

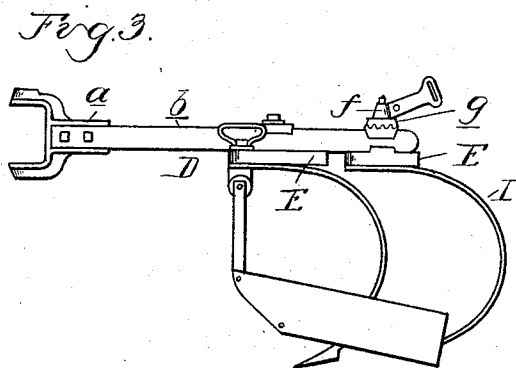
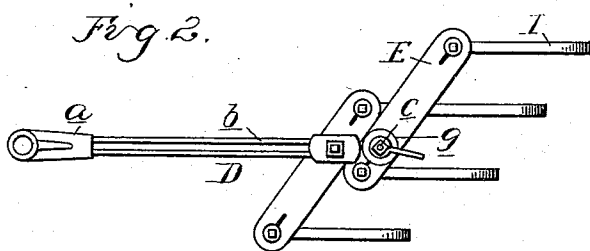
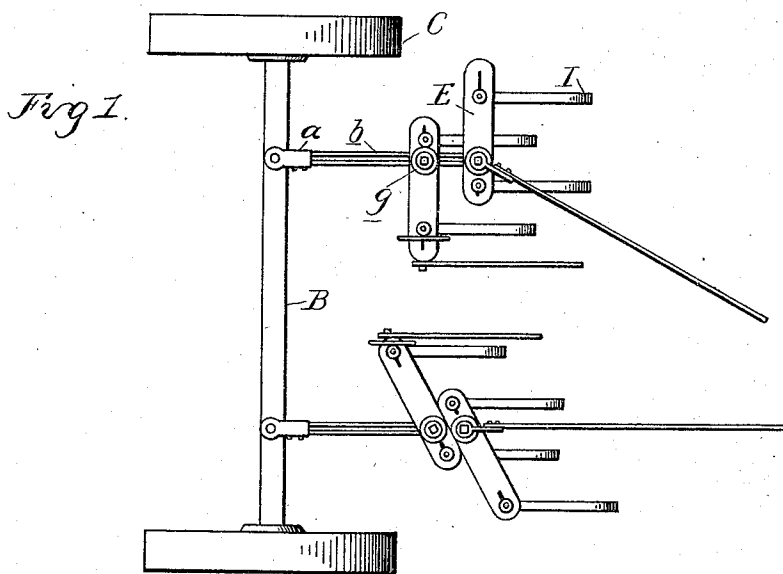
(No Model.)

2 Sheets—Sheet 1.

E. A. OVENSHERE.
CULTIVATOR.

No. 543,451.

Patented July 23, 1895.



Witnesses
A. L. Hobbey
L. J. Whittemore.

Inventor
Elijah A. Ovenshere
By *Wm. B. Maynard* Atty.

