

No. 811,897.

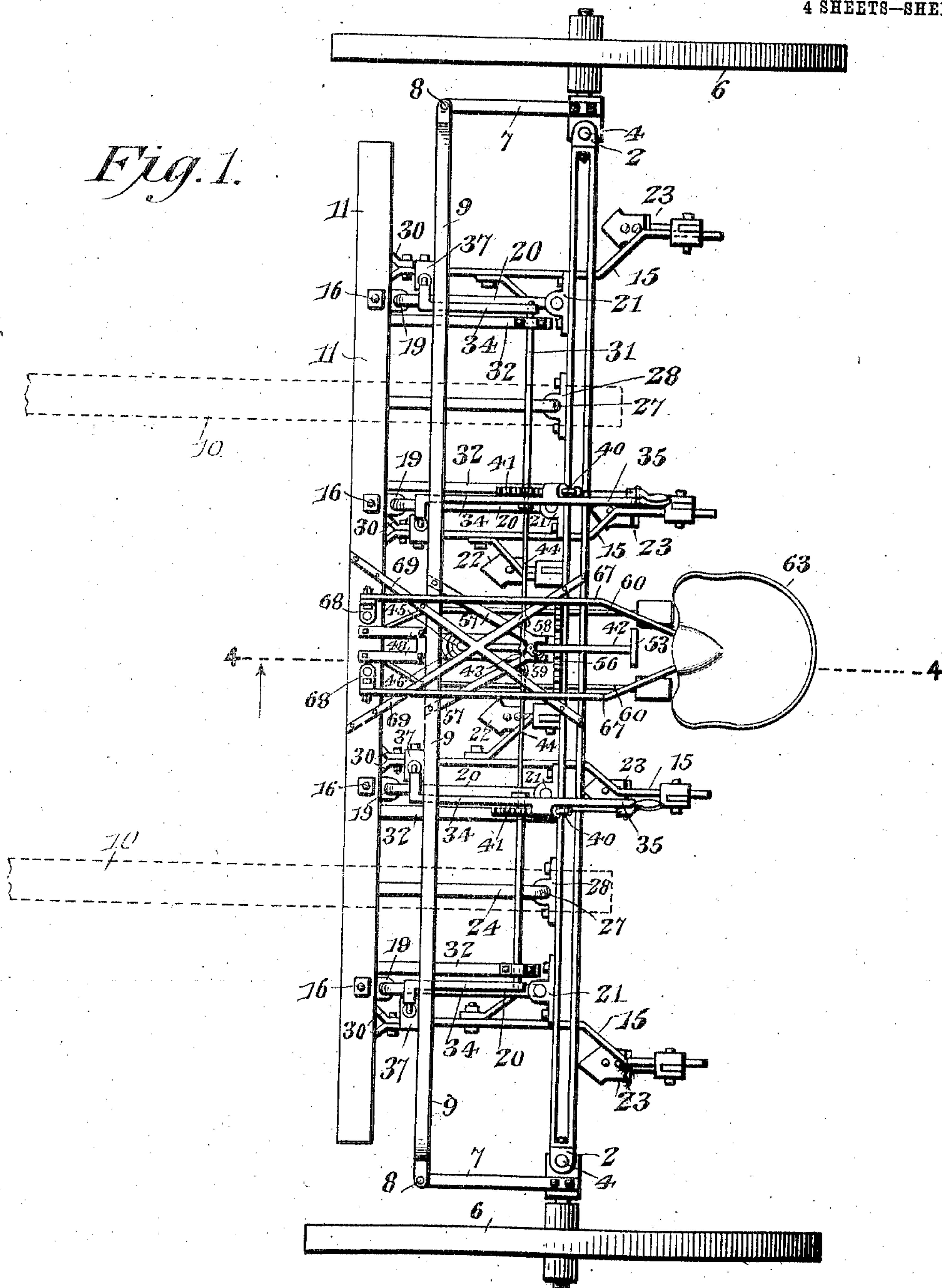
PATENTED FEB. 6, 1906.

S. E. BAILOR.
CULTIVATOR.

APPLICATION FILED JUNE 13, 1905.

4 SHEETS—SHEET 1.

Fig. 1.



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Witnesses

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4 SHEETS—SHEET 2.

