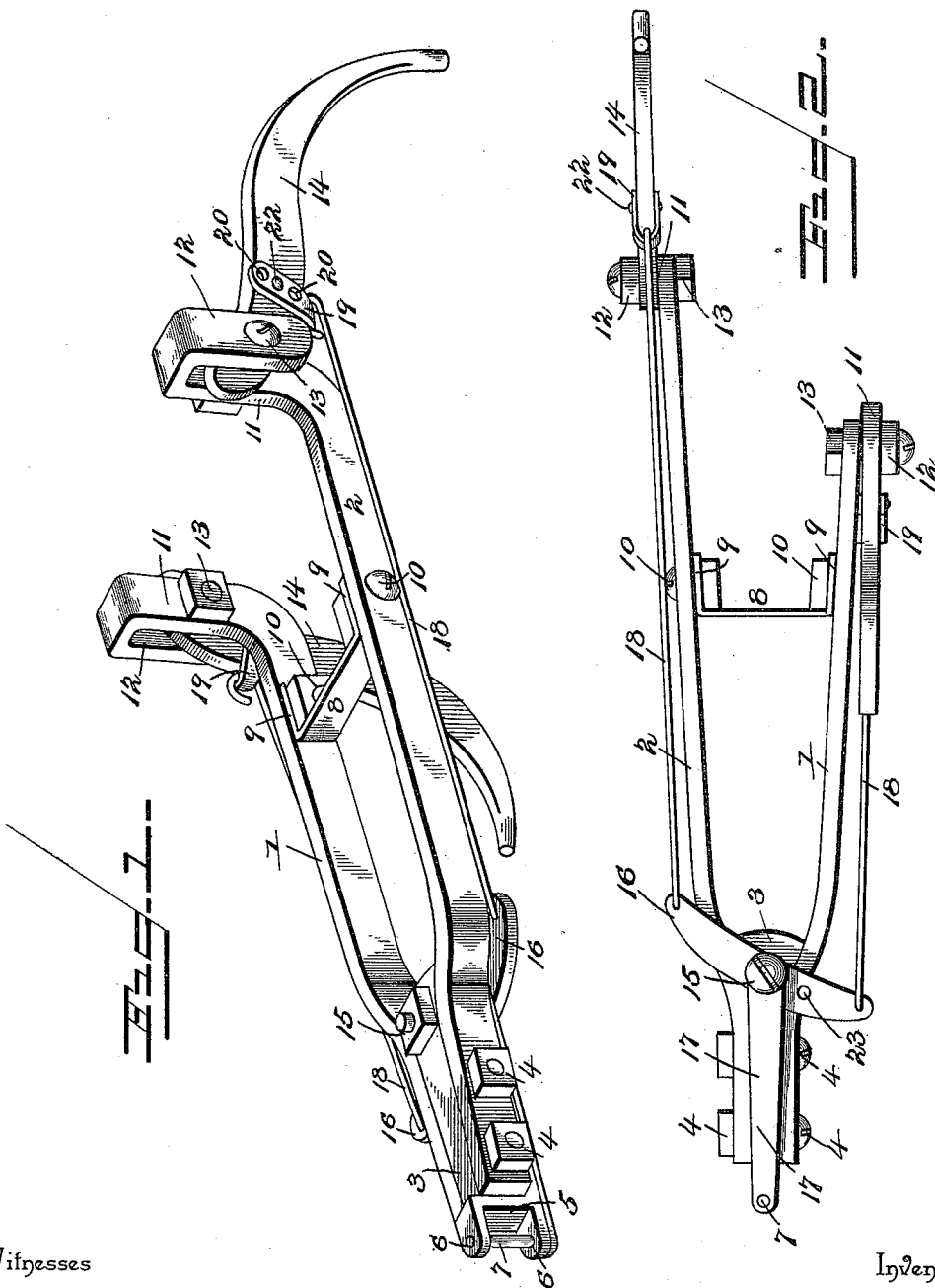


(No Model.)

D. F. LAWRENCE.
CULTIVATOR.

No. 499,745.

Patented June 20, 1893.



Witnesses

E. H. Stewart.

O. B. Coyle.

Inventor

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UNITED STATES PATENT OFFICE.

DANIEL F. LAWRENCE, OF BLUE SPRINGS, MISSOURI, ASSIGNOR OF ONE-HALF TO THOMAS W. RECORDS, OF SAME PLACE.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 499,745, dated June 20, 1893.

Application filed April 14, 1893. Serial No. 470,356. (No model.)

To all whom it may concern:

Be it known that I, DANIEL F. LAWRENCE, a citizen of the United States, residing at Blue Springs, in the county of Jackson and State of Missouri, have invented a new and useful Cultivator, of which the following is a specification.

My invention relates to improvements in cultivators and refers particularly to hanging cultivator and grain-teeth.

The objects of my invention are to provide a simple, effective and inexpensive construction whereby the cultivator and grain-drill teeth may be capable of yielding upon encountering obstructions such as roots, stones, &c., to avoid straining and fracture of the parts.

Further objects and advantages of my invention will appear in the following description, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings—Figure 1 is a perspective view of a cultivator embodying my invention, the handles and cultivator shovels being omitted. Fig. 2 is a bottom plan view of the same.

Similar numerals of reference indicate corresponding parts in both figures of the drawings.

