

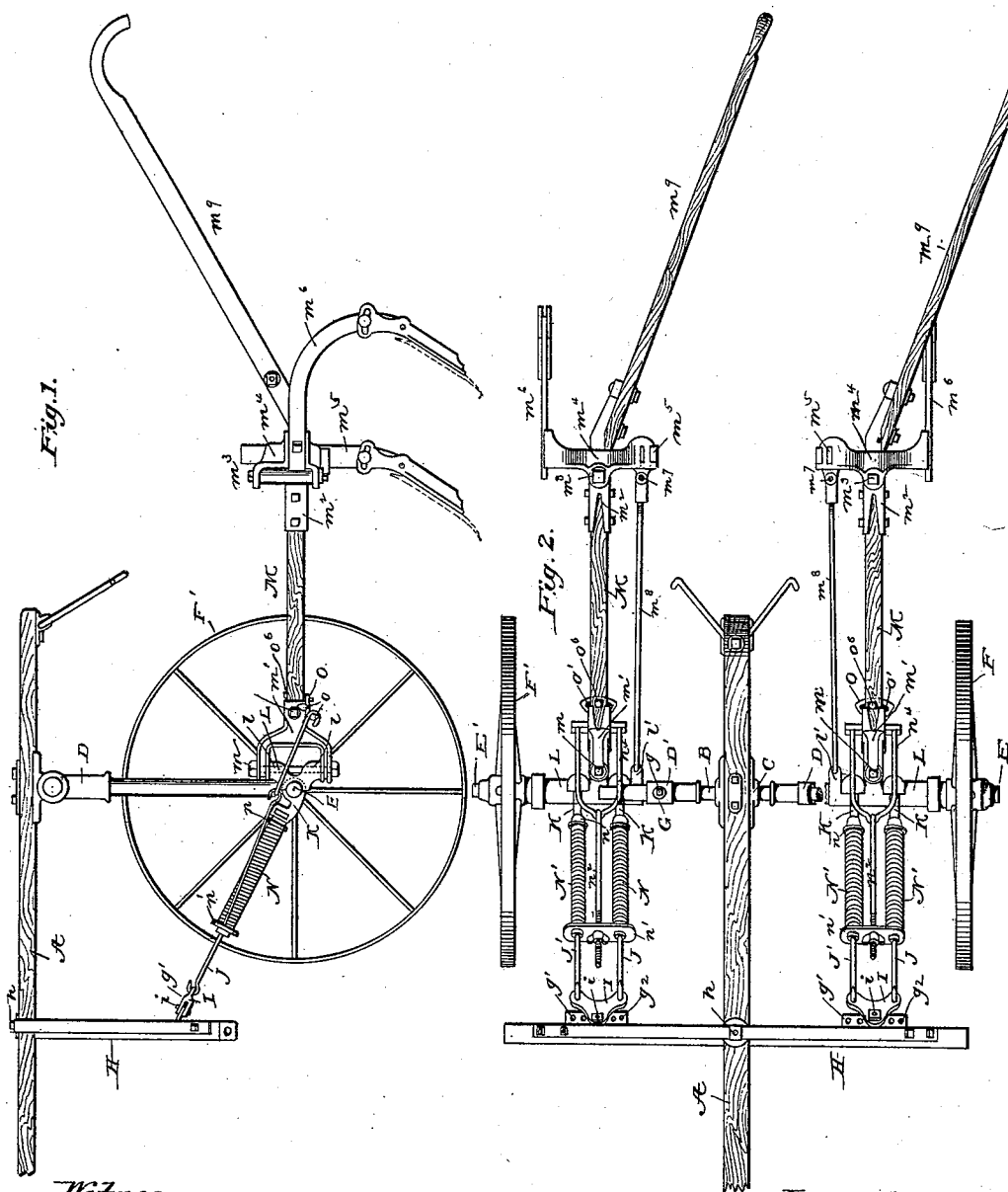
(No Model.)

3 Sheets—Sheet 1.

A. LINDGREN.
WHEEL CULTIVATOR.

No. 469,154.

Patented Feb. 16, 1892.



Witnesses:
William W. Northrup.
Sabine Family Elmon.

Inventor:
August Lindgren
By his Atty.
Phil. T. Dodge

(No Model.)

3 Sheets—Sheet 2.

A. LINDGREN.
WHEEL CULTIVATOR.

No. 469,154.

Patented Feb. 16, 1892.

Fig. 3.

