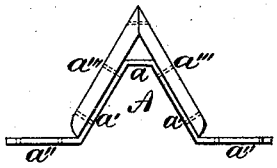


Fig. 3.

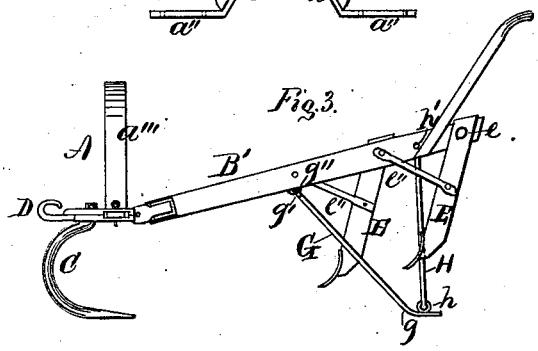


Fig. 4.

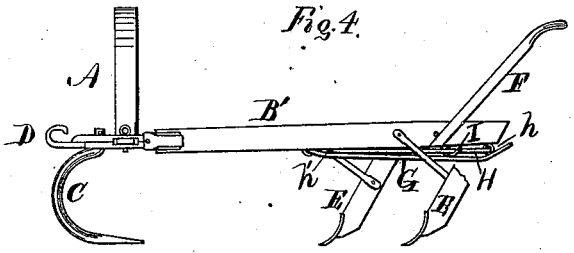
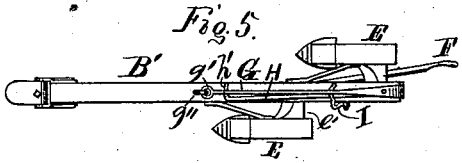


Fig. 5.



Witnesses.
A. McWallum
D. G. Stuart

Inventor
William L. Hopper,
By W. B. Richards,
atty.

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

WILLIAM L. HOPPER, OF MONMOUTH, ILLINOIS.

IMPROVEMENT IN CULTIVATORS.

Specification forming part of Letters Patent No. **164,372**, dated June 15, 1875; application filed January 5, 1875.

To all whom it may concern:

Be it known that I, WILLIAM L. HOPPER, of Monmouth, county of Warren and State of Illinois, have invented certain Improvements in Cultivators, of which the following is a specification:

This invention relates to improvements in that class of cultivators known as tongueless cultivators; and consists, first, in improvements in the construction of the axle; second, in improvements in the standard-blocks; and, third, in improvements in devices for sustaining the plows in an elevated position while being transported from place to place, or for other purposes, all as hereinafter fully described.

To enable others skilled in the art to make and use my invention, I will now proceed to describe the same with reference to the accompanying drawing, in which—

Figure 1 is a top view of a cultivator embodying my improvements. Fig. 2 is a front elevation of the axle alone. Fig. 3 is a side elevation of the machine, showing the plows elevated. Fig. 4 is a side elevation of one plow, showing the sustaining device folded out of the way; and Fig. 5 is a bottom view of Fig. 4.

Referring to the parts by letters, letter A represents the axle, constructed, as shown more plainly at Fig. 2, of an elevated short central part, *a*, diverging descending side parts *a'*, and horizontal parts *a''*, for the reception of the plows B and the supporting-runners C. This part of the axle I construct preferably of metal, and in order to stiffen it without the use of very heavy metal I bolt the wooden bars *a'''* *a'''* to the side parts *a'*, to extend upward in triangular form, and bolt them together at their upper ends, as plainly shown at Fig. 2.

This construction, it will be plainly seen, will furnish an axle braced against lateral strain or yielding of the central parts.

C C are the supporting-runners, pivoted or journaled in the draft-plates D D, which are in turn pivoted or hinged to the ends of the axle. B' B' are the plow-beams, hinged at their forward ends to the ends of the axle, so as to admit of vertical and lateral movement. Letters E represent the shovel-standards, attached at their upper ends to the beams B' by a bolt, *e*. *e'* represent the blocks intervened between the standards E and beam B', and are made, as shown at Fig. 1, to extend well down the side of the beam and brace it, and thus dispense with the usual inside brace-rod, and render the use of more braces than the rod *e''* unnecessary. F F are the handles. G is a rod with a flattened and curved end, *g*, and an eye, *g'*, on its other end, which interlocks with an eyebolt, *g''*, projecting from the under side and near the central part of the beam B'. The end *g* of the rod G is also provided with an eyebolt or eye, *h*, which interlocks with a similar eye on one end of a rod, H, the other end of which is bent short to form a catch, *h'*. I is a hook attached to the rear end and side of the beam B'.

The operation of the sustaining device is as follows:

In this class of cultivators the plows cannot be sustained at their rear ends above the ground by devices projecting from the axle for obvious reasons.

An inspection of Fig. 3 will illustrate the manner in which my device may be utilized for the purpose. The end *g* of the rod G is dropped to the ground and forms a runner or slide, and is retained in said position by inserting the end *h'* of the rod H in a hole in the side of the plow-beam, thus elevating and sustaining the plows, as shown at said Fig. 3, in such position that the machine may be drawn from place to place without danger to the parts. When in use, the end *h'* of the rod H may be withdrawn from the plow-beam, and the rod H being turned back upon the rod G, both may be raised to the under side of the plow-beam, the hook *h'* being turned inward and across the rod G, as shown at Fig. 5. The hook I may be turned to engage with the rod H, as shown at the same figure, and thus elevate and sustain the parts immediately beneath the beams B' and entirely out of the way.

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

1. The axle A, constructed, as described, of an elevated short central part, *a*, diverging side parts *a'*, and horizontal parts *a''*, and hav-

ing the bars a''' bolted thereto, substantially as described, and for the purpose specified.

2. A plow elevating and sustaining device for tongueless cultivators, consisting of a runner-carrying rod, G, hinged to the plow-beam, and to which is hinged a rod, H, by which it may be fixed in operative position, substantially as described, and for the purpose specified.

WILLIAM L. HOPPER.

Witnesses:
J. J. TUNNICLIFF,
W. B. RICHARDS.