

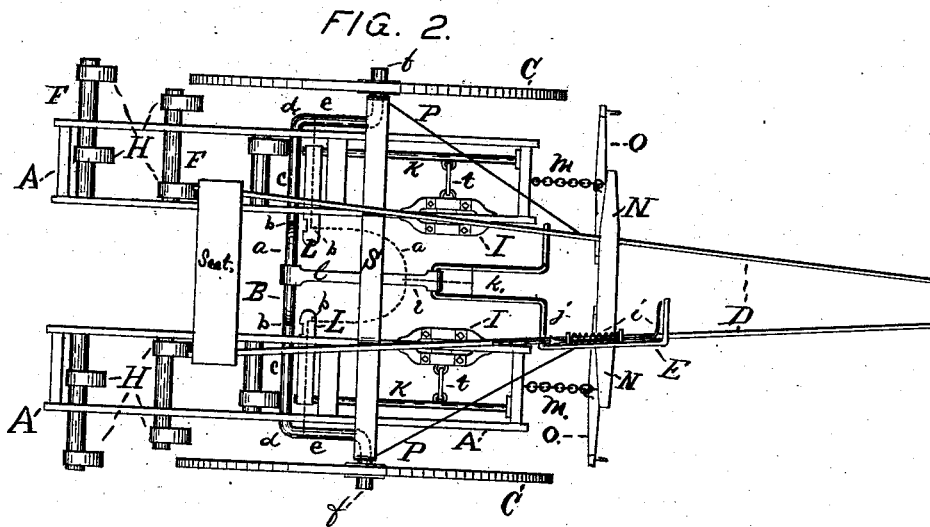
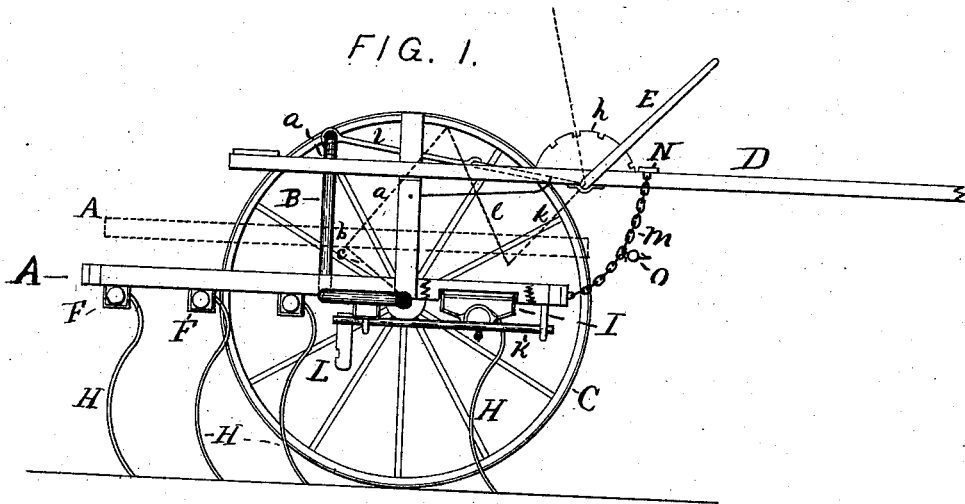
(No Model.)

F. M. EVERINGHAM.
CULTIVATOR.

2 Sheets—Sheet 1.

No. 301,812.

Patented July 8, 1884.



WITNESSES.

W. Smith
A. Brooks Bacon

INVENTOR.

F. M. Everingham

(No Model.)

F. M. EVERINGHAM.

2 Sheets—Sheet 2.

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FIG. 3.

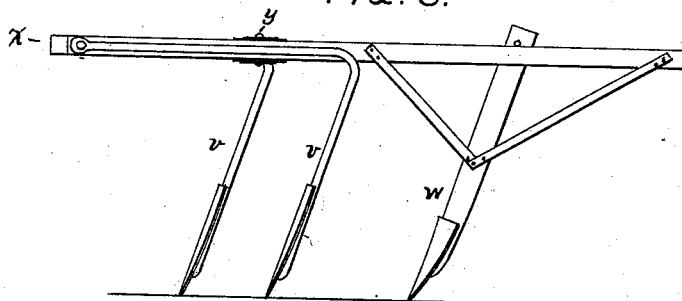


FIG. 4.

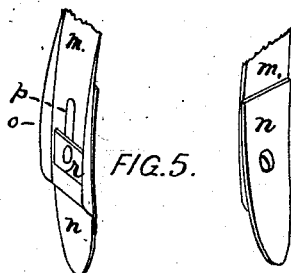
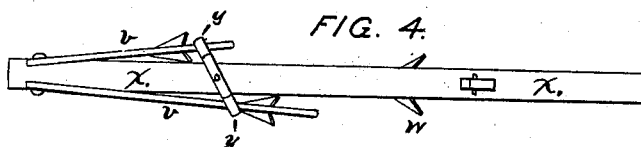


FIG. 5.