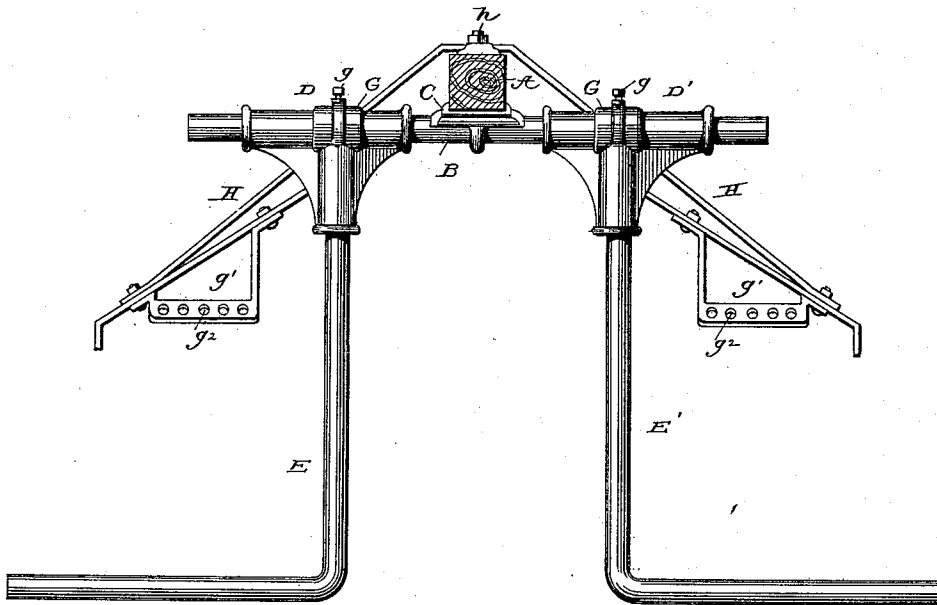


Fig. 4.

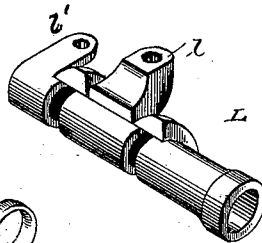


Fig. 5.

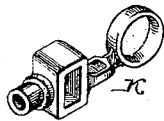
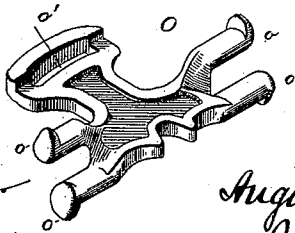


Fig. 6.



Witnesses:

William H. Mortimer
Fabius Jacoby Elmore

Inventor:

August Lindgren
By his Atty
R. S. Dodge

(No Model.)

3 Sheets—Sheet 3.

A. LINDGREN.
WHEEL CULTIVATOR.

No. 469,154.

Patented Feb. 16, 1892.

Fig. 7.

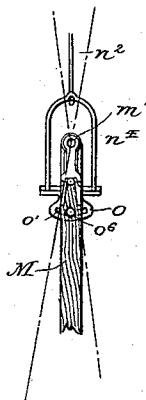


Fig. 8.

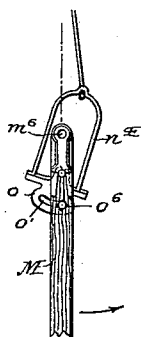
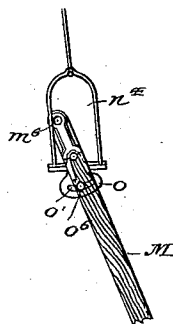


Fig. 9.



Witnesses

Raymond Barnes.

F. S. Elmore.

Inventor

August Lindgren

C. P. T. Dodge

Attorney

UNITED STATES PATENT OFFICE.

AUGUST LINDGREN, OF MOLINE, ILLINOIS, ASSIGNOR TO THE MOLINE PLOW COMPANY, OF SAME PLACE.

WHEEL-CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 469,154, dated February 16, 1892.

Application filed October 14, 1890. Serial No. 368,069. (No model.)

To all whom it may concern:

Be it known that I, AUGUST LINDGREN, of Moline, in the county of Rock Island and State of Illinois, have invented certain Improvements in Wheeled Cultivators, of which the following is a specification.

This invention relates to that class of two-wheeled straddle-row cultivators in which the laterally and vertically swinging gangs or beams are jointed at their forward ends to cranked wheeled axles, which latter are jointed to the main frame and the equalizing draft devices in such manner that the gangs may move forward and backward in relation to each other.

The principal objects of the invention are to simplify the construction, to secure an easy and efficient action of the draft-equalizing devices, to apply the draft to each axle at two points, and in such relation to the gang and the wheel as to prevent the parts from being thrown out of line, to provide lifting-springs to assist in the elevation of the gangs, and to provide for such adjustment of the springs that they may resist the tendency of the gangs to swing laterally.

