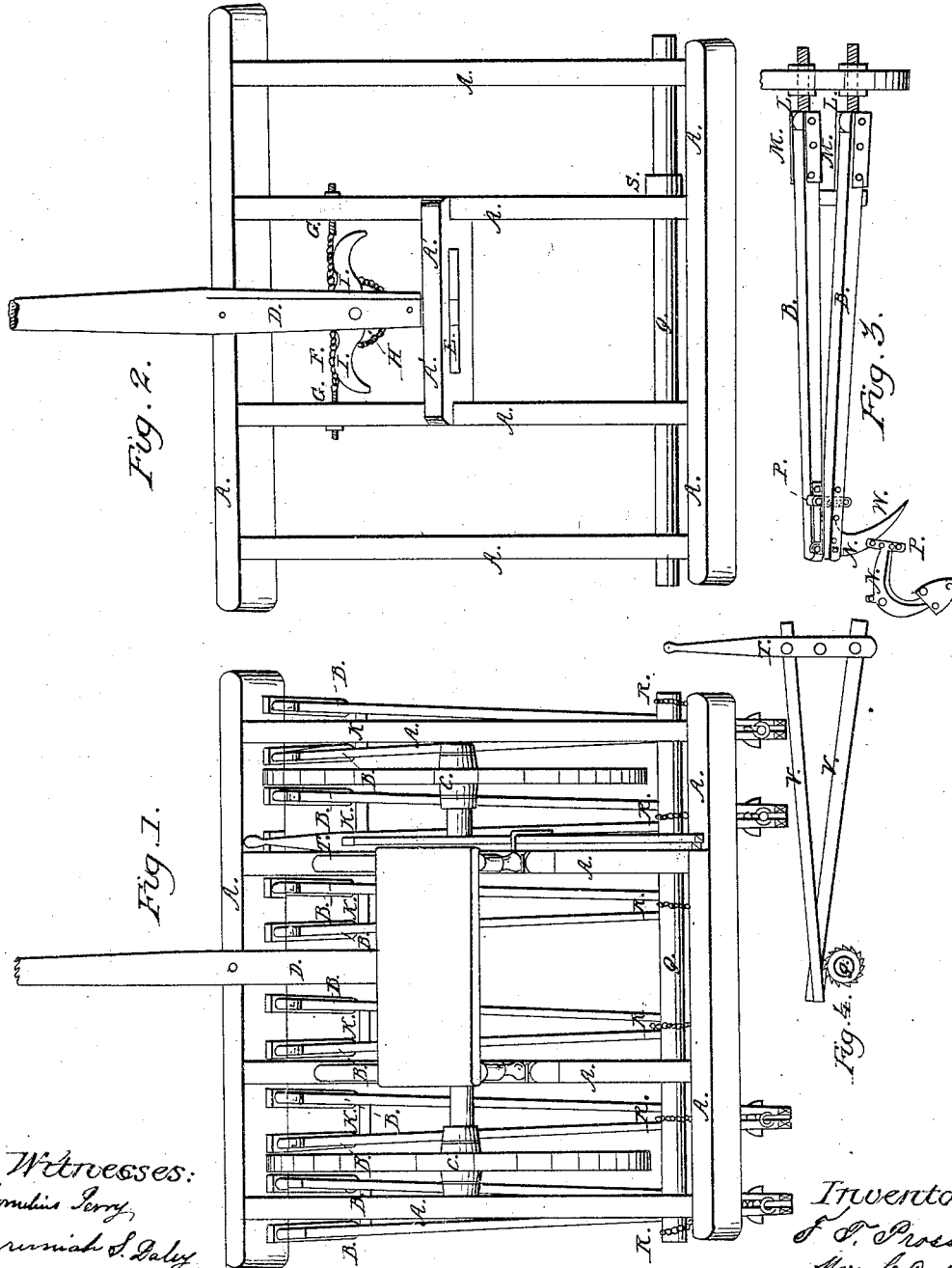


T. T. PROSSER & M. C. & K. A. DARLING.

Wheel-Cultivator.

No. 45,750.

Patented Jan. 3, 1865.



Witnesses:
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UNITED STATES PATENT OFFICE.

