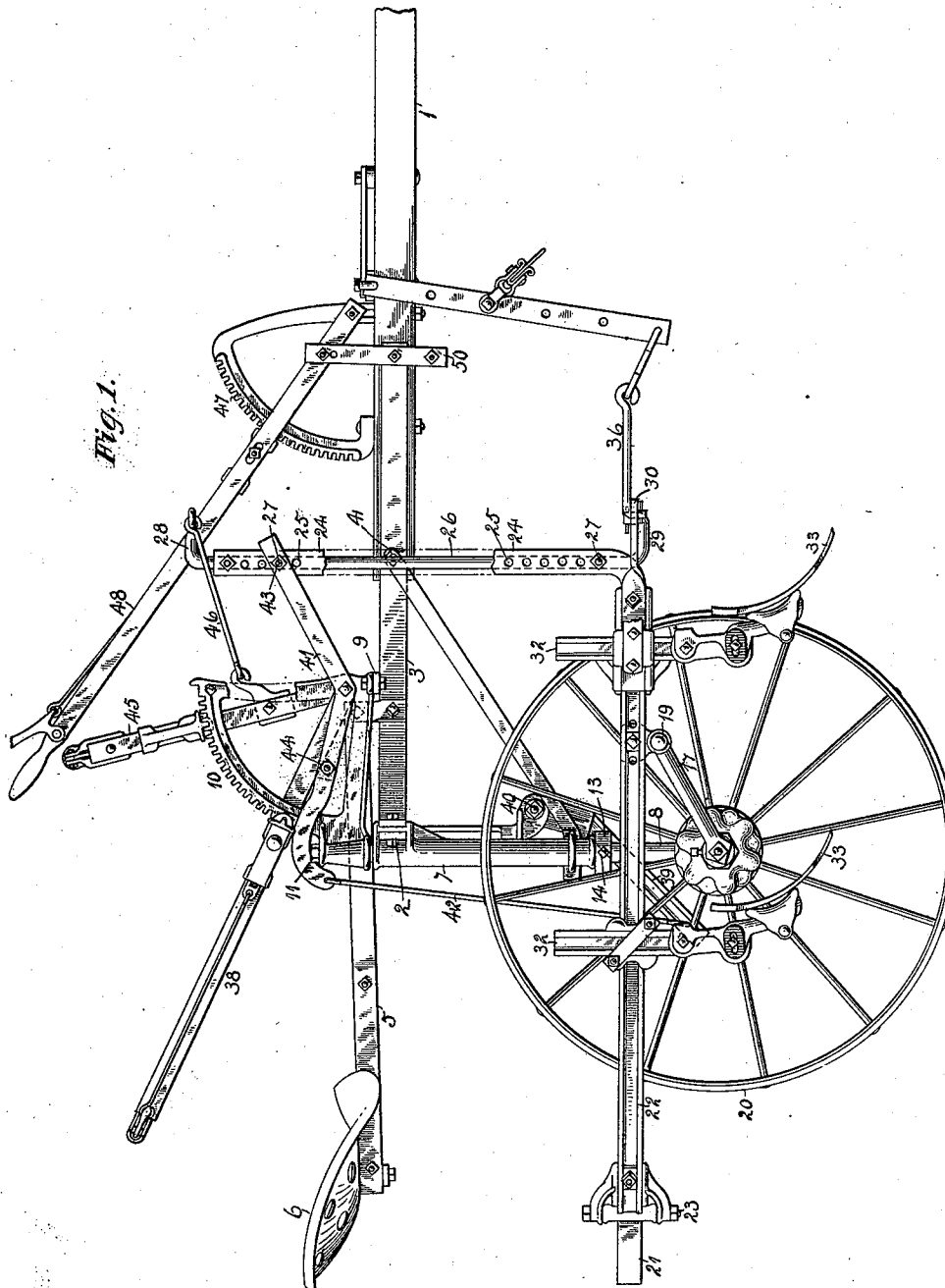


L. E. WATERMAN.
CULTIVATOR.
APPLICATION FILED SEPT. 7, 1909.

1,000,651.

Patented Aug. 15, 1911.

