No. 726,596. PATENTED APR. 28, 1903.

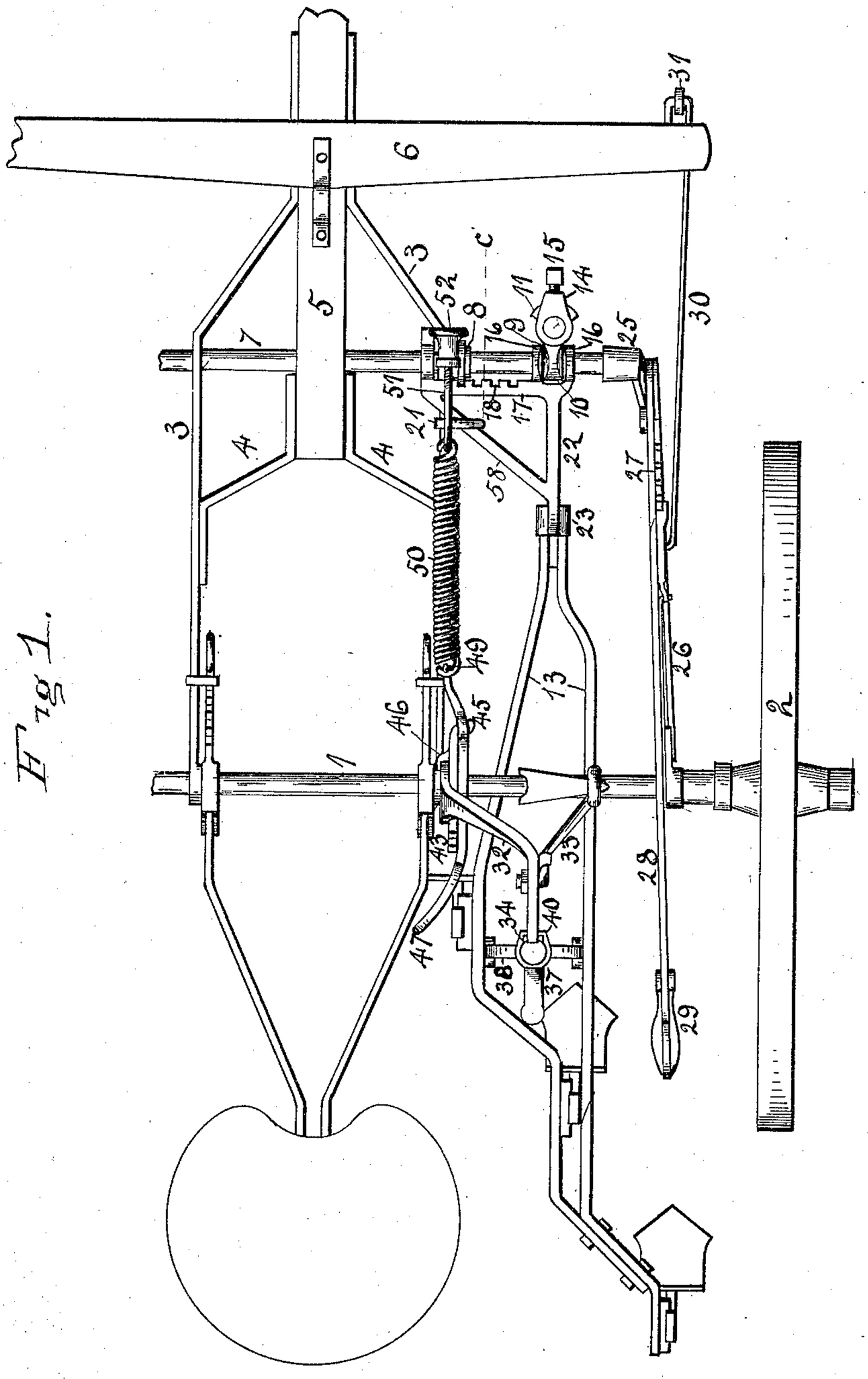
L. E. WATERMAN.