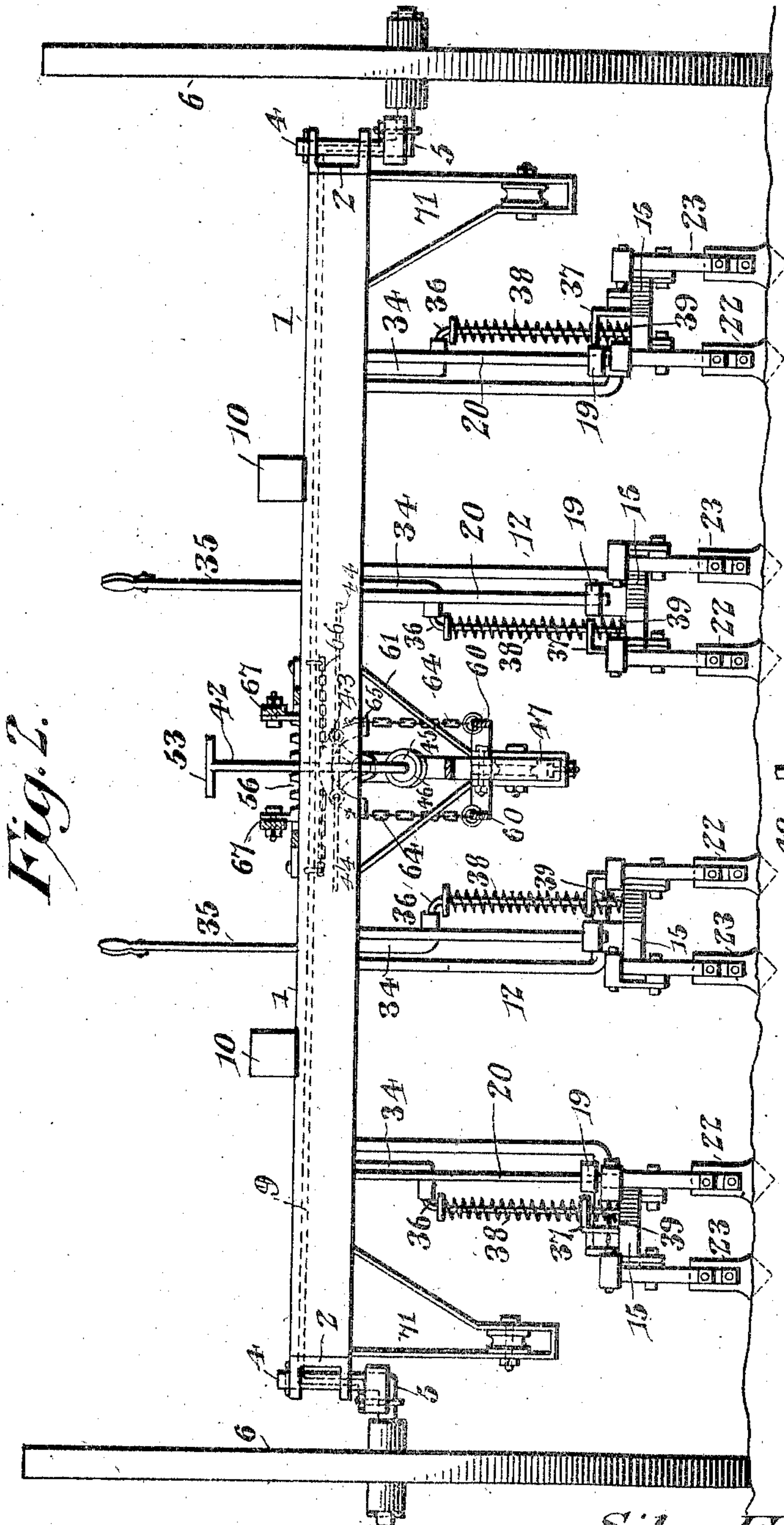


Fig. 2.

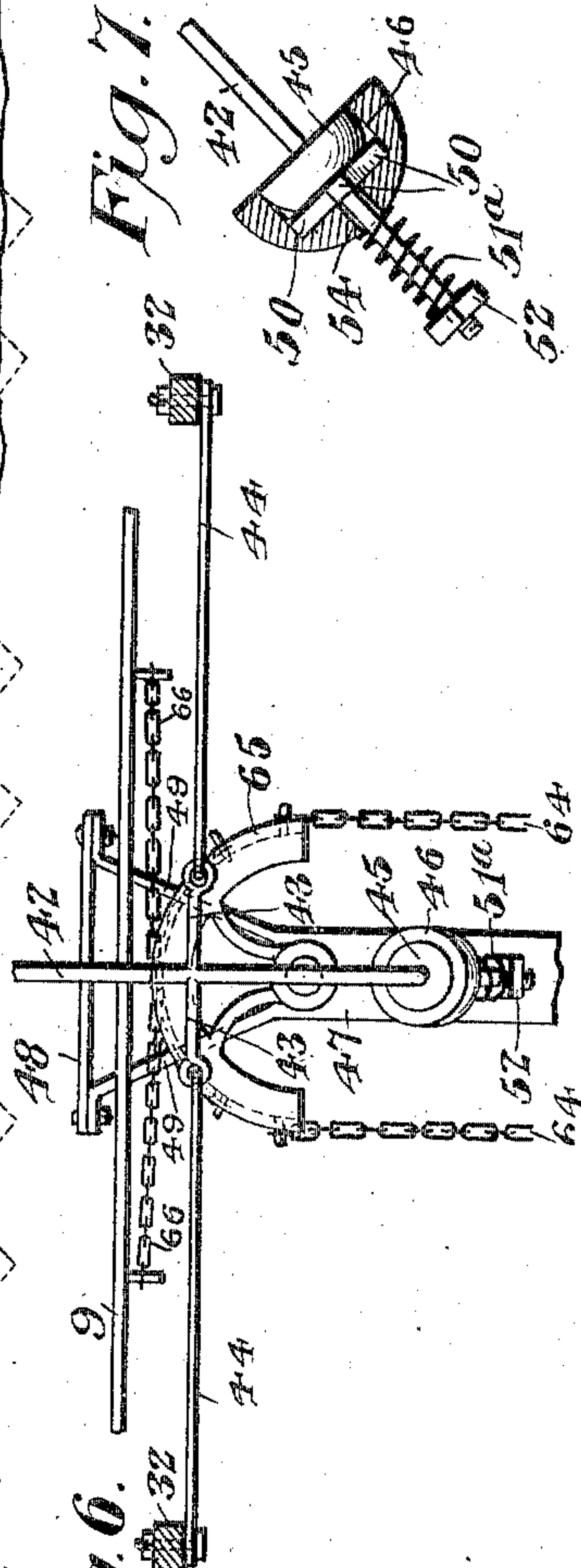


Fig. 6.

Fig. 7.

