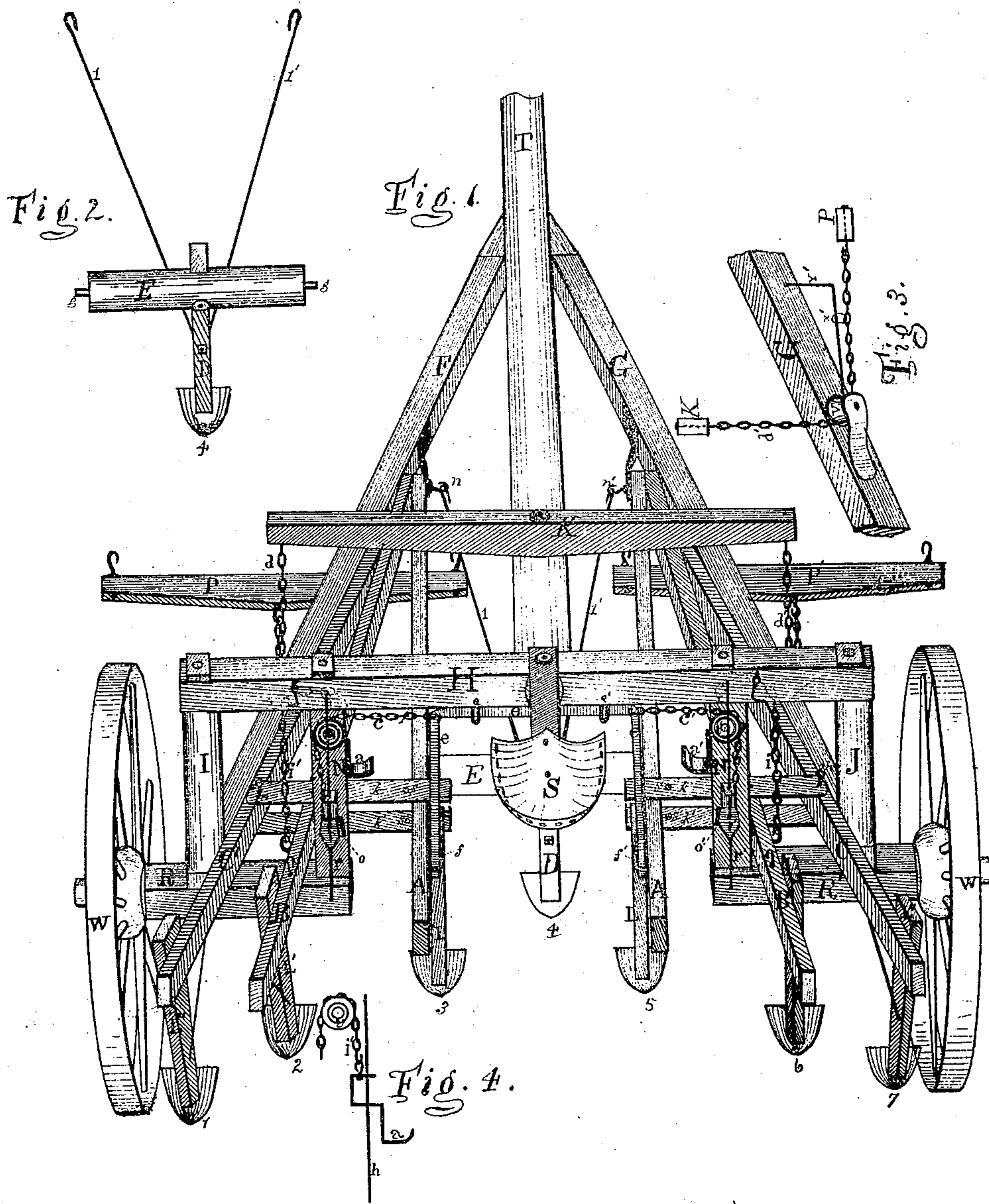


R. B. Robbins,

Sulky Cultivator.

No. 96,733.

Patented Nov. 9. 1869.



Attest:
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R. B. ROBBINS, OF ADRIAN, MICHIGAN.

IMPROVEMENT IN SULKY-CULTIVATORS.

Specification forming part of Letters Patent No. 96,733, dated November 9, 1869.

To all whom it may concern:

Be it known that I, RICHARD B. ROBBINS, of Adrian, in the county of Lenawee and State of Michigan, have invented a new and useful Improvement in Sulky-Cultivators; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, and to the letters of reference marked thereon, like letters referring to similar parts, and making a part of this specification.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and mode of operation.

In the drawings, Figure 1 is a perspective view of my improved sulky-cultivator in complete working order. Fig. 2 is a perspective view of an extra tooth, to be supplied to the cultivator when it is desirable to convert it into a solid or full cultivator for common use. Fig. 3 is a perspective view of the mode of applying the draft. Fig. 4 is a side elevation of the device for lifting the teeth out of the ground to avoid obstructions.

A, B, and C represent three movable railings on each side of the cultivator, the two railings A and B being pivoted around the hook-headed pins *n* and *n'*.

L, L', and L'' represent three oblique shovel-supporters on each side of the cultivator, being held in position by their respective railings.

1 2 3 4 5 6 7 are so many cultivator teeth or shovels for plowing the soil. The center one, 4, being a temporary tooth, may be removed altogether when working among the rows of corn and the like.

