

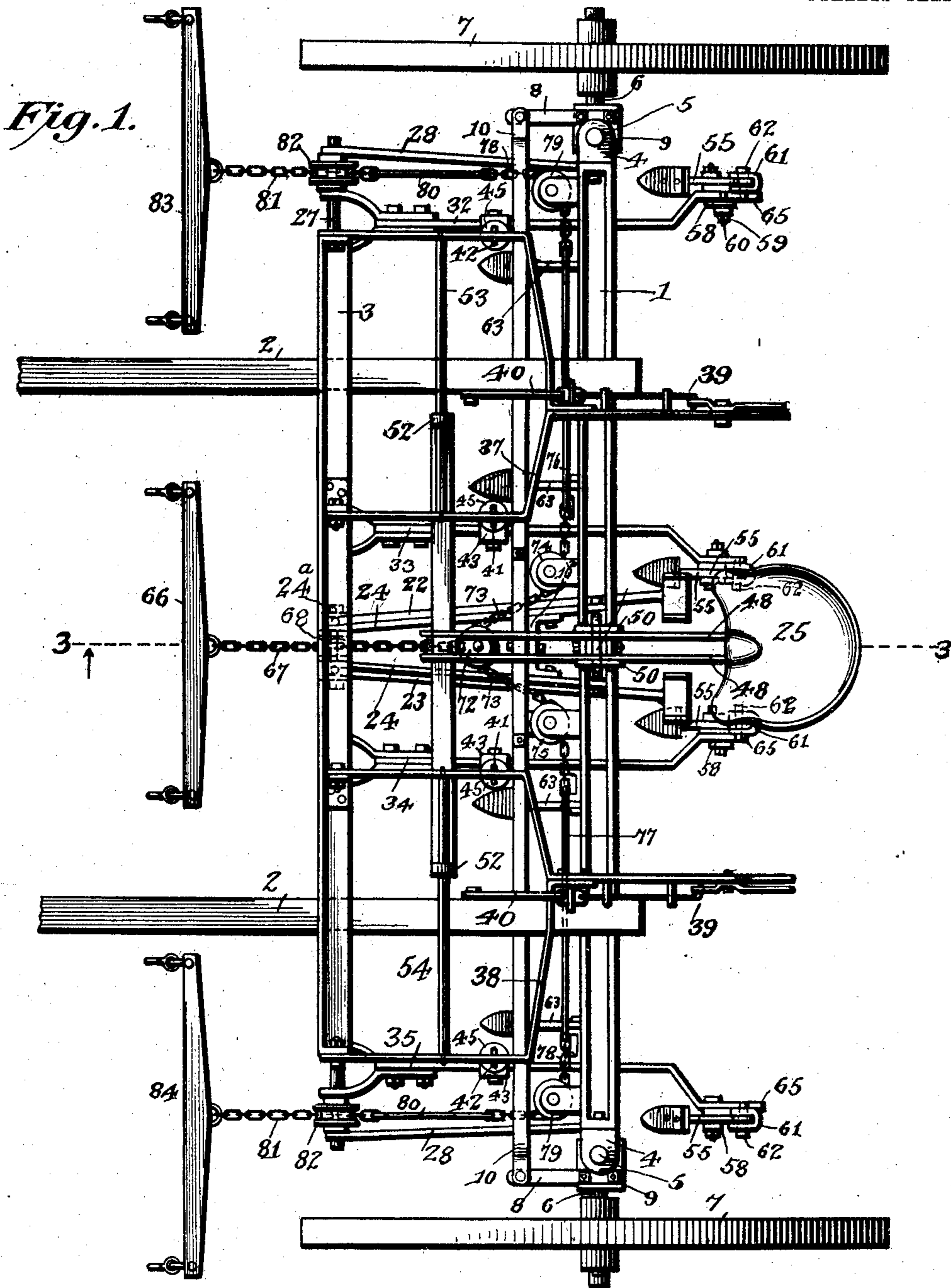
No. 780,930.

PATENTED JAN. 24, 1905.

S. E. BAILOR.
CULTIVATOR.

APPLICATION FILED JAN. 30, 1904.

4 SHEETS—SHEET 1.



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By

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4 SHEETS—SHEET 2.

Fig. 2.

