2 Sheets—Sheet 1.

H. H. PERKINS.

WHEEL-CULTIVATOR.

No. 177,152. Patented May 9, 1876.

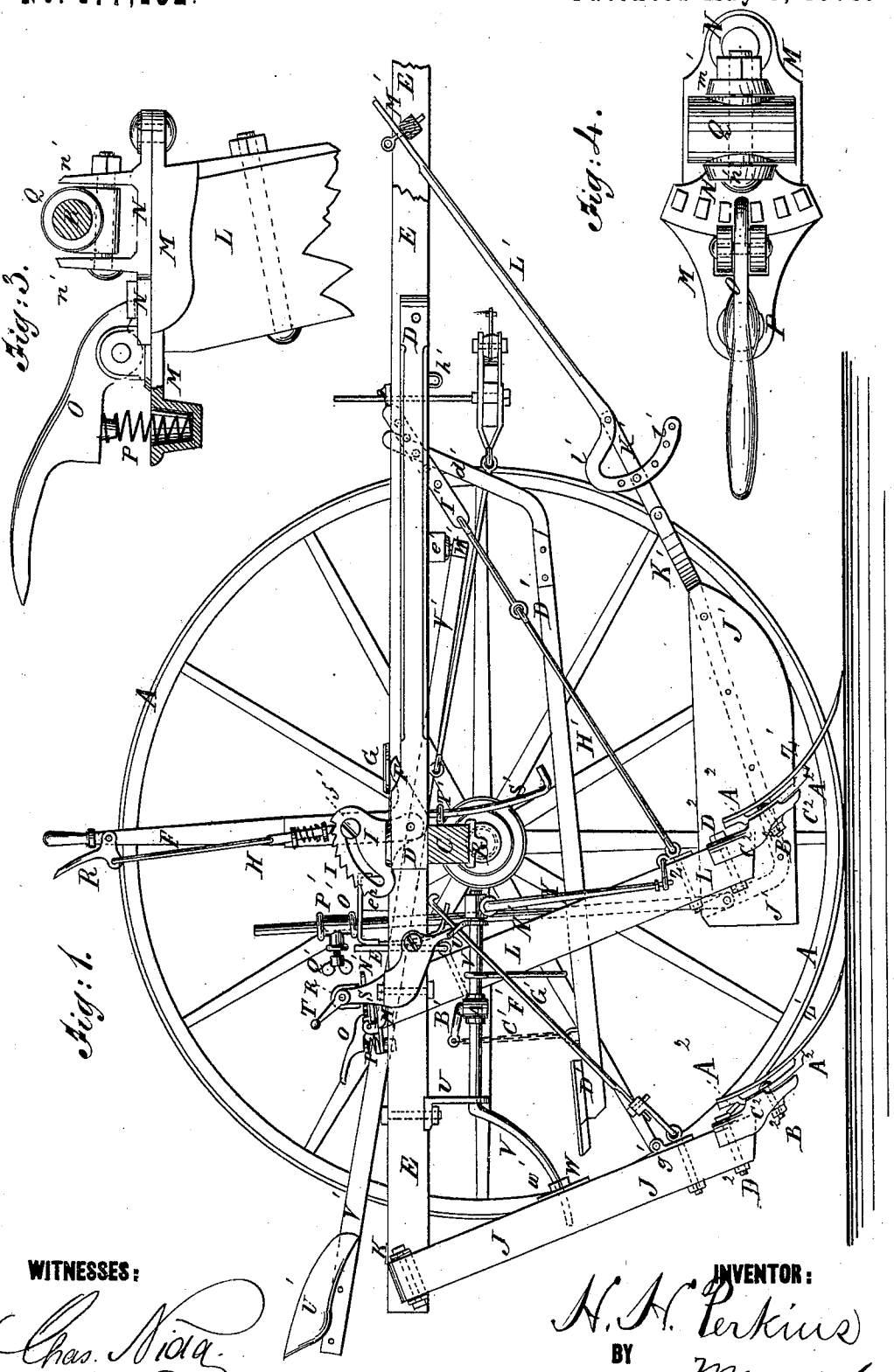

Fig. 1.

Fig. 3.

Fig. 4.

WITNESSES:

Chas. Nida.

A. F. Perry

INVENTOR:

H. H. Perkins

BY

ATTORNEYS.

2 Sheets—Sheet 2.

H. H. PERKINS.

WHEEL-CULTIVATOR.

