

E. WIARD.
WHEEL CULTIVATOR.

No. 173,747.

Patented Feb. 22, 1876.

Fig 1.

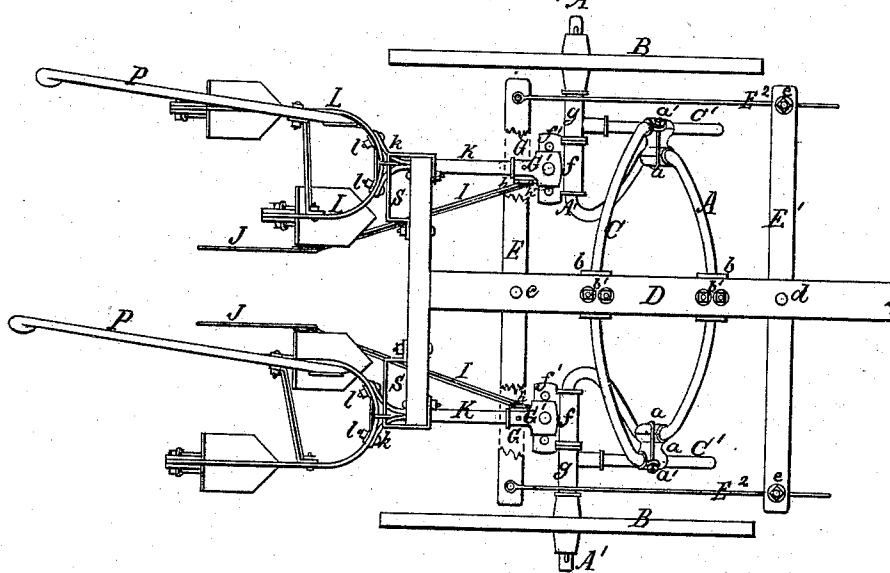
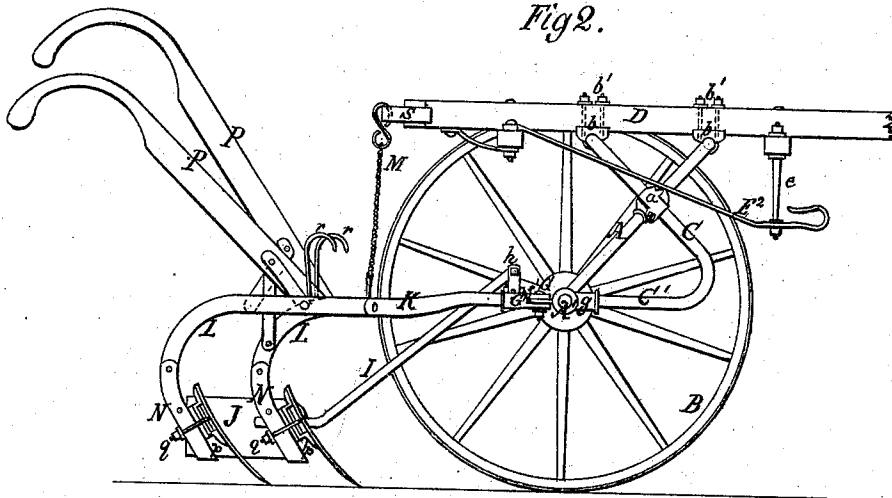


Fig 2.



Witness'es:
J. P. Theodore Lang.
Jno. S. Slater.

Inventor:
Edward Weard
by
Mason Fenwick Lawrence

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Fig 3.

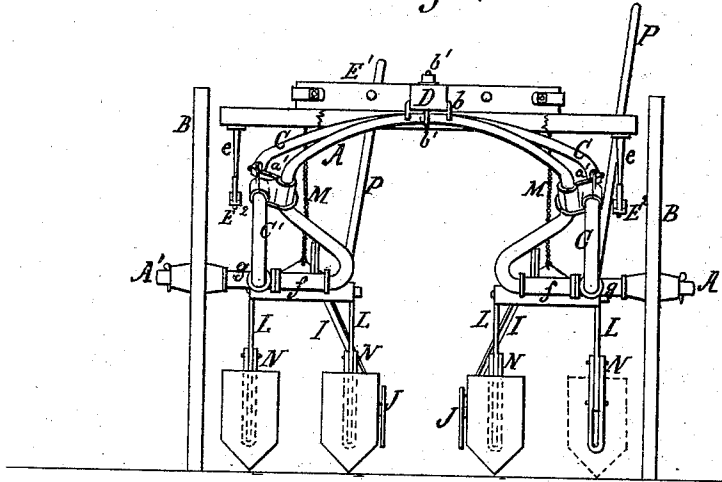


Fig 6.