CULTIVATOR.

APPLICATION FILED SEPT. 9, 1901.

NO MODEL. 3 SHEETS—SHEET 1.

Fig 1.



Witnesses:
M. J. Cox
F. F. Cox

Inventor.
Lewis E. Waterman
By A. O. Behel
Atty.

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NO MODEL. 3 SHEETS—SHEET 2.

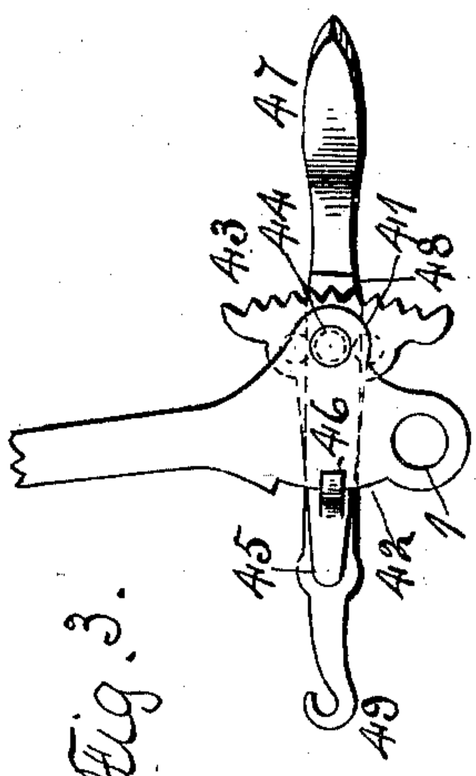

Fig. 3.

Fig. 2.

Witnesses:
M. S. Box.
F. F. Cox

Inventor:
Lewis E. Waterman
By A. O. Sherrell.
Atty.

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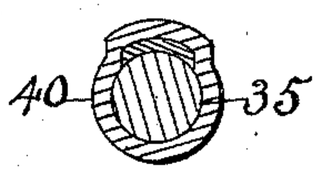
NO MODEL. 3 SHEETS—SHEET 3.

Fig. 5.



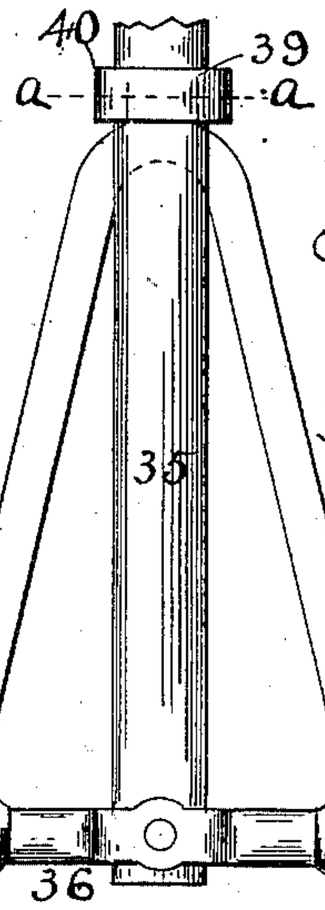


Fig. 4.

Fig. 6.

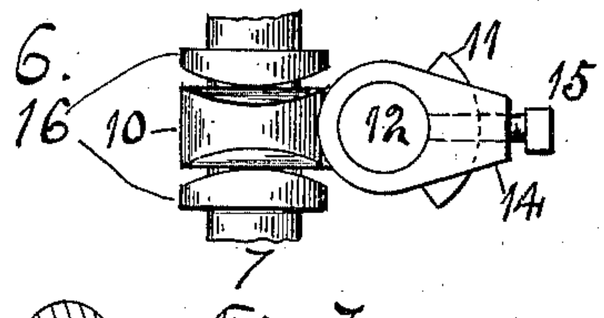


Fig. 7.