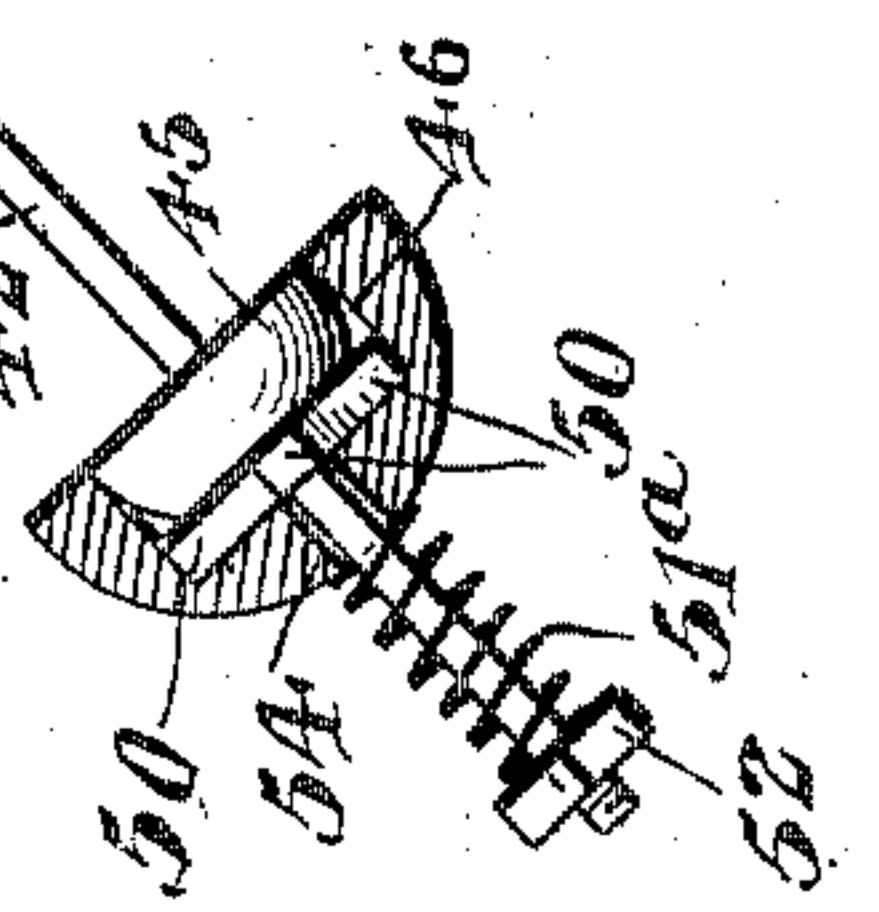
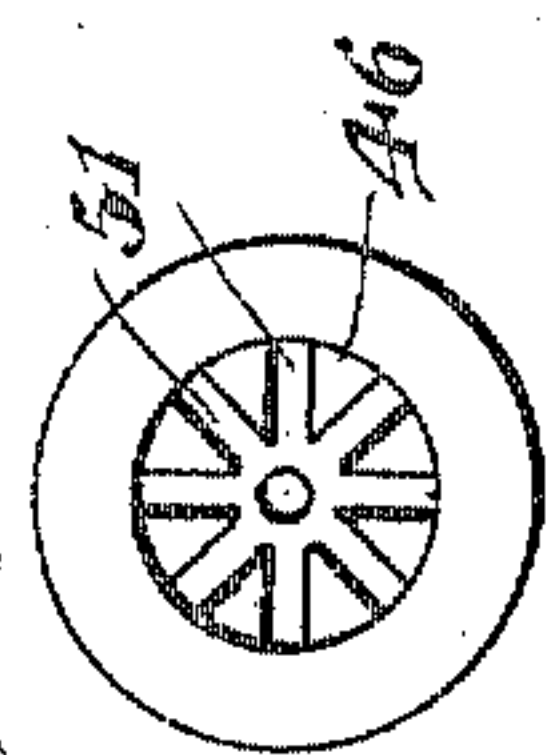


Fig. 8.



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4 SHEETS—SHEET 3.

Fig. 3.

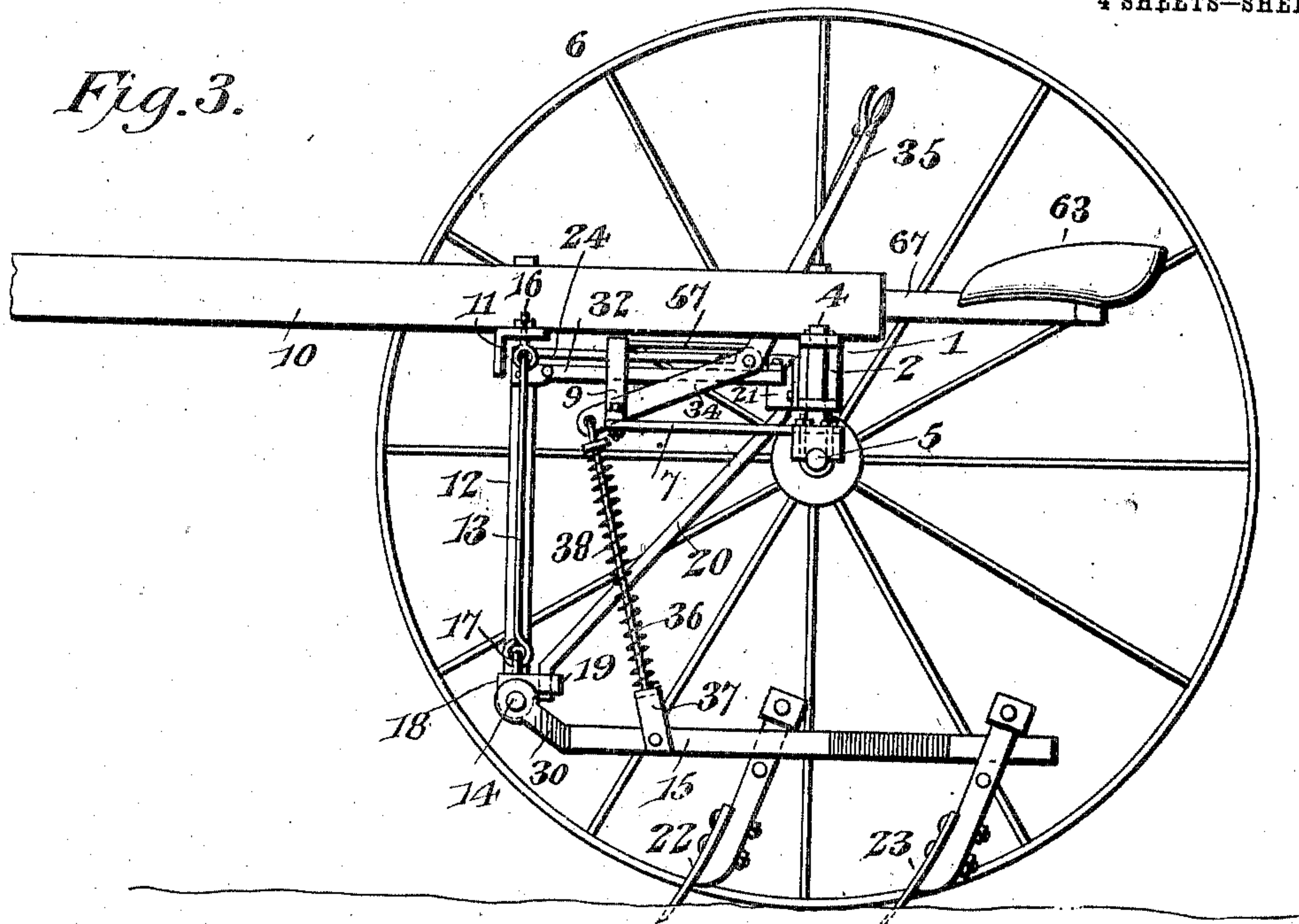


Fig. 4.

