(No Model.)

2 Sheets—Sheet 1.

E. A. OVENSHIRE.

WHEEL CULTIVATOR.

No. 487,882. Patented Dec. 13, 1892.

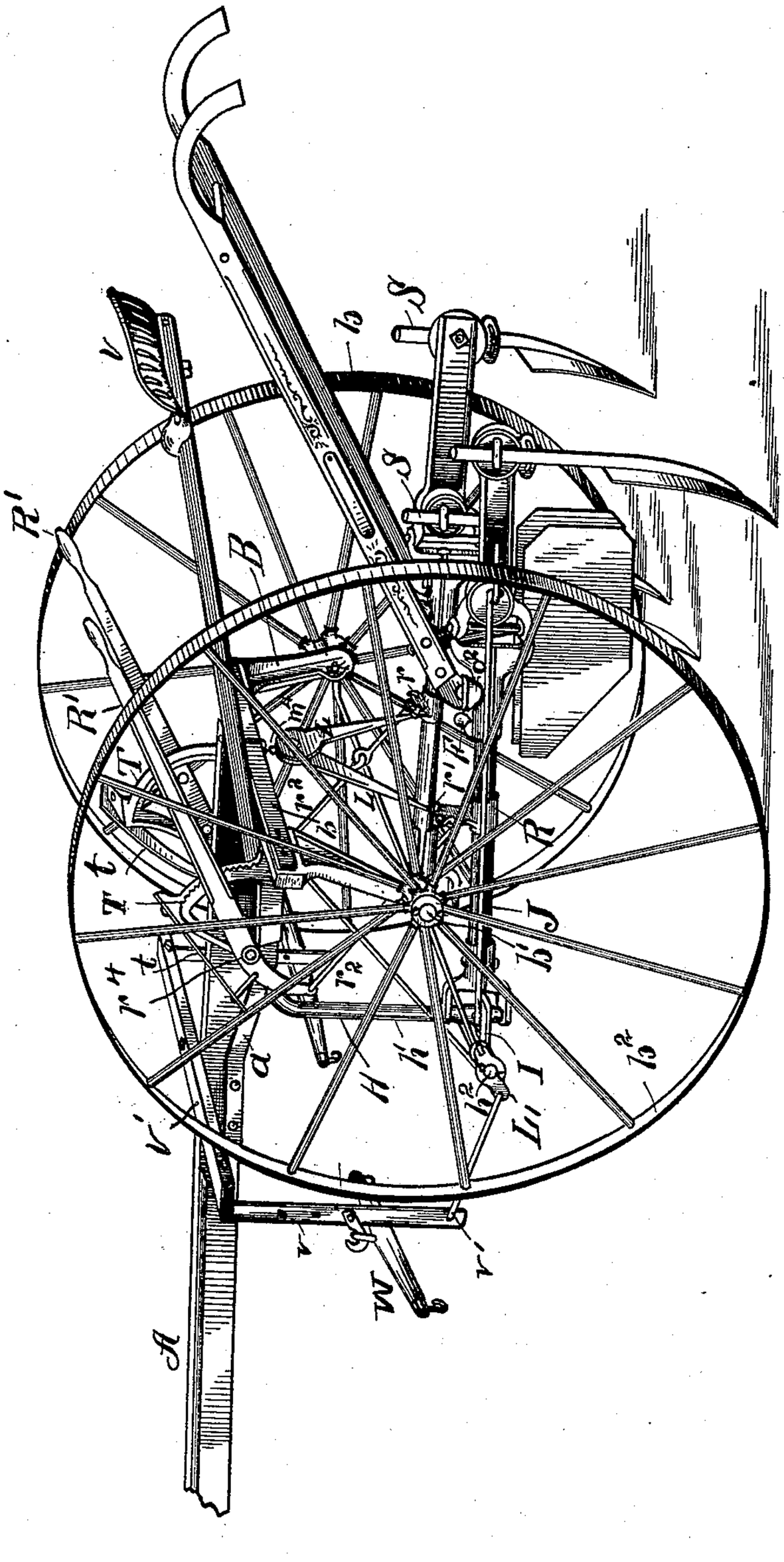

FIG. 1.

WITNESSES
D. W. Bradford
F. Clough.