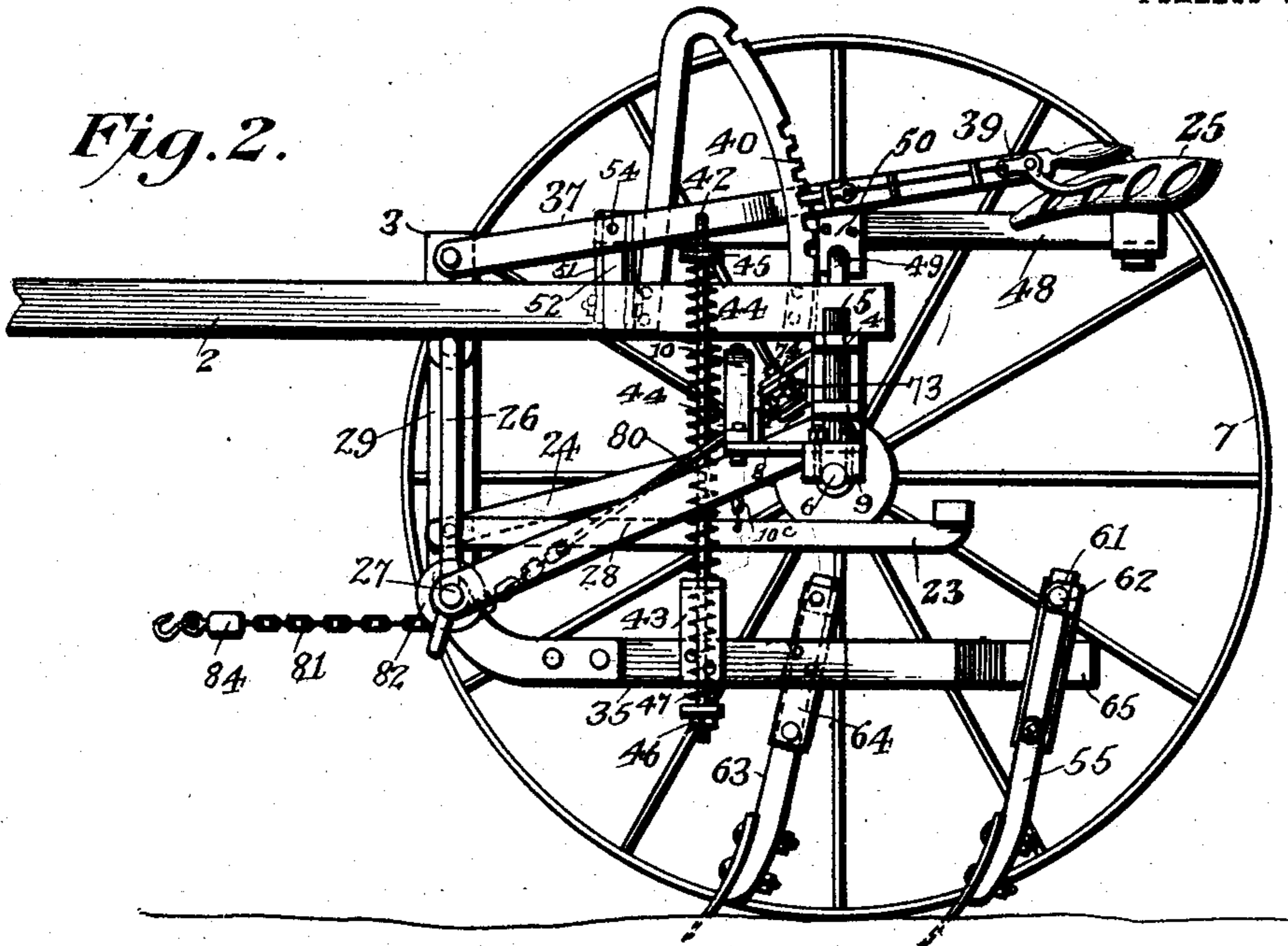
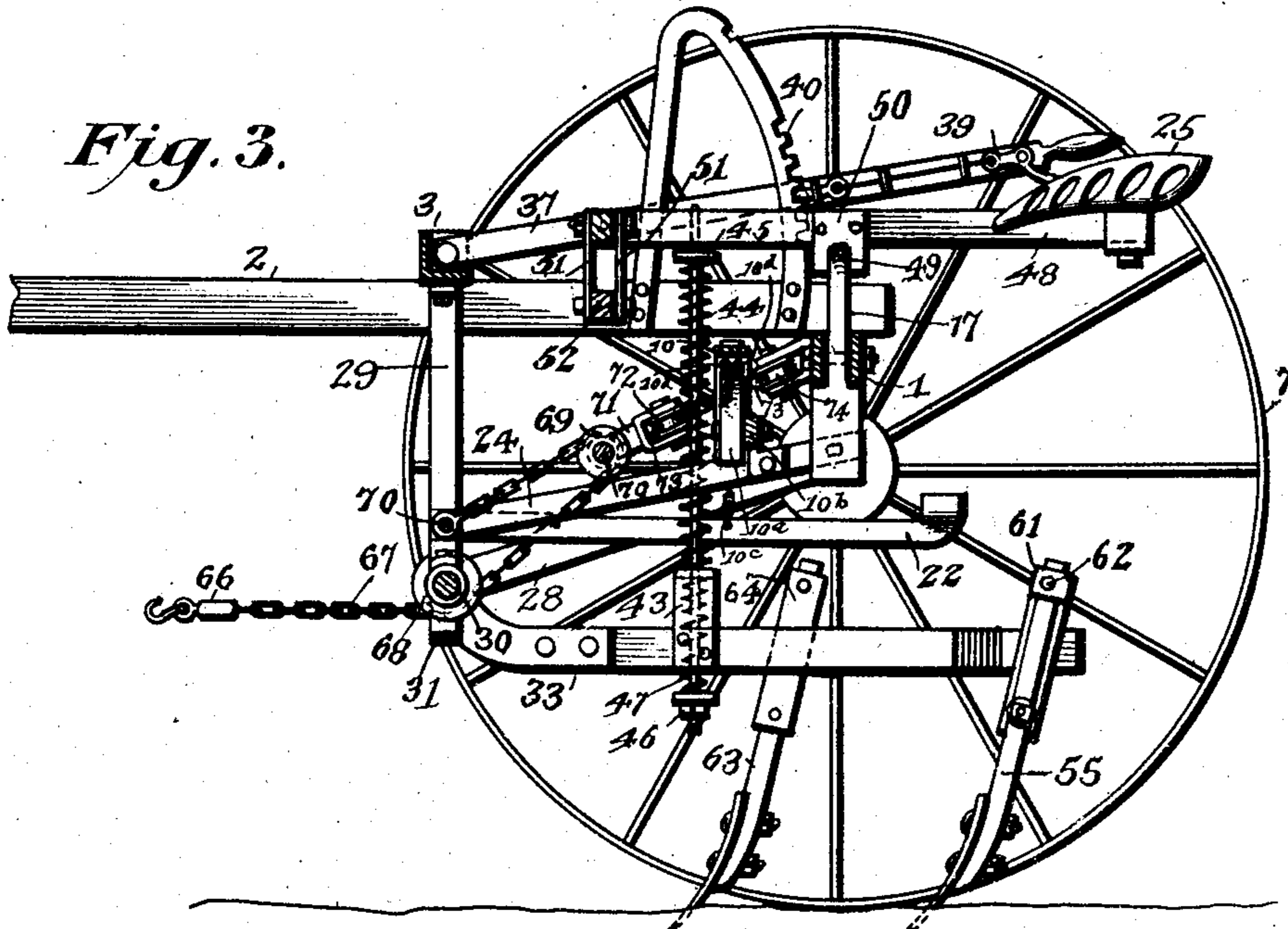


