

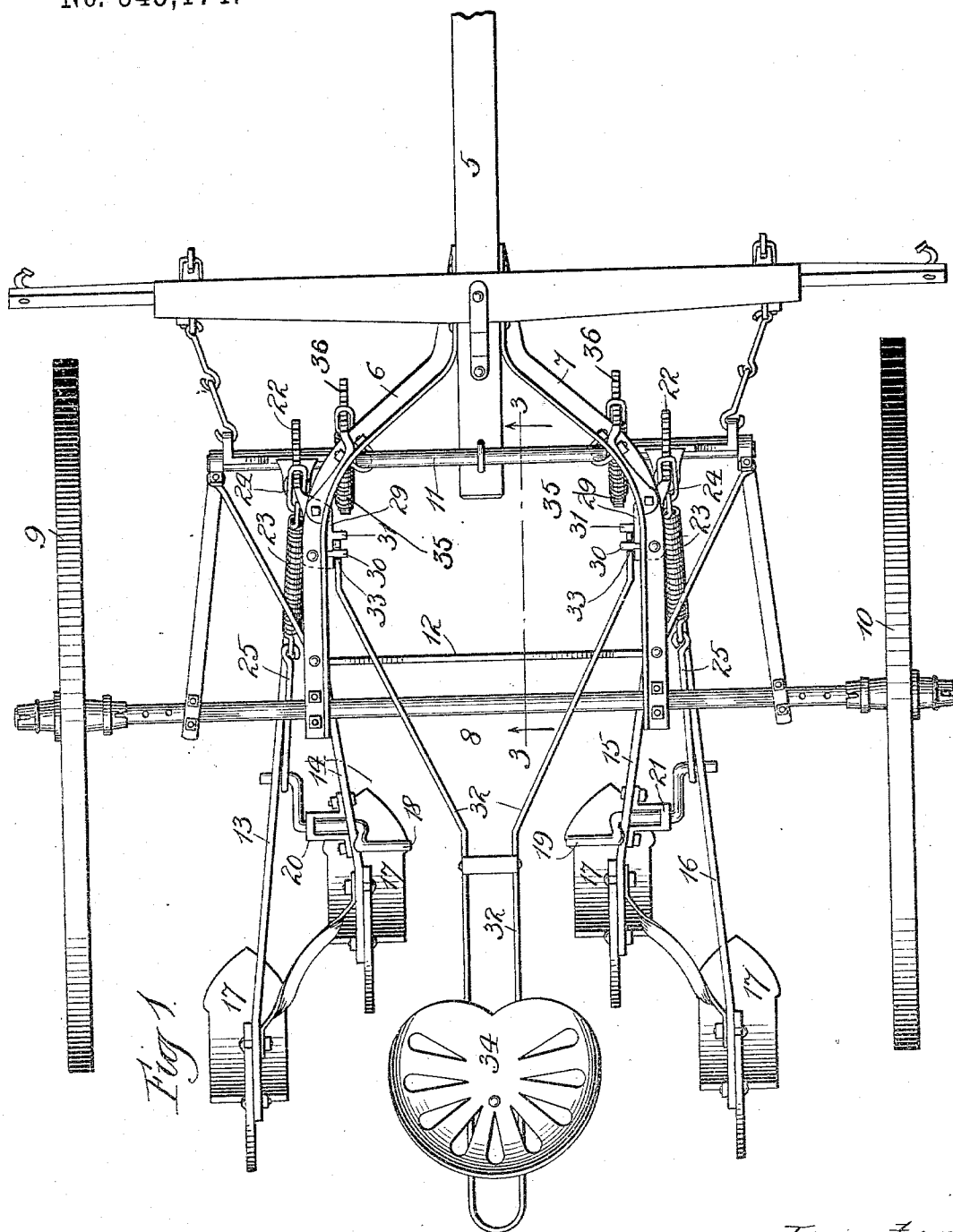
(No Model.)

3 Sheets—Sheet 1.

L. ROADHOUSE.
CULTIVATOR.

No. 545,174.

