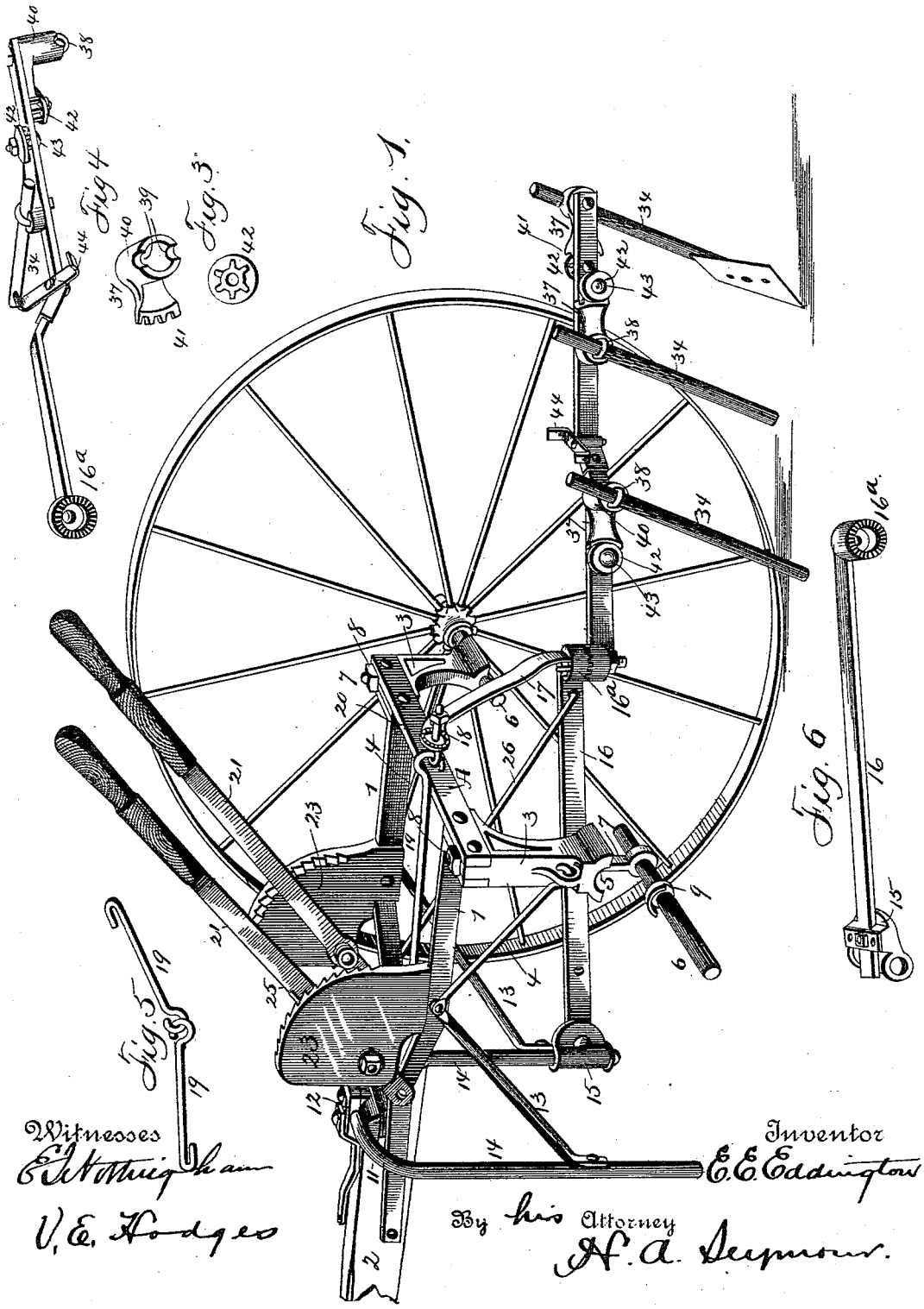
(No Model.) 2 Sheets—Sheet 1.

E. E. EDDINGTON.

CULTIVATOR.

No. 420,046. Patented Jan. 28, 1890



Witnesses
E. L. Wottington
V. E. Hodges

Inventor
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By his Attorney
H. A. Seymour.

(No Model.)

