

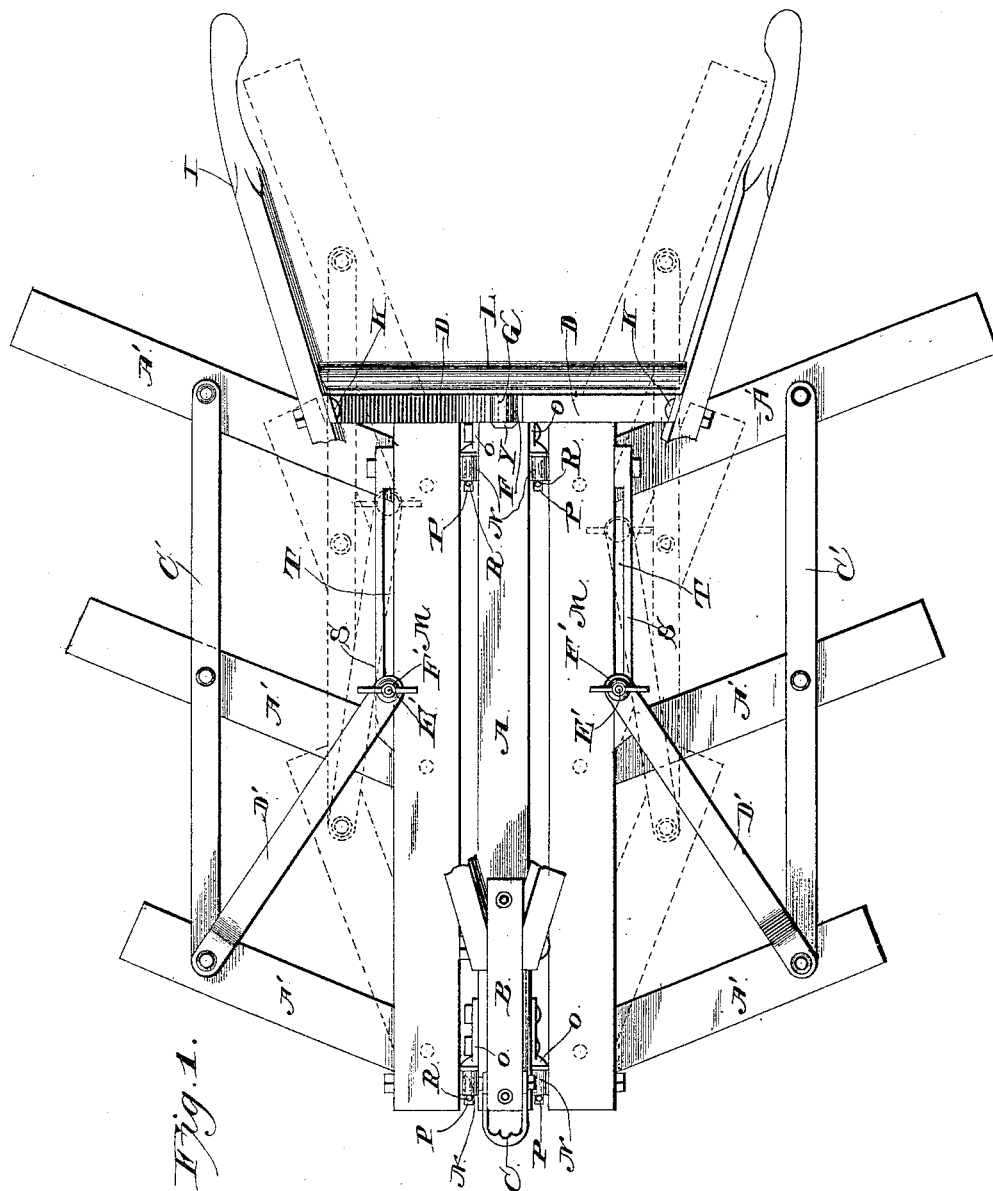
(No Model.)

2 Sheets—Sheet 1.

N. C. ORRICK.  
HARROW AND CULTIVATOR.

No. 419,214.

Patented Jan. 14, 1890.