No. 177,152. Patented May 9, 1876.

Fig: 2.

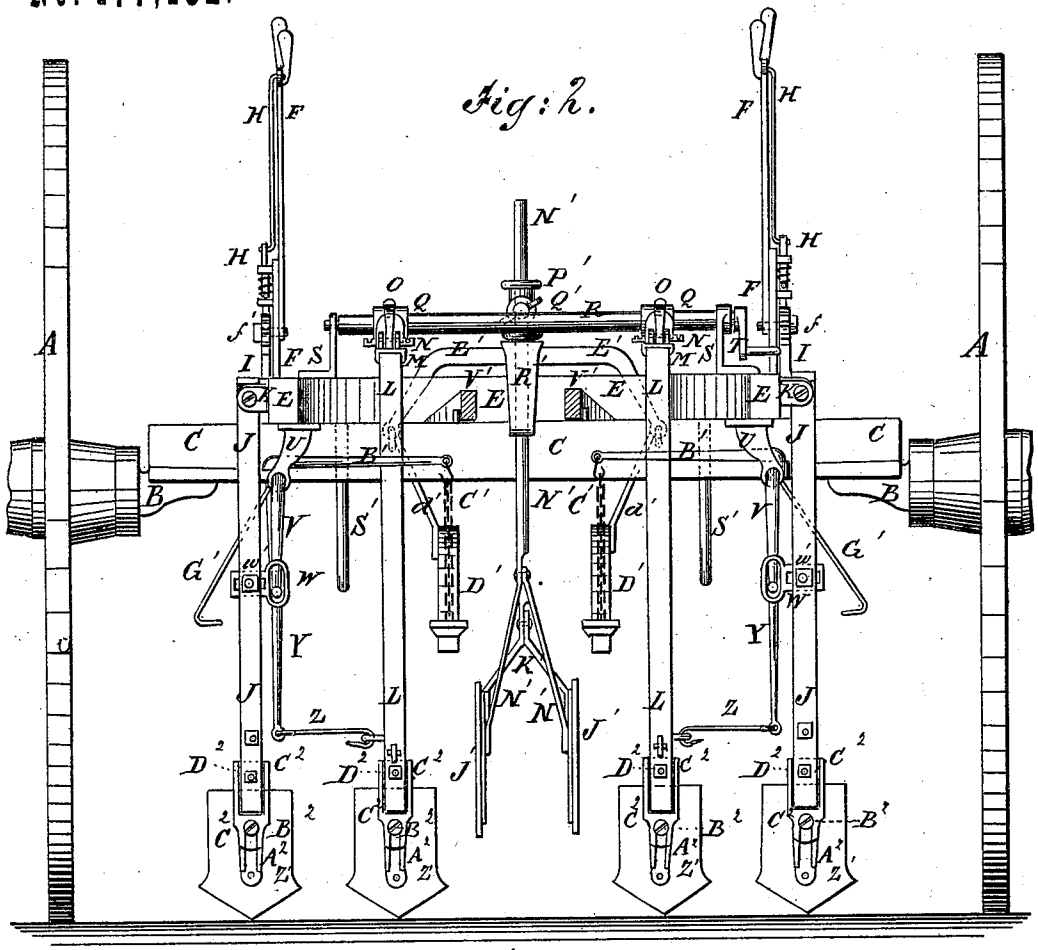

Fig: 5

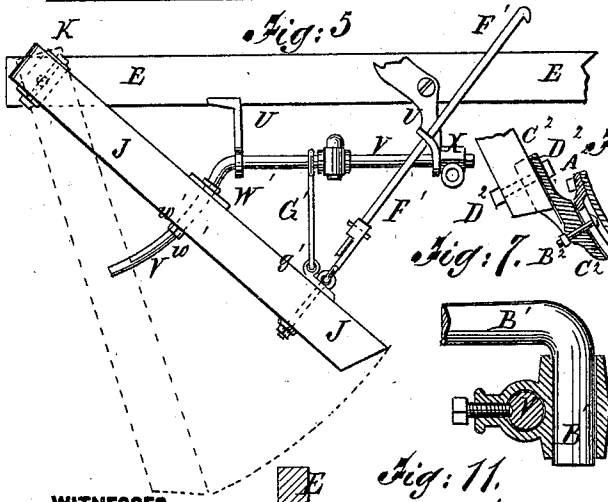

Fig: 8

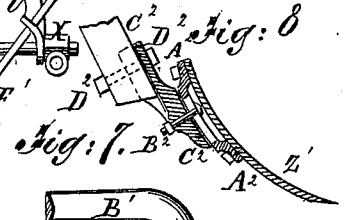

Fig: 10.

