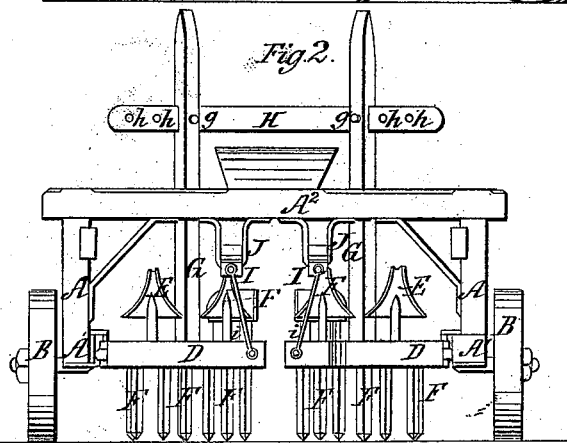
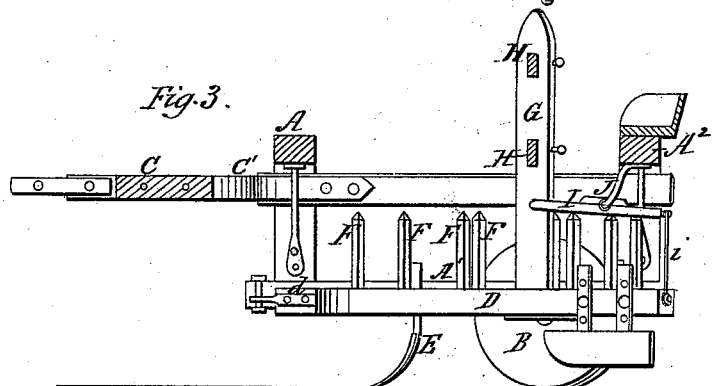
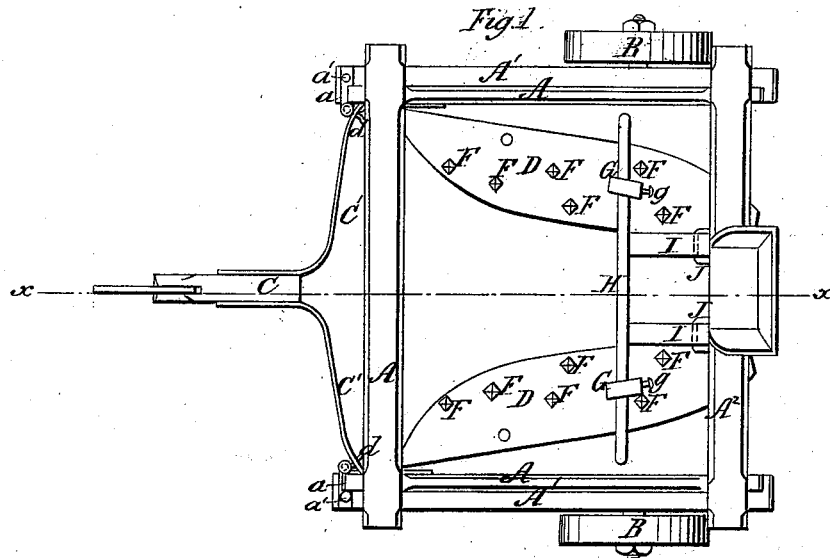


T. SHORT.

Wheel Cultivator and Harrow.

No. 46,274.

Patented Feb. 7, 1865.



Witnesses
C. A. Smith
Edward H. Knight

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UNITED STATES PATENT OFFICE.

THOMAS SHORT, OF FAIRMOUNT, ILLINOIS.

IMPROVED CULTIVATOR AND HARROW.

Specification forming part of Letters Patent No. **46,274**, dated February 7, 1865.

