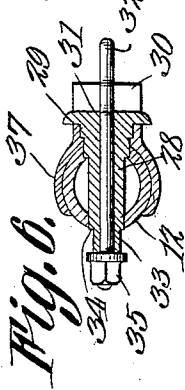
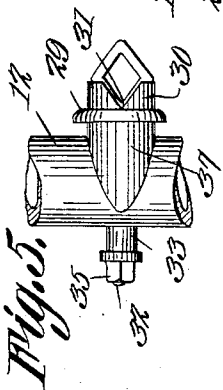
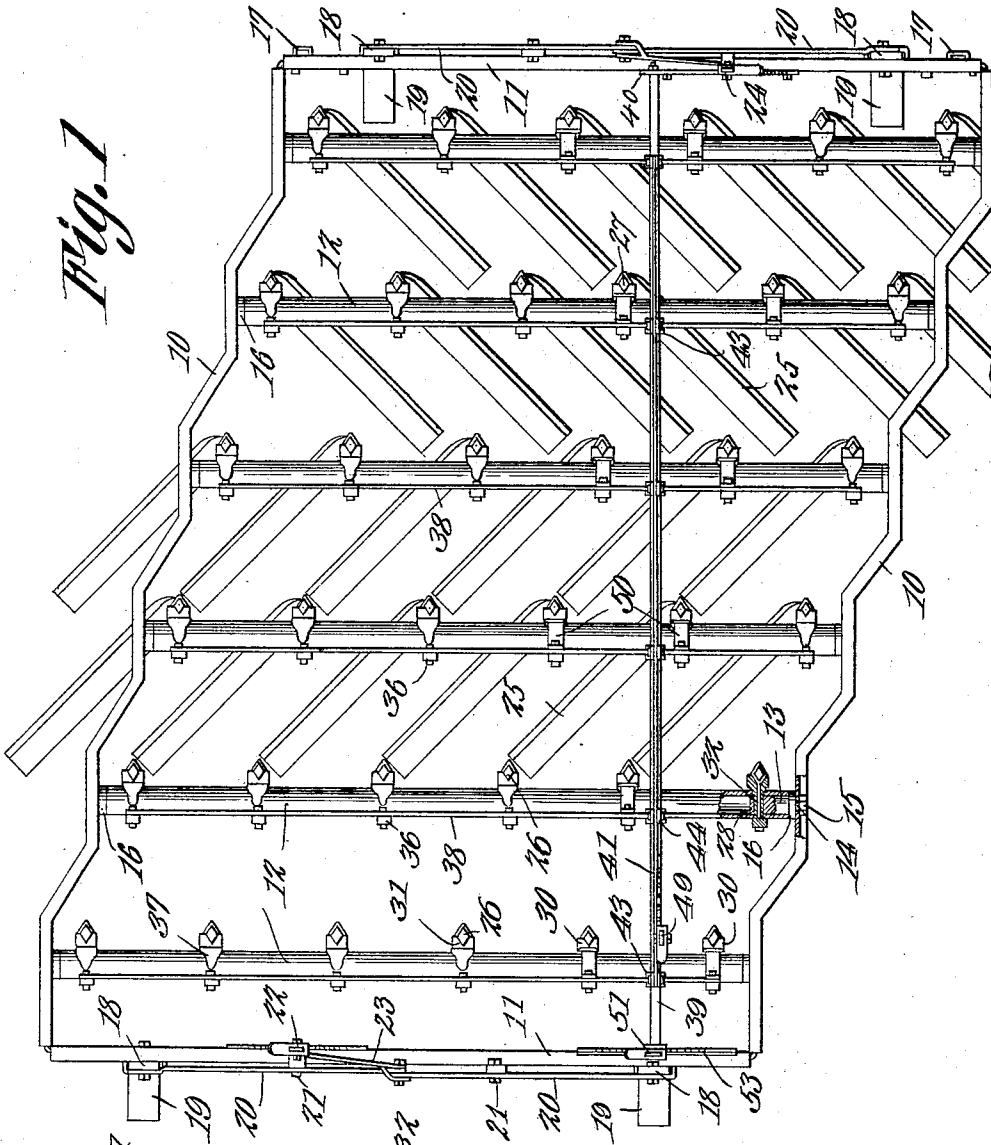


B. T. LOCKE.
 REVERSIBLE WEEDER AND HARROW.
 APPLICATION FILED JUNE 28, 1915.

1,189,145.