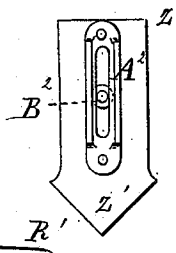

Fig: 7.

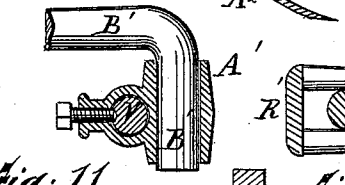

Fig: 11.

Fig: 6.

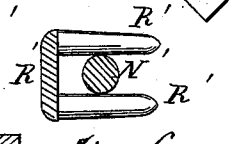

Fig: 9.

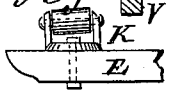

Fig: 12.

WITNESSES:

Chas. Nida

A. F. Terry

INVENTOR:

H. H. Perkins

BY

ATTORNEYS.

UNITED STATES PATENT OFFICE.

HAZEN H. PERKINS, OF OSCEOLA, ILLINOIS.

IMPROVEMENT IN WHEEL-CULTIVATORS.

Specification forming part of Letters Patent No. **177,152**, dated May 9, 1876; application filed September 17, 1875.

To all whom it may concern:

Be it known that I, HAZEN H. PERKINS, of Osceola, in the county of Stark and State of Illinois, have invented a new and useful Improvement in Riding-Cultivator, of which the following is a specification:

Figure 1, Sheet 1, is a side view of my improved cultivator, one of the wheels being cut away, and part being broken away to show the construction. Fig. 2, Sheet 2, is a rear view of the same, the seat-bars being shown in section. Fig. 3, Sheet 1, is a detail side view of the device for adjusting the standards of the inner plows. Fig. 4, Sheet 1, is a top view of same device. Fig. 5, Sheet 2, is a detail side view of a rear plow-standard, and the rear part of the beam, showing a side view of the devices for adjusting said standards. Fig. 6, Sheet 2, is a detail view, showing the fork for adjusting the guard-supporting rod. Fig. 7, Sheet 2, is a detail sectional view of one of the couplings. Fig. 8, Sheet 2, is a detail longitudinal section of a plow and plow-seat. Fig. 9, Sheet 2, is a detail top view of the coupling that connects the rear plow-standards to their beams. Fig. 10, Sheet 2, is a rear view of one of the plow-plates. Fig. 11, Sheet 2, is a detail view, showing the manner in which the seat-bars are connected with the beams. Fig. 12, Sheet 2, is a detail view of the double-slotted plate of one of the rear plow-standards.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish an improved riding-cultivator, which shall be so constructed that the plows may be readily guided and controlled, when at work, by the driver with his feet, and may be supported above the ground when passing from place to place.

The invention consists in the construction and combination of parts, which will be hereinafter more fully described, and then pointed out in the claims.

A are the wheels, which revolve upon the journals of the short axle-arms B, attached to the under side of the ends of the axle C.

To the axle C, near its ends, are attached the rear ends of two bars or hounds, D, to the inner sides of the forward ends of which are pivoted, by two pairs of eyebolts, the bars E, the forward ends of which meet at an angle, and which are made of such a length that their forward parts may serve as a tongue, and their rear parts as beams to receive the plow-standards.

The bars E are connected and held in their proper relative positions by two cross-bars, e^1 e^2, securely bolted to them.

To the inner sides of the rear ends of the hounds D are pivoted two angle-levers, F, at their angles. The short arms of the levers F project forward, and their ends rest against the under sides of the outwardly-projecting parts of the plates G, the inner parts of which are bolted to the bars E, so that by operating the said levers F the rear ends of the bars E may be raised and lowered to adjust the plows to work shallower or deeper in the ground, as may be desired.

With the sides of the long arms of the levers F are connected spring-lever pawls H, the engaging ends of which enter notches in the upper edge of the plates I. The plates I are attached to the rear ends of the hounds D, and are slotted upon the arc of a circle having its center in the pivot of the levers F, to receive bolts f', which pass through the said levers F to hold them against any side movement.

J are the rear and outer standards, to the forward and rear sides of the upper ends of which are pivoted the arms of the U-couplings K, so that the lower ends of said standards J may have a free lateral movement.