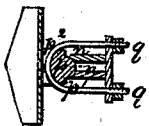
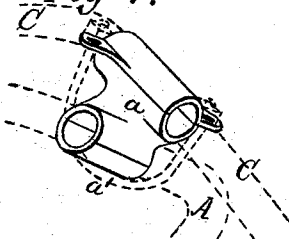
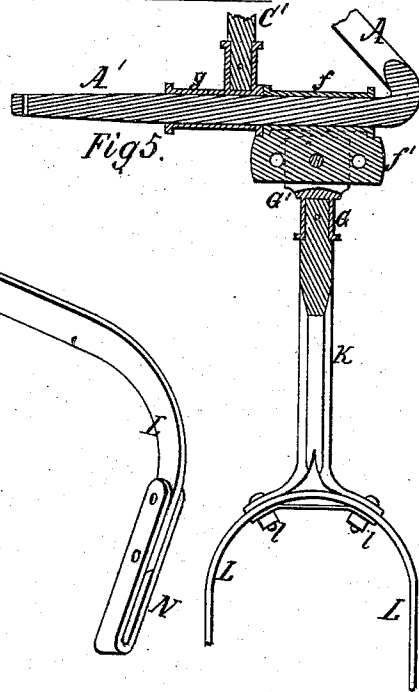


Fig 4.



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Fig 5.



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UNITED STATES PATENT OFFICE.

EDWARD WIARD, OF LOUISVILLE, KENTUCKY, ASSIGNOR TO BENJAMIN F. AVERY, OF SAME PLACE.

IMPROVEMENT IN WHEEL-CULTIVATORS.

Specification forming part of Letters Patent No. **173,747**, dated February 22, 1876; application filed December 13, 1875.

To all whom it may concern:

Be it known that I, EDWARD WIARD, of Louisville, in the county of Jefferson and State of Kentucky, have invented a new and useful Improvement in Wheel and other Cultivators; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a top view of my improved cultivator. Fig. 2 is a side elevation of the same with one of the traction-wheels removed. Fig. 3 is a front elevation of the cultivator complete. Fig. 4 is a perspective view of a portion of the two supporting and bracing arches, and the double-eyed tie and yoke, for fastening the arches together on opposite sides of the machine. Fig. 5 is a horizontal section through one of the axle-arms of the arched axle-tree, and one of the shovel-beams and standards thereof. Fig. 6 is a horizontal section through one of the shovels and shovel-standards. Fig. 7 is a perspective view from the rear of one of the shovel-beams and standards thereof.

The nature of my invention consists in certain constructions, combinations, and arrangements of parts in a wheel or other cultivator, as hereinafter specifically claimed, whereby such implements are rendered more efficient in several particulars, as will more fully appear from the following specification.

A is a curved arched axle-tree, with horizontal axle-arms A' A' on its sides, upon which traction-wheels B B are arranged so as to revolve. The arch of this axle-tree is inclined toward the front of the machine, and bowed out laterally from the inner ends of the arms toward the wheels B B, as shown. This axle-tree and its arms can be made of light round iron, as an auxiliary bracing-arch, C, is employed in connection with it, in order to aid in sustaining it and the other parts of the cultivator. This arch C is curved, and starts out from horizontal branches C' C', which are fastened in bent sockets of stationary collars g of the axle-arms, and rises in short curves, and then extends back in arching form toward the rear of the machine, as shown in the drawings. The arched axle-tree and the arched brace are