3 SHEETS—SHEET 1.



Witnesses:

E. Behel.
C. B. Clark

Inventor:

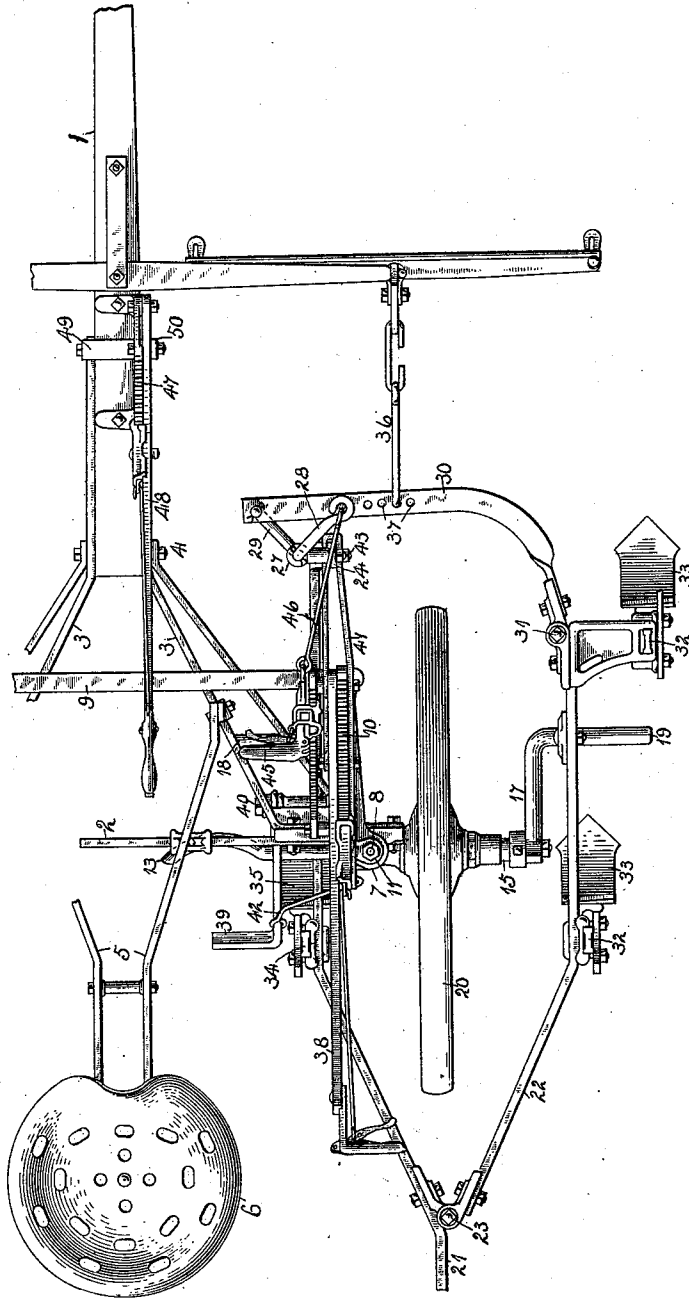
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3 SHEETS—SHEET 2.

Fig. 2.



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APPLICATION FILED SEPT. 7, 1909.

3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

LEWIS E. WATERMAN, OF ROCKFORD, ILLINOIS, ASSIGNOR TO EMERSON-BRANTINGHAM CO., OF ROCKFORD, ILLINOIS, A CORPORATION OF ILLINOIS.

CULTIVATOR.

1,000,651.

Specification of Letters Patent. Patented Aug. 15, 1911.

Application filed September 7, 1909. Serial No. 516,626.

To all whom it may concern:

Be it known that I, LEWIS E. WATERMAN, a citizen of the United States, residing at Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Cultivators, of which the following is a specification.

The object of this invention is to construct a cultivator in which a supporting wheel and one set of shovels oscillate together in a horizontal plane.

In the accompanying drawings, Figure 1 is a side elevation of my improved cultivator. Fig. 2 is a plan view of one side of the cultivator, the opposite side being a duplicate thereof. Fig. 3 is a rear elevation of one side of the cultivator. Fig. 4 is a plan view of one supporting wheel and one set of shovels.

As both sides of the cultivator are the same, and are independently connected to the main frame, the illustration and description of one side will be given.

The main frame comprises the tongue 1, a rear cross-bar 2 and braces 3 pivotally connecting this cross-bar with the tongue by the bolt 4. A seat support 5 has a connection with the braces 3 and rests upon the cross-bar 2, a seat 6 is supported by the seat support 5.

To the end of the cross-bar 2 is secured a vertically arranged tubular bracket 7. An upright rock shaft 8 is located in the bracket, a bar 9 extends across the brace bars 3. A quadrant 10 having two sets of teeth, as shown in Figs. 2 and 3 is pivotally connected to the bar 9, and is fixedly connected to the upper end of the rock shaft 8. A nut 11 is turned in connection with the upper end of the rock shaft. The lower end of this rod 8 is formed with an eye 12. A foot lever 13 is fixedly connected with the lower portion of the rock shaft 8 by the set-screw 14. This foot lever extends inward and is located with relation to the seat so that the driver can reach it.