In the accompanying drawings, Figure 1 is a side elevation of my improved machine, the wheel nearest the observer being omitted to expose other parts to view. Fig. 2 is a top plan view of the machine. Fig. 3 is a rear elevation showing the main frame and axles. Figs. 4, 5, and 6 are views of details. Figs. 7, 8, and 9 are diagrams illustrating the action of the beam-controlling springs.

Referring to the drawings, A represents a draft pole or tongue, and B a bar or rod fixed rigidly and transversely to the under side of the tongue by an intermediate plate C and suitable fastening-bolts and projecting equally in both directions.

D D' represent two sleeves or castings mounted to turn on the respective ends of the cross-bar and fixed rigidly to the upper ends of the respective axles E and E'. These axles are extended downward from the sleeves, turned outward horizontally at their lower ends, and sustained at their outer extremities in ground-wheels F F'. The axle-carrying sleeves D D' are held against lateral motion by collars G, seated around the rod C in open-

ings made for the purpose in the sleeves, and secured by set-screws g. By adjusting these collars along the rod C the distance between the axles and the gangs connected therewith may be varied at will. The forked parts are similar to those now used in this class of machines and are not in themselves claimed as of my invention.

H represents an evener or doubletree lying transversely of the draft-pole and connected thereto by a vertical center-pin h. This evener consists of two bars lying one above and the other below the draft-pole, with their two ends depressed and united at such height from the ground as to admit of the draft-animals being connected directly to the ends. This evener with depressed ends is not in itself claimed as of my invention, the same having been in general use in cultivators for many years. To each end of the evener I bolt on the under side an angular plate g', containing a horizontal row of holes g² to contain the draft connections to the gangs, as hereinafter explained. To each of the evener-plates g' I connect by a vertical bolt i a forked draft-plate I, and from the ends of this plate I extend rearward and downward in parallel lines two draft-rods J and J', the rear ends of which are attached to or fashioned into hook-shaped plates K, (see Fig. 5,) which are engaged around the horizontal portion or journal of the axle. As all the parts on one side of the machine are duplicates of those on the other, it follows that whenever the evener H is turned upon its pivot it will act to draw forward the axle on one side of the machine, while allowing the axle at the opposite side to swing rearward.

It is to be particularly noted that the draft connection between each end of the evener and the corresponding axle is a double connection consisting of the two rods, which act to apply the draft or pulling strain to the axle at two points in its length. On the lower horizontal portion of each axle I mount so as to turn loosely a sleeve or draft-rod L, of the form shown in Figs. 1, 2, and 4. Each of these sleeves is recessed or cut away on the rear side at two points in order to permit the hooks of the draft-rods to engage the axle therethrough. Between these openings

and between the two draft-rods the sleeve is formed with two rearwardly-projecting arms l and l' . The arm l enters and is connected by a vertical pivot-bolt m to a draft-rod m' , fixed on the forward end of the beam or drag-bar M . This beam is provided at its rear end with a suitable bearing-plate m^2 , connected by a vertical pivot m^3 to a cross-head m^4 , carrying two or more shovel-standards m^5 and m^6 , as usual in this class of machines. The cross-head m^4 is connected at one end by a vertical pivot m^7 to a rod m^8 , extending forward parallel with the beam M and pivoted at its forward end to the arm l' of the sleeve on the axle.

A handle m^9 is attached to the rear end of each beam or its cross-head for the purpose of controlling its lateral and vertical movements. By means of the handle the entire gang may be raised and lowered, its sleeve l turning around the axle as a center. By moving the handle laterally the cross-head and shovels may be moved to correspond, the cross-head being kept parallel with the axle by means of the rod m^8 , as in other machines of this class.

On each side of the machine I mount on the two draft-rods J and J' spiral compression-springs N and N' , bearing at their rear ends against nuts or collars n on the rod and acting at their forward ends against a plate n' , sustained by and free to slide forward and backward upon the rod. Through the center of this plate there is extended a rod n^2 , provided at the forward end with a thumb-nut n^3 , bearing on the plate. The rod n^2 has its rear end hooked and engaged in the center of a stirrup n^4 , which straddles the forward end of the beam and which is put at its rear extremities over studs o on a plate O . (Shown in Fig. 6.) This plate (separately shown in Fig. 5) is centrally pivoted on the under side of the draft-head of the beam, so that it can turn horizontally to a limited extent. The plate is provided with a transverse slot o' (see Fig. 5) and secured in position on the draft-head by a vertical bolt o^6 , which serves when tightened up to hold the plate O firmly to the beam, but which when slightly loosened permits the plate O to swing horizontally around its vertical pivot or bearing. The two springs N N' act jointly to urge the rod n upward and forward, and the rod in turn acts through the stirrup with a lifting effect upon the beam. When the parts are down in operative position—that is, with the shovels upon the ground—the springs exert but slight lifting effect; but as the gang is lifted the relation of the parts is changed, so that the springs act with increasing effect, and thus materially assist the operator in lifting the parts out of action. When the plate O is adjusted in a central position and fixed to the beam, as shown in Fig. 7, the stirrup and the rod n^2 , pulling forward thereon, tend to keep the beam in a central position in the line of travel and to bring it back to this position after it