T. T. PROSSER AND MASON C. DARLING, OF CHICAGO, ILLINOIS, AND KEYES
A. DARLING, OF FOND DU LAC, WISCONSIN.

IMPROVEMENT IN CULTIVATOR GANG-PLOWS.

Specification forming part of Letters Patent No. **45,750**, dated January 3, 1865.

To all whom it may concern:

Be it known that we, TREAT T. PROSSER and MASON C. DARLING, of the city of Chicago, county of Cook, and State of Illinois, and KEYES A. DARLING, of the city and county of Fond du Lac, in the State of Wisconsin, have invented a new and Improved Cultivator or Gang-Plow; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and the letters of reference marked thereon, in which—

Figure 1 is a perspective view of our cultivator; Fig. 2, a representation of the framework and guiding apparatus, roller, and ratchet-wheel. Fig. 3 is a view of the draft-arms of our plow, the yoke, the adjustable double-nutted eyebolts, and plow-shank connected; Fig. 4, the apparatus for raising, controlling, and lowering the plows; Fig. 5, the plow-shank.

The nature of our invention consists of an improved cultivator or gang-plow by which we can more perfectly guide, control, and adjust the same.

To enable others skilled in the art to make and use our invention, we will proceed to describe its construction and operation.

The frame A A A A is constructed of any suitable timber, as represented in Fig. 2, the front bar of which is generally made about half an inch deeper than the other portions of the frame to facilitate the attachment and operation of the draft-arms. To this front bar the draft-arms of the plow (marked B wherever represented) are attached. These are also constructed of some firm suitable timber of the necessary size to give strength and steadiness of motion to the plows. The frame is placed upon the wheels C C so as to be controlled and guided by them, as hereinafter described.

The tongue D is pivoted to the front bar of the frame at its center with a bolt, and extends back to and by a suitable tenon constructed on its back end through the slot E into the cross-bar A'. The object of this slot is to allow a lateral movement to the extent of the slot of the end of the tongue therein. When the tongue remains in the center of the slot, which

is its usual working position, and where it can be kept by a pin, the draft on both wheels is alike, the wheels moving in a line parallel with that of the tongue; but when the tongue is turned to one side of the slot the line of draft is changed and the wheels and plows immediately take a different direction, to the right or left, according to the movement of the back end of the tongue.

The extent of the movement of the tongue in the slot from one side to the other is determined by the length of the slot, and is accomplished by means of the chain or cord F, Fig. 2, attached by two adjustable eyebolts, G G, to the frame-work on each side of the tongue and passing around the pulley H, which is most conveniently placed under the tongue, and which is confined to the guide-lever I, upon which the feet of the driver is designed to rest, and this lever and pulley are both pivoted to the tongue by a bolt.

As the chain or cord passing round the pulley is fastened thereto on the back side and firmly attached to the adjustable bolts G G on the side bars, it will be seen that any movement of the lever I by the feet causes the back end of the tongue to move in the slot, which under all circumstances is done with the greatest ease by this compound lever, thus giving to the driver's feet an easy and perfect control at all times of the direction of the cultivator, and at the same time by the intervention of this chain and pulley protecting his limbs against any of those sudden shocks or jars caused by the striking of the wheels against a stone or other obstruction, which is unavoidable when the feet are applied directly to the tongue itself.

Fig. 3 is a view of the draft-arms of the plow and shows their mode of connection with the front bar of the cultivator, in which B B represent the draft-arms; K, the yoke by which the two arms are united; L L, the adjustable double-nutted eyebolts, and M M the iron plates in the outside of the arms for forming the hinge-joint. It will be seen that each plow is provided with two draft-arms, between which, at the back end, is the plow-