INVENTOR
Elijah A. Ovenshire
by Parker & Burton
his Attorneys.

(No Model.)

2 Sheets—Sheet 2.

E. A. OVENSHIRE.

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Fig. 2.

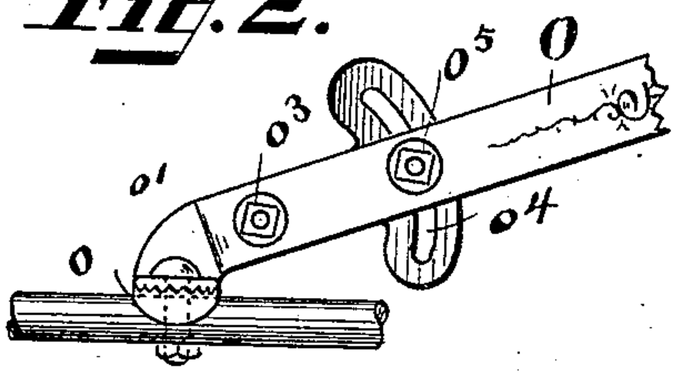


Fig. 3.

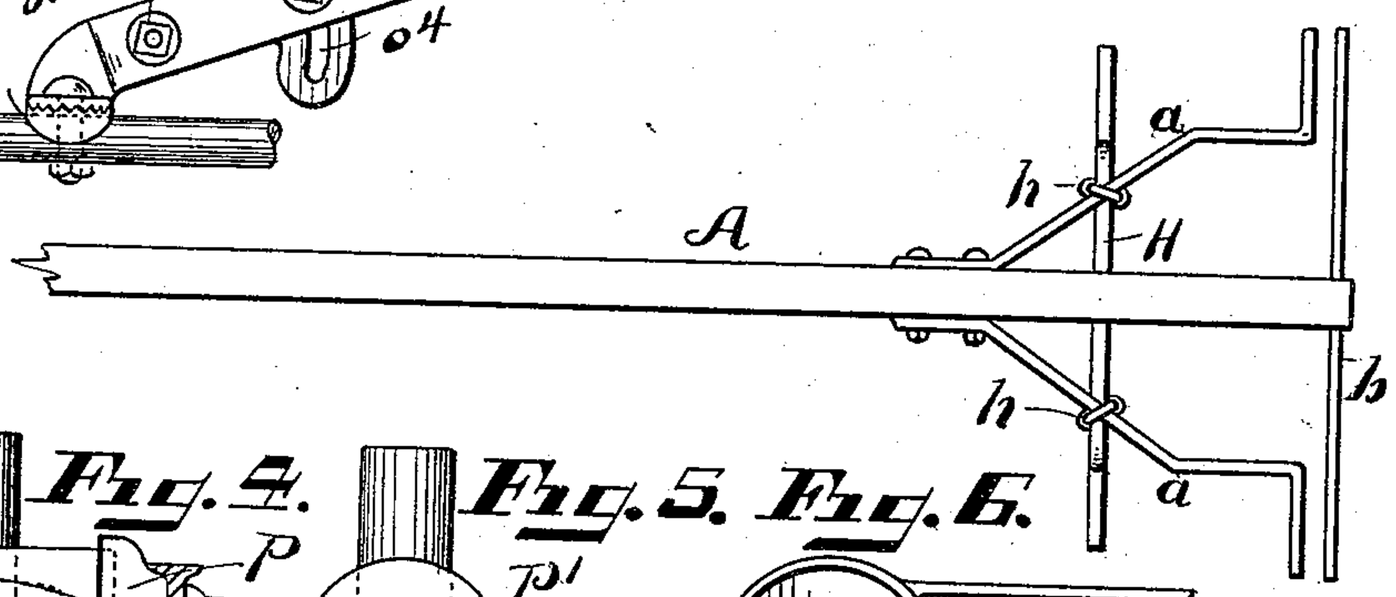


Fig. 4.