Patented June 27, 1916.

2 SHEETS—SHEET 1.



B. T. Locke

Inventor

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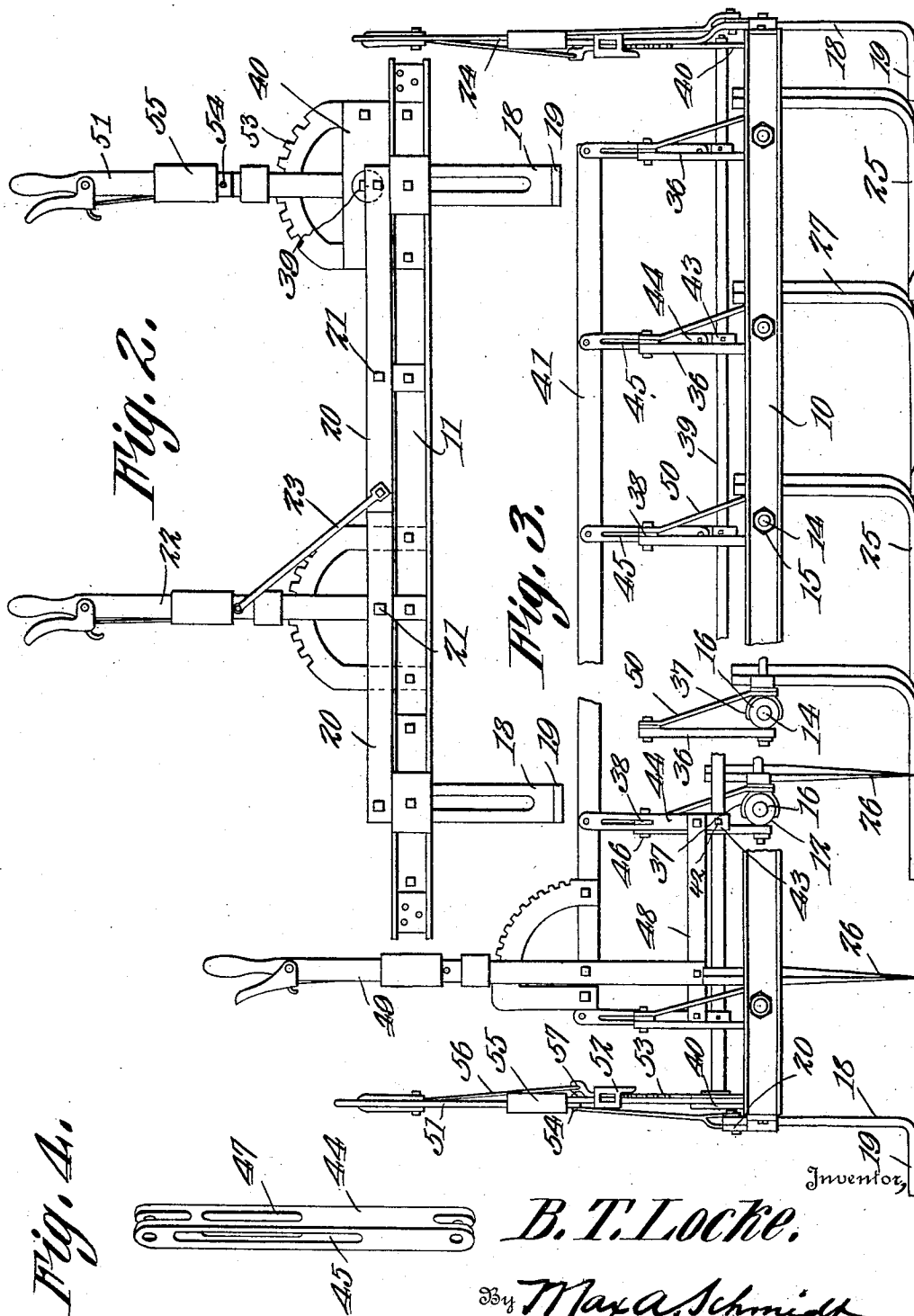
Attorney

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UNITED STATES PATENT OFFICE.