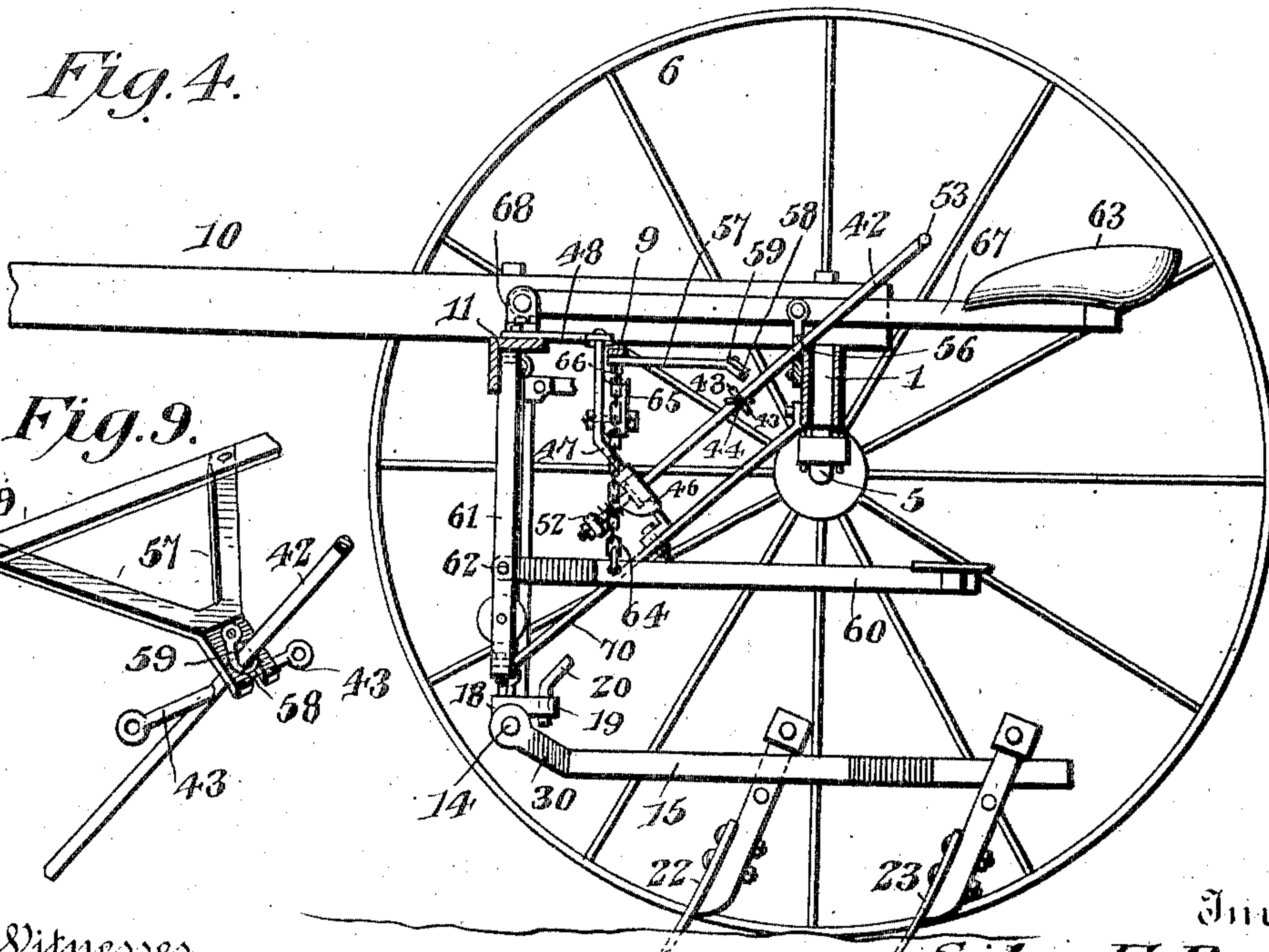
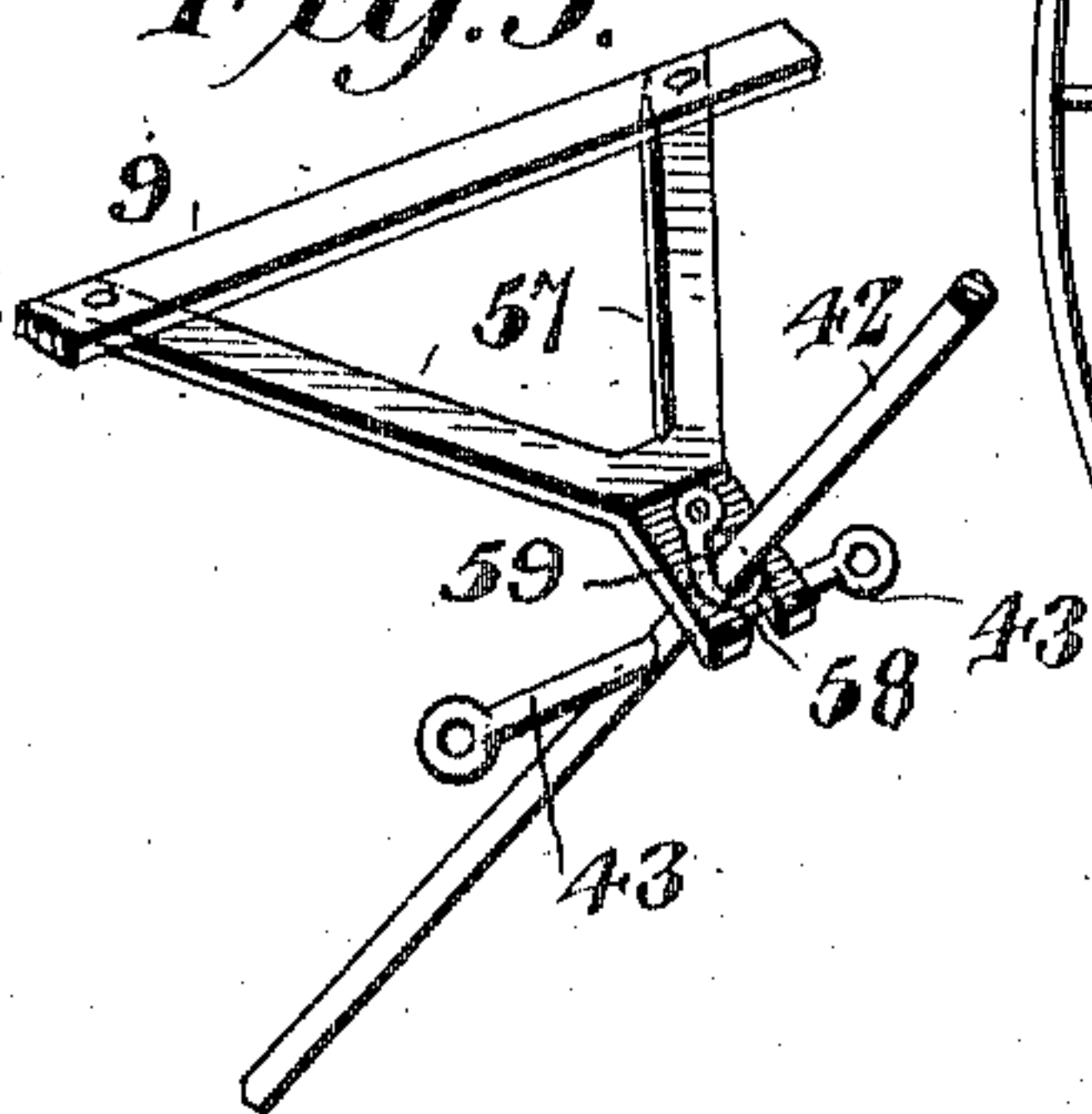