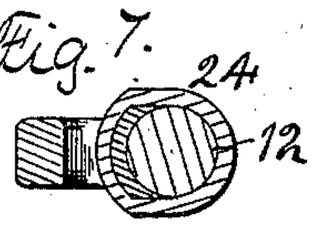
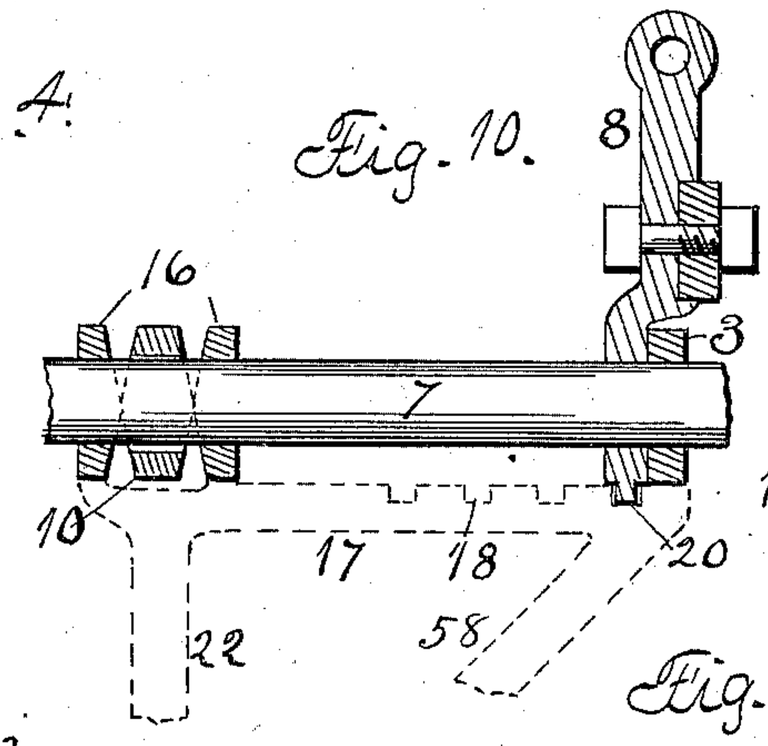


Fig. 10.



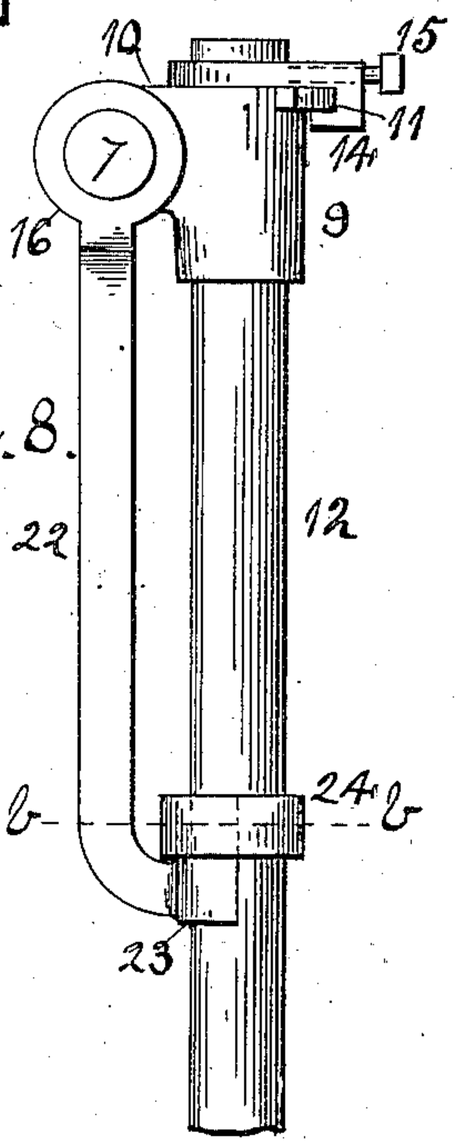


Fig. 8.