BENJAMIN T. LOCKE, OF WALLA WALLA, WASHINGTON.

REVERSIBLE WEEDER AND HARROW.

1,189,145.

Specification of Letters Patent.

Patented June 27, 1916.

Application filed June 28, 1915. Serial No. 36,674.

To all whom it may concern:

Be it known that I, BENJAMIN T. LOCKE, a citizen of the United States, residing at Walla Walla, in the county of Walla Walla and State of Washington, have invented certain new and useful Improvements in Reversible Weeders and Harrows, of which the following is a specification.

This invention relates to weeders and harrows which are reversible, and its object is to provide a novel and improved supporting means for the earth-working elements, and means for controlling the latter, whereby they may be simultaneously set at any desired angle, a single controlling means being provided for all the earth-working elements, whereby they may be slanted rearward, and another controlling means whereby they may be all slanted sidewise.

The object stated is attained by means of a combination and arrangement of parts to be hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of the implement, partly broken away; Fig. 2 is a rear end view thereof; Fig. 3 is a side elevation, partly broken away; Fig. 4 is a detail in perspective; Fig. 5 is a plan view of the tooth-fastening, and Fig. 6 is a cross-section thereof.

Referring specifically to the drawings, the frame of the implement comprises laterally spaced side bars 10 connected by front and rear cross bars 11. These frame members are channel bars. The side bars are bent to present each a series of parallel offsets which support the transverse tooth bars 12, the latter being journaled so that they may be rocked to tilt the earth-working elements rearwardly. The tooth bars are tubular and at their ends they are mounted on castings 13 carried by the side bars. These castings have threaded stems 14 passing through the side bars, and by means of nuts 15 screwed on the outer ends of the stems, the castings are secured to the side bars. The castings also have side shoulders 16 seating against the inner faces of the side bars, and located between the latter and the ends of the tooth bars. The tooth bars are loose on the castings so that they may be rocked for the purpose stated. The front cross bar 11 carries loops 17 for attachment of the draw

bar. The frame is supported on runners carried by the front and rear cross bars 11, two of such runners being provided for each end of the frame. Each runner comprises a vertically slidable shank 18 having a rearward bend 19 at its lower end to form a foot. The shanks of the rear runners are connected at their upper ends to the outer ends of levers 20 which are fulcrumed at 21 to suitable supports carried by the rear cross bar, and the latter also carries a hand lever 22 which is connected by a link 23 to the inner ends of the levers 20. The hand lever has the customary locking means. It will be evident that the shoes are raised or lowered when the hand lever is swung. Another hand lever 24 and operating connections are provided for the front runners, the same being independent of the rear hand lever, so that the frame may be raised or lowered at the front and rear independently, or at the same height, as desired. In the drawings the frame is shown at its maximum height.

The earth-working elements are weed-cutting blades 25 and harrow teeth 26, the latter being located to the rear of the former. The weed cutting blades have vertical shanks 27, and the harrow teeth are ordinary spike-teeth. Any other type of harrow teeth may be employed.

The following means are provided for securing the teeth 26 to the bars 12: The bar 12 has a transverse aperture in which is journaled a short rock shaft 28 projecting from opposite sides of the bar. One projecting end of the shaft has a shoulder 29 and a head 30 beyond the latter, the outer end of the head having a V-shaped notch 31. Passing centrally through the shaft is an eye bolt 32 having its eye opposite the notch 31. The eye is shaped to receive the shank of the tooth 26, and upon drawing the bolt back, the shank is securely clamped in the notch 31. The other end of the rock shaft is reduced, as indicated at 33, and has a shoulder 34. The eye bolt projects from this end of the shaft and carries a clamping nut 35 whereby the bolt is drawn to secure the harrow tooth. On the reduced end of the rock shaft is secured a rocker arm 36 for a purpose to be presently described, said arm being located between the nut 35 and the shoulder 34, so that when the nut is tightened up the arm is securely fastened on the shaft. A malleable sleeve 37 is hammered in place on the bar 12, to act as a support for

the rock shaft, said sleeve being shaped to fit around the headed end of the shaft, behind the shoulder 29.