Patented Aug. 27, 1895.



Witnesses
Wm. J. Fleming
Kellie McKibben

Inventor
Levi Roadhouse
by Bond, Adams, Pickard & Jackson
Attys

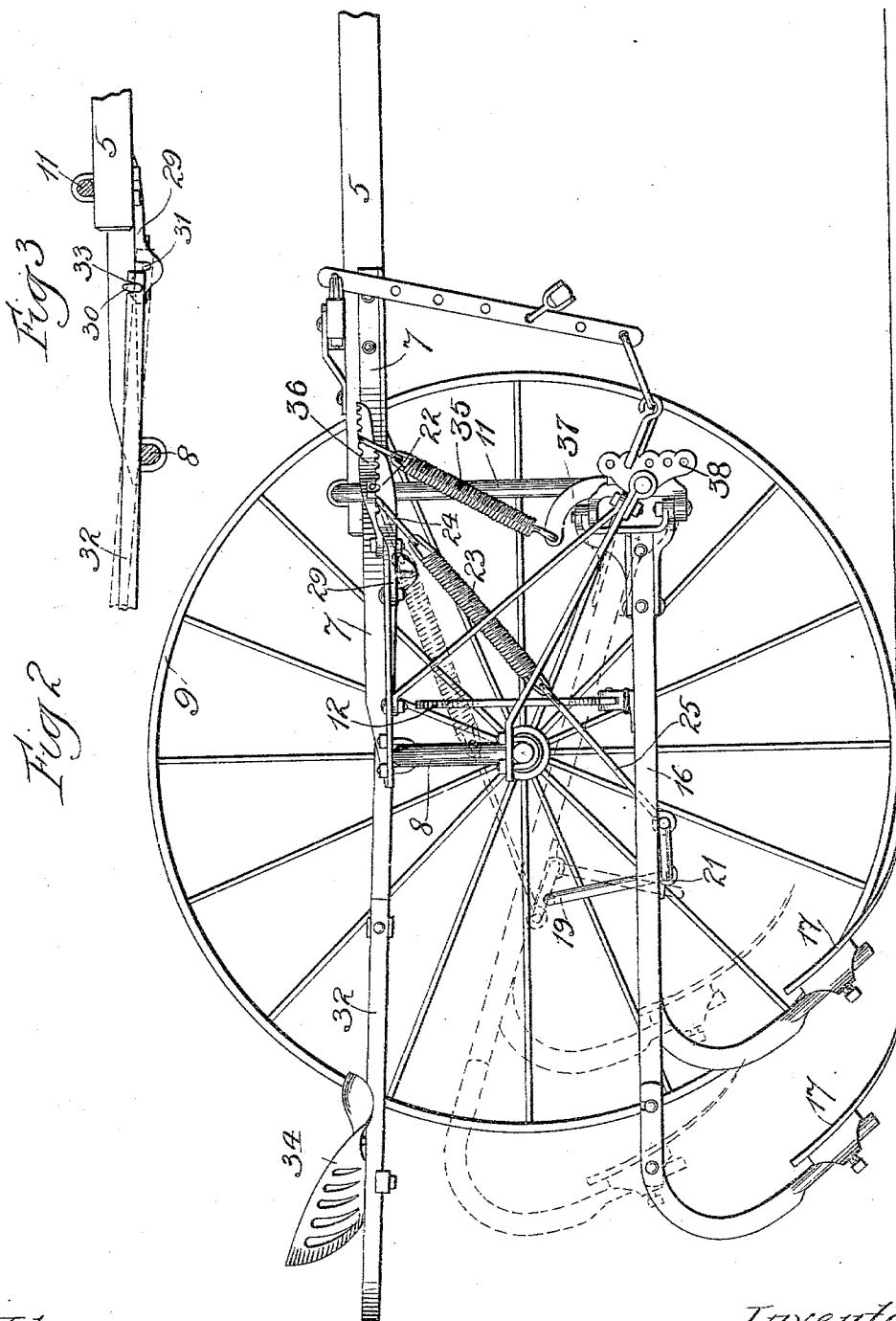
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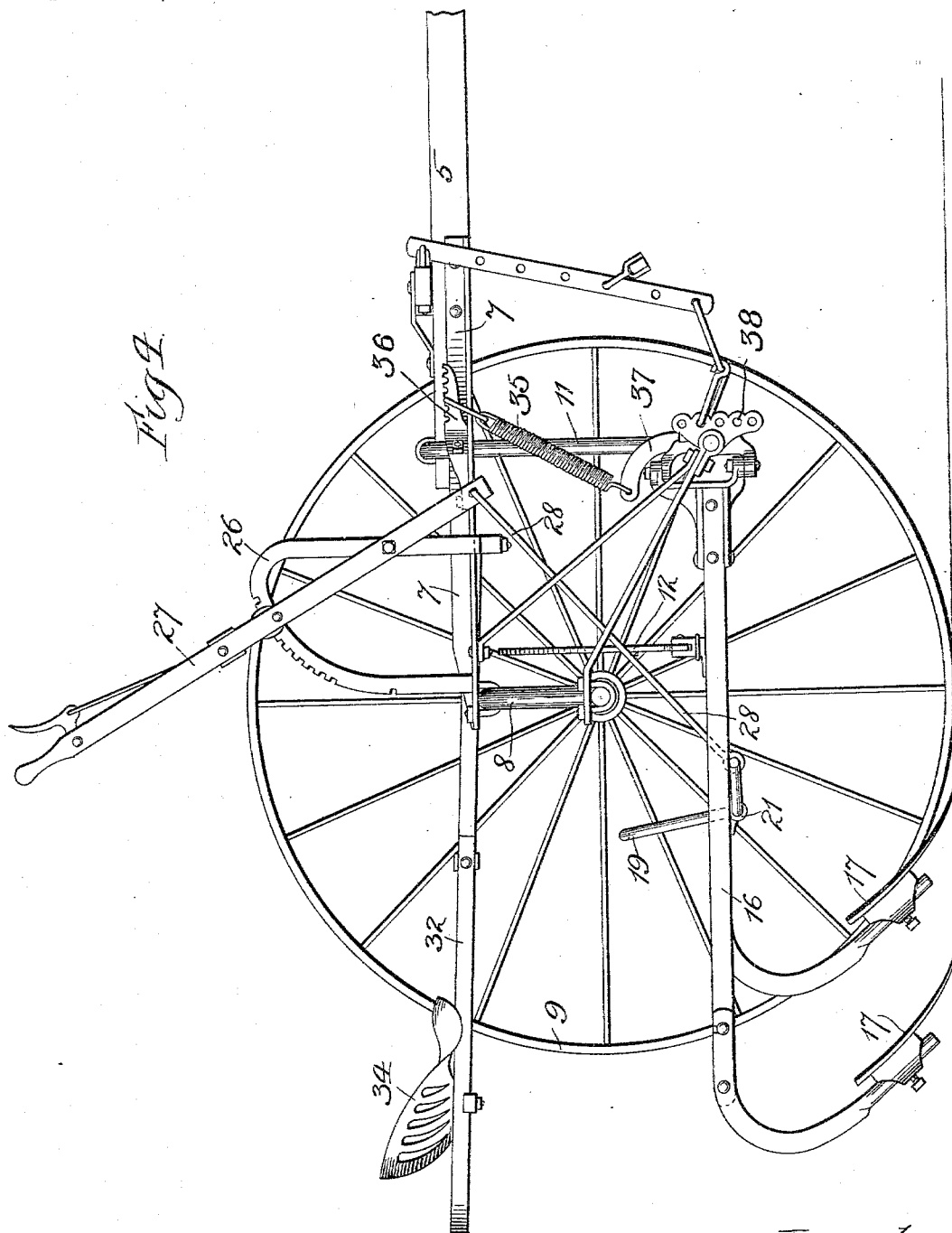
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Witnesses

Wm. S. Huming

Nellie McKibben by *Bond, Adams, Pickard & Jackson*

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UNITED STATES PATENT OFFICE.