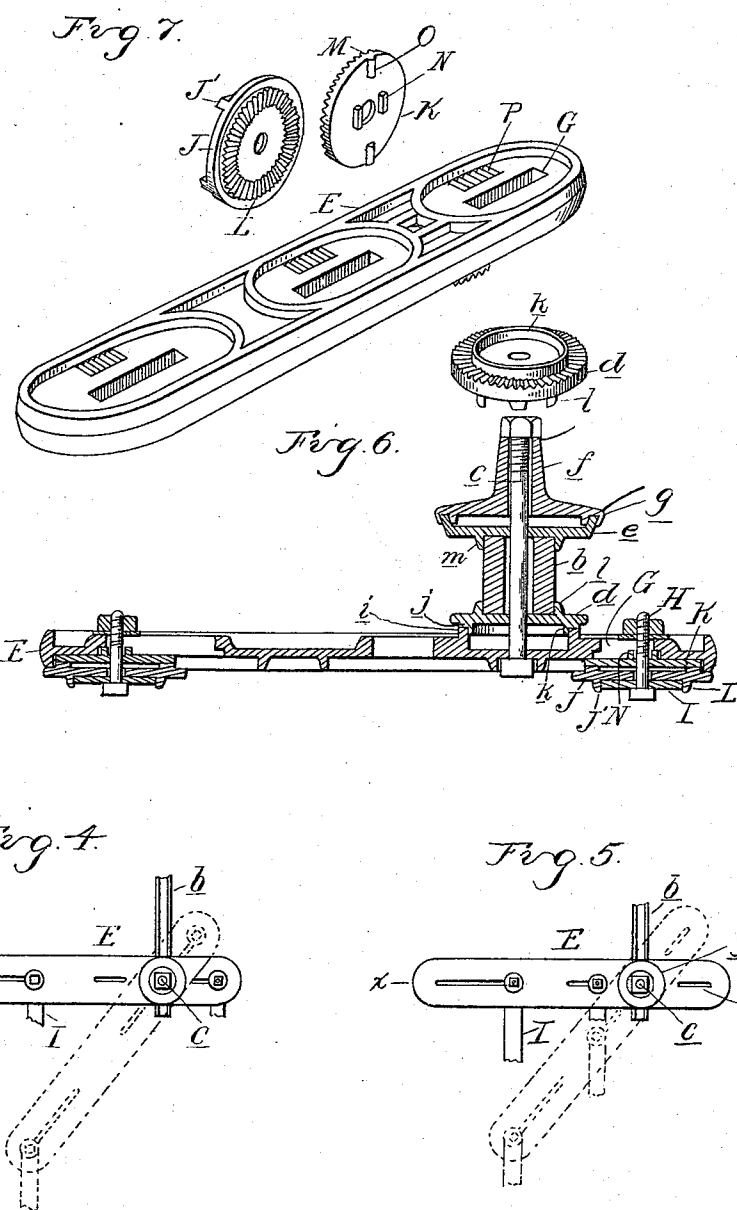
(No Model.)

2 Sheets—Sheet 2.

E. A. OVENSHERE.
CULTIVATOR.

No. 543,451.

Patented July 23, 1895.



Witnesses
A. L. Kobby
L. J. Whittemore

Inventor
Elijah A. Ovenshere
By *McKinnon* Attys.

UNITED STATES PATENT OFFICE.

ELIJAH A. OVENSHERE, OF DETROIT, MICHIGAN.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 543,451, dated July 23, 1895.

Application filed September 24, 1894. Serial No. 523,939. (No model.)

To all whom it may concern:

Be it known that I, ELIJAH A. OVENSHERE, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Cultivators, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention consists in the construction of a cultivator-section comprising drag-bars, cross-bars pivoted to the drag-bars, and teeth rotatorily and longitudinally adjustably secured to said cross-bars, whereby the arrangement of the cross-bars may be varied at will and yet maintain the teeth in the same parallel relation to each other at any point of adjustment; further in the peculiar construction of the swivel connection between the tooth and the cross-bar, and, further, in the construction, arrangement, and combination of the various parts, all as more fully hereinafter described.

In the drawings, Figure 1 is a top plan view of a cultivator embodying my invention. Fig. 2 is a similar plan of one of the sections, showing a different adjustment of the parts. Fig. 3 is a side elevation of one of the sections. Figs. 4 and 5 are plans similar to Fig. 2, showing the adjustments of a slight modification. Fig. 6 is a section on line *xx*, Fig. 5. Fig. 7 is a perspective view of the under side of one of the cross-bars and the swivel connection of the tooth.

B is the axle-bar, C the wheel, and D the laterally-swinging drag-bars, of any desired construction.

The drag-bars I preferably construct, as shown, of a head *a*, having sockets on each side in which the separated bars *b* are secured. These bars are secured together only by the head at the front and the clamping-plates for the cross-bars in rear of the head.

E are tooth-carrying cross-bars, which are preferably of the construction shown in Figs. 6 and 7.