2 Sheets—Sheet 2.

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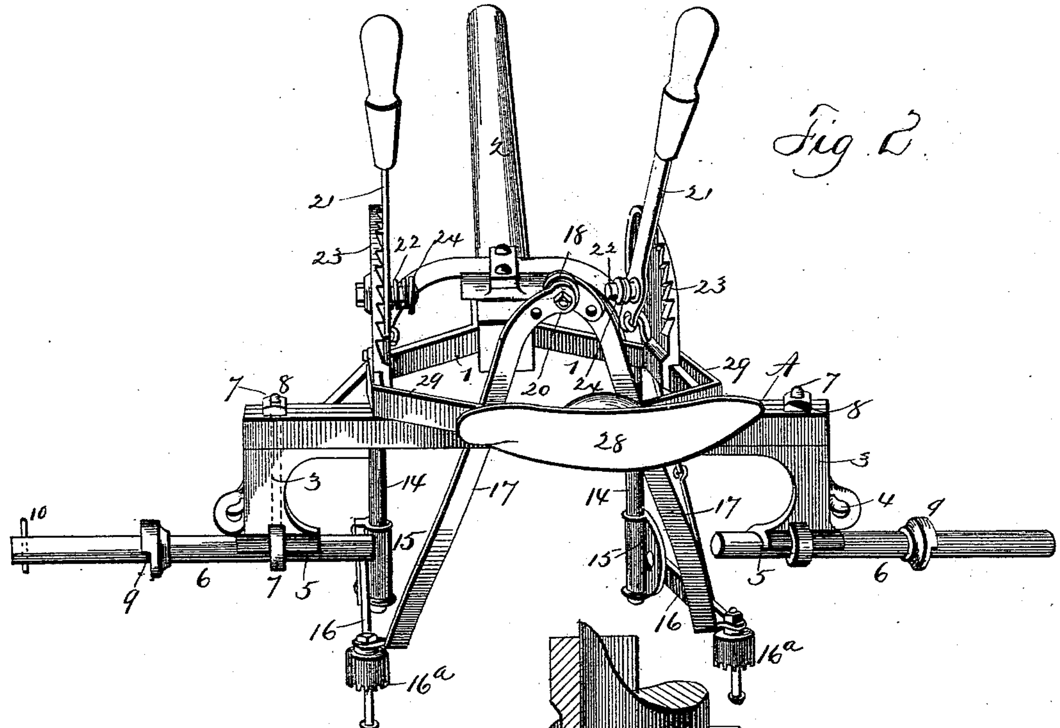

Fig. 2.

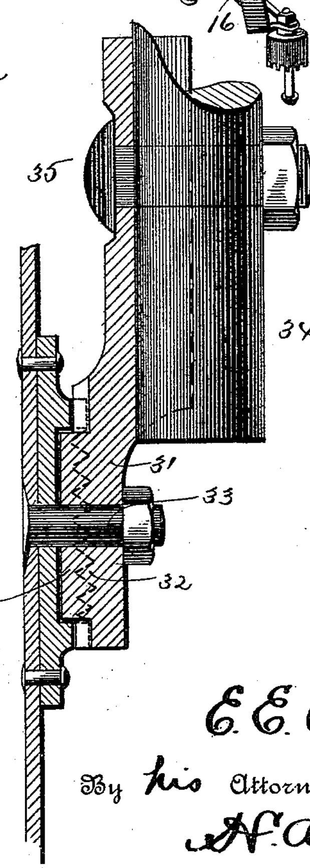

Fig. 7.

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UNITED STATES PATENT OFFICE.

EDWIN E. EDDINGTON, OF JANESVILLE, WISCONSIN.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 420,046, dated January 28, 1890.

Application filed August 10, 1889. Serial No. 320,390. (No model.)

To all whom it may concern:

Be it known that I, EDWIN E. EDDINGTON, of Janesville, in the county of Rock and State of Wisconsin, have invented certain new and useful Improvements in Cultivators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in cultivators and attachments therefor, the object being to provide a light and easy-running machine which may be turned in a short space at the ends of the rows and capable of adjustment for wide or narrow rows, for working close to the plants or farther apart, for regulating the inclination of the teeth, the depth of cut, reversing the parts that become worn by use, and renewing broken parts and taking the machine apart or putting it together when necessary.