The railing C is connected by a temporary bolt to the railing B just back of the pivots *n* *n'*, thus securing these railings in triplets on each side of the machine, being kept at proper intervals by the guides *k* *k'*. These guides are secured at one end by the pin *m* *m'* to the railing C, and are made permanent to the middle railing, B, one below and the other above. Each triplet A, B, and C is made to rise and fall, so as to elevate the teeth 1 2 3, &c., out of the ground when desirable. The devices for doing this are the chains I and I', passing over the friction-rollers *v* and *v'* in front of the beam H, Fig. 4, and, descending, engage with the stirrups *a* and *a'*. These stirrups are

made to slide up and down on the vertical guiding-rods *h* and *h'*, placed in proper position for this purpose forward of the axle-tree R R' and beam H. By means of the chains and stirrups above described either of the two triplets of railings A, B, and C may be elevated at pleasure, so as to raise the teeth 1 2 3, &c., out of the earth by simply pressing the stirrups *a* or *a'* downward with the foot of the operator, who sits upon the seat S. The railings C may be disengaged from the triplet by removing the pivots *m* *m'* and bolt at the toe of the railing. This is done by elevating the triplet, as before described, when the bolt at the forward end of the railing C may be seen above the brace F or G, and removed, thus releasing the railing C, leaving only five teeth in use, and by further removing the center tooth, 4, we have but four teeth remaining, so that this cultivator may be used with from four to seven teeth, as circumstances may require. The elevating-chains *i* and *i'* are attached to the middle railing, B, so that the triplet may be nearly balanced.

e represents a shifting device for imparting a lateral motion to the two middle teeth, 3 and 5, to accommodate them to the hills or rows. This device consists of a horizontal bar passing through the loops *a* and *a'* on the beam H, and is provided with two perpendicular rods, the lower ends of which enter the staples *f* *f'*, which are fastened to the railings A A. To this shift *e* are fastened, at opposite sides, near the elbows, the chains *c* and *c'*, passing over their respective friction-rollers *t* and *t'*, and attaching to their respective slides *p* and *p'*, which rise and fall on the rods *r* and *r'*. The operator, sitting upon the seat S, places his feet upon the slides *p* and *p'*, and by pressing the latter down draws upon the chain *c'*, which in turn moves the shift *e* to the right, carrying with it the two middle teeth, 3 and 5, and by pressing the left slide, *p*, down the two beams and teeth are carried to the left. In this way the operator may manage to keep the hills or rows of corn central between the two middle teeth, 3 and 5. It will be seen that the guides *k* and *k'* are not secured to these two middle beams, but only to the two beams B and C. The holes *s* and *s'* through the guides *k* and *k'* are intended to receive a pin to prevent lateral movement of the two middle teeth when the center tooth, 4, is in and

the instrument used as a solid cultivator. This middle tooth is placed in by placing the tenon on one end of its cross-piece into position, and then springing the shift *e*, so as to let the other end in. Then hook the stays *r* and *r'* to the hooks *n* and *n'*, when the middle tooth is ready for use.

o and *o'* are two foot-rests for the operator to rest his feet on while holding the shift *e* central. This foot-rest consists of a pin, of suitable shape and size, driven into each frame-piece *N N'* on a level with the slides *p* and *p'*, this being the most convenient place to afford ready relief for the feet after using the slides.

The axle-tree proper, it will be seen, consists of a frame-work of seven pieces—to wit, *R, R', I, N, N', J,* and *H*, bolted together, and raised in the center to allow the rows of corn to be passed over without danger or disturbance. The beam *H*, being elevated several feet above the earth, supports the rear end of the tongue *T*. The bolts by which the last-mentioned devices are firmly held in place are four in number, two of which are shown on the drawings, and marked *r'*, respectively. The remaining two are arranged on the opposite or front sides of the raised axle, and are secured to the parts *H* and *R* on the front side in the same manner as the two shown are attached to the rear sides thereof. The lower or immediate axle-tree, *R R'*, receives the braces *F* and *G*, which connect with the tongue *T*, thus completing the frame-work of the cultivator. The double-tree *K* is made to rock crosswise of the tongue *T*, and to the ends of the double-tree are attached the chains *d* and *d'*. These chains drop directly downward from the ends of the double-tree, and, passing around under the friction-rollers *v* and *v'*, Fig. 3, pass out and forward horizontally to the single-trees *P* and *P'*, respectively. Each chain is provided with a ring, *x* or *x'*, to slide on the ways *y* or *y'*, to hold up the single-

trees, as shown in Fig. 3, the same being also used on the brace *F*. The object of this mode of coupling the whiffletrees together is to secure the required height for the double-tree to pass over the corn, and yet to bring the line of draft as nearly as may be on a straight line between the end of the tongue and the point of resistance—viz., the teeth of the cultivator.

This cultivator, when used with six teeth, is designed to cultivate completely the earth between two rows at once crossing the field, or where more care is taken and less work done it will (when the two outside teeth are removed) cultivate one-half of two rows at each crossing. When all the teeth are in, the cultivator is designed for general field use.

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

1. The arrangement herein shown and described of the parts *R* and *R', I, N, N', J,* and *H*, and the bolts *r'*, as and for the purposes specified.
2. The shifting device *e*, used in connection with the chains *c* and *c'*, rollers *t* and *t'*, slides *p* and *p'*, for the purposes set forth and described.
3. The foot-rest *o* and *o'*, in connection with the slides *p* and *p'*, in the manner set forth and described.
4. The stirrups *a* and *a'*, in connection with the guiding-rods *h* and *h'*, chains *i* and *i'*, rollers *v* and *v'*, constructed in the manner set forth and described.
5. The arrangement herein shown and described of the rocking double-tree *K*, chains *d* and *d'*, rollers *v* and *v'*, single-trees *P* and *P'*, and the ways *y*, as and for the purposes specified.

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Attest:

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