A cranked axle is composed of the main section 15, the lateral bends 16 and 17 and the sections 18 and 19 extending parallel with the main section. A supporting wheel 20 is mounted on the main section, and the eye 12 of the rock shaft 8 receives the main section and is located near the supporting wheel. The wheels 20, through the rock

shaft 8, and brackets 7 serves to support the main frame including the driver's seat. The sections 18 and 19 of the cranked axle support a frame to which the shovels are connected. This frame comprises the two sections 21 and 22 pivotally connected by the bolt 23. The section 21 is pivotally mounted on the section 18 of the cranked axle, and the section 22 is pivotally mounted on the section 19 of the cranked axle. The forward end of the section 21 has an upturned extension 24 provided with holes 25. A rod 26 is held in connection with the extension 24 by the eye bolts 27 in a manner to permit the rod to oscillate. The upper end of the rod 26 has a crank portion 28, and the lower end has a crank-portion 29. A link 30 has one end pivotally connected to the crank portion 29 of the rod 26. The other end of this link 30 is pivotally connected to the forward end of the section 22 by the bolt 31. Shovel standards 32 are connected to the section 22 to which shovels 33 are secured. A shovel standard 34 is connected to the branch 21 to which a shovel 35 is secured. A draft attachment 36 has a connection with the link 30 and is adjustable lengthwise thereof by the holes 37.

A hand-lever 38 has a pivotal connection with one section of the toothed quadrant 10, and is provided with a dog engagement therewith. A foot lever 39 has a pivotal connection with the bracket 7 on the bolt 40, and has an inwardly turned foot rest. A rocking lever 41 is pivoted about midway its ends to the toothed quadrant 10. One end of this rocking lever has a connection with the foot lever by the link 42, and the other end of this rocking lever is connected to the extension 24 of the section 21, by the bolt 43. The hand lever may engage the stop 44 carried by the rocking lever 41 for the purpose of operating said lever 41 or holding it in different positions. A hand lever 45 has a pivotal connection with the other section of the toothed quadrant 10 and is provided with the usual dog engagement with the toothed quadrant of said section. A link 46 connects the hand lever 45 with the upper crank arm 28 extending from the rod 26.

A toothed quadrant 47 is supported by the tongue 1. A hand lever 48 has a pivotal connection with the toothed quadrant 47.

The forward ends of the brace bars 3 are connected by the bar 49, and a link 50 connects the hand lever 48 with the forward end of one of the brace bars 3.

- 5 By means of the hand lever 48 the forward ends of the brace bars 3 can be elevated or depressed which will rock that part of the cultivator in rear of the pivotal bolt 4 to level the frames carried by the supporting wheels. By means of the hand lever 38, 10 or the foot lever 39 or both, the sections 21 and 22 can be raised and lowered which will rock the cranked axle in the supporting wheel 20. By means of the hand-lever 45, 15 the rod 26 will be oscillated which will narrow or widen the distance between the sections 21 and 22, consequently the distance between the shovels will be changed. The section 22 will slide on the section 19 of the cranked axle, a suitable boxing being provided that will permit such movement. By means of the foot lever 13 the rock shaft 8 is turned which will turn the shovel supports and the wheel 20, and will also move 25 the bar 9 which extends across the brace bars 3 of the main frame, and connects with the toothed quadrant on the other side of the frame, thereby moving both supporting wheels and both sets of shovel supports in 30 unison.

I claim as my invention.

1. In a cultivator, the combination of a main frame, supporting wheels, a substantially horizontal cranked axle for each 35 wheel, the cranks of said axles being movable up and down with respect to the wheels and being also journaled on vertical axes, a frame mounted on the cranks of each axle, cultivating devices supported by each frame, 40 and a connection between the frames.

2. In a cultivator, the combination of a main frame, supporting wheels, a substantially horizontal cranked axle for each wheel, the cranks of said axles being movable up and down with respect to the wheels 45 and being also rotatable on vertical axes, a frame supported by each axle and connected to the cranked portion thereof, cultivating devices supported by each frame, 50 and means for raising the frames.

3. In a cultivator, the combination of a main frame, a supporting wheel, a cranked axle for the wheel rotatable in said wheel to raise and lower the crank, said axle being 55 also rotatable on a vertical axle, a frame supported directly on the crank of the axle, cultivating devices supported by the frame, means for raising the frame and thereby the axle crank, and means for oscillating the 60 frame and supporting wheel on the vertical axis.

4. In a cultivator, the combination of a main frame, supporting wheels, a cranked axle for each wheel, a frame supported by 65 each axle and being in two sections hinged

together, a link pivotally connected to one of the sections, a rod pivotally connected to the other section and having a crank arm pivotally connected to the link, and means for oscillating the rod and holding it against 70 movement.