Near one end the cross-bars have an aperture to receive the clamping-bolt *c* for securing the cross-bar to the drag-bar. This bolt passes through the plate *d*, between the bars *b* and through the plate *e*, and in case of the

rear cross-bar through the spindle *f* of the handle-socket *g*.

i is a notched flange on the cross-bar around the bolt. *j* is a corresponding toothed bearing on the under side of the plate *d*, engaging with the notches in the flange, and *k* is a ring-flange engaging within the flange *i*.

l are lugs on the upper face of the plate *d*, between and outside the bars of the drag-bar, and *m* are like lugs on the upper clamping-plate, serving to hold these plates constantly in the same relation to the drag-bar.

By loosening the bolt *c* the cross-bar may be turned at any desired angle to the drag-bar, and in tightening the bolt the notched bearing on the plate *d* and the cross-bar hold the parts firmly in their adjusted positions.

The securing and adjusting devices for the teeth are preferably of the following construction: At such points in the cross-bar as the teeth are to be secured I form a longitudinal slot *G*, through which a clamping-bolt *H* is adapted to pass. This bolt likewise passes through the tooth *I*, the rotary socket-plate *J*, and the sliding plate *K*. The plate *J* has a socket or bearing on its under side formed between flanges *J'* to receive the tooth. On its upper side it is provided with a circular notched bearing *L*, adapted to engage a complementary notched bearing *M* on the under face of the plate *K*. This plate *K*, on its upper face, is provided with lugs *N*, which engage in the slot *G* and form a guide for this plate in its longitudinal adjustment. It is also provided near its edge with ribs *O*, adapted to engage with longitudinal notched bearings *P* on the under face of the cross-bar parallel with the slot *G*, which acts (when the bolt clamps the parts together) to prevent the plate *K* from longitudinal movement. I may arrange such slots *G* and bearings at each end of the cross-bar, and I may arrange an intermediate bearing, as shown in Figs. 6 and 7.

The parts being thus arranged and constructed, it is evident that the cross-bars carrying the teeth may be adjusted longitudinally on the drag-bars, and may be adjusted at any desired angle thereto. In adjusting the cross-bars at an angle to the drag-bars

the teeth may be adjusted to or from each other, so that they may, if desired, be maintained at the same distance apart, no matter what angle the cross-bars assume to the drag-bars, and may be kept with the teeth always at the proper angle to the line of draft. This could not be accomplished if it were not for the fact that the teeth are longitudinally adjustable on cross-bars, as well as having a rotary adjustment thereon.

While I have shown a specific form of devices intended to permit the longitudinal and rotary adjustment of the teeth on the cross-bars, and for permitting the angular adjustment of the cross-bars on the drag-bar, I do not desire to be limited to such devices, although I consider the devices shown the preferable construction.

What I claim as my invention is—

1. In a cultivator, the combination with a drag-bar comprising two parallel bars, of a plurality of independent cross-bars having overlapping inner ends, and means for adjustably securing the cross-bars to the drag-bar at different points and for securing the cross-bars at varying angles relative to the drag bar, substantially as described.

2. In a cultivator, the combination of the head *a* having sockets in the sides, the separated bars *b* secured at their forward ends in said sockets, clamping plates above and below said bars, a cross bar, adjustably engag-

ing the lower clamping plate and a clamping bolt for clamping the parts together, substantially as described.

3. In a cultivator, the combination of a cross bar having longitudinal slots therein, the clamping bolts passing through the cross bars in said slots, the sliding plate *K* devices to prevent the rotation of said plate, the rotatorily adjustable plate *J*, means for preventing the rotation of the plates in relation to each other, and the tooth secured to the plate *J*, substantially as described.

4. In a cultivator, the combination with the drag bar, of a cross bar longitudinally slotted and having an annular notched flange on its upper face and projections adjacent to the slots on its under face, a clamping plate on the upper face having projections engaging the notched flange, a bolt for clamping the plate to the cross bar and the cross bar to the drag bar, teeth, clamping plates between the teeth and cross bar having projections engaging the projections on the cross bar, and bolts for clamping the teeth to the bar, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ELIJAH A. OVENSHERE.

Witnesses:

R. H. LOGAN,

L. M. VAN RIPER.