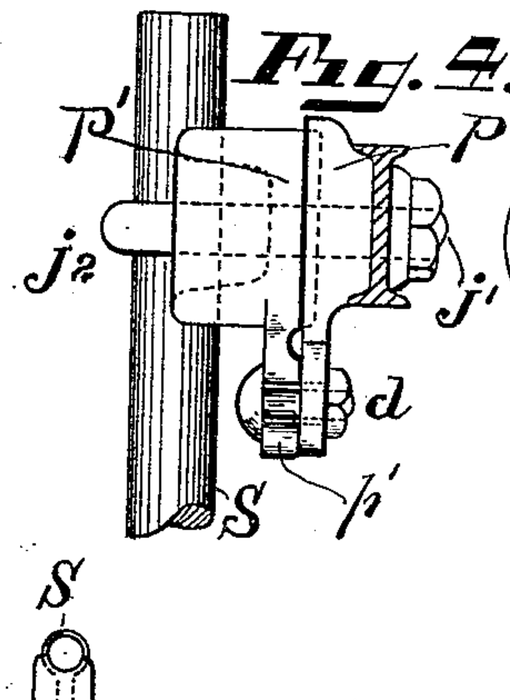


Fig. 5.

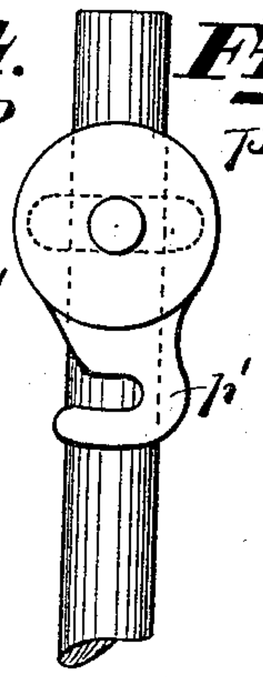


Fig. 6.

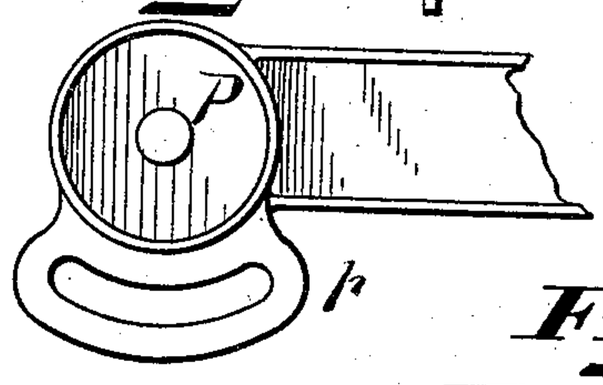


Fig. 7.

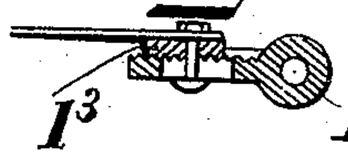


Fig. 8.

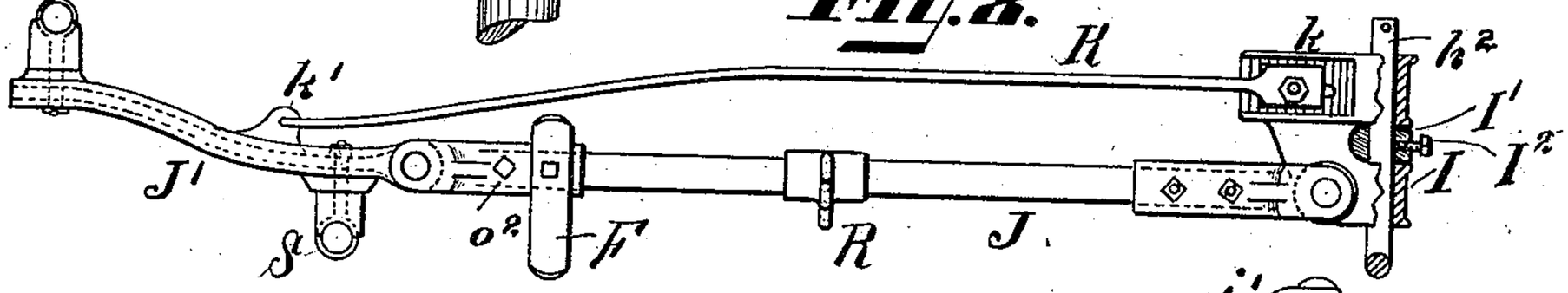


Fig. 9.