The coupling-plates K are pivoted at their bends to the outer sides of the rear ends of the bars E, so that the lower ends of the standards J may have a free backward and forward movement.

L are the forward and inner standards, to the upper ends of which are secured the cap-plates M.

To the forward end of the cap-plate M is pivoted the forward end of the plate N, upon the upper side of the rear edge of which are formed a number of notches to receive the

engaging end of the lever pawl O, which is pivoted to lugs formed upon the rear part of the plate M, and which is held against the notched plate N by a spring, P, as shown in Fig. 3.

By this construction, by raising the engaging end of the pawls O out of the notches in the plate N, and using the said pawl as a handle, the standards L may be turned to adjust the plows to throw the soil toward or from the plants, as may be desired. To the upper side of the plates N are attached lugs *n'*, which are pivoted to the forward and rear sides of the sockets Q, so that the lower ends of the standards L may have a free lateral movement.

The sockets Q have screw-threads cut in their inner surfaces to fit into the right and left screw-threads cut upon the end parts of the rod R, which is swiveled to studs or brackets S attached to the bars E, and to one of its ends is attached a crank, T.

By this construction the sockets Q can turn upon the rod R to give the lower ends of the standards L a free forward and backward movement, and by turning the rod R, by means of the crank T, the standards L may be moved toward or from each other to adjust the plows to work closer to or farther from the plants, as may be desired. To the rear part of each of the bars E are attached two hangers, U, in bearings in which works the rock-shaft V. The rear part of the rock-shaft V projects beyond the rear hanger U, is bent downward, and is curved upon the arc of a circle having its center in the pivot of the coupling K, and passes through a short transverse slot in the projecting end of the plate W, the inner part of which is slotted longitudinally to receive the bolt *w'*, by which it is secured to the standard J, so that by loosening the said bolts *w'* the lower ends of the standards J may be adjusted wider apart or closer together, as may be desired.

To the forward end of the rock-shaft V is rigidly attached a coupling-block, X, in the lower part of which is formed a transverse hole to receive the upper end of the rod Y. The upper part of the rod Y is bent at right angles to pass through the coupling-block X. This connection gives the lower parts of the rods Y a free forward and backward but no lateral movement. The lower ends of the rods Y are connected with the lower parts of the forward standards L by short connecting-rods Z, as shown in Fig. 2.

To the middle part of the rock-shaft V is rigidly attached a coupling-block, A^1. In the outer part of the coupling-block A^1 is formed a hole to receive the outer end of the horizontal rod B^1, which is bent downward at right angles to pass through it, so that the inner ends of said rods B^1 may have a free forward and backward movement, but cannot move vertically without turning the rock-shaft V in its bearings. To the inner ends of the rods B^1 are attached the upper ends of two short chains, C^1, the lower ends of which are attached to the treadles D^1.

To the forward ends of the treadles D^1 are rigidly attached bars *d'*, which project upward and incline forward, and the upper ends of which are pivoted to the inner sides of the bars E.

By this construction, by bearing down upon either treadle, D^1, the lower ends of the plow standards J L upon that side will be moved outward, so that the driver can guide the plows with his feet to avoid irregular hills or to follow crooked rows.

E' is a yoke or bent bar, the ends of which are pivoted to the upper parts of the inner standards L, so that the outward movement of the standards J L upon one side may give a corresponding inward movement to the standards J L upon the other side.

The draft strain upon the outer standards J is sustained by the brace-rods F', which pass through holes in the forward hangers U, and have hooks or heads formed upon their forward ends, which rest against the said hangers, and thus sustain the draft strain. The rear ends of the brace-rods F' are pivoted to the lower parts of the standards J. If desired, the brace-rods F' may be made in two parts, the ends of the one part entering a socket formed upon the end of the other part, and being secured by a wooden pin, so that should the plow strike an obstruction the said pin may break and allow the standard to swing back to prevent the plow from being broken. Several holes are formed in the brace-rods F' to receive the wooden pins, so that the pitch of the plows may be adjusted, as required. This construction of the rock-shaft V and the brace-rods F' allows the outer standards J to be swung forward, and thus raised from the ground, where they may be secured in place, and supported away from the ground by hooks G', which hang upon the rock-shafts V, and hook into eyes *g'* attached to the said standards J. The draft strain upon the inner standards L is sustained by the brace-rods H', the rear ends of which are pivoted to eyebolts attached to the lower parts of the said standards. The brace-rods H' are jointed, and their forward ends have hooks formed upon them, and are hooked into holes in the lower ends of the bars I', the upper ends of which are secured to the bars E. Several holes are formed in the bars I' to receive the fastening-bolts to enable the pitch of the plows to be adjusted. By this construction the forward ends of the brace-rods H' may be unhooked from the bars I', and hooked into eyes *h'* attached to the bars E, to support the said inner plows away from the ground, when desired. J' are guard-plates, which are placed at such a distance apart as to straddle the row of plants, and prevent said plants from being injured or covered by the