With this end in view my invention consists in certain novel features of construction and combinations of parts, as will be hereinafter fully described, and pointed out in the claims.

In the accompanying drawings, Figures 1 and 2 are side and rear perspective views. Figs. 3, 4, 5, and 6 are detached views of parts; and Fig. 7 shows the interior construction of the tooth and holder.

A represents a cross-bar, and 1 1 a pair of straps, which extend forward from the ends of the bar to the rear end of the tongue or pole 2, to which they are attached, constituting altogether the frame of the machine. Bracket-arms 3 3 depend from the ends of the cross-bar, where they are rigidly secured and retained in proper positions relative to the straps by braces 4 4. These arms are furnished with rounded sockets 5 5 at their lower ends to receive and act as seats for the spindles 6 6, which are retained in position by means of eyebolts 7 7, through the eyes of which the spindles extend, and which extend upward through the bracket-arms, wherein they are held and tightened or loosened by nuts 8 8. The spindles 6 6 held by the eyebolts are adjustable endwise in order to narrow or widen the machine, and they are likewise reversible, so that in case the outer portions supported in the wheels become worn the other ends may be turned around to take their place by merely loosening the eyebolts and turning the spindles around. A removable collar 9 is held on each spindle by a set-screw or other means, these collars being placed in position to confine the wheels laterally. A pin, key, nut, or other device 10 at the end holds the wheel on the spindle.

An inverted-U-shaped bar 11 is secured to the tongue or pole by a clip or other means 12, and to the straps 1 1 by means of braces 13 13, and its depending ends constitute a pair of standards 14 14, upon which the holders 15 15 are loosely mounted. The drag-bars 16 16 are adjustably secured to the holders 15 15, so that they may be extended backward for different distances, as required. The drag-bars are each made in sections, the adjacent ends of which are provided with the serrated cheeks 16^a 16^a, which interlock with each other and admit of the rear extensions of the bars, which carry the teeth and which are also preferably made in adjustable sections, being bent laterally to come closer to or farther away from the plants to be cultivated. Not only is this rear section of the bar capable of lateral adjustment, but the bars may be moved from their point of support, if need be; but to prevent such movement the braces 17 17 are connected with the drag-bars at their lower ends and held apart the desired distance by means of the serrated cheeks 18 18, formed at the upper ends of the braces. The upper or connected ends of these braces usually extend just back of the cross-bar A, and a rod or link 19 extends from the bolt 20, which holds the braces together forward to the rear end of the tongue or pole. These drag-bars are operated—that is, raised or lowered—by means of a pair of levers 21 21, which are located within easy access of the rider. Said levers 21 21 are pivoted on the posts 22 22 on the toothed segments 23 23. Spiral springs 24 24 hold these levers back against the segments, so that the pawls 25 25, formed thereon, are normally retained in engagement with the teeth, so by first forcing the handles, one or both, toward each other until the action of the springs is overcome and then swinging them backward or forward the drag-bars, which are connected to the hand-levers by links 26 26, are raised or low-

ered, respectively. When in the required position, the springs throw the levers toward the teeth, by which they are held securely in place. Owing to the pitch of the teeth backward, in raising the bars it is only necessary to pull the levers backward; but before moving them forward the action of the springs must first be overcome.

A seat 28 is held on the arms 29, secured to the frame of the machine within easy access of the hand-levers and in convenient position for the driver's easy control of the horses.

Different forms of teeth may be employed; but the kind which I particularly prefer, as shown in the drawings, is provided with several points to admit of being turned to use all the points, and thus serve several times as long as a single-pointed tooth. A toothed or radially-corrugated disk 30 is secured to the back of each tooth, and a socket plate or holder 31, provided with several interlocking radial teeth 32, is held fast to the tooth by means of a bolt 33 or similar means, so that the tooth may be taken off and changed in a moment or a new one be substituted. These socket-plates are secured to the stems 34 by bolts or other means 35, and the stems are held to the drag-bars at the required inclinations in the following manner: Locking-plates 37 are pivotally secured to the drag-bars by eye-bolts 38, and the stems 34 extend through the eyes of these bolts, by which they are held at different inclinations. Sockets 39 are formed in these locking-plates, and in order to throw the teeth out of line with each other some of the plates are provided with sleeves 40 of greater or less length, in the outer ends of which the sockets are formed. The sleeves of the front plates preferably project toward each other, the rear ones away from each other, and those in the middle have no sleeves. Each locking-plate is provided with a toothed segment 41, which acts as a lever by which the plate is rocked and locked in position, and these plates are moved and secured in place by the toothed wheels 42, the teeth of which engage the teeth of the segments. These wheels are mounted on bolts 43, so that by simply turning them on their axes the different adjustments of the stems are effected. These wheels are flanged on the outer face to retain the segments in place, and they might be furnished with handles or other means for turning them easily, if desired; or they may be made in the shape of nuts—that is, screw-threaded inside to turn on the bolts and have an angular portion to receive a wrench, by which they may be turned. The steps 44 44 are located on the drag-bars to assist the driver in mounting his seat; also, should it be required at any time to exert pressure upon the bars these are found convenient.

