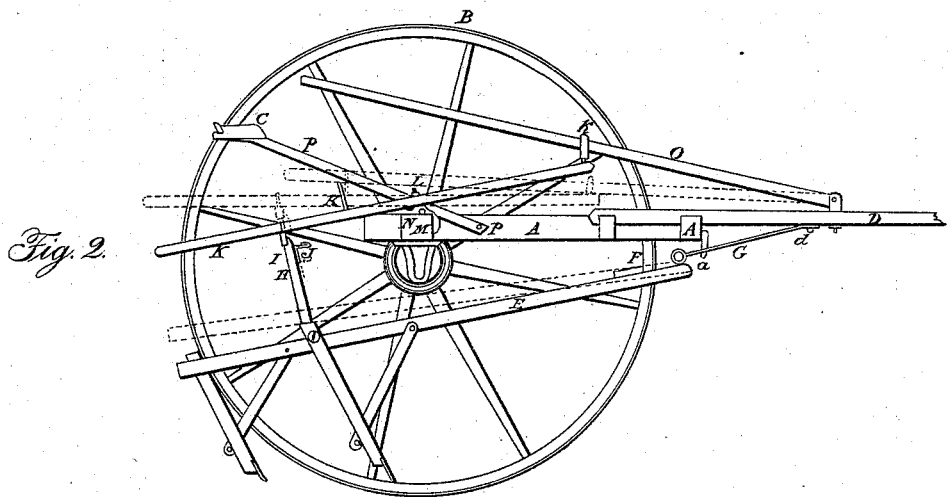
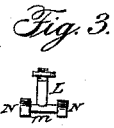
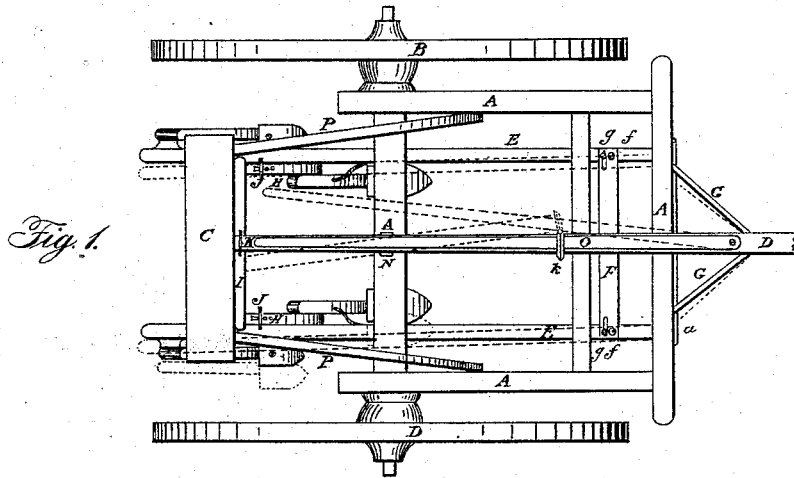


HOLTZ & ENOCH.

Wheel-Cultivator.

No. 48,281.

Patented June 20, 1865.



Witnesses:
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UNITED STATES PATENT OFFICE.

B. HOLTZ AND WM. ENOCH, OF SPRINGFIELD, OHIO.

IMPROVEMENT IN CULTIVATORS.

Specification forming part of Letters Patent No. 48,281, dated June 20, 1865.

To all whom it may concern:

Be it known that we, B. HOLTZ and W. ENOCH, of Springfield, in the county of Clarke and State of Ohio, have invented a new and useful Improvement in Cultivators; and we hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of our machine; Fig. 2, a side elevation, and Fig. 3, an elevation of the lever-joint.

The nature of our invention consists in such an arrangement of the various parts composing the machine as shall render the same extremely manageable and easy of control.

That others may understand its construction and operation, we will particularly describe it.

A is the main frame, B B are the wheels, C is the driver's seat, and D is the tongue.

The drag-bars E E are connected together at their forward ends by the cross-piece F, having the pivot-screws *f* and the slots and set-screws *g*, allowing a slight adjustment.