Fig. 3.



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4 SHEETS—SHEET 3.

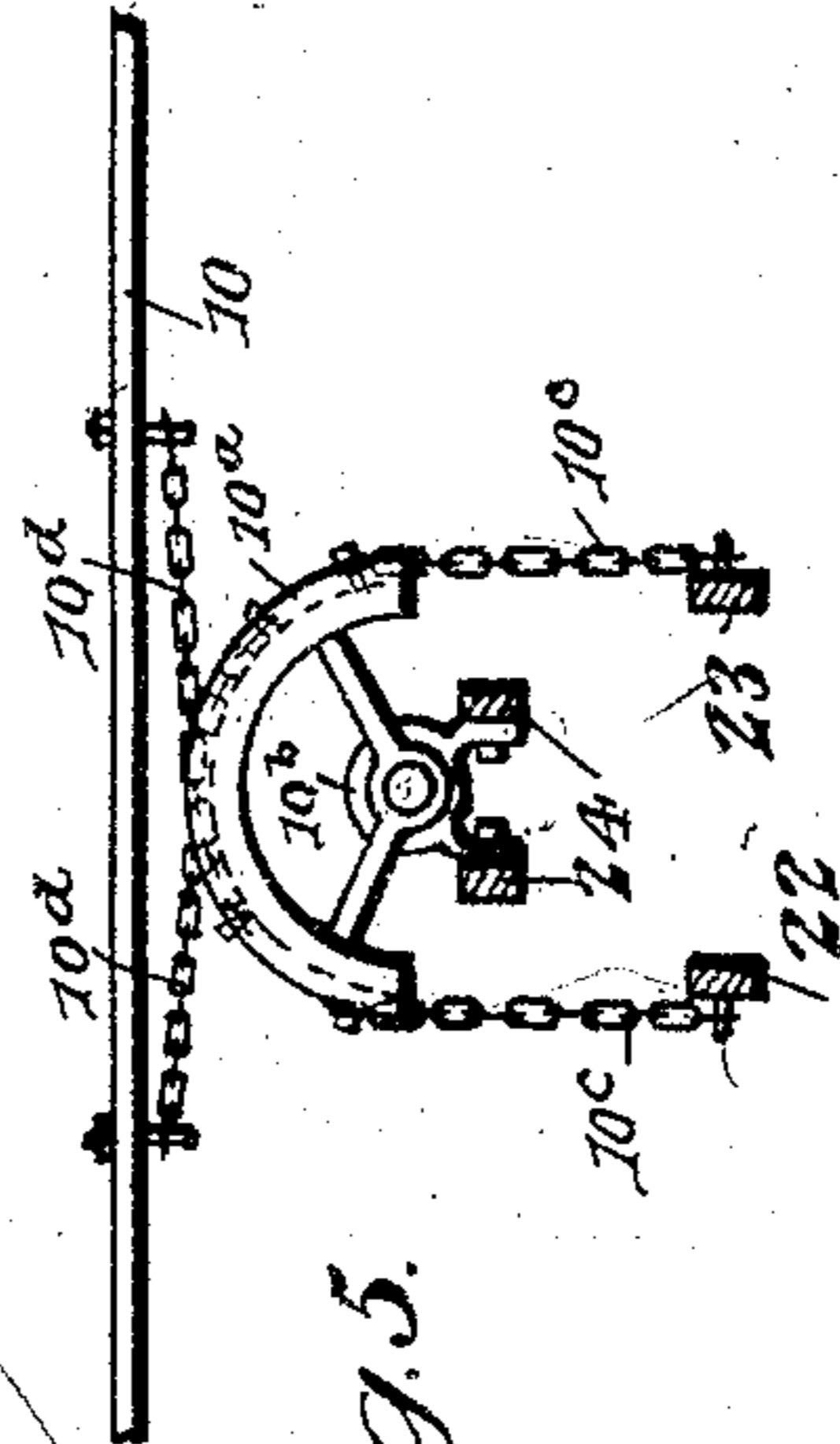
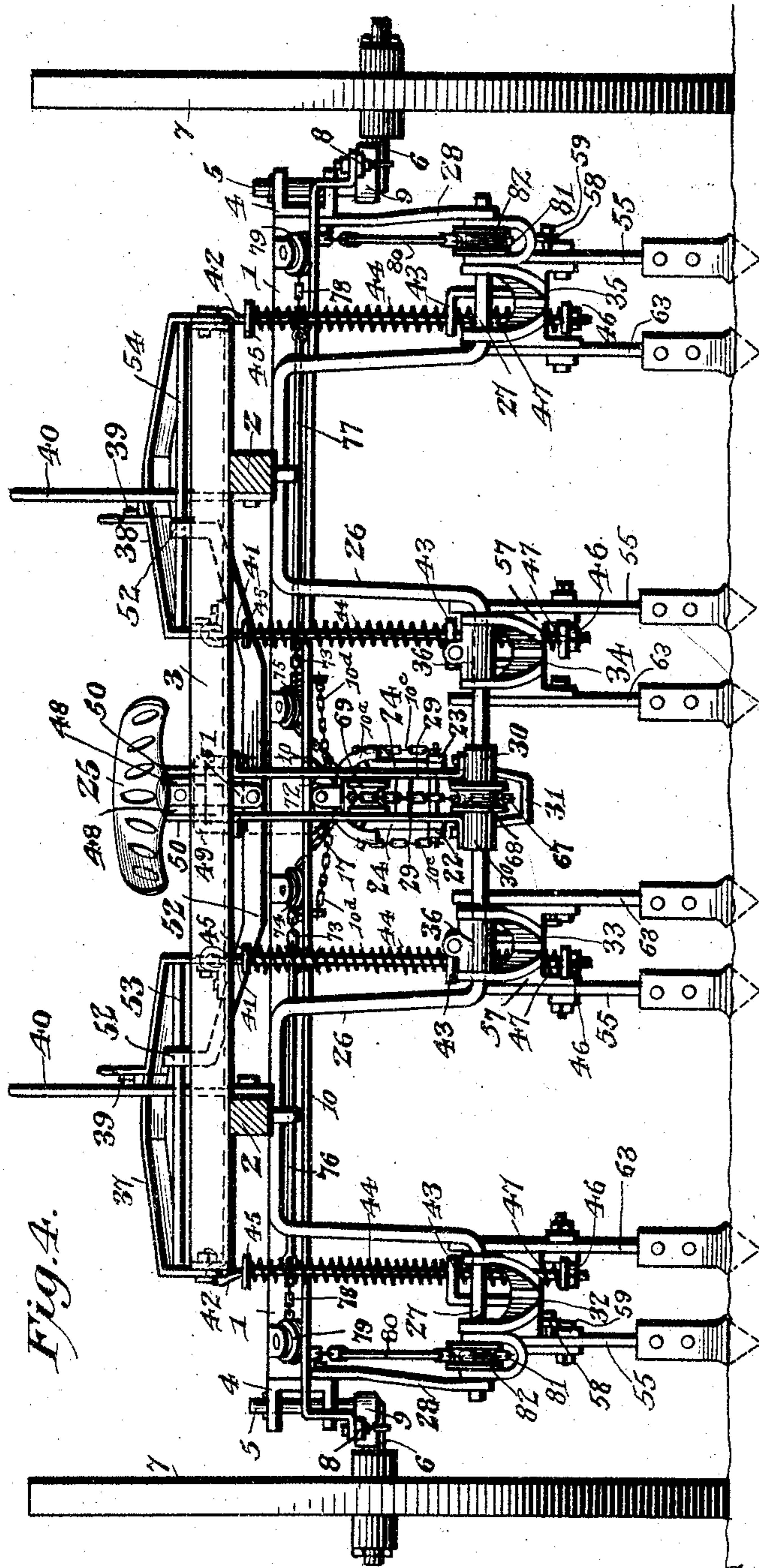