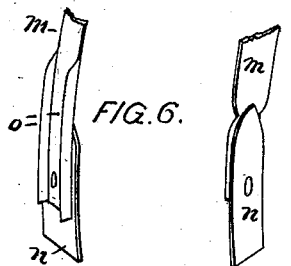


FIG. 6.

FIG. 7.

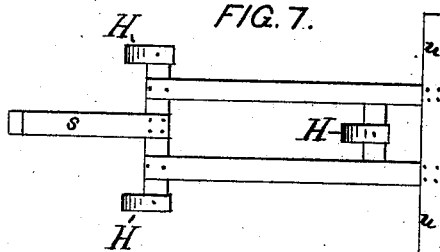
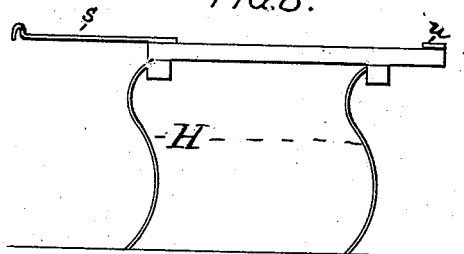


FIG. 8.



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UNITED STATES PATENT OFFICE.

FRANCIS M. EVERINGHAM, OF EAST ONONDAGA, NEW YORK.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 301,812, dated July 8, 1884.

Application filed November 2, 1883. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS M. EVERINGHAM, of East Onondaga, Onondaga county, State of New York, have invented certain new and useful Improvements in Cultivators, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a side view; Fig. 2, a top plan view, and Figs. 3, 4, 5, 6, 7, and 8, details.

The letters of reference represent corresponding parts wherever they occur.

My invention relates to two-wheeled spring-cultivators, and has special reference to the class in which the central cultivator-teeth are adapted to vibrate laterally, and are arranged to be controlled in their position by the attendant of the machine, so as to properly cultivate the soil around a plant which is out of line of the regular row of plants.

The invention consists in certain improvements in the detail construction of the cultivator, whereby the same is rendered more efficient in its operation, all as hereinafter more fully described, and specifically set forth in the claims.

A A are two separate and independently oscillatory frames, mounted on the axle B, which is formed with a central upright yoke, *a*, with its arms or legs bent at the bottom at *b* at right angles in the same perpendicular plane as the yoke itself. Thence the axle extends outward on each side of the yoke in a straight piece, *c*, a sufficient distance to permit the frame-section to be mounted thereon—one on each side. Then it is again bent at *d* at right angles to the horizontal plane of the portion *c*. Thence it extends in a straight piece, *e*, until it is again bent outward at right angles to the part *d* and parallel to the part *c*, and the extremities *f f* form the axles upon which the wheels C are mounted.

D is the tongue, upon which the notched quadrant *h* is secured.

S is an arched bar, mounted on the axle near the wheel-hubs, on the vertical sides of which bar the tongue is secured, and thus supported at an elevation above the frames A A. By means of chains connecting the ends of said frames with the tongue the vertical oscillation of the frame is limited.

E is the elevating-lever with its spring catch

or trip *i*, which engages with the notches of the quadrant *h*. This lever is connected to the upper part of the yoke *a* of the axle-tree by the connecting-rod *j*, made of two parts, *k l*, as shown in the drawings. A chain may be used; but I prefer to use a stiff portion, *k*, of about the shape shown, rigidly connected to the lower end of the lever E, in order to increase the elevating power by the crank action. When the lever so connected to the yoke *a* is drawn back, the strain brought upon the yoke draws it downward and forward, and the leverage created upon the axle-tree, having its fulcral bearings in the hub of the wheels C, raises that portion *c* of the axle-tree on each side and elevates the frame A to the height desired.

F F are the rods or bars, upon which the teeth H are secured in any ordinary way. These bars, usually round, are attached to the under side of the frame in any ordinary way. The teeth H are made of about the shape shown in the drawings, and partially bent over the bars F at their upper ends. These teeth are usually made of two parts—a spring-shank, *m*, and a removable and reversible point-piece, *n*. This point-piece is made with one end square and the other end pointed or rounded, as shown in the drawings, and by its use different kinds of work can be done, the rounded or pointed end being used and operating in the manner of ordinary cultivator-teeth, and the square end can be employed to better advantage in fields containing thistles and other weeds having top-roots, or roots running vertically into the ground, the square end of the point *n* being better adapted for cutting off said roots. Upon the lower end of the shank the edges are bent back, making the flanges *o*, and between these flanges, and about the center of the shank a slot, *p*, is cut, through which the bolt passes which holds the point *n* upon the shank.