shank N, sustained by the bolt O, passing through both the arms and the shank, thus firmly uniting them together, and at the same time leaving the shank pivoted to the arms so as to admit of adjustment vertically by means of a pin inserted in one of the holes P P P P in the front end of the shank. It will also be seen that the inside of the arms, between which the shank plays, is also protected and strengthened by iron plates. The adjustable double-nutted eyebolt L is to be well fitted between the iron plates on the front end of the arms, and attached to them by a bolt passing through them and the eyebolt, pivoting the arms in such a manner as to admit of a free movement of the arms up and down when attached to the front bar. This attachment is made in the following manner and for the following purposes: The arm of the bolt being threaded the whole length, L L, Fig. 3, and provided with two nuts, one is put on the bolt back of the bar, and the other, after passing the bolt through the bar, in front of it, when both are firmly tightened against the bar. The several arms are placed in their proper distances from each other so as to make the designed distribution of the plows through the rows. The object of this double-nutted arrangement is to admit of an easy adjustment of the plows laterally, and at the same time to control them firmly after the adjustment is made, which is done by shortening or lengthening one of the draft-arms by means of the nuts. If the right arm is slightly shortened, the line of axis of the plow is changed and the plow is moved a much greater distance to the left, and so the reverse; and it will be seen also that any two plows may be thrown apart or together, as desired, or that the whole may be spread wider or contracted, so as to be adapted to rows of different widths; or, if it shall be found that certain portions of the row were omitted by the plows, or merely covered by the first cultivation, they can readily be changed in position so as to plow that portion so omitted in the second.

When it is desirable to use this cultivator as a gang-plow for plowing-in wheat, or for any other purpose, by this adjustment all the plows can be readily and easily equally spaced, without the necessity for an additional one in the center, as is required by most other machines, thus giving six plows to the gang.

Fig. 4 shows the apparatus for raising the plows. This consists of the roller, (letter Q in all the figures,) a chain or cord, R R R R, Fig. 1, extending from each plow-shank N N to the roller, and a ratchet-wheel, S, Fig. 2, operated by a perpendicular lever, T, moving the two pawls U U, Fig. 4, over the ratchet, and so arranged as to move the ratchet and roller at every motion of the lever, the one moving back for new action at the same time that the other moves forward, thus easily and speedily winding up the chain and elevating

the plow, and when it is desirable again to drop them to the ground, all that is necessary is to move the lever a little farther forward or backward, (either motion accomplishes the same purpose,) and thus disengage the pawls from the ratchet-teeth, when the plows will drop by their own weight.

Should it be found that the plows enter too deeply into a light soil, a movement or two of the lever will raise the plows to any desired gage, where they will be firmly held, as before.

The shank holding the plow, Fig. 5, we make of cast-iron, of the shape shown, Fig. 5, of sufficient size and weight to give the necessary strength and steadiness of movement to the plow, and which is adjustable between the plates m m, Fig. 3, and regulated and controlled by a pin placed in one of the holes P P P P in the front end of the shank N, so as to give any desired pitch or angle to the plow. By proper attention to this the plow can be made to scour and keep bright in any soil. In constructing the shank we cause the face of the fluke W, to which the plow is attached, to be made flat on its anterior surface, with the exact curvature of the plow-plate upward, of which it is to be a perfect counterpart, and by strictly observing this form of adaptation, a much thinner and lighter plate of steel may be used for the plow, thereby materially lessening the expense, and as well or better securing its polishing in the soil.

The wheels may be made in the usual form, of sufficient height to give lightness of draft and elevation of frame-work over the crop, and may be placed upon axles running the whole width of the cultivator, or may be placed upon short arms, as preferred. When the latter are used the wheels are designed to be permanently attached to the axles, which are made to turn in boxes at the ends.

These specifications have described our double or two-rowed cultivator, designed to have one row pass under the center of the machine, as shown in the drawings, but with slight modifications it is equally well adapted to a cultivator for a single row.

What we claim as our invention, and desire to secure by Letters Patent of the United States, is—

1. Guiding and regulating the movement of the tongue D by means of the pulley H, chain F, eyebolts G, attached to the side frame, A, and levers I I, substantially as described.

2. Connecting the pair of draft-arms B B, without regard to the number of pairs used, to the forward main cross-bar of the frame A by means of the double-nutted screw-bolt L L, and which forms, with the plates M M, a hinge or other joint, so that while the said bars shall have a free vertical motion they may be adjusted laterally without being detached or removed from the said cross-bars.

3. Constructing a cultivator or gang-plow

so that the interval between the shanks N N, which support the plowshares, may be increased or diminished without removing the draft-bars B B, or their connections from the main cross-bar of the frame A, when each pair of draft-bars are capable of lateral adjustment independent of the other pair or pairs.

4. The combination of lever T, rods and pawls U U, operating the ratchet-wheel S upon

the roller Q, for elevating simultaneously the several plows of the gang or gangs, substantially as set forth.

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In presence of—

P. A. HOYNE,

A. B. COTES.