No. 677,836. Patented July 2, 1901.

J. M. WRIGHT.

CULTIVATOR.

(Application filed Dec. 5, 1900.)

(No Model.) 4 Sheets—Sheet 1.

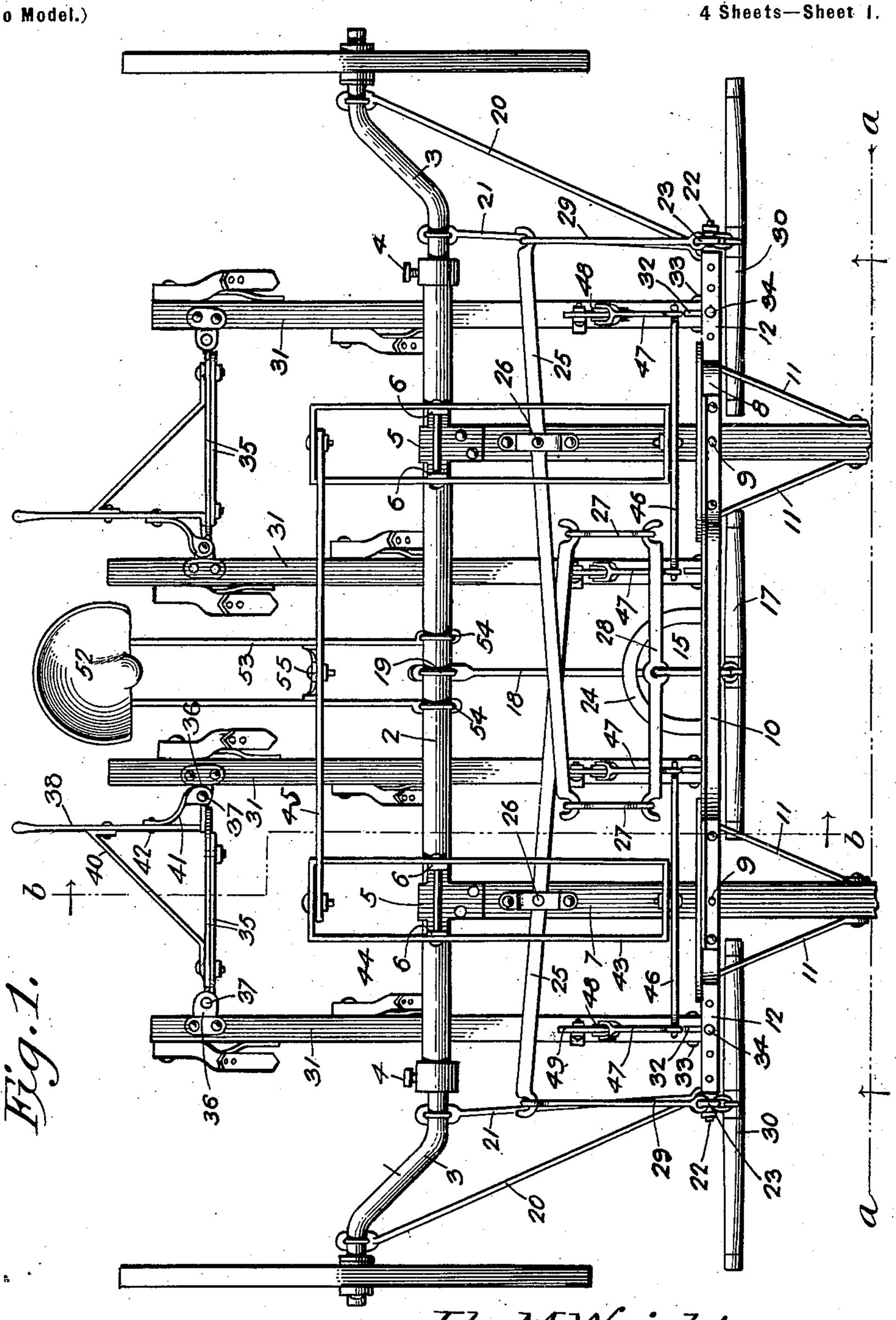

Fig. 1.