tied together on opposite sides of the machine by double-eyed boxes *a a* and diagonal yoke-clips *a' a'*. These boxes are formed of an intermediate seat-block, with semicircular bearings in it, upon which half bearing-boxes are clamped by the yoke-clips *a'*, as shown. Upon the axle-tree A and its brace C a central beam or tongue, D, is confined by means of plates *b b* and yoke-clips *b' b'*. The arches A and C are very light; but, as the tongue has two points of attachment, on account of the arches crossing one another at the place where they are coupled together, they afford a very strong and rigid support for the tongue or beam D. In rear of the axle-tree A and the brace C a horizontal bar, E, is pivoted centrally to the under side of the beam at *e*, and in front of the said parts a similar bar, E', is pivoted to the under side of the beam at *d*; and from the bar E, inclined laterally, vibrating draft-rods E² E², with hooks on their front ends, are extended forward, and pivoted to the lower ends of vertical pendants *e e*, which are fastened in the ends of the bar E', and extend down far enough to bring the line of draft as low as the draft-chains of the harness. The two bars E and E', with the draft-rods and pendants, form a draft-elevator of very superior character, while the low-down draft-hooks relieve the horses from much of the weight and thrust of the machine while in operation. On each of the axles a loose sleeve, *f*, is fitted between the nearly upright part of the arched axle-tree and the stationary collars *g* of the axle-arms. These loose sleeves are formed with a web-plate, *f'*, which is perforated with a series of adjusting-holes. To the web-plates *f'* of the laterally-adjustable collars sockets G G are pivoted by means of open-slotted plates G' G', which receive the webs into them, as shown. These sockets have vertical-shouldered pivot-standards *h h* attached to their inner sides, and to these standards, and between the shoulders *h' h'* thereof, bars I I of plant-fenders J J are pivoted, so as to vibrate between the shoulders to a limited extent as the fenders rise and fall in passing over hilly or rough ground. In the sockets G G the front ends of cultivator-beams K K are inserted and fastened. These beams are forked at their rear end, as shown at *k k*,

and to the forked ends of each beam a pair of shovel-standards, L L, are fastened by means of bolts *ll*, which bolts serve as supports for the arm to which the laterally-adjustable chain M, which suspends the pair of shovel-standards, is attached. Each pair of shovel-standards is formed of one piece of flat iron, bent in form of a bow at front, and then downward, as shown in the drawings, and particularly in Fig. 7 thereof. One branch or standard extends back beyond the other, so that one shovel shall be in rear of the other.

By making the beam of one piece and the standards of another, and uniting these parts as described, a very cheap and durable article is secured; and, in the event of the beam or the standard portion breaking, it is not necessary to furnish an entirely new beam and new standards, as one or the other may be replaced separate from the other; and, in manufacturing the article, it is not necessary to use large pieces of the very best quality to make the beam and standards together, as short heavy pieces may be used for the beams, and light short pieces for the standards.

On the lower end of the standard a loop, N, is fastened, and on the front side of this loop bevel-seats *nn* are formed to receive the support-block *p* of the shovel, as shown in the drawings. The block *p* is formed with a semi-cylindrical bearing-surface, *p*¹, and has an open slot, *p*², between its upper and lower ends on its front side, through which slot, between the block and the shovel, a yoke-clip, *q*, is placed, and the shovel thereby firmly clamped to the standard. The bevel-seats, by being separated, give a more positive hold of the seat-block to the loop of the standard, and, while this is the case, the shovel can be adjusted, by loosening the nuts of the clip, so as to throw the earth more or less inward or outward, as occasion may require. There are two shovel-beams and two pairs of shovel-standards, and both are constructed and arranged in the same manner, and to each pair of standards a single handle, P, is fastened, and these handles are so arranged with reference to each other that the attendant can walk

on one side of the row of corn being cultivated. To each handle a hook, *r*, is fastened, and this hook serves for holding up the standard and beam when necessary. The hooks catch into long staples *s*, fastened to a cross-bar on the rear end of the beam or tongue. The staples also serve as a support for the suspending-chains. The long staples and the perforated web *f'* of the sleeves *f* allow the cultivators to be moved toward each other or apart, and the sleeves permit the cultivators to rise and descend, as circumstances require.

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

1. The shovel-beam K and the pair of shovel-standards L L thereto attached, made of separate pieces of metal, in the forms shown and described, and united by screw-bolts *ll* passing through branches of the beam, and through the bowed portion of the pair of standards, substantially as and for the purposes set forth.

2. The curved slotted shovel-standards L and N, having beveled or concave seats *nn*, with separate bearings, in combination with the shovel-block *p*, having convex tongues *p*¹, and the yoke *q*, substantially as described.

3. The pivot-standard *h*, attached to the socket of the beam, and formed with a central channel and stops, *h' h'*, in combination with the fender-bar I, as shown and described.

4. The arch A, rising from the inner ends of the axle-arms, and bowed outwardly and upwardly to support the tongue D, in combination with the arched brace C, attached to the front of the axle, and extending first forward, then upward and backward, and yoked to arch A, and clamped to tongue D in rear of said arch, substantially as shown and described.

5. The double-eyed yoke-clip *a*, in combination with the arches A and C, substantially as described.

In testimony that I claim the foregoing as my invention I hereunto set my hand in presence of two witnesses.

EDWARD WIARD.

Witnesses:

HENRY H. McDougall,
ALFRED AVERY.