It is evident that slight changes might be resorted to in the form and arrangement of the several parts described without departing from the spirit and scope of my invention; hence I do not wish to limit myself to the particular construction herein set forth; but,

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

1. In a cultivator, the combination, with a frame and depending brackets thereon, the latter having concave seats in their lower ends and slots or recesses for the head of the eyebolts, of reversible spindles seated in said concave seats, and eyebolts embracing the spindles and passing upwardly through the brackets, substantially as set forth.

2. In a cultivator, the combination, with a frame and depending brackets secured thereto, the said brackets having concave seats and recesses for the reception of the heads of the eyebolts, of the reversible spindles having adjustable collars thereon and eyebolts embracing the spindles and passing upwardly through the brackets, substantially as set forth.

3. In a cultivator, the combination, with a series of drag-bars, of a pair of braces each adjustably connected at one end to one of said drag-bars and adjustably connected together at their inner or opposite ends, and a bolt connecting said braces at their inner ends with the frame of the machine, substantially as set forth.

4. The combination, with a frame and drag-bars pivotally supported thereon, said bars being made in adjustable sections, adjustable braces connecting the bars, and levers connected with the bars for raising and lowering them, substantially as set forth.

5. The combination, with a frame and a pair of depending standards, of drag-bars pivotally supported on the standards, said bars being made in sections the adjacent ends of which have serrated cheeks, whereby they are capable of being laterally adjusted, a pair of braces connected with these bars, and said braces also having serrated cheeks at their adjacent ends and means for holding them together at different angles, substantially as set forth.

6. The combination, with a frame, a U-shaped bar depending therefrom to form a pair of standards, and holders pivotally supported on the standards, of drag-bars adjustably secured to the holders, said bars being made in sections the adjacent ends of which are serrated to admit of lateral adjustment, braces secured to these bars and serrated at their adjacent ends, whereby they are connected at different angles, links connecting the braces with the frame, levers for raising and lowering the bars, and links connecting the levers and bars, substantially as set forth.

7. The combination, with a frame and depending standards, of drag-bars attached to the standards, locking-plates pivoted to the drag-bars and provided with toothed segments, and toothed wheels for adjusting and securing the locking-plates, substantially as set forth.

8. The combination, with a frame and de-

pending standards, of sectional drag-bars, locking-plates pivoted thereto, toothed segments on said plates, and toothed wheels for securing the plates in position, substantially as set forth.

9. The combination, with a frame and depending standards, of drag-bars pivotally connected with the standards, a series of locking-plates, eyebolts passing through the plates, said plates having toothed segments thereon, and toothed wheels engaging the teeth of said plates and adapted to lock them in position, substantially as set forth.

10. The combination, with a cross-bar, straps, depending brackets, eyebolts adjustably secured therein, reversible spindles, and ground-wheels in which the spindles extend, of a depending U-shaped bar constituting a pair of standards, holders loosely mounted on their lower ends, sectional drag-bars having teeth adjustably connected therewith, braces for holding the bars at different distances apart, pivoted levers, links for connecting them to the bars, and means for locking the levers, substantially as set forth.

11. In a cultivator, the combination, with a stem and a holder attached thereto and provided with teeth, a cylindrical projection, and a centrally-located hole, of a tooth carrying a disk, the latter having a socket and teeth around the edge of the socket, and a removable bolt for attaching the tooth to the holder, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

EDWIN E. EDDINGTON.

Witnesses:
JOHN CUNNINGHAM,
T. J. NOLAN.