Fig. 5.



Witnesses

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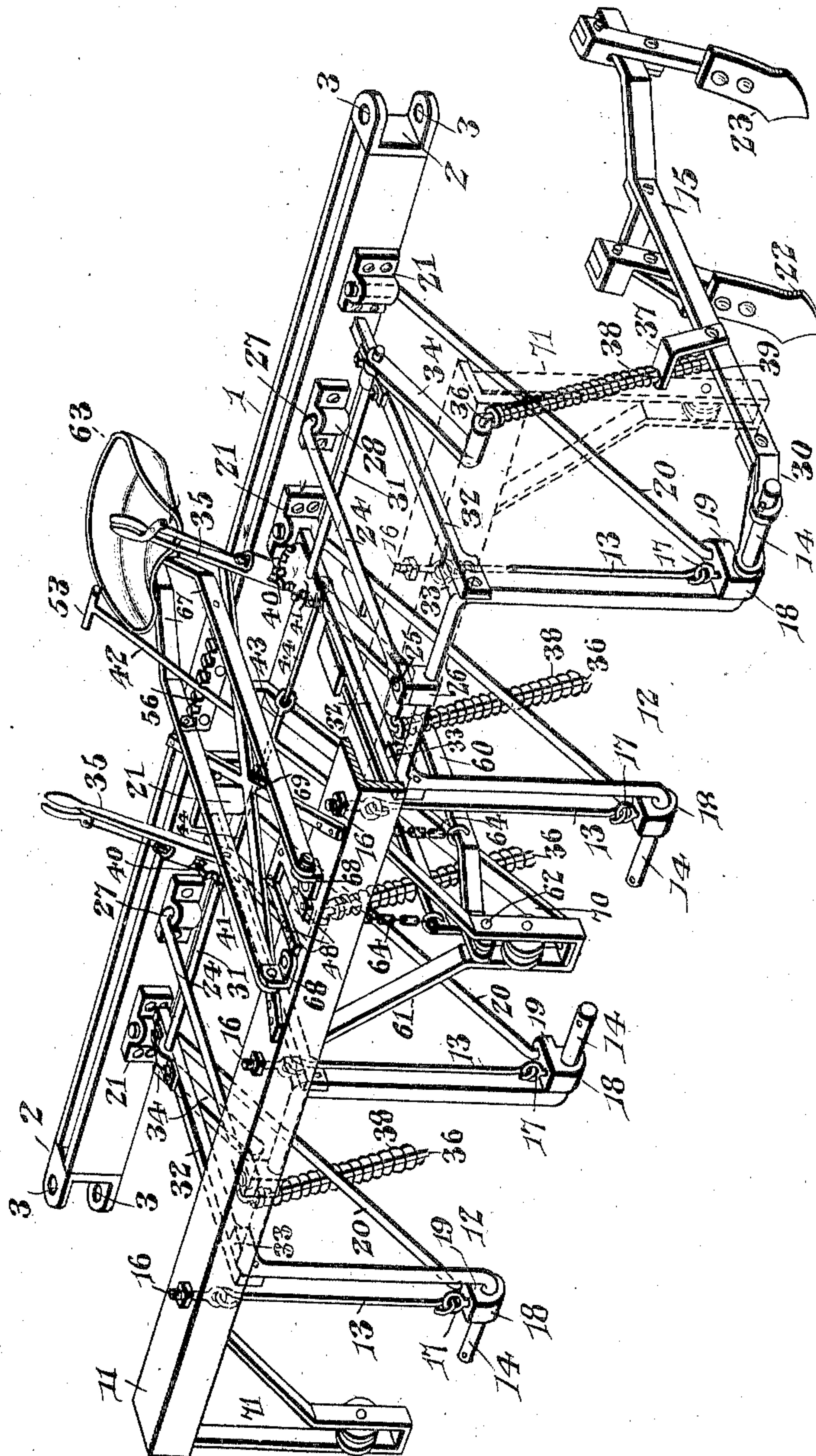
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4 SHEETS—SHEET 4.

Fig. 5.



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UNITED STATES PATENT OFFICE.

SILAS E. BAILOR, OF TARKIO, MISSOURI.

CULTIVATOR.

No. 811,897.

Specification of Letters Patent.

Patented Feb. 6, 1906.

Application filed June 13, 1905. Serial No. 265,038.

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 invented a new and useful Cultivator, of which the following is a specification.

The invention relates to improvements in cultivators.

The object of the present invention is to improve the construction of cultivators, and to provide simple and comparatively inexpensive means for controlling the gangs of plows and the carrying-wheels to arrange the plows for operating at the desired depth, and also for spacing the gang of plows the desired distance, and to permit the machine to be easily and accurately guided.