1 and 2 represent, respectively, the side beams of the frame of the cultivator, such side beams being converged toward their front ends and firmly secured upon opposite sides of the horizontal tapered space-block 3. Transverse bolts 4 are employed to connect the front ends of the side beams to said space-block. The space-block is extended forwardly beyond the terminals of the side beams and provided with a cross-head 5 having upper and lower eyes 6, in the perforations of which is arranged the vertical king-bolt 7. The rear ends of the side beams are held at the desired interval by a transverse horizontal brace 8, having ears 9 which are arranged parallel and in contact with the inner surfaces of the side beams and are firmly secured thereto by means of bolts 10. The rear ends of the side beams are curved upwardly into a vertical position, and the extremities of the vertical arms 11, thus formed, are bent

outwardly and downwardly parallel with said arms to form the parallel sided loops 12 in which are pivotally mounted, upon transverse pivot bolts 13, the upper ends of the standards 14. The width of the loops 12 is sufficient to allow the upper ends of the standards to operate freely therein without allowing lateral play, and the latter are extended vertically above the pivot bolts approximately to the upper ends of the loops in order to provide a firm bearing. The lower ends of the standards are curved forwardly

Pivotally connected to the under side of the frame by means of the vertical bolt 15 which engages a vertical perforation in the rear end of the space-block is the evener-bar or equalizer 16, a strap 17 extending from the lower end of said bolt 15 to the lower end of the king-bolt, above described. Extending rearwardly from the extremities of this evener-bar or equalizer are the side rods 18 which are attached at their rear ends to straps 19 secured to intermediate points of the standards approximately in the plane of the evener-bar or equalizer. These straps are provided with series of perforations 20, and any desired perforation thereof may be aligned with similar perforations 21, in the standards. Such aligned perforations are engaged by the adjusting bolts 22.

In operation when the shovel or drill carried by one of the standards encounters an obstruction which is immovable, such standard will be repressed or swung backwardly until released by said obstruction, and at the same time the other standard will be swung forwardly. After the release of the rear standard, the front standard being now engaged firmly in the soil will, through the evener-bar or equalizer draw said rearwardly inclined standard to its former position. The side beams are of different lengths, as shown in the drawings, in order that the standards may not operate side by side, and hence they are not liable to encounter the same obstruction simultaneously.

It is occasionally expedient to employ a smaller plow or shovel upon one of the standards, and in order to provide for the accurate equalizing of the draft caused by shovels of

different sizes and offering different resistances, the evener-bar or equalizer is provided with a supplemental eccentric bearing 23, which is placed nearer to that extremity of said evener or equalizer which is adjacent to the larger shovel, thus giving the smaller shovel the greater leverage.

It will be observed that the side bars of the cultivator embodying my invention are formed each from a single blank with the means for attachment of the standards integral with their rear ends, thus simplifying and strengthening the structure.

Various changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of my invention.

Having described my invention, what I claim is—

1. In a cultivator, the combination with a supporting framework, of standards pivotally connected at their upper ends to said framework, an evener-bar or equalizer, and adjustable connections between the extremities of said evener-bar or equalizer and the standards, substantially as specified.

2. In a cultivator, the combination with a supporting framework, of standards pivotally connected at their upper ends to said framework, a pivotal evener-bar or equalizer carried by the framework, adjustable straps or connections attached, respectively, to the standards, and connecting rods between the extremities of the evener-bar or equalizer and said straps, substantially as specified.

3. In a cultivator, the combination of a framework having side bars terminating at their rear ends in vertical loops, standards fitting snugly in said loops and mounted upon transverse pivots, an evener-bar or equalizer, and connections between the extremities of the latter and the standards, substantially as specified.

4. In a cultivator, the combination of a framework having side bars of different lengths whereby their rear ends are not in transverse alignment, standards pivotally connected to the rear ends of the side-bars, an evener-bar or equalizer, and connections be-

tween the extremities of the latter and said standards, substantially as specified.

5. In a cultivator, the combination of a supporting framework having side beams provided at their rear ends with vertical extensions, the extremities of which are bent outwardly and downwardly to form parallel sided loops, standards fitting snugly in said loops, pivot bolts engaging registering openings in the sides of said loops and in the standards, the upper ends of the latter extending above the pivot bolts and terminating adjacent to the upper ends of the loops, an evener-bar or equalizer, and connections between the extremities of said evener-bar or equalizer and said standards, substantially as specified.

6. In a cultivator, the combination of a framework having side beams which converge toward their front ends, a tapered space-block fitting between the adjacent front ends of said side beams and extending beyond the extremities of the same to form parallel eyes carrying a king-bolt, bolts engaging registering perforations in the side beams and space-block, a vertical pivot bolt fitted in a perforation in the rear end of said space-block, a strap connecting the lower end of said bolt to the corresponding end of the king-bolt, standards pivotally connected to the rear ends of the said beams, an evener-bar or equalizer pivotally mounted upon said vertical pivot bolt, and connections between the terminals of said evener-bar or equalizer and the standards, substantially as specified.

7. In a cultivator, the combination with a supporting framework, of standards pivotally connected thereto, a vertical pivot bolt, an evener-bar or equalizer fulcrumed upon said pivot bolt and provided with supplemental perforations, and connections between the extremities of said evener-bar or equalizer and the standards, substantially as specified.

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

DANIEL F. LAWRENCE.

Witnesses:

E. C. FORD,

D. C. WALLACE.