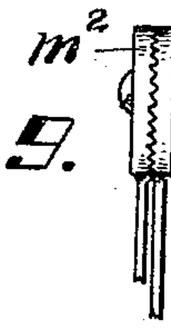


Fig. 10.

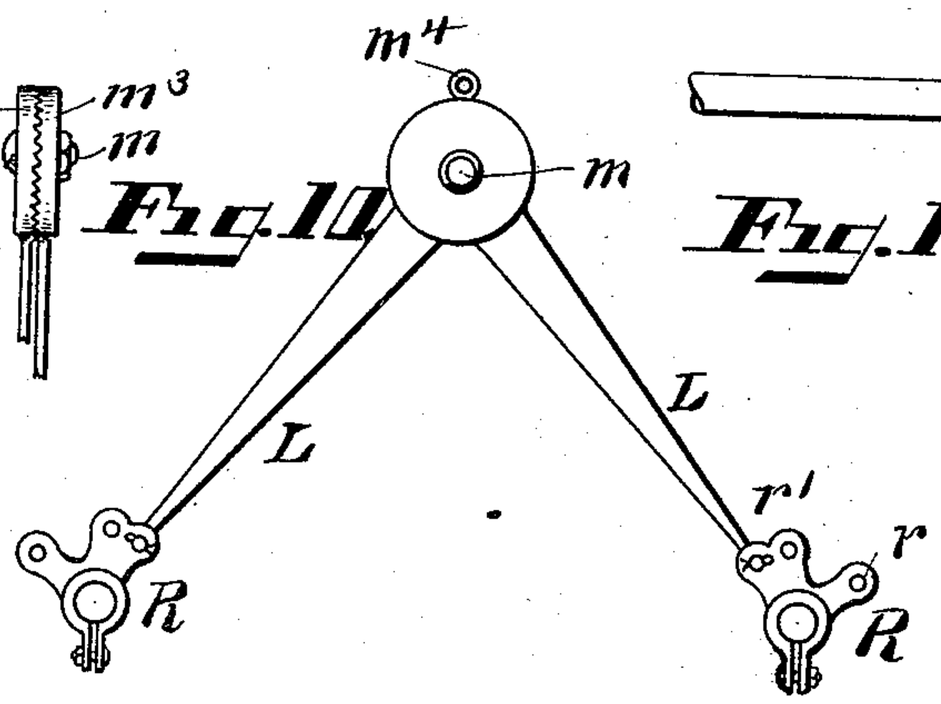
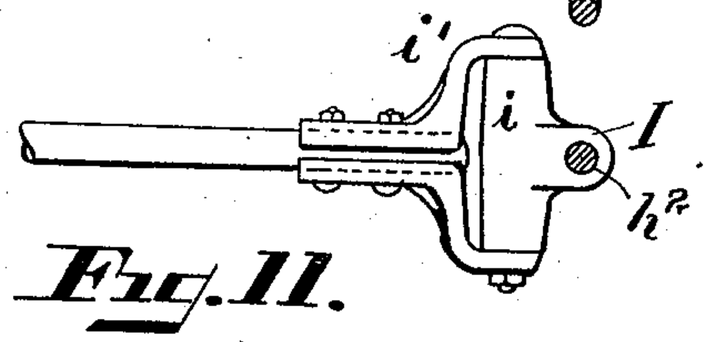


Fig. 11.



WITNESSES

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F. Clough.

INVENTOR

Elijah A Ovenshire

by Parker & Burton

his Attorneys.

UNITED STATES PATENT OFFICE.

ELIJAH A. OVENSHIRE, OF LANSING, MICHIGAN, ASSIGNOR TO E. BEMENT & SONS, OF SAME PLACE.

WHEEL-CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 487,882, dated December 13, 1892.

Application filed September 12, 1891. Serial No. 405,468. (No model.)

To all whom it may concern:

Be it known that I, ELIJAH A. OVENSHIRE, a citizen of the United States, residing at Lansing, county of Ingham, State of Michigan, have invented a certain new and useful Improvement in Wheeled Cultivators; and I I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to wheeled cultivators, and has for its object the arrangement of the details going to make up a cultivator, by means of which the various operative parts may be so adjusted as to do most efficient work and be at all times under the immediate control of the operator.