is thrown to the right or left. During this action with the plate O , fastened to the beam, the stirrup serves to all intents and purposes as an arm or extension of the beam projecting forward of the beam-pivot, so that it is carried to the right and left by the motion of the beam, as indicated by dotted lines. It is the pulley of the rod N^2 on this forward end that gives the beam its tendency to stand in a central position. By turning the plate to either side in relation to the beam and fastening it in position thereon, as shown in Fig. 8, the forward end of the stirrup is thrown to one side out of line with the beam, so that the spring tends to deflect the beam to one side, thus enabling it to travel in a straight line when working on a hillside or when its shovels are set in an oblique position, so that they tend to throw the beam out of line. When the plate O^2 is left free upon the beam, so as to turn about its vertical axis, the stirrup becomes in effect a rearward extension of the pulling-rod N^2 , its forward strain being exerted, through the plate O , upon the beam in rear of the beam-pivot, as shown in Fig. 9, so that while the beam is in a central position the spring exerts no tendency to throw it out of line. When, however, the beam is thrown to either side, the pulling strain is applied in rear and to one side of the beam-pivot, so that the tendency of the spring is to pull the beam around in the direction in which it has been moved and to keep it in this position. The distances between the two gangs may be increased or diminished at will by adjusting the axle-carrying sleeves lengthwise of the bar B . When the distance between the gangs is thus changed, the draft-plates I are adjusted along the even-er-plates g to correspond.

It is to be observed that in my machine there are two draft connections from each end of the even-er to the adjacent axle, or, in other words, that each axle receives a draft or propelling force at two points of its length, and that the beam or drag-bar is attached to the axle between the two draft connections. It is found that this application or distribution of the propelling force—that is to say, its application in part between the beam and the wheel—is highly advantageous in that the axles are the more strongly sustained against the resistance of the beams and of the wheels and prevented from twisting out of line with each other.

It is also to be observed that in my machine the lifting-springs are of the compression type.

Having thus described my invention, what I claim is—

1. In a cultivator, the wheeled axles arranged to swing forward and backward in relation to each other, the gangs connected to the axles, the even-er, the draft-rods extending two from each end of the even-er, the compression-springs mounted on said rods, and lifting connections extending from the said springs to the gangs.

2. In combination with the axles and gangs movable forward and backward in relation to each other, the evener, two draft-rods from each end of the evener to the adjacent gang, 5 a plate sliding on the rods, subject to the pressure of the spring, and a rod extending rearward from said plate and connected to the gang to exert a lifting action thereon.

3. In a cultivator, the pole or frame, the 10 swinging wheeled axles, and the evener, in combination with the sleeves on the axle, the carrying-beams jointed to the sleeves, two draft-rods connecting each axle with the evener, compression-springs on said rods, a 15 sliding plate mounted on each pair of rods and acted on by the springs, a rod extending from each plate rearward, and a stirrup connected to each rod and embracing the adjacent beam, substantially as shown.

20 4. In combination with a vertically and laterally swinging shovel-carrying beam M, a plate fixed thereto and adapted for a horizontal pivotal adjustment thereon, a stirrup attached to the ends of said plate, and a spring- 25 actuated lifting-rod connected to the stirrup.

5. In combination with the vertically-swinging beam, the compression-springs, their guide-rods, the plate thereon, the lifting-rod

connected with the beam and extended through the plate, and the adjusting-nut applied thereto. 30

6. In a cultivator, a beam pivoted to swing laterally, in combination with a spring-connected rod in front of the pivot and a stirrup connected to said rod and extending rearward, 35 a plate attached to the stirrup in rear of the beam-pivot, and means for laterally adjusting and fixing said plate in relation to the beam.

7. In a cultivator and in combination with a beam pivoted at its forward end to swing 40 laterally, a plate pivoted to said beam to swing horizontally in rear of the beam-pivot, means whereby said plate may be fixed upon the beam or set free to swing horizontally, a stirrup connected to the ends of said plate and 45 extending forward of the beam, and a spring-actuated pulling-rod attached to the forward end of the stirrup.

In testimony whereof I hereunto set my hand, this 16th day of September, 1890, in the 50 presence of two attesting witnesses.

AUGUST LINDGREN.

Witnesses:

W. V. RICHARDS,
M. G. MARONEY.