To all whom it may concern:

Be it known that I, THOMAS SHORT, of Fairmount, in the county of Vermillion and State of Illinois, have invented a new and Improved Cultivator and Harrow Combined; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan of my improved machine in condition for cultivating. Fig. 2 is a vertical longitudinal section of the same in the line *xx*, Fig. 1. Fig. 3 is a rear end elevation, representing the machine in condition for use as a harrow.

Similar letters of reference indicate corresponding parts in the several figures.

In this machine a novel arrangement of devices is provided to facilitate the vertical adjustment of the shovels to avoid obstructions, and in addition to this feature the cultivator-frames are provided with harrow-teeth, and the frames are adapted to be reversed in such manner that the said teeth may be presented in a downward direction, so as to convert the implement into a harrow when desired, all as will be hereinafter fully explained.

In order that others skilled in the art to which my invention appertains may be enabled to fully understand and use the same, I will proceed to describe its construction and operation.

In the accompanying drawings, *A A' A²* may represent the various parts of a frame which by means of short axles or shafts is mounted upon wheels *B B*. The tongue *C* is of any suitable construction and attached to the side pieces, *A' A'*, of the frame through the medium of hounds *C' C'*.

D D are the cultivator-frames, in which the shovels *E* are swiveled, so as to freely conform to the turning of the machine and thus avoid injury. The entire weight of these frames is supported by the shovels *E*, which are thereby pressed the requisite depth into the ground, the frames being attached to the forward ends of the side pieces, *A' A'*, by means of clevises *d d*, one on the forward end of each frame *D*, coupled with a bracket or clevis, *a*, secured on the end of the respective pieces *A'*. The clevises *a a* are secured by screws *a'*, which may

be readily withdrawn to admit of the detachment of the clevises *a*, when the frames *D D* are to be reversed, in the manner hereinafter explained. On the side of each cultivator-frame, opposite that from which project the shovels *E*, are teeth or prongs *F*, rigidly inserted into the frames.

From the respective frames *D D* rise standards *G G*, which are secured and retained in upright positions by having their extremities tenoned to enter corresponding mortises formed for their reception in the frames *D*. These standards are provided with apertures or slots in which rest bars *H H*, which fit loosely in order that the slots in the standards may be slid to any desired position thereon for the purpose of adjusting the frames *D D* with relation to each other. To effect this adjustment of the standards *G G* pins *g g* are employed, these pins each being passed through the desired aperture of the series *h* in the bars *H H*, and through corresponding apertures in the standards *G*. This adjustment is either to bring the shovels in the best position for operating around the growing plants, or to bring the frames in contact with each other when the implement is to be employed as a harrow. It is designed to have mortises on both sides of the frames *D D* to accommodate the standards in either position thereof.

I represent what may be termed "treadle-levers," the same being suspended centrally upon strong metallic loops *J J*, inserted into the bar *A²* at the under side thereof. To the rear ends of the treadles *I* are attached cords, wires, or rods *i i*, which extend from and are connected with the frames *D*. These treadles *I*, while forming convenient foot-rests for the driver, afford ready means for enabling him to elevate the frames *D*, either when the shovels *E* or teeth *F* are presented to the ground.

When it is wished to adapt the machine to perform the functions of a harrow it is only necessary to remove the adjusting-frame *G H*, detach the clevises *a* in the manner described, substitute the frames *D*, one for the other, reattach them with the teeth *F* presented downward, and remount the frame *G H*.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. The frames D D, provided with shovels E and teeth F, the clevises *a d*, and screws or bolts *a'*, in combination with the adjusting-frame G H, the latter permitting the cultivator-frames to be operated simultaneously or independently, and adapting said frames, when used as a harrow, to be brought together at their rear ends, as herein specified.

2. The combination of the treadles I, loops J,

and connecting rods or wires *i* for adjusting the frames D D, substantially as explained.

The above specification of my improved cultivator and harrow combined signed this 20th day of June, 1864.

THOMAS SHORT.

Witnesses:

CHARLES D. SMITH,
JAMES H. GRIDLEY.