Fig. 5.

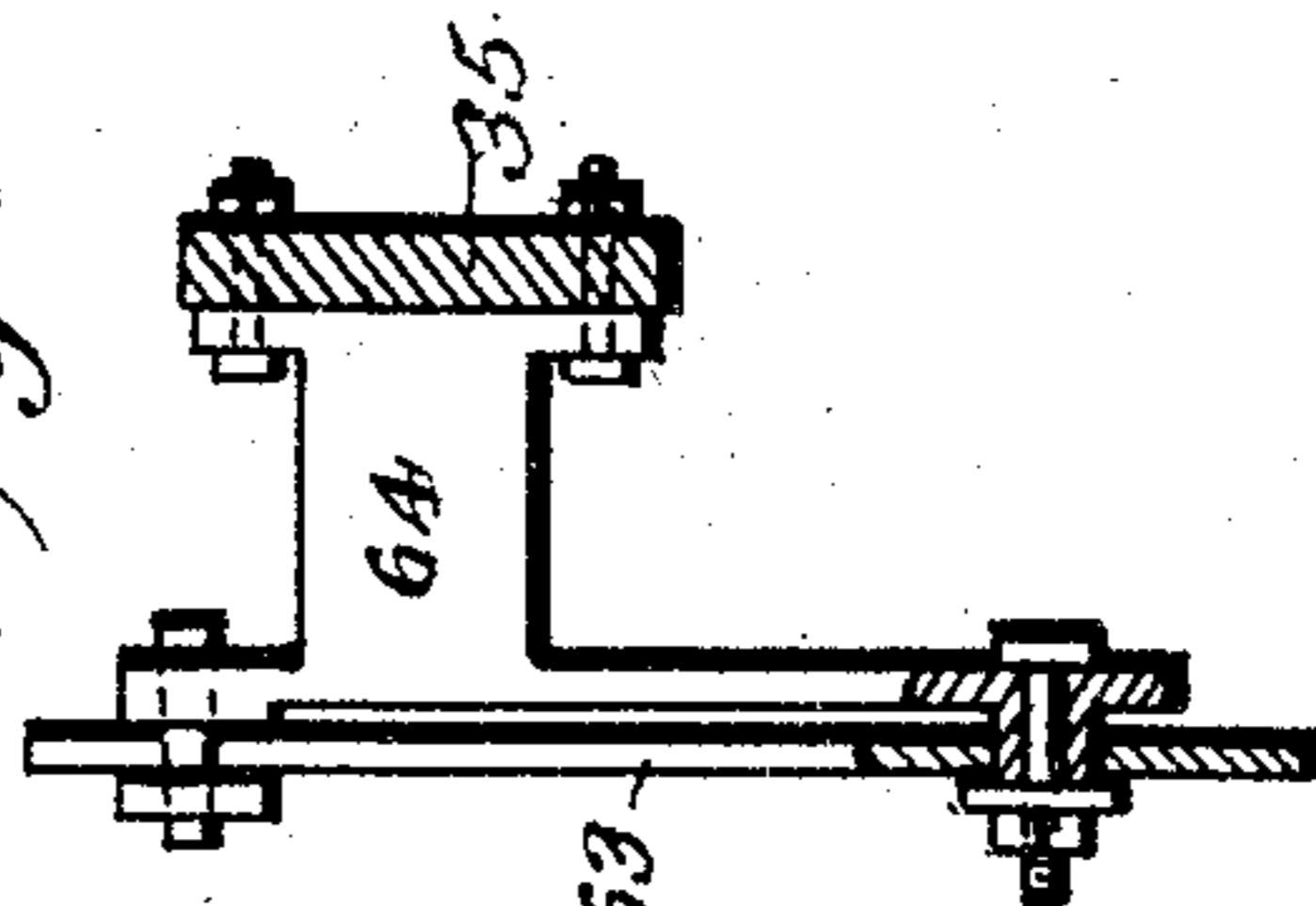


Fig. 6.

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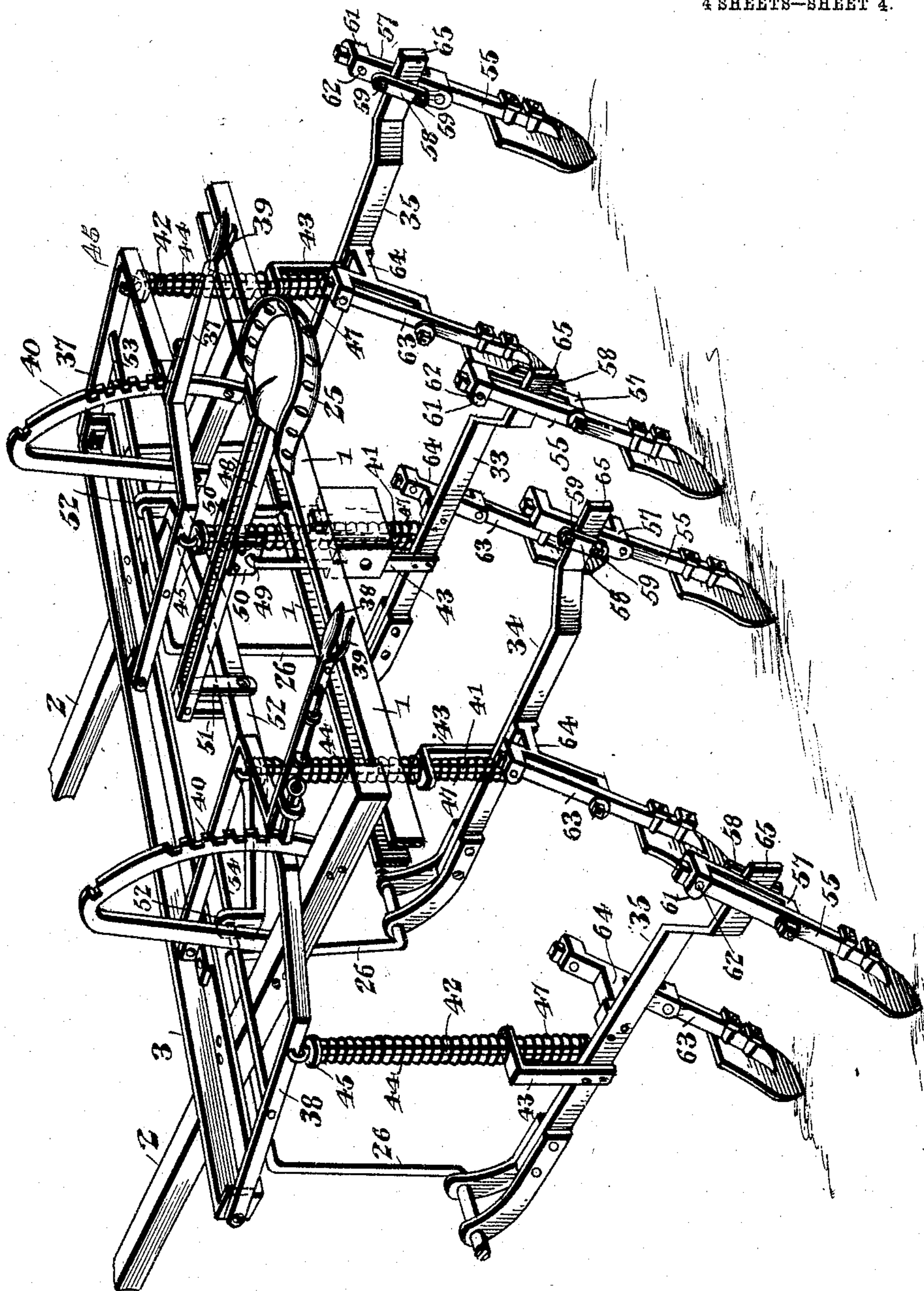
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4 SHEETS—SHEET 4.

