

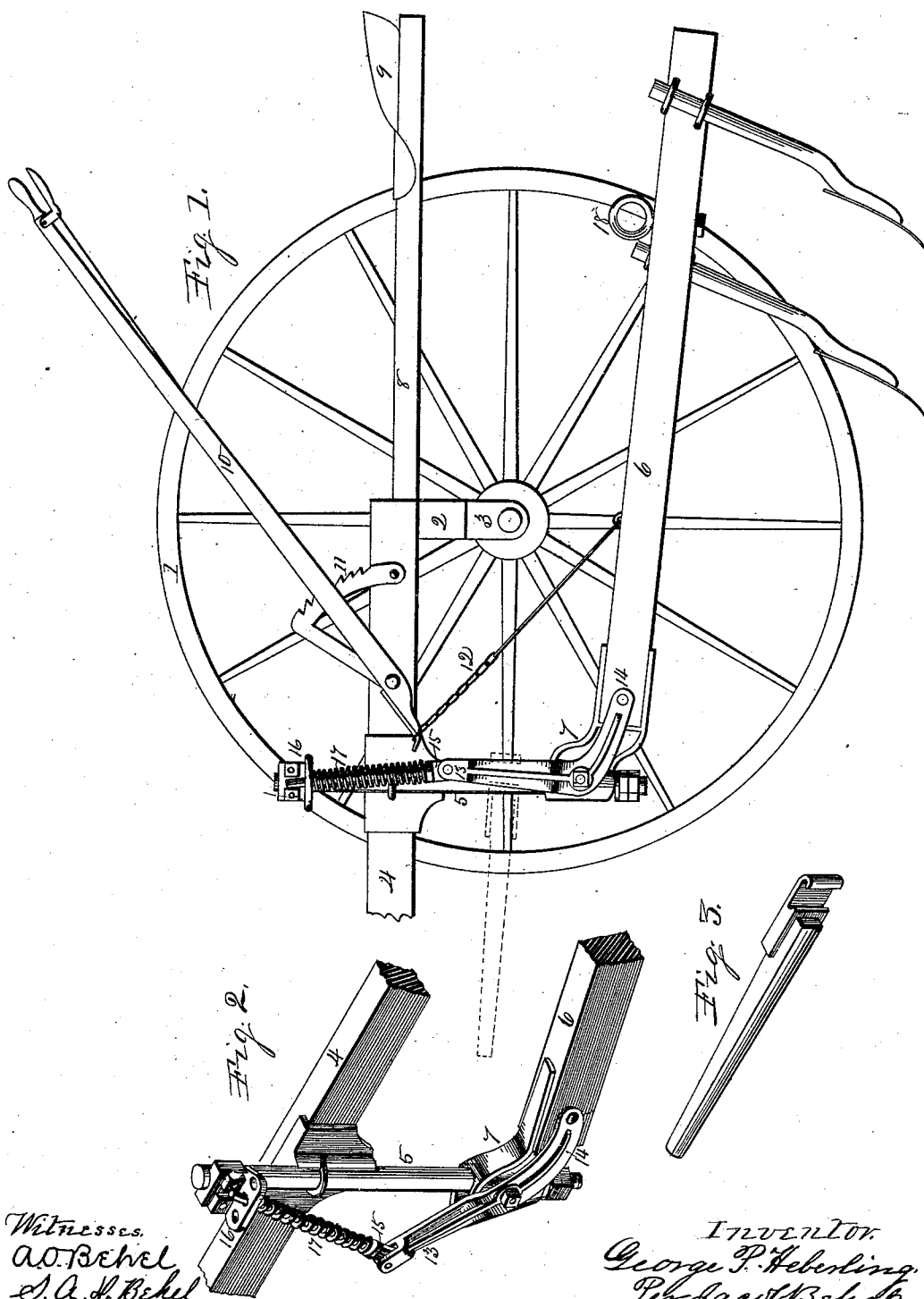
(No Model.)

G. P. HEBERLING.

CULTIVATOR.

No. 351,767.

Patented Nov. 2, 1886.



Witnesses.
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UNITED STATES PATENT OFFICE.

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& SONS, (LIMITED,) OF SAME PLACE.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 351,767, dated November 2, 1886.

Application filed March 2, 1886. Serial No. 193,778. (No model.)

To all whom it may concern:

Be it known that I, GEORGE P. HEBERLING, a citizen of the United States, residing in the city of Beloit, in the county of Rock and State of Wisconsin, have invented new and useful Improvements in Cultivators, of which the following is a specification.

This invention relates to a class of cultivators known as the "straddle-row riding-cultivator." Its object is to hold the shovels to their running depth with greater certainty, to raise the shovel-beams with less effort, and to sustain them in their elevated position.

It consists, essentially, in a spring arranged in connection with the shovel-beams and main supporting-frame, whereby the shovel-beams in their vertical movement will pass a point to change the action of the spring, to elevate or depress the beam as it is raised above or depressed below the neutral line; and, further, in means of adjustment to vary the neutral line of the spring action in the vertical movements of the beam, and also vary the force of the spring action on the beam, all of which, including its construction, application, operation, and combination with other parts of the machine, will be hereinafter more fully described in connection with the accompanying drawings, in which—

Figure 1 is a side elevation of a cultivator embodying my invention, in which one of the carrying-wheels is omitted and the tongue-beams are broken off. Fig. 2 is an isometrical representation of portions of a cultivator with my improvements in place thereon, and Fig. 3 is an isometrical representation of a wrench employed to adjust the spring.