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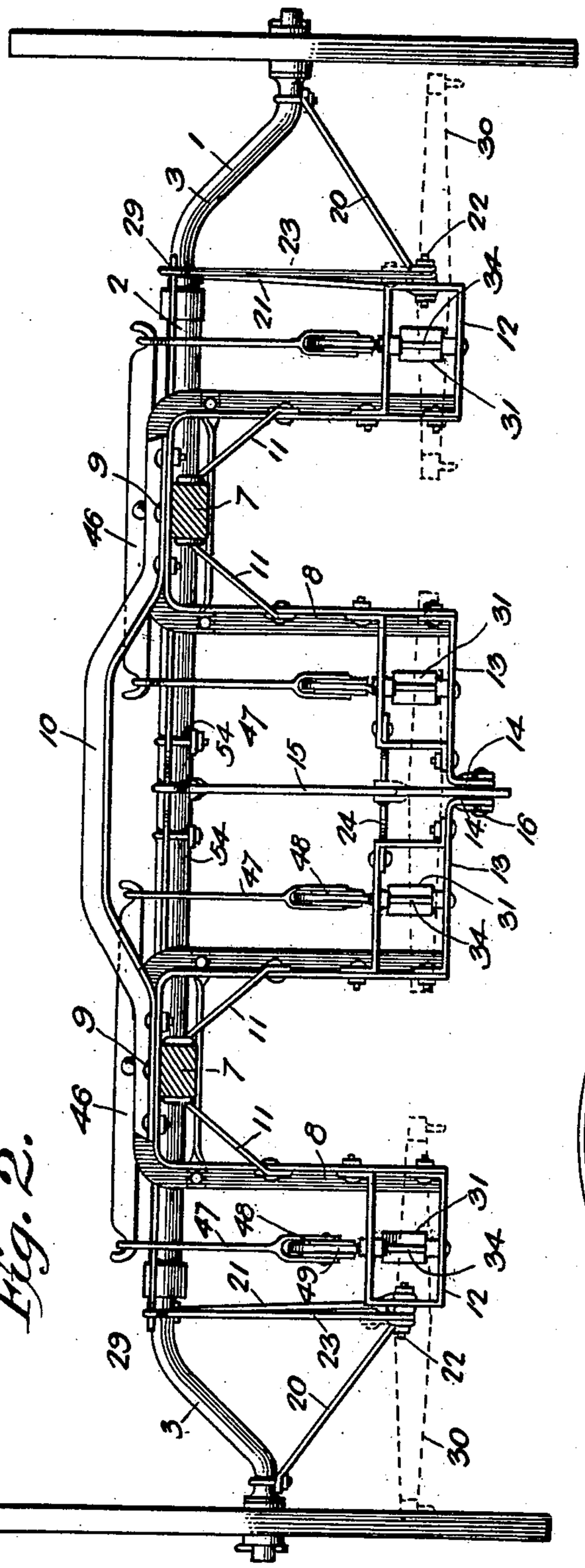

Fig. 2.

