2 Sheets—Sheet 1.

F. C. LEFFLER.

Cultivator.

No. 202,112. Patented April 9, 1878.

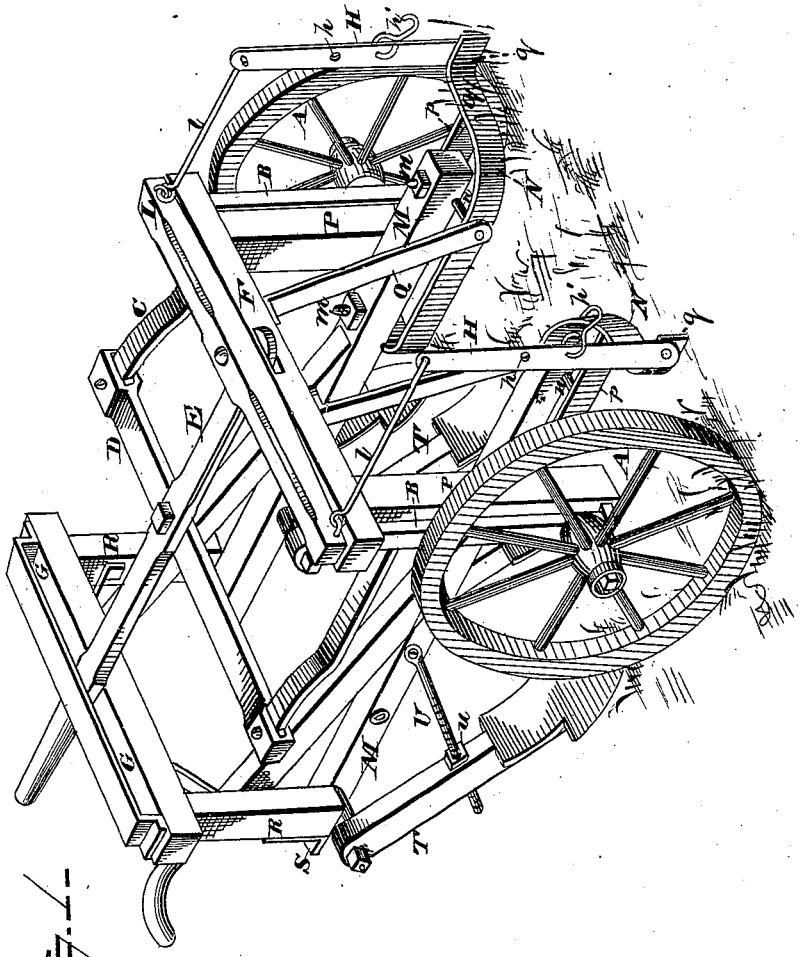

Fig. 1.

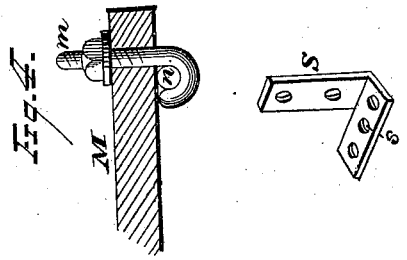

Fig. 2.

WITNESSES

Edw. L. Nottingham

A. W. Bright.

INVENTOR

Frederick C. Lefflen.