5. In a cultivator, the combination of a main frame, supporting wheels capable of an oscillatory movement on an upright axis, a frame supported by each wheel and oscillating therewith on the upright axis thereof, cultivating devices supported by each frame, a bar connecting the frames for securing their simultaneous oscillation, a 75 toothed segment movable with each frame, a lever for each toothed segment, and a connection between each lever and its frame for effecting the movement of said frame on the movement of the lever. 80

6. In a cultivator, the combination of a 85 main frame, supporting wheels capable of an oscillatory movement thereon on an upright axis, a frame supported by each wheel, cultivating devices supported by each frame, a bar connecting the frames for effecting their simultaneous oscillation, 90 toothed segments movable with each frame, a lever for each toothed segment, a connection between a lever and a frame for raising such frame, said frames being capable of independent up and down movement, and a 95 connection between another lever and the frame for varying the distances between the sections of the frame, said latter connection being raised and lowered by the first mentioned lever. 100

7. In a cultivator, the combination with a main frame, of a substantially upright rock shaft journaled thereon, an axle carried by the lower end of the rock shaft, a wheel 105 mounted on the axle, a frame connected at spaced points to the axle and being held thereby against relative horizontal movement with respect to the axle, said axle, wheel and frame oscillating with the rock shaft as a common axis, and cultivating devices mounted on the frame. 110

8. In a cultivator, the combination with a main frame, of a substantially upright rock shaft journaled thereon, an axle journaled 115 on the lower end of the rock shaft, a wheel mounted on the axle, said axle having cranks on opposite sides of the wheel, a frame connected to the cranks, means for vertically moving the frame and thereby causing the cranks to turn, and cultivating devices carried by the frame. 120

9. In a cultivator, the combination with a main frame, of a substantially upright rock shaft journaled thereon, an axle journaled 125 on the lower end of the rock shaft and having terminal cranks, a wheel journaled on the axle between the cranks, a frame having side bars journaled on the cranks, cultivating devices carried by the frame, means 130

mounted on the rock shaft for raising and lowering the frame with respect to the wheel, and means connected to the rock shaft for turning said shaft.

5 10. In a cultivator, the combination with a main frame, of a substantially upright rock shaft journaled thereon, a frame connected to and movable with the rock shaft as an axis and also capable of up and down
10 movement, cultivating devices carried by the frame, and means connected to the rock shaft and movable therewith for effecting the said up and down movement of the frame.

15 11. In a cultivator, the combination with a main frame, of a substantially upright rock shaft journaled thereon, a frame having a pivotal connection on a horizontal axis with the rock shaft and also being capable of oscillatory movement with said
20 rock shaft as an axis, cultivating devices carried by the frame, and means mounted on and movable with the rock shaft for moving the frame longitudinally of said rock shaft.

12. In a cultivator, the combination with a main frame, of a rock shaft journaled thereon, a crank shaft journaled on the rock shaft, a frame connected to the cranks of
30 the shaft and movable longitudinally of the rock shaft, cultivating devices carried by the frame, an arm carried by the rock shaft, and mechanism mounted on the arm and connected to the frame for vertically moving said frame.

13. In a cultivator, the combination with a main frame, of a substantially upright rock shaft journaled thereon, a crank shaft journaled on the lower end of the rock shaft, a wheel journaled on the said crank shaft, a frame connected to the cranks of the shaft and movable longitudinally of the rock shaft, an arm carried by the upper
40 end of the rock shaft, a lever fulcrumed on

the arm, and connections between the lever 45 and the frame.

14. In a cultivator, the combination with a frame comprising pivotally connected sections, of cultivating devices mounted on the sections, a crank shaft journaled on one of 50 the sections, a link connection between the crank of the shaft and the other section, and means for turning the crank shaft and holding it in different positions.

15. In a cultivator, the combination with 55 a main frame, of an upright rock shaft journaled thereon, a crank shaft journaled on the lower end of the rock shaft, a supporting wheel journaled on the crank shaft, a frame mounted on the cranks of the shaft and 60 comprising pivotally connected sections, an arm carried by the rock shaft, a lever mounted on the arm and connected to the frame, for effecting its movement longitudinally of the rock shaft, another rock shaft 65 journaled on one of the frame sections and having a link connection with the other frame section, and a lever fulcrumed on the arm and connected to the last mentioned rock shaft for operating the same. 70

16. In a cultivator, the combination with a support, of wheels journaled thereon and capable of oscillation on upright axes, a frame carried by each wheel and oscillating therewith, a connection between the frames 75 for insuring their simultaneous oscillation, said frames being independently movable vertically, and means connected to the frames for independently moving them vertically and holding them at different eleva- 80 tions.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

LEWIS E. WATERMAN.

Witnesses:

A. O. BEHEL,
E. D. E. N. BEHEL.