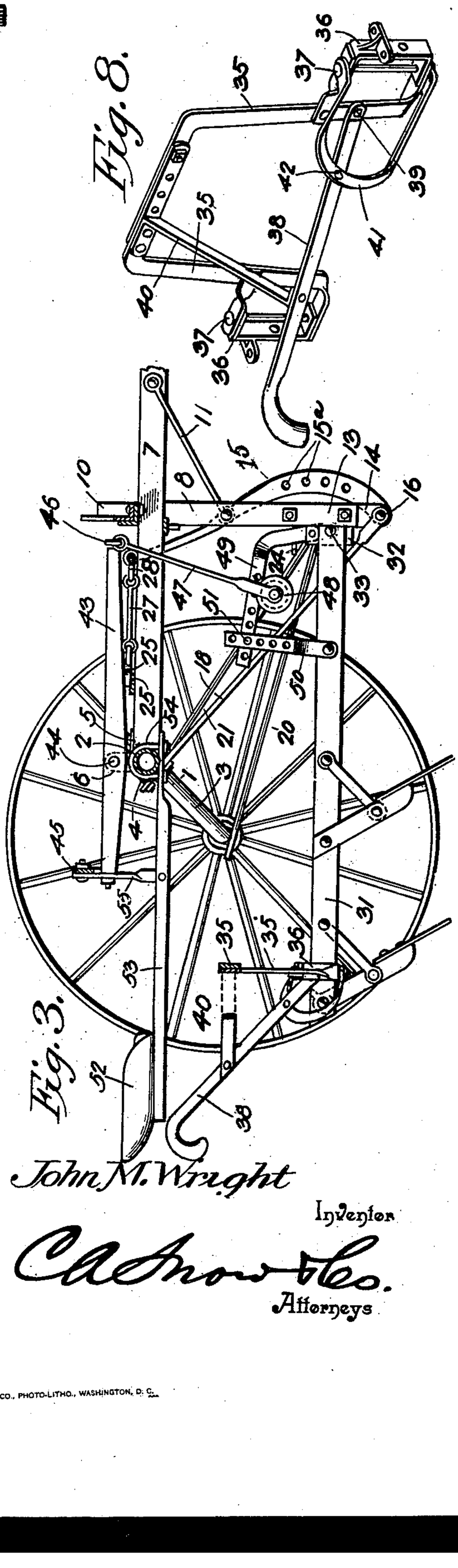

Fig. 3.

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(No Model.) 4 Sheets—Sheet 3.