clods and soil thrown by the inner plows. The lower parts of the forward ends of the guard-plates J′ are rounded off to enable them to pass over the ground readily. The forward ends of the plates J′ are attached to the forked rear end of the bar K′, by which they are drawn, and at the same time held in proper relative position. The forward end of the bar K′ is pivoted to the rod L′ at the base of the hook l', formed upon its rear end, and is further secured by a bolt passing through it and through one of a number of holes formed in said hook l', so that by adjusting the said bolt the forward ends of the guards may be adjusted higher or lower, as may be desired. The forward end of the rod L′ has a number of holes formed in it to receive the pin or bolt, by which it is secured to the roller M′, pivoted to and between the bars E. The rear ends of the guard-plates J′ are attached to the forked lower end of the rod N′, by which they are supported and held in the proper relative position. The rod N′ passes up through a guide-hole in the arm O′, rigidly attached to the cross-bar e^2, and has a collar, P′, placed upon it to rest upon the said arm O′. The collar P′ is secured in place by a set-screw, Q′, so that it may be readily adjusted to support the rear ends of the guard-plates J′ at any desired height. To the center of the yoke E′ is rigidly attached a downwardly-projecting arm, R′, the lower end of which is bent forward, and is slotted or forked to receive the rod N′.

By this construction, as the inner standards L are moved laterally, the guard-plates J′ will also be moved, so as to keep the said guard-plates always midway between the said standards. To the bars E are attached guide-rods S′, which pass through eyes T′, attached to the forward side of the axle C, to cause the bars E to move up and down vertically when being adjusted. U′ is the driver's seat, which is attached to the rear ends of the bars V′. The bars V′ rest upon the axle C, and are kept from lateral movement upon it by being placed between pins attached to its upper side. The forward ends of the seat-bars V′ are connected by a short cross-bar, W′, the upper side of which is rounded off, and has a pin, X′, attached to its center to enter a socket, Y′, attached to the center of the cross-bar e^1, attached to the bars E. Z′ are the plow-plates, to the rear sides of which are attached bars A^2, which are slotted longitudinally, to receive the bolts B^2, by which they are secured to the seats or shoes C^2. The end parts of the slotted bars A^2 are bent forward to raise the bodies of said bars away from the rear sides of the plow-plates sufficiently to afford space for the heads of the bolts B^2. Upon the forward side of the seats C^2, upon the opposite sides of the holes that receive the bolts B^2, are formed short flanges which rest against the side edges of the bars A^2, and thus hold the plows Z′ against side movement. The rear sides of the seats C^2 are concaved to fit upon the rounded forward sides of the standards J L, where they are secured in place by bolts D^2, which pass through holes in the said standards, and through a short transverse slot in the upper part of the said seat.

By this construction, by loosening the bolts B^2 the plows Z′ may be moved up and down upon their seats, and by loosening the bolts D^2, the said plows may be turned in or out to throw the soil toward or from the plants, as may be desired.

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

1. The combination of the bent rock-shafts V, slotted adjustable plates W, stationary hangers U, inwardly-extending rods B^1, treadles D^1, downwardly-extending rods Y, and links Z, with the inner and outer adjustable shovel-standards, and the vertically adjustable beam-frame, as and for the purpose set forth.

2. The combination of the swinging and laterally-adjustable collars Q, notched plate N, cap-plate M, pivoted catch O, and spring P, with the inner shovel-standards L, transverse screw-shaft R, and the beam-frame, as and for the purpose set forth.

3. The combination of the roller M′, adjustable front rod L, having perforated hooked rear portion l', with the plant-fenders J′, and its front arms K′, as and for the purpose set forth.

4. The combination of the bent and forked bar R′, with the adjustable supporting-rod N′ of the guard-plates J′, and the yoke E′, pivoted to the plow-standards L, substantially as herein shown and described.

HAZEN H. PERKINS.

Witnesses:
C. C. WILSON,
WM. COLLINS.