A further object of the invention is to enable the plows to be adjusted either independently or simultaneously with the carrying-wheels by the driver without leaving his seat and to provide means for locking the plows in their adjustment.

With these and other objects in view the invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended, it being understood that various changes in the form, proportion, size, and minor details of construction within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a plan view of a cultivator constructed in accordance with this invention. Fig. 2 is a rear elevation of the same. Fig. 3 is a side elevation of the cultivator. Fig. 4 is a vertical sectional view taken substantially on the line 4 4 of Fig. 1. Fig. 5 is an enlarged detail perspective view illustrating the manner of mounting and adjusting the plow-beams. Fig. 6 is a detail view of the operating mechanism for shifting the bar which is connected with the carrying-wheels. Fig. 7 is an enlarged detail sectional view illustrating the construction for locking the inclined operating-shaft against rotary movement. Fig. 8 is a detail view of the socket with which the head of the inclined shaft interlocks. Fig. 9 is an enlarged detail view illustrating the construction for connecting the inclined operating-

shaft with the central bifurcated arm of the shiftable connecting-bar.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates an axletree, preferably consisting of spaced metal bars or members and provided at its ends with bearing-brackets 2, having vertically-alined bearings 3 for the reception of vertical pivots 4 of crank-axles 5, upon which are mounted carrying-wheels 6. The vertical pivots of the crank-axles are secured in the bearing-brackets 2 by means of keys or other suitable fastening devices, and the crank-axles are provided with forwardly-extending arms 7, which are connected at their front ends by pivots 8 with a transversely-disposed shiftable bar 9, which is adapted to be moved transversely of the machine by the means hereinafter described for changing the relation of the carrying-wheels with relation to the frame of the machine for enabling the latter to be properly guided.

The machine is provided with a pair of draft-beams 10, which are secured at their rear ends to the axletree and which support a transverse frame-bar 11, constructed of angle-iron or other suitable material and secured to the lower faces of the draft beams or tongues 10, as clearly shown in Figs. 3 and 4 of the drawings. The transverse frame-bar forms a support for a plurality of arches 12, which are adapted to straddle the rows and which are suspended from the frame-bar 11 by means of steel links 13. The arches, which are approximately inverted-U shaped, are preferably provided at the top and bottom with angular bends, and the terminals of the sides are bent laterally to form horizontal pivots 14, on which are mounted plow-beams 15. The links 13, which form flexible connections between the frame of the cultivator and the arches and which extend along the sides of the latter, are provided at their upper and lower ends with eyes, the upper eyes being linked into eyebolts 16, which have their threaded portions piercing the top horizontal flange of the angle-frame bar 11 and which are provided with nuts located at the upper face of the frame-bar, as clearly illustrated in Fig. 5 of the drawings. The lower eyes of the links 13 are linked into eyes 17 of lugs or collars 18, which are mounted on the out-turned laterally-projecting pivots 14 of the arches. The lugs or collars 18, which have

rearward extensions 19, are provided with vertical bearing-openings for the reception of the lower ends of inclined oscillatory brace-rods 20, which are pivotally connected at their upper ends to the axletree 1 by means of suitable bearing-brackets 21. The terminals of the inclined brace-rods are bent vertically to form upper and lower pivots on which the brace-rods are adapted to oscillate. The plow-beams are equipped with front and rear plows 22 and 23 or other suitable cultivating devices, which may be of any desired construction and which may be arranged at either side of the plow-beams. The plows of each arch constitute a gang and are adapted to be moved transversely of the machine by the means hereinafter described, the inclined oscillatory brace-rods and the links 13 permitting the necessary lateral movement of the arches. The arches are also braced at the top by horizontal brace-rods 24, connected at their front ends by suitable pivots 25, with central lugs or collars 26 of the arches, and having their rear ends 27 bent downward to form vertical pivots, which are arranged in bearing-brackets 28 of the axletree. The inclined and horizontal brace-rods are adapted to maintain the arches in a vertical position, and these brace-rods form flexible connections between the arches and the frame of the cultivator and permit the lateral adjustment of the former.

The plow-beams have forked front portions 30, which are arranged on the laterally-extending pivots of the arches and which are provided with suitable openings for the reception of the same. The front portions of the plow-beams are retained on the pivots 14 by means of keys or other suitable fastening means, and the said plow-beams are connected at an intermediate point with operating mechanism for raising and lowering them. Two sets of such operating mechanisms are employed for permitting an independent adjustment of the gangs of plows, and each set comprises a transverse rock-shaft 31, journaled in suitable bearings of rearwardly-extending arms 32, which are secured at their front ends to rearwardly-projecting lugs or flanges 33 of the arch 12. The arms are rigid with the arch 12 and are adapted to move laterally with the same, and the rock-shaft is provided at the outer end with an arm 34, which is yieldably connected with the outer plow-beam. The inner end of the rock-shaft has fixed to it an operating-lever 35, connected with the rock-shaft at an intermediate point and having its lower arm arranged parallel with the arm 34 at the outer end of the rock-shaft. These arms extend downwardly, and the lower arm of the operating-lever is yieldably connected with the inner plow-beam of the arch 12. The rock-shaft, which constitutes a fulcrum for the operating-lever, is shown in the accom-

panying drawings as located directly in advance of the axletree; but it may be arranged at any other convenient point to permit the operating-lever to oscillate freely without interfering with the other mechanism of the machine. Each yieldable connection comprises a rod 36, connected at its upper end with the adjacent arm of the rock-shaft and slidably connected with the adjacent plow-beam preferably by being passed through an opening of an L-shaped guide 37. The rod has disposed on its upper and lower coiled springs 38 and 39, which engage the guide 37, whereby the plow-beam is yieldably supported and is adapted to be readily adjusted in a vertical direction without jar. The operating-lever is provided with a spring-actuated detent 40 or other suitable latch mechanism for engaging a toothed segment 41, whereby the plow-beams are secured at the desired elevation. The springs of the yieldable connections cushion the plow-beams and relieve the machine of the jars and strains incident to its use.