LEVI ROADHOUSE, OF DE KALB, ILLINOIS, ASSIGNOR TO ABRAM ELLWOOD,
OF SAME PLACE.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 545,174, dated August 27, 1895.

Application filed April 30, 1894. Serial No. 509,621. (No model.)

To all whom it may concern:

Be it known that I, LEVI ROADHOUSE, a citizen of the United States, residing at De Kalb, in the county of De Kalb and State of Illinois, 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 top or plan view of the cultivator. Fig. 2 shows the cultivator in side elevation with one of the wheels removed. Fig. 3 is an enlarged detail, being a partial vertical longitudinal section on lines 3 3 of Fig. 1. Fig. 4 is a side elevation of a cultivator with one of the wheels removed, showing a foot-lifting device applied to a cultivator having the ordinary lever and rack-bar.

The object of my invention is to provide a new and improved cultivator, and particularly means by which the cultivator beams and shovels may be raised from the ground and hung up without the intervention of a hand-lever by the action of a double-crank foot-lever.

A further object of my invention is to provide a new and adjustable seat-support for cultivators, by means of which the seat may be adjusted at different heights and at different positions in the cultivator, as may be desired.

I attain these objects as illustrated in the drawings and as hereinafter specified.

That which I regard as new will be set forth in the claims.

In the drawings, Figs. 1, 2, and 3 show a cultivator provided with a tongue 5, braces 6 7, arched axle 8, wheels 9 10, arches 11 12, cultivator-beams 13 14 15 16, and cultivator blades or shovels 17, all of which are of the ordinary form and construction in cultivators, and which it is therefore not necessary to describe here.

18 19 indicate double-crank levers, which are journaled, respectively, in suitable bearings 20 21. The bearings 20 21 are respectively secured to the beams 14 15. The upper crank of the double-crank levers 18 19 forms a foot-lever, by which such levers may be rotated in their bearings.

Referring to Figs. 1 and 2, 22 indicates notched arms, which are bolted or otherwise

rigidly secured upon the braces 6 7. 23 indicates spiral springs. 24 indicates links, which are mounted upon the upper ends of the spiral springs 23 and engage with the notches upon the notched arms 22. 25 indicates link-rods, the upper ends of which are hooked into the lower ends of the springs 23, and the lower ends of which are formed into a ring adapted to surround the lower crank upon the double-crank levers 18 19.

In Fig. 2 the solid lines show the cultivator arms and blades lowered in position for cultivating. When it is desired to raise the cultivator beams and blades from the ground, the feet of the driver are pressed downward and forward upon the upper crank-arm of the double-crank levers 18 19 forcing them downward and forward. At the beginning of this operation the lower crank-arm of the double-crank levers 18 19 turning in the rings upon the ends of the link-rods 25, the portion of the double-crank levers 18 19 within the bearings 20 21 is raised, lifting the cultivator arms and blades from the ground, the cultivator-blades turning upon their pivotal points upon the lower ends of the arch 11 in the usual manner. At the same time the spiral springs 23, with their link-rods 25, will be carried upward and backward along the arc of a circle whose center is the point in which the links 24 are mounted in one of the notches of the notched arms 22, and as the rotation is continued the springs, double-crank levers, and cultivator-blades will be brought to the position indicated by dotted lines in Fig. 2, thus swinging clear of the ground. When in this position, owing to the position of the springs and the double-crank levers, the beams will be supported in their raised position without the aid of any other hang-up devices.

Fig. 4 shows a modification, by means of which the double-crank foot-levers may be used in an ordinary machine provided with a hand-lever and rack-bar.