Fig. 8.



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UNITED STATES PATENT OFFICE.

SILAS E. BAILOR, OF TARKIO, MISSOURI.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 780,930, dated January 24, 1905.

Application filed January 30, 1904. Serial No. 191,337.

To all whom it may concern:

Be it known that I, SILAS E. BAILOR, a citizen of the United States, residing at Tarkio, in the county of Atchison and State of Missouri, have
5 invented a new and useful Cultivator, of which the following is a specification.

This invention relates to improvements in cultivators, and has for its primary object to produce an agricultural implement of this
10 character embodying a simple and inexpensive construction and so arranged that the direction of movement of the machine and the raising and lowering of the cultivator-teeth may be controlled by the driver without consider-
15 able exertion.

A subordinate object of the invention is to provide a novel mounting for the driver's seat, whereby the weight of the driver will be utilized in the elevation of the plows at either side
20 of the machine or at both sides thereof, as the case may be.

Further objects are to decrease the weight and increase the stability of the frame structure and to equip the machine with novel guid-
25 ing mechanism, including treadles disposed adjacent to the driver's seat for manipulation by the feet of the driver.

Subordinate to the objects stated are others which will appear during the course of the suc-
30 ceeding description of that form of my invention which for the purpose of this disclosure is illustrated in the accompanying drawings.

In said drawings, Figure 1 is plan view of a two-row cultivator embodying my invention.
35 Fig. 2 is a side elevation thereof with one of the wheels removed. Fig. 3 is a vertical transverse section on the line 3-3 of Fig. 1. Fig. 4 is a front elevation. Fig. 5 is a detail perspective view showing a portion of the steering mechanism. Fig. 6 is a sectional view of
40 one of the plow-beams, showing the manner of attachment of the rear plow-standards; and Fig. 7 is a similar view showing the mounting of the front standards. Fig. 8 is a view illustrating the arrangement of the plow-beams and the mechanism for raising and lowering
45 the same.

Like characters of reference are employed to designate corresponding parts throughout
50 the several views.

The frame of the machine comprehends the axletree 1, from which extend forwardly the tongues 2, resting upon the tree 1 and supporting at a point some distance in advance of said tree a transverse frame-bar 3, preferably
55 constructed of angle-iron. At the opposite ends of the axletree are secured brackets 4 for the reception of the vertical portions 5 of short crank-axes 6, which pass through the hubs of the carrying-wheels 7 of the machine. These
60 crank-axes are designed to swing upon vertical axes defined by the vertical portions 5 thereof for the purpose of changing the relation of the carrying-wheels to the frame in order to properly guide the movements of the
65 machine in a manner well understood in the art. Extending forwardly from the crank-axes are arms 8, secured thereto by brackets 9, as shown, and having their front ends connected by a rod
70 10, extending transversely across the machine. The shifting of the connecting-rod 10 in a longitudinal direction will effect the swinging of the crank-axes on their vertical axes and will
75 dispose the axes of the wheels at an angle to the line of draft for the purpose of facilitating the turning of the machine in one direction or the other.

A seat-post 17 of inverted-U shape is passed vertically through the axletree 1 to present
80 its opposite ends above and below the latter and is retained rigidly in place by bolts or other suitable securing means. Extended forwardly from the legs of the seat-post 17 are a pair of brace-bars 24, rigidly connected at
85 their front ends to a pair of vertical braces 29, to be described, by means of a bolt 24^a, from which are swung a pair of treadles 22 and 23. The treadles 22 and 23 extend downwardly and rearwardly and are disposed to receive the feet of the driver, for whose ac-
90 commodation a seat 25 is supported above and in rear of the axletree. When it is desired to guide the machine in one direction or the other, the proper treadle is depressed for the purpose of shifting the connecting-rod 10, and
95 thereby swinging the crank-axes 6 in an obvious manner. The connection between the treadles and the rod 10 is effected through the medium of an oscillatory segment 10^a, fulcrumed upon a bracket 10^b, bolted to and sup-
100

ported by the brace-bars 24 below the connecting-rod. The treadles are connected to the opposite ends of the segment 10^a by flexible pieces—as, for instance, chains 10^c—and the segment is in turn connected to the rod 10 by crossed pieces or chains 10^d, as clearly shown in Fig. 5. Obviously, however, other modes of connecting the segment and rod may be substituted for the crossed chains—for instance, a toothed engagement constituting a rack-and-pinion connection.

To the under sides of the tongues 2 are secured the arches 26 of the beam-supporting bar or frame 27. This bar is braced by inclined end braces 28, extending from the ends of the bar to the bearing-brackets 4, and by vertical braces 29, bolted at their upper ends to the frame-bar 3 and at their lower ends to spaced collars 30, encircling the beam-supporting bar midway of its ends and preferably connected by an integral connecting-piece 31. The forwardly-extending braces 24, which have been described as being bolted to the lower ends of the seat-post 17, are bolted, as before stated, at their front ends to the vertical braces 29 at points adjacent to the collars 30. The beam-supporting bar 27 is thus rigidly associated in the frame structure, and the arches 26 thereof are designed for the accommodation of two rows of plants which are to be simultaneously cultivated by the implement.