In the figures, the several parts, consisting of the carrying-wheels 1, axle-tree 2, axle-arms 3, and tongue-beams 4, constituting the main frame, pendants 5, fixed to the tongue-beams, shovel-beams 6, with shovels attached, and their joint-sockets 7, connecting the shovel-beam with the pendant, seat-frame 8 and seat 9, mounted thereon, the hand lifting-lever 10, its segment ratchet mechanism 11, and chain 12, connecting the lifting-lever with the shovel-beam, are substantially the same in construction, application, and operation as like parts for like purposes employed in machines of its class now in use and to be found in the trade.

The several parts and the parts necessary to a complete machine not herein shown and described may be any of the varieties known, capable of use in connection with my improvements, which I now proceed to describe.

An angle-lever, consisting of arms 13 and 14, is fixed at its angle-point to the side of the joint-socket, and the extreme end of its arm 14 is fixed to the forward end of the shovel-beam, with which it is rendered rigid in its connection. From the connection of the angle-lever with the forward end of the shovel-beam and with its joint-socket the arm 13 of the lever rises vertically. A spring-supporting rod, 15, is hinge-jointed to the free end of the vertical lever, and from its connection therewith rises vertically, having its free end supported in an eye formed in a bracket, 16, fixed to the upper end portion of the pendent bar 5. A compression-spring, 17, surrounds the spring-supporting rod between its connection with the angle-lever and its bracket-support. The bracket-support 16 is made vertically adjustable in its connection with the pendent bar, to vary the force of the spring action. The bracket-support is provided with a series of eyes in the lengthwise direction of the machine, into which the free end of the spring-supporting rod may be adjusted to vary the inclination of the rod relatively with the lengthwise axis of the vertical arm of the angle-lever, to vary the action of the spring on the shovel-beam to hold it up or down with greater or less force as the rod is adjusted back or forward of the center of the bracket. A foot-stirrup, 18, of the usual form, is fixed to the rear portion of the shovel-beams to receive the foot of the driver, to enable him to lift or depress the shovel-beam with his foot. The lifting-lever 10 and its chain connection with the shovel-beam, in connection with the pawl-and-ratchet mechanism of the usual construction, serves to counteract the tendency of the spring to depress the rear end of the shovel-beam and regulate and limit the running depth of the shovels.

In this construction of a cultivator it will be seen that with the spring-supporting rod adjusted centrally in the eye of the bracket and the shovels working at their greatest running depth, limited by the chain connection

of the beam with the lever and ratchet mechanism, as shown in Fig. 1, the action of the spring, by reason of its rearward angle at its connection with the angle-lever arm, as there-
 5 in shown, will tend to depress the rear end of the beams, and, in connection with the weight of the driver's foot on the beam, will cause the shovels to hold their running depth with firmness.

10 When the shovel-beams are adjusted to run at the ordinary depth in cultivating, the spring and the vertical arm of the angle-lever will be substantially in line, at which point the shovel-beam will not be influenced to any considerable extent by the action of the spring.

15 The adjustment of the spring-supporting bar in its connection with the eye-bracket rearward of the center of the bracket will increase the lifting force of the spring on the shovel-beam, and the adjustment of the spring-supporting bar in its connection with the eye-bracket forward of its center will increase the depressing force of the spring upon the shovel-beam.

25 The construction of the joint-socket is such that the front end of the socket will engage the front edge of the pendant and limit the downward movement of the shovel-beam, and its rear end will engage the rear side of the pendant and limit its upward movement, as
 30 shown in Fig. 2.

In the use of my improved cultivator, with the proper adjustment of the spring and the adjustment of the lever and ratchet mechanism to limit the running depth of the shovels,
 35 the driver, mounted in his seat, by means of his feet in the foot-stirrups, can control the vertical movements of the shovel-beams to depress

and hold them in their working position, and a slight upward movement of the foot will elevate the beams and the action of the springs
 40 will sustain them in their elevated position, as shown in Fig. 2.

For the purpose of readily adjusting the spring, I employ a lever-wrench, one form of
 45 which is shown in Fig. 3, and its application is shown in Fig. 1 in dotted lines, embracing the vertical arm of the angle-lever, and when so applied the bolt connecting the rear end of the angle line to the shovel-beam is removed
 50 to permit it to swing on its connection with the joint-socket and permit the free end of the spring-supporting bar to be adjusted forward or rearward in the eye-bracket, after which, by means of the lever-wrench, the angle-lever
 55 is brought into position to receive the bolt fixing it to the shovel-beam.

I claim as my invention—

1. The combination, with the shovel-beam and its pendant, of an angle-lever secured to
 60 the beam, a rod pivoted at one end to the upper end of the angle-lever, and having a free connection with an eye-bracket at the upper end of the pendant, and a spring surrounding
 65 said rod, substantially as described.

2. The combination, with the shovel-beam, of an angle-lever secured at one end to the beam and at its other end to a spring-supporting rod, an eye to receive the upper end of the
 70 rod, a spring surrounding the rod, and a lever and chain, substantially as described.

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Witnesses:

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