Witnesses

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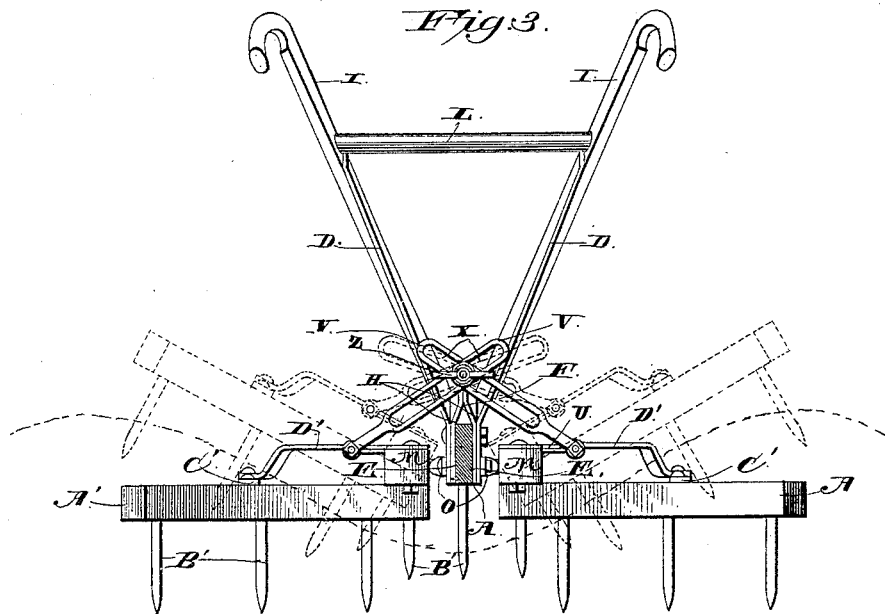
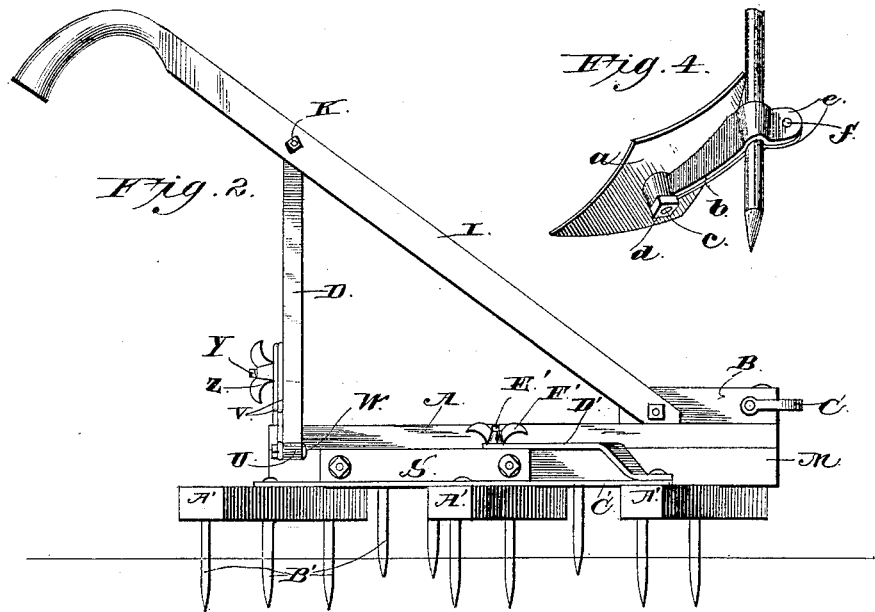
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# UNITED STATES PATENT OFFICE.

NICHOLAS CROMWELL ORRICK, OF CANTON, MISSISSIPPI.

## HARROW AND CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 419,214, dated January 14, 1890.

Application filed July 20, 1888. Serial No. 280,457. (No model.)

*To all whom it may concern:*

Be it known that I, NICHOLAS CROMWELL ORRICK, a citizen of the United States, residing at Canton, in the county of Madison and State of Mississippi, have invented a new and useful Improvement in Harrows and Cultivators, of which the following is a specification.

My invention relates to an improvement in harrows and cultivators, particularly such as are used in cultivating in the bed and ridge systems of agriculture; and it consists in the peculiar construction and combination of devices that will be more fully set forth hereinafter, and particularly pointed out in the claims.

This invention is an improvement on the harrow and cultivator for which Letters Patent of the United States, No. 352,998, were granted to me November 23, 1886.

In the accompanying drawings, Figure 1 is a top plan view of a harrow and cultivator embodying my improvements. Fig. 2 is a side elevation of the same. Fig. 3 is a rear elevation of the same. Fig. 4 is a detail perspective view of one of my improved reversible cultivator-teeth, showing the same attached to one of the harrow-teeth.

A represents a central beam, on the upper side of which, at its front end, is bolted a bar B, to which is attached a clevis C.

D represents a pair of upwardly-diverging arms or standards, which have their lower ends arranged in vertical grooves E on opposite sides of the beam, near the rear end thereof and bolted thereto.

F represents an arm, which is provided at its upper end with an opening G, and has its lower end provided with forks H, which are arranged in the grooves E on the inner side of the arms or standards D, and are secured in place by the same bolts which are employed to secure the lower ends of the arms or standards to the beams.

I represents the handles, which are similar to plow-handles, have their lower ends bolted to opposite sides of the bar B, near the rear end thereof, and are secured near their rear ends to the upper ends of the arms or standards D by means of bolts K.

L represents a rung or bar, the ends of

which are secured in transverse openings in the handle.

M represents a pair of beams, which are arranged on opposite sides of the beam A, and have eyebolts N near their front and rear ends, the eyes of the said bolt being on the inner sides of said beams.