From the beam-supporting bar 27 is swung a series of plow-beams 32, 33, 34, and 35. These beams are disposed at opposite sides of the arches, and to prevent undue swinging movement thereof in a horizontal direction their front ends are preferably bifurcated, as shown in Fig. 1, and are apertured for the reception of the bar 27. To prevent the middle beams 33 and 34 from sliding laterally on the bar, a split retaining-collar 36 is secured upon the bar 27 between the terminal bifurcations of each beam. It will be understood that these several beams are designed for the support of the plows, cultivator-teeth, or other implements; but before describing the specific mounting of the latter I shall first describe the novel mechanism which I have devised for facilitating the raising and lowering of the beams for the purpose of withdrawing them from the ground or of presenting them in their operative positions. The beams associated with each of the arches 26 constitute a gang designed to be raised and lowered by a yoke-shaped lever 37 or 38, pivoted to the frame-bar 3, as shown in Fig. 3, and provided with a spring-latch 39, disposed to engage a segmental rack 40 for the purpose of retaining the lever in its adjusted positions. As this machine is designed for use as a double-row cultivator, the beam-supporting bar is formed with two arches, the plows are divided into two gangs, and two levers 37 and 38, one for each gang of plows or pair of beams, are

therefore utilized. To each of the levers 37 and 38 are connected the upper ends of a pair of lifting-rods 41 and 42, disposed vertically and passed through openings in the horizontally-disposed upper ends of posts 43, upstanding from and secured to the beams of the gang controlled by the lever. Each of these rods is encircled by a stout spiral spring 44, bearing at one end against the post 43 and at its opposite end against a spring-cap 45, secured to the rod adjacent to its upper end, or, if desired, the cap may be omitted and the spring disposed to bear directly against the lever. Since the levers are held rigidly by the engagement of their latches with the racks 40, the springs 44, bearing upon the posts 43, will urge the beams toward the ground, but will yield to permit the raising of the beam in case the plows should encounter an unusual obstruction. Upon the lower extremity of each of the rods 42 is screwed a nut 46, and between this nut and the under side of the horizontal portion of the post 43 is disposed a buffer-spring 47, encircling the rod 42. The purpose of these buffer-springs 47 is to permit the smooth working of the parts when the levers are operated to lift the beams, as it will be observed that the first movement of the lever will be taken up by the compression of the spring 47, and the beam will then be elevated after the inertia of the lever has been overcome.

We now come to consider an important feature of the invention, residing in a novel construction and arrangement of parts, whereby the weight of the driver is utilized to assist in the raising of either gang of plows independently of the other gang or in unison therewith, as desired. The seat 25 is supported upon the rear end of a seat-beam 48, pivotally supported at a point intermediate of its ends upon the upper or closed end of the seat-post 17, the transverse bar 49 of the latter being rounded and fitted into ears 50, depending from the beam 48. The beam 48 is disposed longitudinally of the machine and is provided at its front end with a pair of pendent links 51, between the lower ends of which is medially pivoted a transverse yoke 52, having its opposite ends extended upwardly to engage brace-bars 53 and 54, which serve to brace the opposite side portions of each of the levers 37 and 38. It will thus appear that the weight of the driver will tend to depress the rear end of the seat-beam 48, thereby elevating the yoke 52, secured to the front end of the beam, and exerting considerable force in an upward direction upon the levers 37 and 38. Therefore upon the release of these levers from the racks 40 the weight of the rider will be utilized to assist in the elevation of the plow-beams, and if this weight is more than counterbalanced by the weight of the parts to be moved it is simply necessary for the operator to pull upwardly on the handles of the levers

for the purpose of effectually lifting the plows from the ground. Obviously if it is desired to elevate one only of the gangs of plows this may be accomplished with equal facility, as the yoke is mounted to rock upon a central axis to accommodate the independent movement of one of the plows, and the weight of the rider will therefore be utilized in raising either gang or both gangs of plows.

The manner of mounting the plows upon the beams will be clearly understood from Figs. 1, 3, 6, and 7 of the drawings. Each beam is equipped with two plow-standards, the rear standard 55 (see Fig. 6) being pivoted intermediate of its ends upon a stud 56, projecting from one side of a standard-supporting bracket 57, adjustably retained against one side of the beam by a strap 58, clamped against the opposite side of the beam by nuts 59, screwed upon bolts 60, extending from the bracket 57. At the upper end of the bracket 57 is disposed an angular socket 61 for the reception of the upper end of the standard 55, which latter is retained against movement by a wooden or other frangible break-pin 62. This pin is of sufficient strength to sustain the usual strains brought to bear upon the lower end of the standard by the movement of the plow through the earth, but is designed to break under unusual strains in order to prevent injury to the standard or its mounting. By this arrangement the front standard is offset from one side of the beam, and in order to secure a proper lateral separation of the two plows carried by each beam the front standard 63 is offset by a bracket 64 from the opposite side of the deflected rear end 65 of the beam. The bracket 64 is bolted to the beam, as shown in Fig. 7, and the mounting of the standard thereon is similar to the mounting of the rear standard on the bracket 56.