Fig. 11.

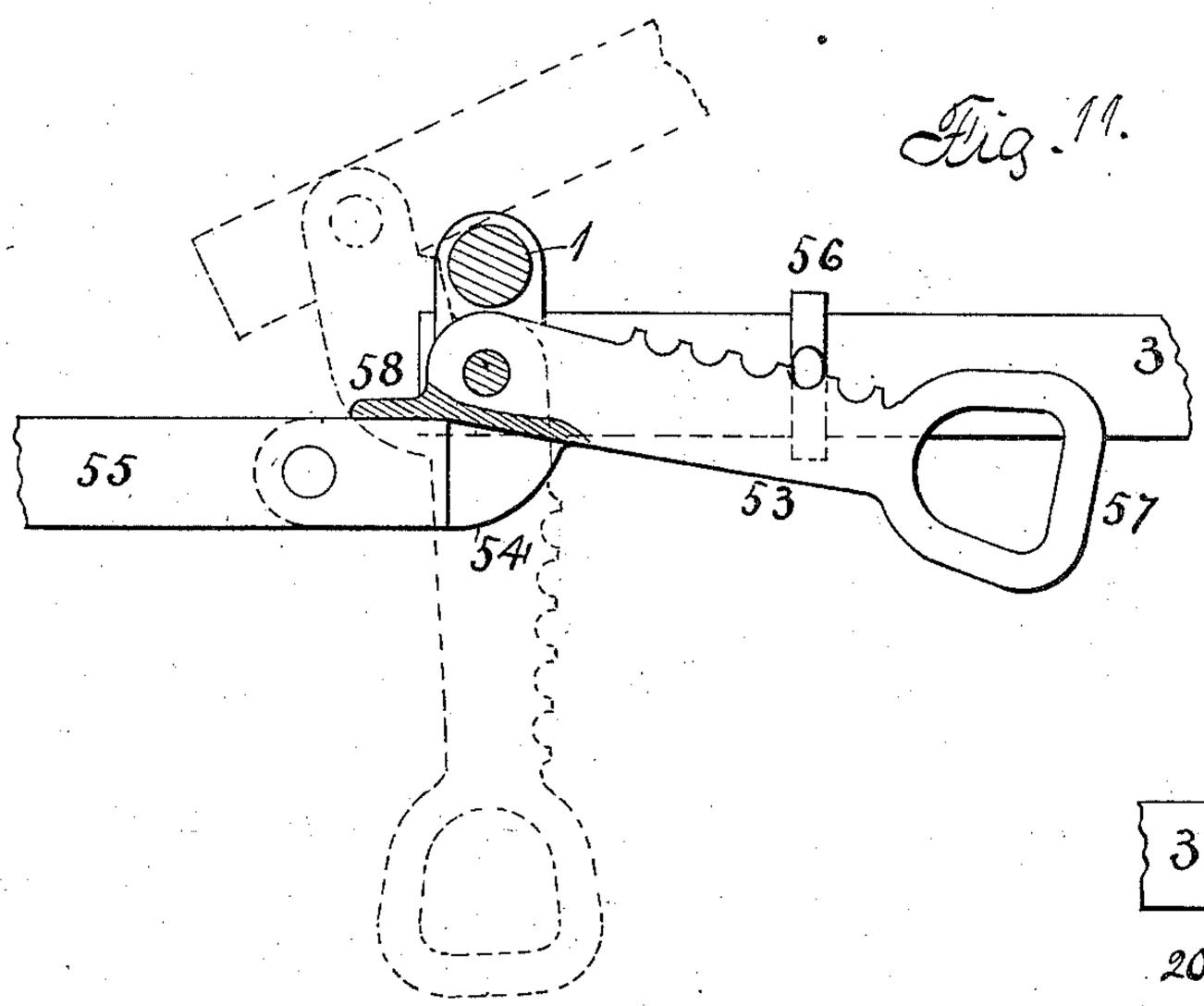
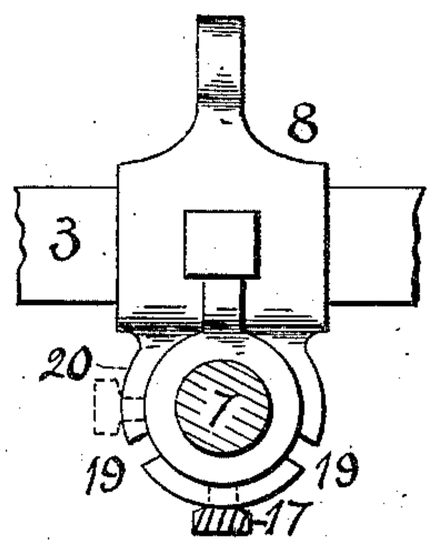