O represents two pairs of plates, which are bolted in a longitudinal direction on opposite sides of the beam A, near the front and rear ends thereof, and are provided with forwardly-extending pintle-arms P, which engage the eyes of the bolts N, and thereby hinge the beams M on opposite sides of beam A. Linchpins R are inserted in transverse openings near the front ends of the pintle-arms, and thereby prevent the beams M from becoming disconnected from the beam A.

S represents a pair of bars of suitable length, which are bolted to the outer sides of the beams M, near the rear ends thereof, and are provided on their inner sides with vertical longitudinal recesses, which, in connection with the opposing sides of the beams M, form longitudinal slots T. On the upper sides of the beams M, near the rear ends thereof, are bolted transverse plates or arms U, which project beyond the outer sides of said beams and have eyes in their outer ends.

V represents a pair of arms, which have their lower ends pivotally connected to the outer ends of the arms or plates U by means of bolts W, which are arranged in the eyes of said plates or arms, and said arms V are each provided with a longitudinal slot X, or a number of holes. Said arms are crossed and their intersecting portions arranged in line with the openings G at the upper end of arm or standard F, and a bolt Y is passed through said openings G and through the slots or holes in the arms V, and has on its rear end a thumb-nut Z, by means of which the arms V may be clamped to arm F in any desired position, so as to maintain the beams M in any desired angle with relation to the beam A.

A' represents series of bars or arms, which have their inner ends pivoted to the under sides of the beams M at suitable regular distances apart. Any desired number of the

said arms or bars A' may be used; but I prefer to pivot three of said arms or bars to each beam M, as illustrated in the drawings. To the said arms or bars A' are attached removable harrow-teeth B', which are preferably vertical, but which may be inclined forward or back, if desired, and similar harrow-teeth are also secured to the beams A and M.

C' represents parallel rods, which are pivotally connected to each of the bars or arms A', and serve to cause said bars or arms to operate in unison, as will be readily understood.

D' represents link-rods, which have their front ends pivoted on the front ends of the parallel rods by the same bolts which connect the latter to the front pair of bars or arms A', and the rear ends of said link-rods are connected to the beams M and rendered longitudinally adjustable thereon by means of bolts E', which pass through the slots T and through openings in the rear ends of the link-bars and have clamping-nuts F' at their upper ends. By this means the harrow bars or arms A' may be arranged and secured at any desired angle with relation to the beams M, and consequently the width of the harrow may be increased or diminished according to the width of the spaces between the rows of plants. The said hinged beams M and harrow-bars or arms A' constitute wings, which are adapted to be turned to any desired angle with relation to the beam A, as before stated, so as to cause the harrow-teeth to operate on the sides of the ridges.

I will now describe my improved cultivator-teeth, which are attached to and detached from the harrow-teeth. *a* represents a diamond-shaped concavo-convex reversible cultivator tooth or shovel, the edges of which are sharpened. The central portion of the tooth or shovel is pivoted on the lower end of a curved arm *b* by means of a bolt *c*, which has a clamping-nut *d* at its lower end, by means of which the bolt may be removed from the arm, so as to permit the cultivating tooth or shovel to be reversed when one of its points or edges becomes worn. The rear end of the arm *b* is bifurcated to form a pair of straps or ears *e*, which are bent around the shank of one of the harrow-teeth, and have their rear ends connected by a bolt *f*, the function of which is to clamp the said ears

firmly to the harrow-tooth, so as to secure the arm *b* thereto at any desired adjustment. 55

The shovel or tooth *a* is arranged obliquely on the arm *b*, as shown, and the shovels when secured to the harrow-teeth may be arranged so as to throw the earth either toward or from the rows of plants. 60

Having thus described my invention, I claim—

1. The combination of the central beam A, the plates O on opposite sides thereof, having the forward-extending pintle-arms, the beams M, having the eyebolts near their ends pivoted on the pintle-arms, whereby said beams are hinged on opposite sides of beam A, the harrow bars or arms A', having their inner ends pivoted to the beams M, parallel rods 65 connecting said harrow bars or arms, the bars S, secured to the beams M, and having the longitudinal recesses on their inner sides forming the slots T, the link-rods pivotally connected to the harrow-bars, and the clamping-bolts E' in the inner ends of said link-rods and working in the slots T, the arms F, near the rear end of beam A, the plates U, secured on and projecting laterally from the rear ends of beams M, the slotted arms V, having their outer ends pivoted to said plates 70 and having their inner ends crossed and the clamping-bolt extending through the intersecting portions of the slots in said arms and securing the same to the arm F, substantially as described. 75 80 85

2. The reversible cultivating tooth or shovel of the ordinary construction, having the arm *b* pivoted thereto and adapted to be secured to and detached from a harrow-tooth, substantially as described. 90

3. The combination, with a harrow-tooth, of the arm *b*, having the ears or straps bearing on opposite sides of the harrow-tooth and provided with the clamping-bolt, the reversible cultivating tooth or shovel, and the pivot-bolt *c*, securing the same to the said arm, as set forth. 95

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses. 100

NICHOLAS CROMWELL ORRICK.

Witnesses:

C. C. GILLMOR,

H. W. BLAKEMAN.