A simple draft-equalizing device is shown applied to the cultivator. This device comprehends a middle swingletree 66, to which is connected a draft-chain 67, passed under the pulley 68 (mounted on the bar 27 between the collars 30) and around a pulley 69 and terminally secured to a bolt 70, passed through the vertical braces 29. The pulley 69 is mounted in a frame 71, in which is mounted a second pulley 72, having its axis at right angles to the pulley 69. Around the pulley 72 is passed a short length of chain 73, the ends of which are passed in opposite directions around pulleys 74 and 75 upon the front of the axletree and are attached to rods 76 and 77, disposed longitudinally of the tree. To the outer ends of the rods 76 and 77 are secured chains 78, passed around pulleys 79, located adjacent to the ends of the axletree. The chains 78 are in turn connected to short rods 80, attached to draft-chains 81, passed under pulleys 82, mounted upon the opposite ends of the beam-supporting bar 27, the end swingletrees 83 and 84 being attached

to the draft-chains, as shown in Fig. 1. By this arrangement the draft is equalized.

It is thought that from the foregoing the construction and operation of my cultivator will be clearly apparent; but while the illustrated embodiment of the invention is believed at this time to be preferable I do not wish to limit myself to the structural details defined, as, on the contrary, I reserve the right to effect such changes, modifications, and variations of the illustrated structure as are fairly embraced within the scope of the protection prayed.

What I claim is—

1. In a cultivator, the combination with the axletree and carrying-wheels, of tongues extending forwardly from the tree, an arched beam-supporting bar secured to the tongues in advance of the axletree, braces connecting the axletree and said bar, plow-beams swung from the beam-supporting bar, and means for raising and lowering the beams.

2. In a cultivator, the combination with the axletree and carrying-wheels, of tongues extending forwardly from the tree, a transverse frame-bar connecting the tongues at a point in advance of the axletree, a beam-supporting bar provided with arches secured to the tongues, braces connecting the beam-supporting bar with the frame-bar and axletree, respectively, plow-beams swung from the beam-supporting bar, and levers mounted on the transverse frame-bar and connected to the beams to swing the same vertically.

3. In a cultivator, the combination with a frame, carrying-wheels, and vertically-movable plow-beams, of a pair of operating-levers for the plow-beams, a yoke connected to both of said levers, and a driver's seat movable independently of the frame and operatively connected to the yoke.

4. In a cultivator, the combination with a frame, carrying-wheels, and vertically-movable plow-beams, of a pair of operating-levers for the beams, a yoke extending between the levers, a pivoted seat-beam having pivotal connection with the yoke, and a driver's seat mounted on the seat-beam.

5. In a cultivator, the combination with a frame and carrying-wheels, of separate gangs of plow-beams, and means, including a vertically-movable driver's seat, whereby upon the depression of said seat either gang of plow-beams may be elevated independently of the other.

6. In a cultivator, the combination with the frame and carrying-wheels, of separate gangs of plow-beams carried by the frame, and means, including a driver's seat mounted for vertical movement independently of the frame, whereby the depression of the seat will effect the elevation of either or both gangs of plow-beams.

7. In a cultivator, the combination with a frame and carrying-wheels, of plow-beams swung from the frame, independent beam-op-

erating levers mounted on the frame, connections between the beams and levers including springs exerting downward pressure upon the beams, a seat-beam movable independently of the frame and connected with both of said levers, and a driver's seat mounted on the beam.

8. In a cultivator, the combination with a frame and plow-beam, of a beam-operating lever having a handle, a driver's seat movable independently of the frame and located adjacent to the handle of the lever, and means connecting the driver's seat with the lever, whereby the elevation of the plow-beam will be effected by the combined effect of the driver's weight and an upward pull upon the handle of the operating-lever by the driver.

9. In a cultivator, the combination with the carrying-wheels, and a frame including an axletree, of a seat-post extending through the axletree, guiding mechanism carried in part by the lower end of the seat-post, a seat-beam mounted to rock upon the upper end of the seat-post, and vertically-movable plow-beams connected to the seat-beam for elevation thereby.

10. In a cultivator, the combination with a frame including an axletree and crank-axles, of a seat-post secured to the axletree, brace-bars extending forwardly from the seat-post, an oscillatory segment connected to the crank-axles, and treadles for operating the segment.

11. In a cultivator, the combination with a frame including an axletree and crank-axles, of a seat-post carried by the axletree, brace-bars extending from said post, an oscillatory segment carried by the brace-bars, a rod connecting the crank-axles, flexible pieces connecting said rod to the segment, a pair of treadles and flexible pieces connecting the opposite ends of the segment with the treadles.

12. In a cultivator, the combination with a frame, carrying-wheels, and plow-beams

mounted for independent vertical movement, of a vertically-movable driver's seat operatively connected to the beams to move the same, and means for locking one beam.

13. In a cultivator, the combination with a frame, carrying-wheels, and vertically-movable plow-beams, of a vertically-movable driver's seat, a connection whereby the movement of the driver's seat will effect the movement of the plow-beams, and means whereby either of said beams may be locked against movement by the seat.

14. In a cultivator, the combination with a frame, carrying-wheels, and vertically-movable plow-beams, of a pair of levers, each having connection with a plow-beam to adjust the same, a vertically-movable seat, and means operatively connecting said seat with both levers.

15. In a cultivator, the combination with a frame, carrying-wheels, and vertically-movable plow-beams, of a pair of beam-adjusting levers, a vertically-movable driver's seat, means operatively connecting said seat with both levers, said means permitting either lever to be independently moved by the driver's seat, and means for locking either lever against movement.

16. In a cultivator, the combination with a frame, carrying-wheels, and separate gangs of plow-beams, of levers, each of which is connected with a gang of beams, a locking device for each lever, and a vertically-movable driver's seat operatively connected with the levers to assist in the movement thereof.

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

SILAS E. BAILOR.

Witnesses:

T. E. WESTWICK,
EDWARD MOYER.