Fig. 9



Witnesses:
M. J. Cox
F. F. Cox

Inventor:
Lewis E. Waterman
By A. O. Behel
Atty.

UNITED STATES PATENT OFFICE.

LEWIS E. WATERMAN, OF ROCKFORD, ILLINOIS, ASSIGNOR TO EMERSON MANUFACTURING COMPANY, OF ROCKFORD, ILLINOIS.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 726,596, dated April 28, 1903.

Application filed September 9, 1901. Serial No. 74,738. (No model.)

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.

This invention relates to improvements in straddle-row cultivators; and it consists in details of construction pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of one-half of my improved cultivator. Fig. 2 is a side elevation. Fig. 3 is an inner face elevation of spring adjusting-lever. Fig. 4 is a rear elevation of the connection between the drag-bar and vertical arm for moving the drag-bars. Fig. 5 is a transverse section on dotted line *a*, Fig. 4. Fig. 6 is a plan view of forward connection of the drag-bar. Fig. 7 is a lengthwise section on dotted line *b*, Fig. 8. Fig. 8 is a side elevation of the forward connection of the drag-bar. Fig. 9 is a vertical section on dotted line *c*, Fig. 1. Fig. 10 is a vertical section of the connection between the front end of the drag-bar and main frame.

The axle 1 is supported upon wheels 2. The frame, composed of the lengthwise bars 3, brace-bars 4, and tongue 5, is supported by the axle. An evener 6 is pivotally connected to the tongue. A shaft 7 is located transversely of the main frame and is loosely supported by the brackets 8, secured to the main frame.

Upon the shaft 7 is loosely mounted a bracket 10, having a forward extension 9, provided with a vertical opening. The opening in the bracket 10 is somewhat larger than the shaft 7, upon which it is mounted, in order that the bracket may swing transversely of the machine. This extension has a curved projection 11. The forward portion 12 of the drag-bar 13 extends vertically and is located within the vertical opening of the extension 9. A hook 14 is secured to the upper end of the forward portion of the drag-bar by a set-screw 15 and engages the curved projection 11, which permits the drag-bar to swing laterally and at the same time held in connection with the shaft 7. The bracket 10 has its sides cut away, and the opening in the bracket is larger than its supporting-shaft in order that the drag-bar may have a rocking movement in addition to its swinging movement.

The drag-bar in its connection with the shaft is made bodily movable, so as to cultivate rows of corn varying in width, and is held in its adjusted position by a three-armed bracket 58, located upon the shaft 7 and movable in its lengthwise direction. This bracket has a bifurcated sleeve at one end composed of the branches 16, the inner faces of which are beveled. A bar 17 extends in the lengthwise direction of the shaft and connects the supports for the bracket. This bar has a series of notches 18, and the bracket 8 has notches 19, which admit the bar 17 until one of the notches receives the flange 20 of the bracket, when the bracket can be raised into a horizontal position and held in this position by a hook 21, supported by the side bars of the main frame. When the bracket is in its horizontal position, the beveled faces of the branches of the fork and the beveled faces of the bracket will allow the drag-bar to rock, as before stated. An arm 22 extends from this bracket and has its free end 23 in semicircular form. This bracket can be dropped into a vertical position, as shown at Fig. 8. The semicircular end 23 will receive the forward portion 12 of the drag-bar, and the ring 24, located around the vertical portion of the drag-bar, will drop over the semicircular end and clamp the parts together, as shown at Figs. 7 and 8. This connection between the drag-bar and shaft will allow the drag-bar to swing, but prevent it from rocking.