The gangs of plows are adjusted laterally to space them the desired distance apart by means of an inclined operating-shaft 42, provided with laterally-extending arms 43, which are connected by links or rods with the inner members of each pair of arms 32 of the arches 12. The outer ends of the links or rods are attached to the inner arms 32 at points below and in rear of the bearings of the transverse rock-shafts 31, so as not to interfere with the movement of the operating-levers 35; but the said links or rods may be connected with the inner arms at any other desired point, or any other suitable means may be employed for connecting the operating-shafts with the two gangs of cultivating devices. The inclined operating-shaft 42 is provided near its lower end with a substantially semi-spherical head 45, which is arranged in a socket 46 of a bracket 47, and the latter depends from a plate or piece 48, which extends rearwardly from the transverse frame-bar 11 at the center thereof. The plate is substantially rectangular, and the bracket is preferably provided with upwardly-diverging arms 49, which are secured to the side portions of the plate or piece 48, as clearly illustrated in Fig. 6 of the drawings. The semispherical head 45 of the inclined operating-shaft is provided with suitable projections or teeth 50, which are adapted to engage corresponding grooves or recesses 51 of the bottom of the socket 46, whereby the head of the inclined operating-shaft is interlocked with the socket, and is held against rotary movement. The inclined operating-shaft is retained in its interlocked relation with the socket by means of a coiled spring 51^a, disposed on the lower portion of the shaft and interposed between the socket and a nut 52, which supports the lower end of the coiled spring; but any other

suitable means may be provided for this purpose. The spring yieldably holds the head 45 of the inclined shaft in engagement with the socket, and it permits the head to be withdrawn from engagement with the socket for rotating the shaft 42. The inclined operating-shaft 42 is provided at the upper end with a suitable grip or handle 53, and it is adapted to be partially rotated to oscillate the laterally-extending arms 43 for drawing the gangs of plows together or for moving them outwardly from each other. By this operation the gangs of plows are properly spaced. The opening 54 of the bottom of the bearing or socket 46 is sufficiently large to permit the inclined operating-shaft to be oscillated for moving the gangs of plows laterally, which will be found advantageous when changing the direction of the machine. A suitable ratchet 56 is mounted on the axletree in position to be engaged by the inclined operating-shaft for holding it against lateral movement.

The laterally-shiftable connecting-bar 9 is provided with a central arm 57, which is preferably in the form of a V-shaped bar or frame, having its apex 58 bifurcated to receive the inclined operating-shaft when the latter is swung upward out of engagement with the ratchet 56. The central arm is provided with a suitable latch 59, preferably in the form of a pivoted hook and adapted to lock the inclined operating-shaft in engagement with the central arm, whereby the gangs of plows and the connecting-bar are adapted to be simultaneously moved in a direction transversely of the machine. By this operation the direction of the machine is changed and the position of the plows is simultaneously shifted. The direction of the machine is also adapted to be changed independently of any adjustment of the gangs of plows, and for this purpose opposite treadles 60 are provided. These treadles, which are located at the center of the machine, extend longitudinally thereof and are pivoted at their front ends between the sides of a hanger 61, which depends from the transverse frame-bar. The hanger, which is composed of two sides connected at the bottom, may be of any other desired construction. The lower portions of the sides are parallel and receive the front ends of the treadles, and the upper portions of the sides diverge upwardly, as clearly shown in Fig. 5 of the drawings. The front ends of the treadles are mounted on a pivot 62, which pierces the sides of the hanger at the upper ends of the parallel portions. The rear ends of the treadles are provided with suitable foot-plates, which are located slightly in advance of a seat 63 for the accommodation of the driver. The treadles are connected at an intermediate point by chains 64 or other suitable flexible connections with an oscillatory segment 65, which is pivotally

mounted on the bracket 47. The segment is also connected with a pair of chains 66, which extend in opposite directions from the segment to the shiftable connecting-bar and which are secured to the same at points at opposite sides of the center thereof. The chains 66 have their lower portions arranged on the oscillatory segment and are secured in suitable grooves thereof adjacent to the ends of the peripheral portion of the segment, and when the latter is oscillated by means of the treadles the connecting-bar will be shifted and moved transversely of the machine, as will be readily understood. The treadles are also adapted to be operated when the inclined operating-shaft is interlocked with the central arm of the shiftable connection, so that the gangs of cultivating devices and the pivotally-mounted axles may be easily adjusted.

The seat 63, which is located in rear of the axletree for enabling the weight of the driver to partially counterbalance the front of the machine, is secured to the rear ends of a pair of horizontally-disposed seat-supporting bars 67, which extend across the space between the frame-bar and the axletree and which are secured to the same. The front ends of the seat-supporting bars 67 are preferably connected with the frame-bar by means of L-shaped plates or knees 68, and the rear portions of the bar 67 are connected with the axletree by means of perforated ears or flanges located at the ends of the ratchet 56, which is arranged between the bars 67. The frame of the machine is stiffened by means of a central substantially X-shaped brace 69, composed of two crossed bars or members centrally connected and secured at their ends to the frame-bar and to the axletree.

The hanger 61 is braced by an inclined bar 70, extending upwardly from the bottom of the hanger 61 to the center of the axletree. The end hangers 71 also depend from the transverse frame-bar and are provided with lower parallel portions. The parallel portions of the central and end hangers are designed to receive guide-pulleys of a draft-equalizer, which does not constitute a portion of the present invention and is therefore not shown and described.

Having thus 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, of an arch, cultivating devices connected with the arch, and flexible connections between the frame and the arch for supporting the latter, said flexible connections extending along the sides of the arch.

2. In a cultivator, the combination with a frame, of a plurality of arches, separate gangs of cultivating devices mounted on the arches, substantially vertical links depending from the frame for movably suspending the arches

from the frame, and means for adjusting the arches.

3. In a cultivator, the combination with a frame, of a plurality of arches, substantially vertical spaced link connections movably suspending the arches from the frame, gangs of cultivating devices mounted on the arches, and means for adjusting the arches.

4. In a cultivator, the combination with a frame, of a plurality of arches movably connected with the frame, gangs of cultivating devices mounted on the arches, and mechanism carried by the frame for adjusting the gangs of cultivating devices.

5. In a cultivator, the combination with a frame, of a plurality of arches movably connected with the frame, gangs of cultivating devices mounted on the arches, and mechanism for adjusting the gangs of cultivating devices independently of each other, said mechanism being carried by the arches in the movement thereof.