In the drawings, Figure 1 shows in perspective the parts assembled in their proper position. Fig. 2 is a detail of the adjustable handle attachment; Fig. 3, a detail of the framework; Figs. 4, 5, and 6, details of the adjustable shovel-holder and break-pin. Fig. 8 is a detail of parallel bars controlling the lateral movement of the rear shovels of the cultivator. Fig. 7 is a detail of the adjusting part of the forward end of one of the parallel rods of Fig. 8. Figs. 9 and 10 are details of a separating-fork used to hold the shovel-bars at a fixed distance apart. Fig. 11 is a detail of the hinge by which the shovel-bar shown in Fig. 8 is attached to the sliding support on the hanger H, which supports the forward end of the shovel-bars.

A represents the pole to which are bolted the metal pieces *a* and *b*, forming a braced support or holding-frame to which are attached the ends of the axle-arms B. The axle-arms B extend downward and are turned outward and terminated by the axles proper *b'*, upon which are received the supporting-wheels b^2. Forward of the axle, depending from the framework *a*, is a hanger H, secured to the framework by means of the clips or links *h*. The lower ends of the hanger H are bent at right angles with the depending arm *h'* and furnish horizontal supports, upon each one of which is adjustably fixed a hinge-piece I. The hinge-piece I is movable horizontally along the horizontal part h^2 of the hanger H, and held in place by a set-collar I', inserted through an aperture in the hinge-piece I around h^2, and secured to h^2 by a set-screw I^2. On one end of the hinge-piece I is a vertical hinge formed of the parts *i* and *i'*, (shown in Fig. II,) held together by a bolt and nut. *i'* is made in two halves, each of which has a concave branch or arm adapted to rest upon and be bolted to the shovel-arm J, which is preferably a piece of round hollow pipe. The other end of the hinge-piece I has a flat corrugated table with an oval perforation through it. Upon the upper side of the corrugated table rests the flat corrugated bottom of a pivot I^3, which is inserted through an eye in the parallel rod K.

To the rear of the shovel-bar J is hinged an extension J', carrying the two shovels S S, one being on the outside and the other on the inside of the extension J'. On the inside of the extension J' is also an arm or projection *k'*, receiving the hooked end of the parallel rod K. Each shovel-blade is held to the extension J' by a holder. (Shown in detail in Figs. 4, 5, and 6.) This holder consists of a circular plate P, having a lobe *p* below it perforated with a slot curved concentric with the center of the plate P. The plate P and the lobe *p* and extension J' are preferably made in one piece. Upon the circular part of the plate P rests the flat end of a cup P', also having a lobe furnished with a hook *p'*. The outer or hollow end of the cup P' has a circular seat to receive the round standard S of the shovel-blade, and the standard of the shovel-blade is held in the seat of the cup P' by an eyebolt j^2, of which the eye passes around the standard S of the shovel-blade, through a perforation in the bottom of the cup P', through the perforation in the plate P of the extension J', and all the parts are secured together by the bolt and nut *j'*. A bolt and nut *d*, passing through the curved slot in the lobe *p* and through the open slot of the hook *p'*, holds the cup and plate securely in position between the extreme limits of the slot in the lobe *p*. The hook in the lobe *p'* is directed forward and tension enough is given to the bolt and nut *d* to hold the shovel-blade at the desired angle under ordinary use. Should, however, the

shovel-blade strike any unusual resistances, like a stone or root, the shovel-blade would be forced backward, the hook p' forced out from under the head of the bolt d, and the shovel-blade allowed to slip over the obstruction without breaking any of the holding parts.

By means of the parallel bar K, adjustable at k, the extension J′ may be swung either way with respect to the main bar J, and the track of the two shovel-blades S S may be widened or narrowed at will.

About midway from the front to the rear of the main bar J is a ring R. (Shown in Fig. 8 and in Fig. 10.) This ring is clamped to the body of the bar J, and on its upper side furnished with a number of perforations or eyes, to one of which r is attached a link r^2, reaching upward and forward to a lifting-handle R′, attached to the frame a and serving to lift the rear end of the shovel-bar J. Into another of these eyes r' is placed the foot of a spreader-leg.