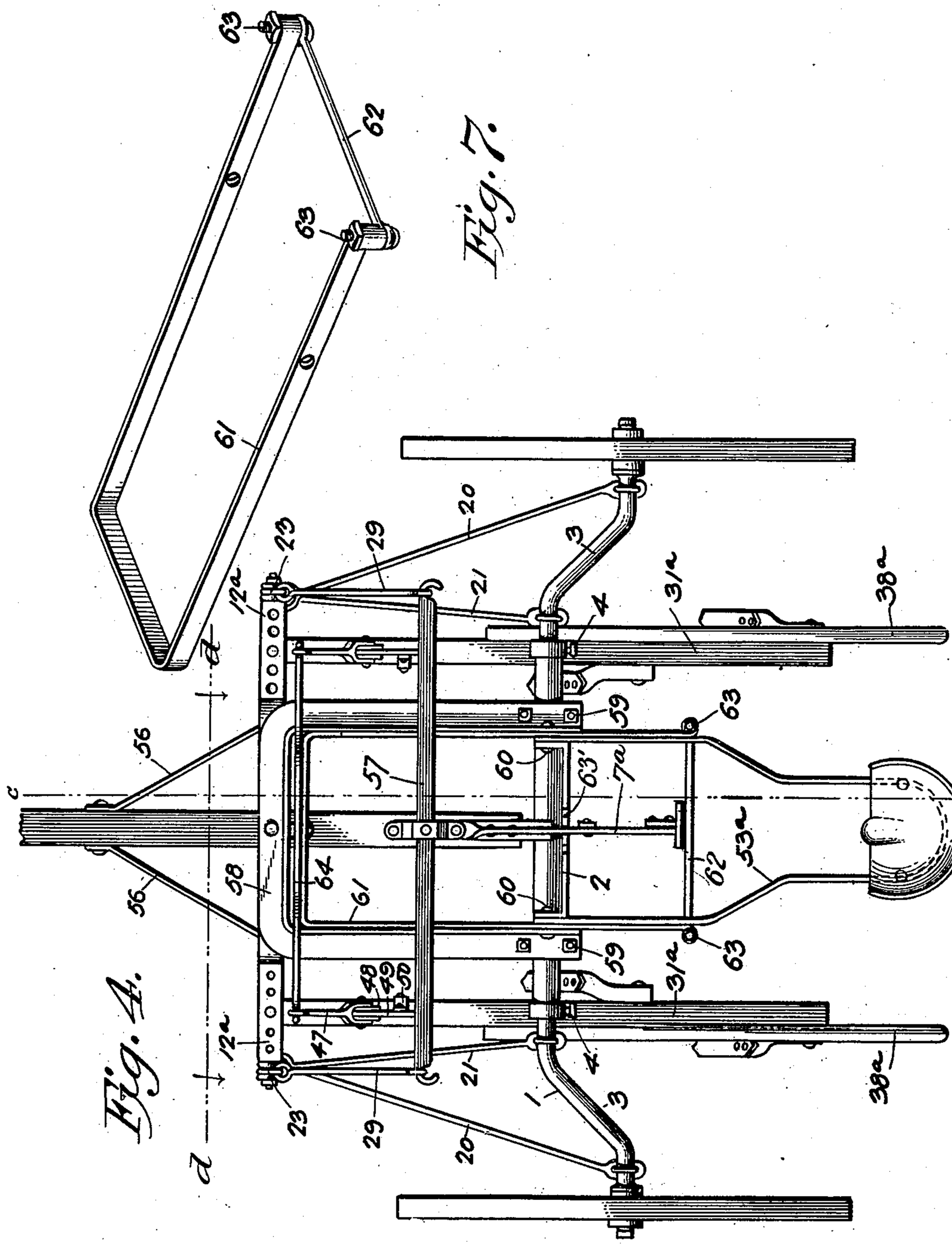

Fig. 4.

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(No Model.) 4 Sheets—Sheet 4.