An arm 25 has a connection with the shaft 7, and to its lower end is pivoted a bar 26, which extends rearward and connects with the axle 1. This bar supports a toothed segment 27. A hand-lever 28 is connected to the lower end of the arm 25, and a dog operated by the thumb-lever 29 engages the toothed segment. By means of this hand-lever the distance between the wheels and the shaft 7 can be varied, so that the weight of the driver will act as a counterbalance and relieve any downward pressure on the tongue, and can be locked in their adjusted position.

To the bar 26 is connected a rod 30, which extends forward and connects with a pendant 31, connected to the evener 6, thereby forming a connection between the evener and axle.

To the axle is pivoted a bail composed of the arms 32 and 33, and a ball-and-socket connection 34 is formed between the free end of this bail and the pendant 35. This pendant has a pivotal connection with the rear portion of the drag-bar by a cross-bar 36. The pendant is pivotally connected to the cross-bar and the cross-bar pivotally connected to the bars 13 of the drag-bar. The opening in the cross-bar 36 is somewhat larger than the pendant in order that the drag-bar can maintain its horizontal position when the yoke is disconnected.

A handle 37 has a connection with the pendant. A yoke 38 has a pivotal connection with the cross-bar 26, its upper end provided with an extension 39, and a ring 40 surrounds the pendant and connects the yoke and peudant, as shown at Figs. 4 and 5.

By means of the pendant and its connection with the drag-bar the drag-bar and shovels attached thereto can be moved transversely of the cultivator.

By removing the ring from its engagement with the extension of the yoke the yoke can assume a horizontal position, and when in this position the bracket 22 will be connected to the forward end of the drag-bar, which will allow the drag-bar to have a horizontal swing and the shovels remain substantially the same depth in the ground. When the yoke is connected to the pendant and the bracket 22 disconnected with the drag-bar, the drag-bar has its swinging movement in addition to a rocking movement—that is, the shovels will be the deepest in the ground when they are at the center of their swinging movement.

The arm 32 of the bail connection between the pendant and the axle has its lower end provided with a perforated rear extension 41 and a curved front surface 42. A toothed quadrant 43 has a pivotal connection with the rear extension by a bolt 44. The forward end of this quadrant has a forwardly-extending hook 45 and a rearwardly-extending hook 46. This hook embraces the curved surface 42 of the quadrant and acts as a guide to the quadrant and prevents lateral movement of the quadrant.

A hand-lever 47 has a pivotal connection with the forward hook 45 of the quadrant and has a series of projections 48 engaging the teeth of the quadrant. The forward end of the hand-lever has a hook 49, to which is connected a coiled spring 50, the other end of the spring connected to a screw-rod 51, which passes through an opening in the upper end of the bracket 8, and a thumb-nut 52 serves to vary the tension of the spring. This spring 50 forms a connection between the main frame and drag-bar and assists the attendant in lifting the drag-bar.

By means of the hand-lever 47 the tension of the spring can be varied, so as to hold the drag-bar at the proper elevation.

Upon the axle 1, inside of the side bars 3 of the main frame, are located arms composed of a forward extension 53 and a rear extension 54.

Only one hand-lever 28 and toothed segment 27 are employed, the other side of the cultivator having the link 26 and arm 25, connecting the shaft and axle, so that the hand-lever will adjust both sides of the cultivator alike.