Fig. 10 represents a spreader, of which the two legs L L are adjustably held together by bolt and nut m, passing through and holding together the corrugated plates m^2 and m^3. The spreader may be set at any angle between zero and one hundred and eighty degrees, and serves to hold the two shovel-bars J at a fixed distance apart, which distance is adjustable, according to the work to be performed. The spreader is held upright by a chain or link passing from the eye m^4 to the cross-bar of the axle.

o represents a seat-iron for the handle O. This seat-iron presents a flat corrugated upper surface and receives a flat corrugated lower surface of a foot-iron o', the two parts being held together by the bolt, which secures both of them to the shovel-bar J at the point o^2. The foot-iron o' at its upper or rear portion is furnished with a slotted perforation concentric with the bolt o^3, the second perforation o^4 receiving a second bolt o^5, that holds the wooden part of the handle O to it. The wooden handle O extends upward and backward in the form of an ordinary cultivator or plow handle. Just forward of the handle seat-iron o is placed a foot-rest F.

The parts when assembled together make a complete wheeled or sulky cultivator, in which the shovel-bars may be adjusted to any width and to various angles with respect to each other, and adjusted to track either one behind the other, so as to work in the same furrow, or to track in different furrows across the entire path between the wheels of the cultivator.

A seat V, attached to the framework, permits the use of a wheeled harrow as a sulky-harrow, if desired.

The lifting-handle R′, operating through the link or eye r' and ring R, lifts the rear end of the shovel-arm J and extension J′, turning it around the horizontal extension I of the hanger H.

T T represent ratchet-quadrants securely fastened to the frame-pieces a a. At the center of each quadrant-rack T is the turning-pin of the handle R′, and the handle R′ is securely held by the teeth of the quadrant-rack in whatever position it may be placed. Contact between the handle R′ and the rack-teeth is maintained by a leaf-spring t, bolted to the rack and linked to the forward end of the handle R′. The surface of the quadrant-rack, to which the spring t is bolted, is inclined slightly across the axis of the pin r^4, and thus as the linked end of the spring is drawn downward it is also thrown outward and forces the handle close up against the rack-teeth. The contact is released by pushing the handle outward against the tension of the spring.

An evener V′ crosses the pole and holds at either end a suspended arm v, from the bottom of which a draft-rod v' extends to the hanger H or hinge-casting L. The whiffletree W is hooked to the suspended arm v at any elevation, and thus the forward draft may be arranged to balance the weight of the rider, because by raising the point of draft on the hanger H the pull comes more along the line of the pole, and the forward end of that pole is depressed and the seat, with its occupant, raised, and by lowering the whiffletree the reverse action takes place. By a proper adjustment the downward thrust, due to the weight of the rider, is perfectly balanced.

What I claim is—

1. In a sulky-cultivator, the combination of a tongue, cross-bar and brace-irons attached to said tongue, axle-arms secured between the cross-bar and brace-irons, a doubletree crossing said tongue, and a depending arm hung to the doubletree and connected by a draft-rod to the shovel-holding arm, substantially as and for the purpose described.

2. In a wheeled cultivator, the combination of a hanger attached to the framework, a shovel-bar hinged thereto, an extension hinged to the rear end of said shovel-bar, and a parallel bar attached to the extension, terminating at its forward end with an eye adapted to rest upon and be secured to the flat corrugated table k, substantially as and for the purpose described.

3. In a wheeled cultivator, in combination with a shovel-bar and a hinged extension thereto, a parallel bar hinged to said extension and made in two parts adjustably secured together, one of said parts being made integral with and projecting backward from the hanger to which said shovel-bar is attached, substantially as and for the purpose specified.

4. In a wheeled cultivator, in combination with the cultivator-beams, the combination of the flat corrugated seat-iron o, the corrugated foot-iron o', provided with the holding-bolt o^3, and the adjusting-slot o^4, whereby the handle is adjustably secured with both hori-

zontal and vertical adjustments, substantially as described.

5. A tooth-holder consisting of the described disk and slotted lobe, the described cup and hooked lobe, the holding eyebolt and nut, and a break-bolt passing through the slotted lobe and open slot in the hooked lobe, whereby the angle of the tooth-standard may be adjusted and held in adjustment with a predetermined force, substantially as and for the purpose described.

In testimony whereof I sign this specification in the presence of two witnesses.

ELIJAH A. OVENSHIRE.

Witnesses:
L. V. E. IHLE,
D. T. JONES.