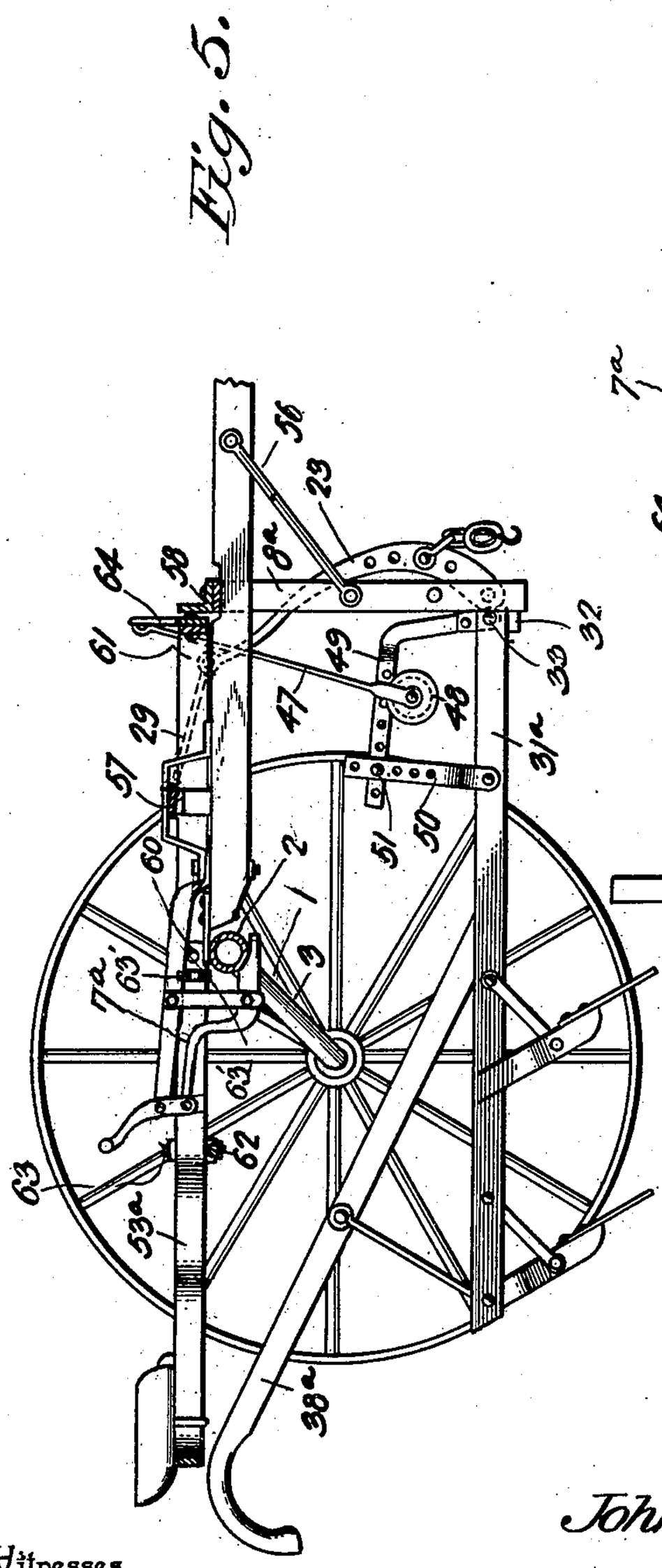

Fig. 5.