I claim as my invention—

1. In a cultivator, the combination of a main frame, a support located transversely of the main frame, a drag-bar having a pivotal connection with the support and a sliding engagement therewith, a bracket slidable on the support and movable with the drag-bar and means forming a connection between the bracket and main frame.

2. In a cultivator, the combination of a main frame, a support located transversely of the main frame, a drag-bar having a pivotal connection with the support and a sliding engagement therewith, a bracket slidable on the support and movable with the drag-bar, and a hook forming a connection between the bracket and main frame.

3. In a cultivator, the combination of a main frame, a support located transversely of the main frame, a drag-bar having a pivotal connection with the support and a sliding engagement therewith, a bracket slidable on the support and movable with the drag-bar, means for connecting the bracket with the main frame, a bracket secured to the main frame having a peripheral notch and the bracket supported by the support having a rib, and the rib having a series of notches.

4. In a cultivator, the combination of a main frame, a support located transversely of the main frame, a drag-bar having a connection with the support, a bracket independent of the drag-bar pivotally connected to the support and capable of being connected to the drag-bar.

5. In a cultivator, the combination of a main frame, a support located transversely of the main frame, a drag-bar having a connection with the support, a bracket independent of the drag-bar pivotally connected to the support, its free end fitted to receive the drag-bar and a clamp serving to connect the bracket and drag-bar.

6. In a cultivator, the combination of a main frame, a drag-bar, a pendant having a pivotal connection with the drag-bar, and a yoke pivotally supported by the drag-bar and capable of being connected to the pendant.

7. In a cultivator, the combination of a main frame, a drag-bar, a pendant having a pivotal connection with the drag-bar, a yoke pivotally supported by the drag-bar and a clamp serving to connect the yoke and pendant.

8. In a cultivator, the combination of a main

frame, a support located transversely of the main frame, a drag-bar having a connection with the support permitting it to have a pendulum swinging movement, such connection comprising a collar located on the support to which the drag-bar is connected, the opening in the collar being larger than the support.

9. In a cultivator, the combination of a main frame, a support located transversely of the main frame, a drag-bar having a connection with the support, a bracket independent of the drag-bar pivotally connected to the support and capable of being connected to the drag-bar, a pendant having a pivotal connection with the drag-bar and a yoke pivotally supported by the drag-bar and capable of being connected to the pendant.

10. In a cultivator, the combination of a main frame, an axle pivotally supported thereby, a shaft pivotally supported by the main frame, a crank connected to the shaft, a bar pivotally connecting the crank and axle, a toothed segment supported by the bar and a hand-lever supported by the crank having an engagement with the toothed segment.

11 In a cultivator, the combination of a main frame, an axle pivotally supported thereby, a shaft pivotally supported by the main frame, a crank connected to the shaft, a bar pivotally connecting the crank and axle, a toothed segment supported by the bar, and a hand-lever adjustably supported by the crank having an engagement with the toothed segment.

12. In a cultivator, the combination of a main frame, a drag-bar pivotally supported thereby, a pendant having a connection with the drag-bar, an arm forming a connection between the pendant and main frame, a toothed segment pivotally supported by the arm, a hand-lever pivotally supported by the segment engaging the teeth of the segment, and a spring connecting the hand-lever and main frame.

13. In a cultivator, the combination of a main frame, a drag-bar, a pendant pivotally supported by the main frame, a bar having a pivotal connection with the drag-bar on a pivot transverse to the drag-bar, and the pendant having a pivotal connection with the bar on a pivot extending in the lengthwise direction of the drag-bar.

14. In a cultivator, the combination of a main frame, a drag-bar, a pendant pivotally supported by the main frame, a bar having a pivotal connection with the drag-bar on a pivot transverse to the drag-bar, and the pendant having a pivoted connection with the bar on a pivot extending in the lengthwise direction of the drag-bar, and means forming a connection between the drag-bar and pendant preventing movement on the lengthwise pivot.

LEWIS E. WATERMAN.

Witnesses:
A. O. BEHEL,
E. BEHEL.