

A. & C. A. NORLING.
Cultivator.

No. 220,985.

Patented Oct. 28, 1879.

Fig. 1.

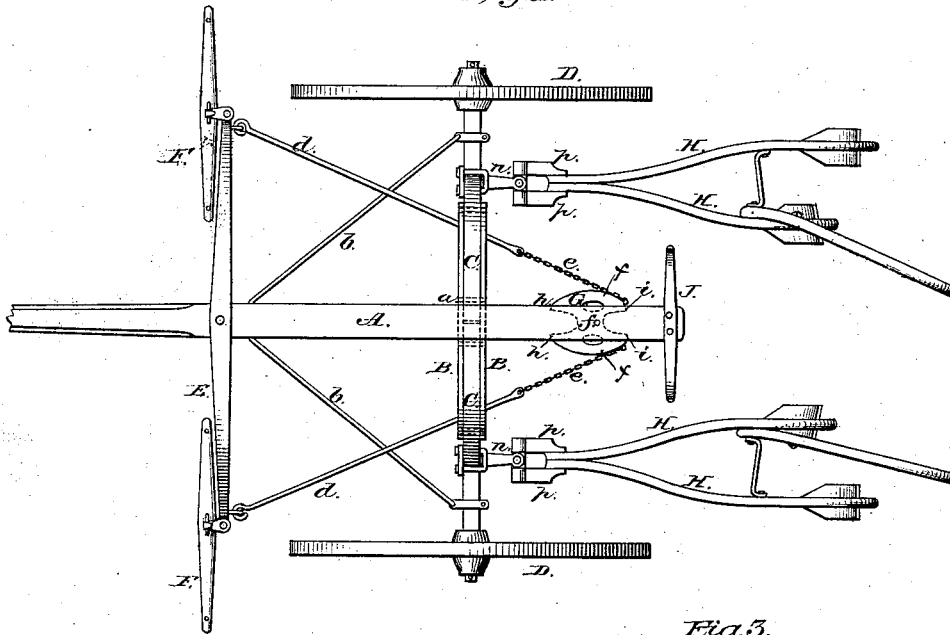


Fig. 3.

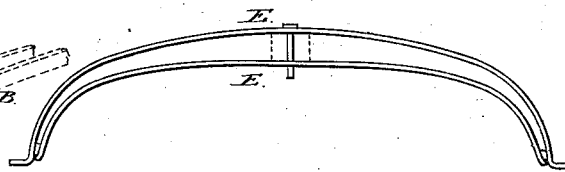


Fig. 2.

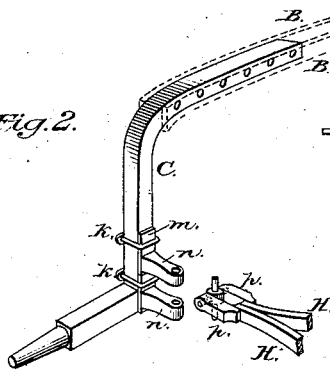


Fig. 4.

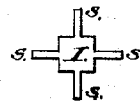


Fig. 5.

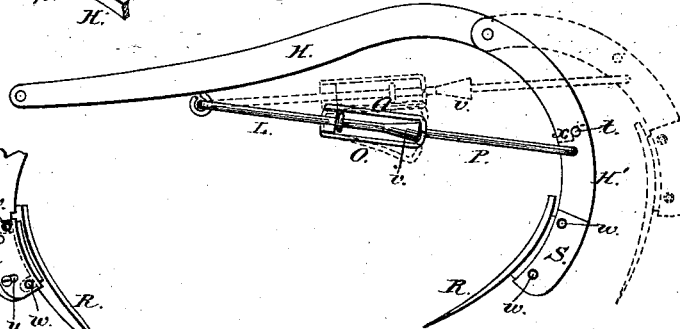
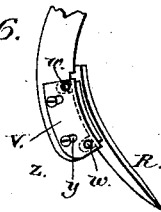


Fig. 6.



WITNESSES

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AUGUST NORLING AND CHARLES A. NORLING, OF STANTON, IOWA.

IMPROVEMENT IN CULTIVATORS.

Specification forming part of Letters Patent No. **220,985**, dated October 28, 1879; application filed April 5, 1879.

To all whom it may concern:

Be it known that we, AUGUST NORLING and CHARLES A. NORLING, of Stanton, in the county of Montgomery and State of Iowa, have invented certain new and useful Improvements in Cultivators; and we do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of our invention consists in the construction and arrangement of a cultivator which is simple in construction, light and durable, and easily manipulated, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which our invention appertains to make and use the same, we will now proceed to describe its construction and operation, referring to the annexed drawings, which form a part of this specification, and in which—

Figure 1 is a plan view of our improved cultivator. Fig. 2 is a perspective view of one end of the axle and coupling. Fig. 3 is a front view of the double-tree. Fig. 4 is an enlarged view of the coupling. Fig. 5 is a side view of one of the plow-beams. Fig. 6 shows the method of attaching the shovel.

A represents the tongue of the cultivator, having at a suitable point on its under side a metal loop or box, *a*, through which are passed two perforated metal bars, B B.

The axle of the cultivator is made in two parts, C C, each made in the form shown in Fig. 2, so that when connected together they will constitute an arched axle with spindle at each end for the reception of the wheel D.

The inner ends of the axle-sections are inserted between the perforated bars B B, and fastened thereto by bolts. It will readily be seen that the axle thus constructed can be contracted and expanded as required for regulating the distance between the shovels by simply removing the fastening-bolts, moving the axle-sections out or in between the bars B, and fastening the bolts again. A brace, *b*, extends from the outer end of each axle-section to the tongue, as shown.