By H. A. Seymour, ATTORNEY

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

2 Sheets—Sheet 2.

F. C. LEFFLER.

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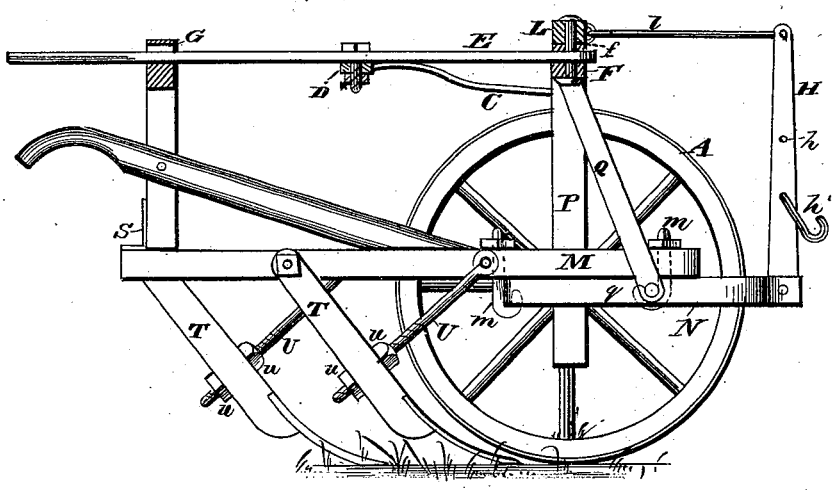
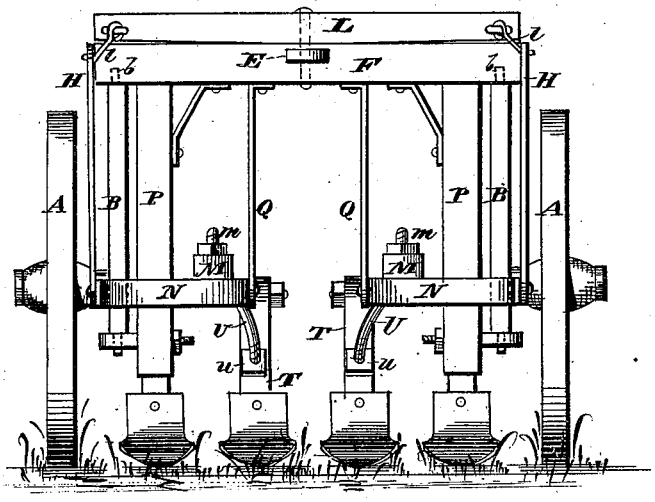


Fig. 3.



WITNESSES

Edw. S. Wetherbee.

A. W. Bright.

INVENTOR

Frederick C. Leffler.

By H. A. Seymour.

ATTORNEY

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FREDERICK C. LEFFLER, OF AINSWORTH, IOWA.

IMPROVEMENT IN CULTIVATORS.

Specification forming part of Letters Patent No. **202,112**, dated April 9, 1878; application filed December 4, 1877.

To all whom it may concern:

Be it known that I, FREDERICK C. LEFFLER, of Ainsworth, in the county of Washington and State of Iowa, have invented certain new and useful Improvements in Cultivators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to wheel-cultivators; and consists in a combination of parts made and adapted to operate as follows: The wheels are axled upon short spindles secured to upright rock-shafts, which latter have their upper extremities journaled respectively in the end portions of the rigid cross-bar, which forms part of the supporting-frame. These rock-shafts engage, by rearwardly-extending arms, with a cross-bar connecting the end extremities thereof, and to this cross-bar the lever is pivoted, which latter has its handle working in a guide formed on the rear supporting-frame, while its forward extremity is pivoted within a mortise of the front rigid cross-bar. As the upper extremities of the upright rock-shafts are journaled in closed bearings of this latter cross-bar, they do not project into the horizontal plane of the upper surface of the same, and hence the vibratory bar, which is secured to the said rigid cross-bar by the same pivot which secures the front end of the lever within its mortise, is allowed free sliding bearing over the top of the rigid cross-bar. The lever, rock-shafts, and rearwardly-extending arms, with their connections, are adapted in this way to operate to turn the wheels, and yet to permit the said vibratory bar, by its respective end connecting-links with the draft-frames, to swing with its either end forward or rearward in direct sliding bearing upon the rigid cross-bar.