The tooth fastening hereinbefore described is also provided for securing the weed cutters 25.

The following means are provided for operating the tooth bars 12 simultaneously to tilt all the earth-working elements rearward: The rocker arms 36 of the rock shafts 28 of each tooth bar 12 are connected by a cross bar 38 extending parallel to the tooth bar. Adjacent to one side of the frame of the implement, above the tooth bars, is located a longitudinal rock shaft 39 which is angular in cross section, and supported at its ends by brackets 40 carried by the front and rear cross bars 11. Above this rock shaft, and extending parallel thereto, is a longitudinal bar 41. On the rock shaft are fixed, by set screws 42, collars 43, and to these collars are pivotally connected links 44 which extend upward and are pivotally connected to the bar 41. The links are all parallel, and they have slots 45 through which the cross bars 38 loosely pass, a link being provided for each cross bar. The cross bars are connected to the links by bolts 46, the connection being a sliding one by providing the links with slots 47 to receive the bolts, said slots being at a right angle to the slots 45. The two rearmost links are connected by a bar 48 parallel to the rock shaft 39 and the bar 41. To the bars 48 and 41 is connected a hand lever 49 which is parallel to the links, and provided with suitable locking means. When this hand lever is thrown forward, the bar 41 is carried in the same direction, which swings the links, and through the cross bars 38 and the arms 36, the tooth bars 12 are locked to tilt the elements 25 and 26 carried thereby rearward.

Two of the rocker arms 36 adjacent to the bar 41 have braces 50 which are connected to the sleeve 37 behind the shoulder 29, whereby the rocker arms are supported from any undue strain when the bar 41 is being operated.

The tilting mechanism hereinbefore described also allows the earth-working elements 25 and 26 to be tilted sidewise, this being accomplished by rocking the shaft 39. When this is done, the links 44 tilt bodily with the shaft 39, and as they are connected to the cross bars 38, the latter are carried along, and through the rocker arms 36, the shafts 28 are rocked, and as said shafts carry the earth-working elements, the latter are tilted sidewise to the right or left, according to the direction in which the shaft 39 is rocked. The hand lever 49 also tilts bodily with the links 44.

The rocking of the shaft 39 as hereinbefore described is effected by a hand lever 51

connected thereto at its rear end, and having the usual latch 52 engageable with a toothed sector 53 carried by the rear cross bar 11.

The hand lever 51 is made in two sections, which are pivotally connected at 54. A sleeve 55 is slidable over the joint to hold the lever sections in alinement, and upon sliding this sleeve past the joint, the top section of the lever may be folded down. The latch-operating rod 56 is also jointed at 57, so that it may be folded, the joint being in line with the joint 54. By making the hand lever in sections the top section may be folded down to reduce the height of the implement materially when transporting the same. The hand levers 22, 24 and 49 are also made with foldable sections in the same manner as the lever 51. When the implement is being transported to and from the field, the earth-working elements 25 and 26 will be tilted back as far as they can go to bring them clear of the ground, thus leaving the implement supported solely by the runners 19.

The structure hereinbefore described provides a simple and easily operated controlling means for the earth-working elements. The preferred embodiment of the invention has been illustrated and described, but it is to be understood that various changes in the structural details may be made without a departure from the spirit and scope of the invention as claimed hereinafter.

I claim:

1. The combination of a supporting frame, transverse rocking bars carried by the frame, rock shafts carried by the rocking bars and extending transversely thereof, earth-working elements carried by the rock shafts, rocker arms on the rock shafts, cross bars connecting the rocker arms of the rock shafts of the respective rocking bars, and an operating connection between the cross bars for simultaneously actuating the rock shafts, said connection being also movable in a direction to actuate the rocking bars.