To the tongue A is pivoted a double-tree, composed of two metal bars, E E, which are curved substantially as shown in Fig. 3, and

passing one over and the other under the tongue, and pivoted by one bolt. The ends of the two bars E are fastened together, and a single-tree, F, is connected to each end of the double-tree thus constructed.

Near each end of the double-tree is connected a rod, *d*, which extends rearward and has a short chain, *e*, attached to its rear end. This chain connects with a double eccentric, G, pivoted to the under side of the tongue near the rear end.

The double eccentric G is constructed as shown in Fig. 1, having at each side two points, *h* and *i*, at unequal distances from the pivot *f*. The chains *e e* are connected to the rear points, *i i*, which are closer to the pivot than the front points, *h h*.

In operation, when one horse pulls more than the other, the double eccentric will be turned on its pivot, and the point *h* of the eccentric, which is thrown outward against the chain, will take up more on that side than what is gained on the other. Hence the draft is always quickly and evenly equalized and the team kept in proper position.

To the vertical part of each axle-section C is, by clips *k k*, secured a plate, *m*, from which project two arms, *n n*. This plate and arms may be adjusted up and down, as desired.

H H are two cultivator-beams or plow-beams having their forward ends united together, and arms *p p* are also firmly fastened to said forward ends of the beams.

The coupling for connecting the beams with the axle is shown in Fig. 4, and consists of a block, I, with four arms, *s*, projecting from the same. Two of these arms or pins are inserted in the arms *n n*, and the other two in the arms *p p*, thus forming two joints at right angles to each other, which admits of the beams being raised and lowered and swung from side to side, but prevents any twisting of the beams.

By the construction of the connection as described, the beams may be raised and thrown forward on the axle, which leaves the rear sides of the shovels upward, so that rain will not injure their front sides.

In going to and from the field the beams may be hung upon hooks at the ends of a cross-bar, J, fastened at the rear end of the tongue.

The plow or cultivator beams are each made in two parts, the front part, H, being connected to the axle, as described. The rear part, H', of the beam is preferably made of two bars having their forward ends pivoted on opposite sides of the part H, and the said bars are held a proper distance apart by one or more pins or bolts, *t*.

The rear end of the part H is shouldered, as shown at *x* in Fig. 5, to form a stop against the pin *t*, to prevent the lower part, H' of the beam from being turned forward beyond the proper point.

The two parts H H' are connected in the following manner: In an eye on the under side of the part H, a suitable distance from the front end, is connected an elongated link, L, to the end of which are fastened two spring-jaws, O O. To the part H' is connected a rod, P, which runs forward between the jaws O O and into the link. On this rod is attached a cone, *v*, over which the jaws O O spring and grasp the base of the cone for holding the beam in proper position for work.

As long as the plow or shovel does not strike any obstruction the spring-jaws will hold the beam properly; but when any obstruction is encountered the jaws open and allow the shovel to turn backward out of the way. As soon as the obstruction is passed the operator can easily with his foot, in an instant, bring the shovel back in place, without the necessity of stopping the team even for a moment.

The particular construction of the snap-connection of the brace-rod P is immaterial, as the same may be constructed in various ways. Our invention in this respect lies particularly in a divided brace-rod connected by a snap and applied to a jointed beam.

R is the plow or shovel, which is connected to the lower end of the beam as follows: The shovel is provided on its rear side with a shoe of suitable size to admit of two pins, *w w*, projecting from each side thereof. These pins are passed through slightly-enlarged holes in two plates, S and V. The plate S is permanently fastened to one side of the beam, while the plate V is provided with slots *y y*, through which are passed bolts *z z*, so that said plate V can be adjusted and held at any point desired. By these means the shovel can be adjusted straight or inclined to either side, so as to throw the dirt in either direction, as required. Both plates may be adjustable, if deemed necessary.

We are aware that a double-eccentric equalizer is not new, and we do not claim such, broadly, as our invention.

In our equalizer a certain distance of its outer edge on each side, from the rear point, *i*, to a point, *x*, is on a true circle, having the pivot at its center, and from the point *x* to the front point, *h*, the eccentricity gradually increases. The object of this particular construction is as follows: The two horses can never step so nearly alike but what first one and then the other will be a trifle ahead, and it is not advisable to have the eccentric act as such for such slight and continual changes in the position. It is only when one horse gets too far ahead of the other that it should act.

Our equalizer, by its peculiar construction, accomplishes this, for supposing that the horses should be exactly even and then one step a trifle ahead, the equalizer turns; but as long as it does not turn beyond the point *x* there is no change in the draft; but let it pass beyond this point and then at once the line of draft from the forward horse commences to change inward until it may finally be in line with the pivot, and the line of draft from the rear horse is thrown more and more outward.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination of the divided adjustable axle C C with the perforated connecting-bars B B, the vertically-adjustable arms *m m* on each end of the axle, the four-armed block I, and the cultivator-beam having arms *p p*, all constructed as described, whereby the cultivators can be adjusted out and in and up and down, and can be manipulated in any direction without twisting, substantially as and for the purposes herein set forth.

2. The double eccentric G, having on each side the points *h i*, at different distances from the pivot, and a certain portion on each side, from *i* to *x*, on a true circle, in combination with the chains, rods, and double-tree, substantially as and for the purposes herein set forth.

3. The combination of the jointed beam H H', link L, spring jaws or snap O O, and the rod P, with cone *v*, whereby when the joint of the brace is broken the two parts do not separate, but remain together, substantially as and for the purposes herein set forth.

4. The combination of the beam, the shovel R, pins *w*, stationary plate S, and adjustable plate V, as and for the purposes set forth.

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Witnesses:

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