The draft-frames consist of peculiarly-formed horizontal frames, placed one on either longitudinal side of the cultivator, and supporting the cultivator-beams by engagement therewith of hook-bolts, which latter permit the said beams to be laterally adjusted on the draft-frames. To the outwardly-projecting extremities of the curved side pieces of these frames upright draft-bars are respectively pivoted, which are provided with a vertical series of holes, in which the draft-hooks may have vertically-adjustable connection with said draft-bars.

As either one of the team may draw in advance of the other, or have a heavier draft than its share, the draft-hooks are suitably adjusted so as to allow the said vibratory bar to correct this discrepancy by its intermediate connections therewith.

The foregoing is a statement of the general character of the cultivator as embodying my improvements, and the combination of parts which constitute the invention will be specifically pointed out in the claims.

Referring to the drawings, Figure 1 is a view in perspective; Fig. 2, a sectional side elevation; Fig. 3, a front-end view; and Fig. 4 represents detached views.

The two wheels A are axled upon short spindles secured to the lower portion of their respective upright rock-shafts B, which latter have their upper extremities journaled in closed bearings *b*, formed in the under side of cross-bar F, and are connected by side arms C, rigidly secured thereto, with the transverse bar D. These side arms loosely work in mortises formed in the extremities of the transverse bar, while to the central portion of the latter is connected the lever E, whose forward end is secured by pivot *f* within a mortise made in the front main supporting cross-bar F, while its rear body portion slides within the guide G, and is provided with a suitable handle for operating the said lever.

By the person who operates the cultivator moving the lever to the right or left, the wheels are readily turned correspondingly, and are thus caused to avoid injuring any hill or hills of corn with very little exertion or difficulty. The draft-bars H, pivoted at their lower extremities, are provided with a graded series of holes, *h*, by which the draft-hooks *h'* may be placed adjustably with reference to their pivotal fulcrum, while their upper extremities connect by links *l* with the cross-bar L, which is pivoted at its center to the rigid bar F, upon the upper surface of which latter said pivoted bar has bearing.

By changing the draft-hooks in their relative

distance from the respective points of fulcrum of the said draft-bars, the draft of an unequal team may be properly evened, by reason of the side links and the pivoted cross-bar, which connect the said draft-bars at their upper extremities.

The cultivator-beams M are laterally adjustable by means of the forward and rearward hook-bolts *m*, which clamp them to the cross-bars *n* of the respective draft-frames N. These draft-frames have their outer side pieces *p* secured to the respective uprights P, while their inner side pieces *q* are fastened to the braces Q, and extend forward in the outward curve, as shown, to give pivotal connection to the draft-bars H.

The uprights R of the rear cross-frame are connected with the extremities of the cultivator-beams by the angle-irons S, which are provided with the series of screw-holes *s*, to allow of the lateral adjustment of the beams.

The standards T are adapted to be adjusted in a vertically-inclined plane by the braces U, having tapped extremities, and the nuts *u*, which maintain the standards in any desired position upon their pivotal points of attachment to the beams.

The shovel-shares are of any desired style and construction.

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

1. The combination, with lever E, working in rear guard G and engaging with the intermediate bar D, of the forward vibratory bar L, which connects with the draft apparatus, said lever and vibratory bar being pivoted to the fixed bar F, and adapted with reference to the rock-shafts B, so that the vibratory bar may have free sliding bearing upon the fixed bar, substantially as set forth.

2. The combination, with the cultivator-beams and draft-frames rigidly secured to each other, of the hook-bolts, by which the said beams are adapted to be laterally adjustable, the draft-frames having their outer side pieces secured to the respective uprights of the main frame, while their inner side pieces are connected by braces to the rigid cross-bar of said frame, substantially as described.

3. The combination, with the draft-frames N, made as shown, of the draft-bars H, pivoted to the outwardly-projecting extremities of the curved side pieces *q*, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 10th day of November, 1877.

FREDERICK C. LEFFLER.

Witnesses:
J. J. MANNERS,
GEO. T. JOHNSON.