Referring to Fig. 4, 26 indicates rack-bars, which are secured in an upright position upon the braces 6 7. 27 indicates hand-levers, which are pivotally mounted upon said rack-bars and are provided with the usual bell-crank lever and dog adapted to engage with

the notches in the rack-bar 26. The rack-bar and the lever with its accompanying bell-crank lever and dog are of the usual and ordinary construction in this class of machines and need no further description here. 28 indicates links, the upper ends of which are pivotally connected with the lower ends of the levers 27 and the lower ends bent into a ring adapted to encircle the lower cranks of the double-crank levers 18 19. By means of the links 28 the cultivator-beams may be raised from the ground directly by the vibration of the lever in the usual manner. In case, however, that it is not desired to use the lever, but the operator wishes to raise the cultivator-beams from the ground by the action of the foot-levers 18 19, the hand-lever 27 is locked in its position upon the rack-bar. By the pressing of the feet of the operator downward and forward upon the upper cranks of the double-crank levers 18 19 the cultivator beams and blades will be raised from the ground in the same manner as hereinabove described, the link 28 performing the same function as the spiral springs 23 with their accompanying links 25, and the parts when raised will assume the same position, as shown by the dotted lines in Fig. 2, and the beams are held suspended in that position.

It is obvious that with the devices and construction shown in Fig. 4 the hand-levers 27 may, if the operator desires, be used to cooperate with the action of the foot-levers in raising the cultivator beams and shovels from the ground.

In either of the above constructions, when it is desired to lower the cultivator-beams by the action of the double-crank levers, such levers are rotated upward by the feet of the operator and the operation above described for raising the cultivator-beams is reversed.

To adjust the seat of the cultivator I use the following devices: 29 indicates castings, which are bolted or otherwise secured to the braces 6 7. The castings 29 are provided with pins 30 31, projecting horizontally inward, said pins 31 being somewhat lower than the pins 30. 32 indicates a seat-beam, which is provided with spreading forked arms at its forward end. The forward ends of the arms of the seat-beam are provided in their upper surfaces with one or more notches 33, which are adapted to engage with the pins 30 31, and the seat-beam passing backward rests upon the upper surface of the arched axle 8. 34 indicates a seat which is slidingly mounted in the ordinary way upon the rear portion of the seat-beam 32.

When it is desired to adjust the position of the seat-beam, the notches 33 are freed from engagement with the pins upon which they may rest and adjusted to the other pins, as may be desired. Referring to Fig. 3, the solid lines show the seat-beam in a lower position, the notches 33 being engaged with the pins 30. The dotted lines show the seat-beam brought forward, so that the notches 33

are engaged with the pins 31, thus moving the seat forward and raising it.

I have shown in the drawings, in Figs. 1 and 2, the upper and forward end of the spring hung upon notched arms. The purpose of using the notched arms is to adjust the tension of the springs by changing the spring from one notch to another, it being obvious that the farther forward the spring is hung the greater will be the tension. This is the method in which I prefer to connect the springs with the framework or braces 6 7; but it is obvious that the springs might be suspended directly from the framework. I have also shown in Figs. 1 and 2 a spiral spring and links connecting the double-crank lever with the framework, and in Fig. 4 a link connecting the lower end of the hand-lever with the double-crank lever. It is obvious, however, that so far as the operation of the double-crank lever is concerned a link like that shown in Fig. 4 might be used in place of the springs and links shown in Figs. 1 and 2, and also that springs and links like those shown in Figs. 1 and 2 might be used to connect the lower end of the hand-lever 27 with the double-crank lever, it being essential to the working of the double-crank lever only that it should be connected with the frame.

It is also obvious that whether springs and links such as are shown in Figs. 1 and 2 are used or only a single link is used the operation and function of the device are to suspend the beams of the cultivator in their hung-up position. The operation of the double-crank levers 18 19 when acting as a hang-up device is clear from Fig. 2. It will be seen that when the cultivator-beams are lowered the foot-arm of said double-crank lever extends upward and the arm with which the spring or link is connected is forward of the bearing 21. As the foot-arm of the double-crank lever is brought down, the cultivator-beam is raised, as above described, until the double-crank lever is rotated through a little more than half a circle. At this point the parts assume the position shown by dotted lines in Fig. 2, in which it will be seen that the connecting-point of the link with the double-crank lever is behind and somewhat above the pivotal point or bearing 21 of said lever, and the line of the link and spring is above a line drawn from said pivotal point to the point of suspension of said spring and link on the frame, causing the beam to be supported in its hung-up position. When the line of the link and spring comes above a line drawn from the pivotal point to the point of suspension of said spring and link to the cultivator-frame, the operation of the spring and link is to support the beam in its hung-up position; but when the double-crank lever is rotated so that the line of the spring and link falls below a line drawn from the pivotal point of said link to the point of suspension of said link and spring to the cultivator-frame

the cultivator-beams will fall by their own weight.