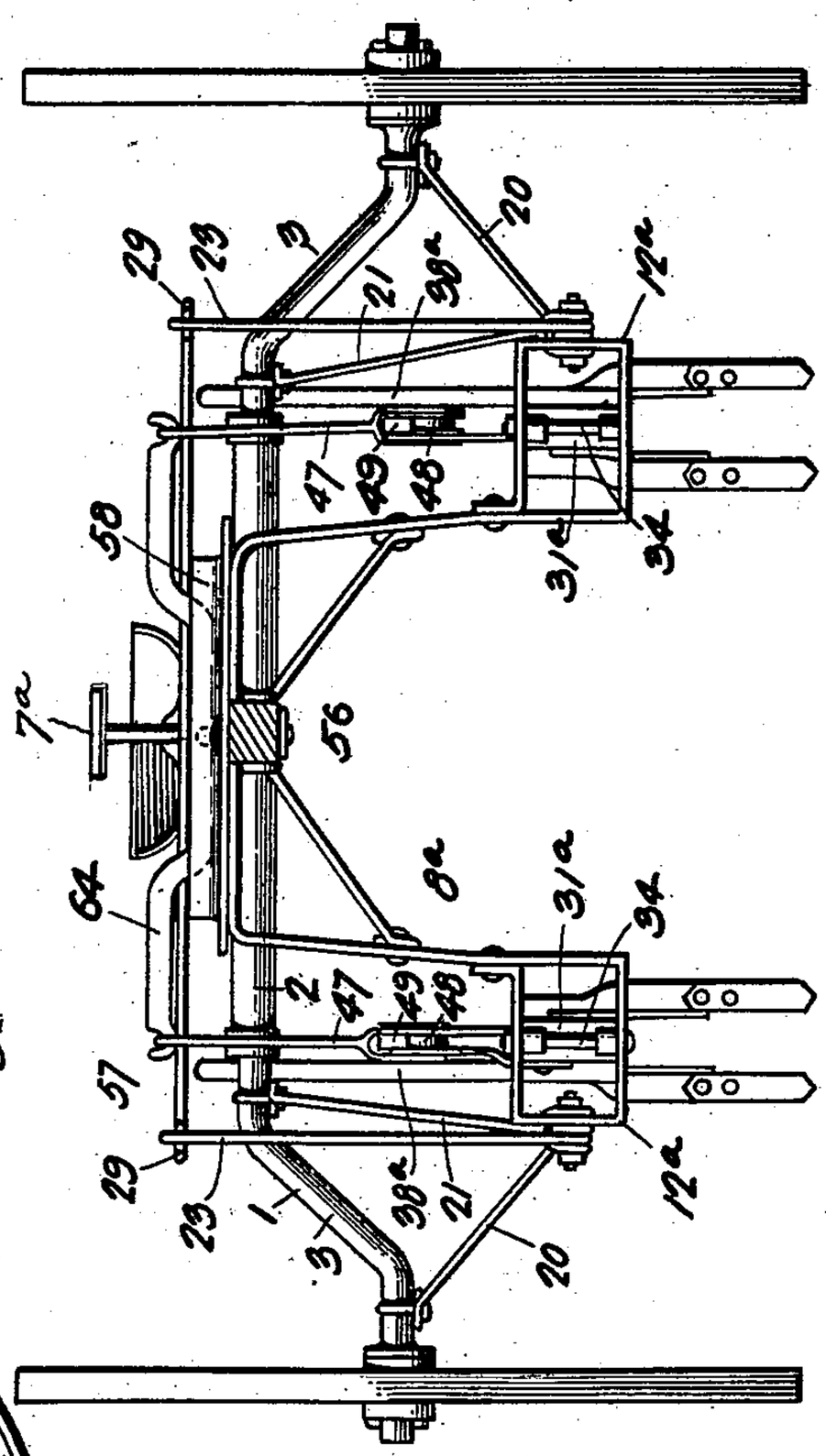

Fig. 6.

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UNITED STATES PATENT OFFICE.

JOHN M. WRIGHT, OF DAVID CITY, NEBRASKA.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 677,836, dated July 2, 1901.

Application filed December 5, 1900. Serial No. 38,778. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. WRIGHT, a citizen of the United States, residing at David City, in the county of Butler and State of Nebraska, have invented a new and useful Cultivator, of which the following is a specification.

My invention is an improved cultivator; and it consists in the peculiar construction and combination of devices hereinafter set forth, and pointed out in the claims.

One object of my invention is to effect improvements in the construction of the cultivator whereby the weight of the driver is utilized in the operation of the plow.

A further object of my invention is to effect improvements in the construction of the cultivator whereby the center of the arched axle is relieved of stress.

A further object of my invention is to provide a cultivator which is convertible and is adapted to be used either as a single-row or double-row cultivator.

In the accompanying drawings, Figure 1 is a top plan view of a double-row cultivator adapted to be drawn by three horses and constructed in accordance with my invention. Fig. 2 is a front elevation of the same, partly in section, on a plane indicated by the line *a a* of Fig. 1. Fig. 3 is a vertical longitudinal sectional view of the same on a plane indicated by the line *b b* of Fig. 1. Fig. 4 is a top plan view of my improved cultivator modified for use as a single-row cultivator. Fig. 5 is a vertical longitudinal sectional view of the same on a plane indicated by the line *c c* of Fig. 4. Fig. 6 is a front elevation of the same, partly in section, on a plane indicated by the line *d d* of Fig. 4. Fig. 7 is a detail perspective view. Fig. 8 is a detail perspective view of the hinge-plates and arch-bar for flexibly connecting the rear ends of a pair of the plow-beams together, so that they are adapted to be swung laterally in unison, and of a handle for operating the plow-beams, showing the means for connecting the said handle to the said arch-bar.

I will first describe my invention when organized as a double-row cultivator and adapted to be drawn by three horses.

The axle 1 is arched and comprises the central tubular section 2 and the end sections 3, which telescope in the central section 2 and are secured therein by set-screws, as at 4. On the section 2, at a suitable distance from the ends thereof, are secured plates 5, which are provided at their sides with vertical upturned ears or lugs 6, and the front portions of the said plates project forward of the axle and are bolted on the rear upper portion of the tongues or poles 7. Inverted-U-shaped arched standards 8 are bolted on the said tongues or poles, as at 9, and depend therefrom. The said poles or tongues are connected together at a suitable distance in advance of the axle by an arched bar 10, which is bolted on the central portion of the arched standards 8, as shown. Brace-rods 11 are bolted to the said arched standards 8 and to the said tongues or poles.

To the lower portions of the standards 8 are bolted laterally-extending link-frames 12 13. The link-frames 12 are bolted to the outer standards 8 and extend outward therefrom. The link-frames 13 are bolted to the inner standards 8 and extend inwardly therefrom toward each other, and said link-frames 13 have at their inner ends on their lower sides downturned extensions which form lugs 14. A draft-link 15 has its lower end pivoted between the said lugs 14 by the bolt 16, which connects the inner ends of the frames 13 together. The said draft-link 15 is provided with a series of adjusting-openings 15^a for the attachment of the central singletree 17.

A brace-rod 18 has its upper end secured to the center of the axle by a clip-bolt 19. The lower end of the said brace-rod is forked or bifurcated and is secured on the outer sides of the lugs 14 of link-frames 13 by the bolt 16.