Between the shank *m* and the nut of the attaching-bolt of the point *n* is interposed a washer, *r*, which fits closely between the flanges *o* aforesaid, so as to prevent the washer from turning, and thus guard to a great extent against the loosening of the nut on the bolt. These flanges *o* serve also to strengthen the spring-shank, which would otherwise be weakened by the slot *p*.

Figs. 5 and 6 show details of the points and shank.

In the drawings two of the teeth—one on the inside of each half of the frame—are shown so adjusted as to permit the point to be swung sidewise.

It is the saddle, carrying a swinging tooth. This is constructed of about the shape shown in the drawings, carrying a central bar, upon which the spring-shank is fastened. This saddle is suspended from the frame-work in any ordinary manner. It is connected by a link, *t*, to a rolling rod, *K*, suspended beneath the frame, as shown in the drawings.

In place of the link, any equivalent device—such as two gears, one on the saddle and one on the rod, meshing together—can be substituted, and to secure rapidity of the swinging movement that part on the rod *K* can be made the larger.

L is a treadle-bar attached to the rod *K* in such a manner that by pressing down on it the rod is rotated and the point of the tooth swung sidewise one way, and by raising the treadle the point of the tooth is swung in the opposite direction.

M M are draw-chains—one on each side—attached at one end to the frame and at the other to the cross-piece *N*; and *O* is a whiffletree hooking into the chain at any desired point. These chains are so adjusted that they can be lengthened or shortened as desired. They also perform the function of preventing the front teeth, or those forward of the axle-tree, from drawing down into the ground or digging too deeply; and as the teeth in the rear of the axle-tree necessarily follow those in front, by varying the length of these chains the pitch of all the teeth can be varied.

P P are stay-rods extended from the tongue *D* down to the bow about four to six inches above the axle. They also, when the frame is lifted to its full height above the ground, serve to catch the front end of the frame and keep it level, preventing the back end from sagging down.

Figs. 7 and 8 show, respectively, a top plan and a side view of an extra section, by which the cultivator can be converted into a wheel-harrow, as follows: The hook on the forward end of the slat *t* is hooked over the bar *S*, and the cross-bar *u* is bolted at each end to each half of the frame. This closes the space between the frame, as shown in Fig. 2.

In Figs. 3 and 4 are shown a side view and a top view of a potato-digger attachment, which can be attached to each half of the frame *A* in place of the swinging teeth. In this, *v v* are the forward teeth, and *w* the rear one. These forward teeth are each attached to a stiff shank, (shown in the drawings,) which is secured to the timber *x* by a pivot-bolt; and *y* is a spring,

which permits them to rise more or less, somewhat similar to a spring-tooth.

In Fig. 1 the action of the lever in raising the frame is shown by the dotted lines, which show the frame partly elevated.

In Fig. 2 the shape of the yoke *a* and of the whole axle-tree is more clearly shown by the dotted lines in conjunction with the solid lines.

A driver's seat is located upon the rear end of the tongue in such position that the driver can readily place his feet upon the treadles and handle the elevating-lever.

I can also connect the swinging teeth by an adjustable tie, consisting of two bars of metal or wood, connected by a slot and set-screw joint, and one part may have side flanges, between which the other part lies, and is held by them in position. This tie can be connected to the teeth by hooking or slipping on over the teeth loosely, and be held there by chains connected to the bars and frame, so that when one tooth swings the other does also.

I am aware that lateral vibratory cultivator-teeth have been suspended from one and the same frame, causing said teeth to enter the ground at corresponding angles and with equal force; but in my improved cultivator the lateral vibratory teeth are afforded an independent oscillatory movement in the direction of the line of the draft, and are thus adapted to conform to a great extent to the unevenness of the ground.

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

1. In a cultivator, the combination of two separate oscillatory frames supported independently of each other on the axle, and carrying fixed cultivator-teeth, two laterally-vibratory teeth, hung respectively on the two frames, and mechanism for sustaining the vibratory teeth in the desired position, arranged to be controlled at will of the operator, substantially as shown and described.

2. Two independent oscillatory frames, *A*, in combination with the crank-axle *B*, formed with the central yoke, *a*, horizontal frame-supporting portions *c c*, right-angled bends *d d*, and horizontal portions *e e*, terminating in spindles *f f*, the tongue *D*, supported above the frames *A* by standards mounted on the axle near the wheels, and chains connecting the ends of the vibratory frame with the tongue, all substantially as described and shown.

In witness whereof I have hereunto set my hand this 6th day of February, 1883.

F. M. EVERINGHAM.

In presence of—
C. W. SMITH,
S. B. BACON.