It is also obvious that when the springs are used they must be of sufficient stiffness or tension to prevent the weight of the cultivator-beams when hung up from stretching the springs materially, thereby allowing the beam to fall.

In order to counterbalance, or partially counterbalance, the weight of the cultivator beams and shovels, I may employ springs 35, having their upper ends provided with links to adjustably connect with notched plates 36, secured to the frame, and their lower ends connected with arms 37 of the pipe-boxes, to which are secured the clevises 38, that form part of the draft devices.

That which I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination with a frame, and a cultivator beam, of a crank pivoted upon said beam and adapted to lift the same by its rotation, and an automatic suspending device connecting said crank with said frame, and adapted, when said crank is rotated to lift said beam, to automatically lock it in its hung-up position, substantially as described.

2. The combination with a frame, and a cultivator beam, of a crank pivoted upon said beam and adapted by its rotation to lift said beam, and an automatic suspending device connecting said crank with said frame and adapted when said crank is rotated to pass behind and above the pivotal connection of said crank with said beam, whereby said beam is automatically held in its hung-up position, substantially as described.

3. The combination with a frame, cultivator beams, and double crank levers pivoted upon said beams and adapted by their rotation to raise said beams, of automatic suspending devices connected at their upper and forward ends with said frame and at their lower ends with said double crank levers, and adapted when said double crank levers are rotated to lift said beams to automatically suspend said beams in their hung-up position, substantially as described.

4. In a cultivator, the combination with cultivator beams, and a frame, of double crank levers pivotally mounted upon said beams, and automatically operated links connecting said double crank levers with said frame, whereby as said double crank levers are rotated said cultivator beams are raised and automatically held in their hung-up position, substantially as described.

5. In a cultivator, the combination with cultivator beams, and a frame, of double crank levers pivotally mounted upon said beams and adapted by their rotation to raise said beams, and spiral springs connecting said double crank levers with said frame, substantially as specified.

6. In a cultivator, the combination with cultivator beams, and a frame, of double crank levers pivotally mounted upon said beams and adapted by their rotation to raise said beams, spiral springs hung upon said frame, and links connecting said spiral springs with said double crank levers, substantially as specified.

7. In a cultivator, the combination with cultivator beams, and a frame, of double crank levers pivotally mounted upon said beams and adapted by their rotation to raise said beams, notched arms secured to said frame, and spiral springs hung upon said notched arms and connecting said double crank levers with said frame, substantially as specified.

8. In a cultivator, the combination with cultivator beams, and a frame, of double crank levers pivotally mounted upon said beams and adapted by their rotation to raise said beams, notched arms secured to said frame, spiral springs hung upon said notched arms, and links connecting said spiral springs with said double crank levers, substantially as specified.

9. In a cultivator, the combination with a cultivator beam, and a frame, of a double crank lever pivotally mounted upon said cultivator beam, a hand lever mounted on the frame, locking devices for said hand lever, and automatic suspending means connecting the lower end of said hand lever with said double crank lever, whereby, as the double crank lever is rotated, said cultivator beam will be raised and automatically held in its hung-up position, substantially as specified.

10. The combination with a frame, and a cultivator beam hinged to said frame, of a double crank-lever pivoted on said beam, and an automatic suspending device connected at one end to said frame and at the other end pivotally connected with one crank of said lever, whereby as said lever is rotated said beam is raised and automatically held in its hung-up position, substantially as described.

LEVI ROADHOUSE.

Witnesses:

DWIGHT P. CARY,
FRED W. SMITH.