Brace-rods 20 21 have their rear ends connected to the end sections 3 of the axle by clip-bolts, as shown, and the front ends of the said brace-rods are connected to the outer sides or ends of the link-frames 12 by bolts 22. Draft-links 23 have their lower ends pivoted on the said bolts. The inner ends of the link-frames 13 are connected together by a rearward-extending semicircular bar 24. The same strengthens the connection between the link-frames 13 and permits the movement of the draft-link 15. Draft-levers 25 are pivoted on the upper sides of the poles or tongues 7 by bolts 26 at points about one-third the

length of the said draft-levers from the outer ends thereof. The inner ends of the said draft-levers, which overlap each other, are connected by links 27 to a link-bar 28, the central portion of which is pivotally connected to the upper end of the center draft-link 15. The outer ends of the draft-levers 25 are connected by links 29 to the upper ends of the outer draft-links 23, to which draft-links 23 are attached the outer singletrees 30.

The beams 31 of the cultivator-plows have their front ends pivotally connected to hinge-plates 32 by horizontally-disposed bolts 33. The front ends of the said hinge-plates are pivotally connected to the link-frames 12 13 by vertically-disposed bolts 34, whereby the said beams 31 are adapted to be swung laterally and to be also raised and lowered at their rear ends, as will be understood. The said beams 31 are connected together in pairs near their rear ends by arched bars 35 and hinge-plates 36. The latter are bolted to the said beams, as shown, and the said arched bars 35 are pivotally connected to said hinge-plates by vertically-disposed pintle-bolts 37. A handle 38 is provided for each pair of the plow-beams. The said handles have their front ends bolted to the inner sides of the arched bars 35, as at 39, and are connected to said arched bars by brace-bars 40. The said handles 38 are disposed as shown and extend rearwardly from the plow-beams. To strengthen the connections at the outer ends of the plow-handles, I provide substantially U-shaped metallic straps 41, which are bolted to the said plow-handles, as at 42, and are secured on the upper and lower ends of the pintle-bolts 37, as shown.

From the foregoing it will be seen that by means of the handles 38 and their connections the pairs of plow-beams may be readily guided and manipulated by the driver and that the lateral play of the rear ends of the handles is reduced to the minimum, thus lessening the labor of the driver.

Lever-frames 43 are fulcrumed at a suitable distance from the rear ends thereof by bolts 44 to the lugs or ears 6 of plates 5. The rear ends of the said lever-frames are connected together by a cross-bar 45. To the front ends of the said lever-frames are pivotally connected lever-bars 46, which are transversely disposed thereon, and to the ends of said lever-bars are attached the upper ends of link-bars 47, which carry antifriction-rollers 48 at their lower ends. Said antifriction-rollers engage the lower sides of bars 49, the front ends of which are pivotally connected to the hinge-plates 32. The rear portions of said bars 49 are connected to the plow-beams 31 by straps 50. The said straps and said bars 49 have adjusting-openings for the bolts 51, which connect said straps and bars together, and thereby said bars 49 may be adjusted to any desired inclination. It will be understood that when the rear ends of the lever-frames 43 are depressed by the means hereinafter described the front ends thereof in rising cause the links 47 to draw upward on the bars 49 and straps 51, connected to the front portions of the plow-beams, so as to raise the rear ends of the plow-beams, and thereby raise the cultivating-shovels from the ground.

The seat 52 for the driver is attached to the rear end of a U-shaped lever 53, the front end of the said lever is connected to the central portion of the axle by the clips 54 or other suitable means, and said lever 53 is connected by the strap or link 55 to the central portion of the cross-bar 45, which connects the rear ends of the lever-frames together.

From the foregoing and by reference to the drawings it will be understood that the weight of the driver tends to raise the rear ends of the plow-beams, and thereby materially assists the driver in the manipulation of the cultivating-plows. It will be furthermore observed and understood that the strap 55 forms, as it were, a fulcrum for the seat-lever 53, so that the front end of the seat-lever tends to exert an upward thrust under the center of the axle, and hence the latter is relieved of stress at its central portion, where axles are ordinarily comparatively weak, and hence by my improved construction a comparatively light axle may be employed without the danger of its being broken.