The rods G G, which are pivoted at *d* to the frame or tongue in front of the ends of the drag-bars, pass over the traveler-rod *a* and connect by joints to the front ends of the said drag-bars. These rods are the draft-rods, which cause the drag-bars and cultivators to move forward when the machine is moved.

Just forward of the rear ends of the drag-bars E are the standards H, secured to the inner sides of the bars E E. These standards H are connected at their tops by the cross-piece I, upon which the standards are adjustable, so as to be moved nearer together or farther apart, and near the upper ends of H are the foot-rests J, which are adjustable vertically in order to accommodate themselves to the convenience of different persons. The shovels are attached to the drag-bar in any ordinary way, the brace and wooden pin method being preferred.

The rear ends of the drag-bars are supported by the lever K, which passes through a staple on the cross-piece I and projects some distance to the rear, forming thereby a convenient handle by which to guide the cultivators while walking behind the machine. At the point where the lever K passes over the axle or rear

bar of the main frame it is joined to said bar by means of the T-shaped swivel-joint. (Seen in Figs. 2 and 3.) This joint is composed of the T-shaped piece represented in Fig. 3, the upright or shaft L passing through the lever K, while the cross-piece *m* lies along the lower side of K, transverse to its axis. The ends of M are secured in lugs upon the plate N, the rear edge of which is turned up as a stop to prevent the rear end of K from falling too low. (See Fig. 2.)

Upon the front end of K is a ring, *k*, through which the lever O passes, which, being pivoted to the frame or tongue well forward, and extending backward to within convenient reach of the driver's hand, affords him ready means of controlling the movements of the cultivators. The seat C rests upon the side pieces, P, which are pivoted to the frame A, as at *p*, so that the seat may be raised up if it is desirable to do so for any purpose whatever.

From the foregoing description it will appear that while in operation the driver may guide the cultivators from side to side, so as to favor one or the other side of the row of plants, as occasion may require, by placing his feet upon the foot-rests J J, in a manner well known, or he may do the same with more ease by means of the lever O, operating through the ring *k*, and lever K upon the cross-piece I, or he may guide them while walking behind the machine with his hand upon the rear end of the lever K. The drag-bars E E, being connected by the rods G to a single center, cause them to operate with ease and uniformity and without any straining or twisting of the joints. For side movements of the drag-bars, levers, &c., see red lines in Fig. 1.

When the machine is to be transported to or from the field it is necessary to raise the cultivators clear from the ground, and to maintain them in that position as long as desirable. In order to accomplish this the driver presses down the rear end of O, which, acting through the ring *k*, depresses the forward end of K and elevates the rear end of the same, thereby elevating the shovels from the ground. To maintain them in that position the lever O is passed under the hook R, which keeps the rear end of the lever O depressed, and as a consequence the rear end of the lever K and the

drag-bars elevated. This adjustment is shown by red lines in Fig. 2.

By an examination of the figures it will be seen that by the construction of the joint represented in Fig. 3 the lever K may pass through a movement in any possible direction, for it is evident that, as the cross-piece M works upon its own axis freely, the lever K may move thereon in a vertical plane parallel to the line of the machine's movement; and as L is simply an upright or perpendicular pivot, it follows that K may move also in a horizontal plane at right angles to L, and the combination of the vertical movement upon M with the horizontal movement upon L give a movement in any desired direction, thus rendering the cultivators perfectly under control.

Having described my invention, what I claim as new is—

1. Connecting the drag-bars E E to a single point on the main frame by the draft-rods G G, substantially as described.

2. In combination with the draft-rods G G, the traveler-rod *a*, substantially as described.

3. Imparting a lateral motion to the rear end of the plow-beams by means of the two single levers or rods O and K, arranged and operating as described.

4. Pivoting the lever K upon the self-adjusting pivot L, in the manner shown, for the purpose of permitting said lever to be moved both vertically and laterally, and thus perform the operation of moving the plows without the use of more than one lever, K, and with but a single pivot for said lever.

5. Connecting the drag-bars in front by the stretcher F, provided with pivot-screws and set-screws, as described.

6. The combination and arrangement of rods G, drag-bars E, posts H, foot-rests J, levers K and O, ring *k*, and joint L M, as shown and described.

B. HOLTZ.
W. E. ENOCH.

Witnesses:

I. H. THOMAS,
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