2. The combination of a supporting frame, transverse rocking bars carried by the frame, rock shafts carried by the rocking bars and extending transversely thereof, earth-working elements carried by the rock shafts, rocker arms on the rock shafts, cross bars connecting the rocker arms of the rock shafts of the respective rocking bars, and an operating connection between the cross bars, said connection being movable transversely of the supporting frame to actuate the rock shafts, and longitudinally of the supporting frame to actuate the rocking bars.

3. The combination of a supporting frame, transverse rocking bars carried by the frame, rock shafts carried by the rock-

ing bars and extending transversely thereof, earth-working elements carried by the rock shafts, rocker arms on the rock shafts, cross bars connecting the rocker arms of the rock shafts of the respective rocking bars, a rock shaft carried by the supporting frame and extending lengthwise thereof, means for operating said rock shaft, a bar extending parallel to the last-mentioned rock shaft, pivoted links connecting said bar and rock shaft, a sliding connection between the links and the aforesaid cross bars, and means for moving the aforesaid bar in the direction of its length.

4. The combination of a supporting frame, transverse rocking bars carried by the frame, rock shafts carried by the rocking bars and extending transversely thereof, earth-working elements carried by the rock shafts, rocker arms on the rock shafts, cross bars connecting the rocker arms of the rock shafts of the respective rocking bars, a rock shaft carried by the supporting frame and extending lengthwise thereof, means for operating said rock shaft, a bar extending parallel to the last-mentioned rock shaft, collars fast on said rock shaft, pivoted links connecting the collars and the last-mentioned bar, means for moving said bar in the direction of its length, and a sliding connection between the links and the aforesaid cross bars.

5. The combination of a supporting frame, transverse rocking bars carried by the frame, rock shafts carried by the rocking bars and extending transversely thereof, earth-working elements carried by the rock shafts, rocker arms on the rock shafts, cross bars connecting the rocker arms of the rock shafts of the respective rocking bars, a rock shaft carried by the supporting frame and extending lengthwise thereof, means for operating said rock shaft, a bar extending parallel to the last-mentioned rock shaft, collars fast on said rock shaft, pivoted links connecting the collars and the last-mentioned bar, a bar connecting two adjacent links, a hand lever connected to said

bar and the second-mentioned bar, and a sliding connection between the aforesaid cross bars and the links.

6. The combination of a supporting frame, transverse rocking bars carried by the frame, rock shafts carried by the rocking bars and extending transversely thereof, earth-working elements carried by the rock shafts, rocker arms on the rock shafts, cross bars connecting the rocker arms of the rock shafts of the respective rocking bars, a rock shaft carried by the supporting frame and extending lengthwise thereof, means for operating said rock shaft, a bar extending parallel to the last-mentioned rock shaft, pivoted links connecting said bar and rock shaft, a sliding connection between the links and the aforesaid cross bars, a bar connecting two adjacent links, and a hand lever connected to said bar and the second-mentioned bar.

7. The combination of a supporting frame, transverse rocking bars carried by said frame, rock shafts carried by the rocking bars and extending transversely thereof, earth-working elements carried by the rock shafts, rocker arms on the rock shafts, cross bars connecting the rocker arms of the rock shafts of the respective rocking bars, a rock shaft carried by the supporting frame and extending lengthwise thereof, means for operating said rock shaft, collars fast on the last-mentioned rock shaft, a bar extending parallel to the last-mentioned rock shaft, pivoted links connecting the collars and the last-mentioned bar, said links being slotted and the aforesaid cross bars being connected to the links and slidable in the slots thereof, a bar connecting two adjacent links, and a hand lever connected to said bar and the second-mentioned bar.

In testimony whereof I affix my signature in presence of two witnesses.

BENJAMIN T. LOCKE.

Witnesses:

E. E. SAUZE,
EARL W. BENSON.