6. In a cultivator, the combination of a frame, an arch movably connected therewith, cultivating devices connected with the arch and arranged to swing upward and downward, adjusting mechanism for raising and lowering the cultivating devices, and supporting means rigid with the arch and having the adjusting mechanism mounted on it.

7. In a cultivator, the combination of a frame, an arch movably suspended therefrom, cultivating devices pivotally connected with the arch and adapted to swing upward and downward, arms rigid with and extending from the arch, and adjusting mechanism supported by the arms and connected with the cultivating devices for raising and lowering the same.

8. In a cultivator, the combination with a frame, of an arch movably suspended from the frame and provided with rigid projecting arms, cultivating devices pivotally connected with the arch, a rock-shaft mounted on the projecting arms and having a depending arm, an operating-lever also mounted on the rock-shaft and forming a depending arm, and means for connecting the said depending arms with the cultivating devices.

9. In a cultivator, the combination with a frame, of an arch, substantially vertical links depending from the frame and connected with the arch, cultivating devices connected with the arch, and independent bracing means pivotally connected with the arch and with the frame for permitting the said arch to move laterally of the cultivator.

10. In a cultivator, the combination of a frame, an arch, links depending from the frame and connected with the arch at opposite sides thereof, and braces extending rearwardly from the lower portions of the sides of the arch and pivotally connected with the same and with the frame.

11. In a cultivator, the combination with a frame, of an arch movably suspended from the frame, cultivating devices connected with the arch, and inclined braces pivotally connected with the sides of the arch and with the frame.

12. In a cultivator, the combination with a frame, of an arch movably suspended from the frame, cultivating devices connected with the arch, and a horizontal brace pivotally connected with the arch and with the frame.

13. In a cultivator, the combination with a frame, of an arch movably suspended from the frame, cultivating devices connected with the arch, and horizontal and inclined braces pivotally connected with the arch and with the frame and maintaining the former in an upright position.

14. In a cultivator, the combination with a frame, of separate gangs of cultivating devices, an operating rock-shaft, and means for connecting the rock-shaft with the gangs of cultivating devices, whereby the said gangs are moved toward and from each other when the rock-shaft is rotated.

15. In a cultivator, the combination with a frame, of separate gangs of cultivating devices, an operating rock-shaft, means for connecting the rock-shaft with the gangs of cultivating devices, whereby the said gangs are moved toward and from each other when the rock-shaft is rotated, and means for locking the rock-shaft against rotation.

16. In a cultivator, the combination with a frame, of separate gangs of cultivating devices, an operating-shaft located between the gangs of cultivating devices and provided with opposite arms, means for connecting the arms with the cultivating devices, and means for locking the shaft against rotation for securing the gangs of cultivating devices in their adjustment.

17. In a cultivator, the combination with a frame, of separate gangs of cultivating devices, a shaft connected with the cultivating devices and provided with a head, and a bearing or socket receiving the head, said head and socket being provided with means for interlocking them with each other, whereby the shaft is held against rotation.

18. In a cultivator, the combination with a frame, of separate gangs of cultivating devices, a shaft connected with the cultivating devices and provided with a head, a bearing or socket receiving the head, said head and socket being provided with means for interlocking them with each other whereby the shaft is held against rotation, and a spring for maintaining the head and the socket in their interlocked relation.

19. In a cultivator, the combination with a frame, of a plurality of cultivating devices, and a shaft connected with the cultivating devices, said shaft being mounted for rotation for moving the cultivating devices toward

and from each other and being also capable of oscillation for moving the cultivating devices simultaneously in the same direction.

20. In a cultivator, the combination with
5 a frame, and pivotally-mounted axles, of shiftable connecting means for the axles, cultivating devices, and a rock-shaft connected with the cultivating devices and arranged to engage the shiftable connection for moving
10 the cultivating devices and shiftable connection simultaneously.

21. In a cultivator, the combination with
a frame, of pivotally-mounted axles, a shiftable connection for the axles, cultivating de-
15 vices, operating mechanism for the cultivating devices, and a fastening device for detachably securing the operating device to the shiftable connection.

22. In a cultivator, the combination with
20 a frame, of pivotally-mounted axles, a shiftable connection for the axles, cultivating devices, operating mechanism for the cultivating devices, an arm extending from the shiftable connection and having a recess or opening to receive the operating mechanism, and
25 a movable locking device for securing the operating mechanism in the recess or opening of the said arm.

23. In a cultivator, the combination with
30 a frame, of cultivating devices, a shaft connected with the cultivating devices, pivotally-mounted axles, a shiftable connection for the axles having an arm, and a ratchet mounted on the frame for holding the shaft,
35 said shaft being arranged to engage either the ratchet or the arm.

24. In a cultivator, the combination with
a frame, of pivotally-mounted axles, a shiftable connection for the axles having an arm,
40 cultivating devices, a bracket mounted on the frame and having a bearing, a shaft mounted in the bearing and connected with the cultivating devices and arranged to engage the said arm, mechanism also mounted
45 on the bracket and secured to the shiftable

connection for actuating the same, and treadles connected with the said mechanism for enabling the shiftable connection to be controlled by the feet of the operator.

25. In a cultivator, the combination with
50 a frame, of an arch, cultivating devices connected with the arch, and links forming flexible connections between the frame and the arch for supporting the latter, said links extending along the sides of the arch. 55

26. In a cultivator, the combination with
a frame, of an arch provided at the lower ends of its sides with laterally-extending pivots, cultivating devices connected with the pivots of the arch, and flexible connections
60 extending from the frame to the said pivots for supporting the arch.

27. In a cultivator, the combination with
a frame, of an arch, cultivating devices connected with the arch, flexible connections be-
65 tween the frame and the top of the arch, and separate flexible connections between the frame and the bottom of the arch.

28. In a cultivator, the combination with
a frame, of an arch, cultivating devices con-
70 nected with the arch, links connecting the top of the arch with the frame, and separate links depending from the frame and connected with the bottom of the arch for supporting the latter. 75

29. In a cultivator, the combination with
a frame, of an arch, flexible connections depending from the frame and connected with the bottom of the arch for supporting the latter, and horizontal and inclined links con-
80 nected with the frame and with the top and bottom of the arch respectively for maintaining the latter in an upright position.

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

SILAS E. BAILOR.

Witnesses:

ALEX RANKIN
J. W. HANNA.