It will be understood that the draft is equalized between the draft-animals and applied equally to all of the plow-beams.

I will now describe the modified form of my invention shown in Figs. 4, 5, and 6, in which my cultivator is adapted for cultivating a single row and to be drawn by only two animals. In this form of my invention the central section of the axle is reduced in length to narrow the space between the supporting-wheels, and a single draft pole or tongue 7 is employed, the rear end of which is provided with a hand-lock 7^a, which by engagement with the cross-bar 63′ enables the tongue to be secured at any desired adjustment. A U-shaped standard-frame 8^a is pivoted on said draft pole or tongue and depends therefrom, and laterally-extending loops or links 12^a are formed with said frame, the latter being braced by brace-rods 56, which connect the same to the draft pole or tongue. In this form of my invention the central draft-link is discarded and the draft-links 23 have their upper ends connected by the rods 29 to the end of a lever 57, which is fulcrumed at the center on the draft pole or tongue. A U-shaped frame 58 has the rear ends of its arms connected to the central portion of the axle, as at 59. The front portion of said U-shaped frame 58 is bolted to the standard-frame 8^a. Within said U-shaped frame 58 and pivotally connected thereto by bolts 60 is a U-shaped lever 61, the rear ends of the arms of which are connected together by a cross-bar 62, said cross-bar being secured to said arms by vertically-disposed bolts 63. A link-lever 64 has its central portion pivotally connected to the

transversely-disposed front portion of the lever 61. The ends of the said link-lever 64 are connected, by the means hereinbefore described, to the front portions of the plow-beams 31ª, of which a pair only is employed, each of said plow-beams having a handle 38ª. The seat-supporting lever 53ª has the front ends of its arms secured by the bolts 60, said lever bearing on the cross-bar 62. A transversely-disposed brace-bar 63′ has its ends secured on said bolts 60.

Having thus described my invention, I claim—

1. The combination of an axle, longitudinally-disposed levers fulcrumed thereon, at points distant from the center thereof, a cross-bar connecting the rear portions of said levers, plow-beams having their front ends flexibly connected to fixed points, whereby the rear ends of the said plow-beams may be raised and lowered, connections between said plow-beams and said levers, and a seat-supporting bar having its front end connected to the said axle, said bar being connected to said cross-bar, substantially as described.

2. The combination of a seat-supporting lever, a support therefor, a plow-beam flexibly connected to a fixed point, a link depending from said lever, and a vertically-adjustable loop-bar on said plow-beam, to which said link is connected, substantially as described.

3. The combination of a seat-supporting lever, a support therefor, a plow-beam flexibly connected to a fixed point, a link depending from said lever, a loop-bar pivotally connected to the plow-beam and engaged by said link, and means to adjust said loop-bar, substantially as described.

4. In a cultivator, the combination of an axle, draft poles or tongues attached thereto, standards depending from said tongues, plow-beams flexibly connected to said standards, levers supported on said axle, at points remote from the center thereof, a cross-bar connecting said levers, in rear of said axle, connections between said levers and the plow-beams, and a seat-supporting bar connected to and extending rearward from the center of the axle, said seat-supporting bar being connected to said cross-bar, whereby the weight of the driver is utilized in raising the rear ends of the beams, and whereby the central portion of the axle is relieved of stress, substantially as described.

5. In a cultivator, the combination of a supporting-frame, plow-beams having their front ends flexibly connected to said frame, an arch-bar having hinged connections at its ends to the said beams, and a handle carried by and attached to said arch-bar, substantially as described.

6. The combination of the hinge-plates 36 adapted to be bolted to plow-beams, the arch-bar having its ends pivotally connected to said hinge-plates, the handle having one end connected to one side of the arch-bar and a brace-bar connecting the said handle to said arch-bar, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN M. WRIGHT.

Witnesses:
A. H. BETZER,
W. E. HEWIT.