

No. 681,239.

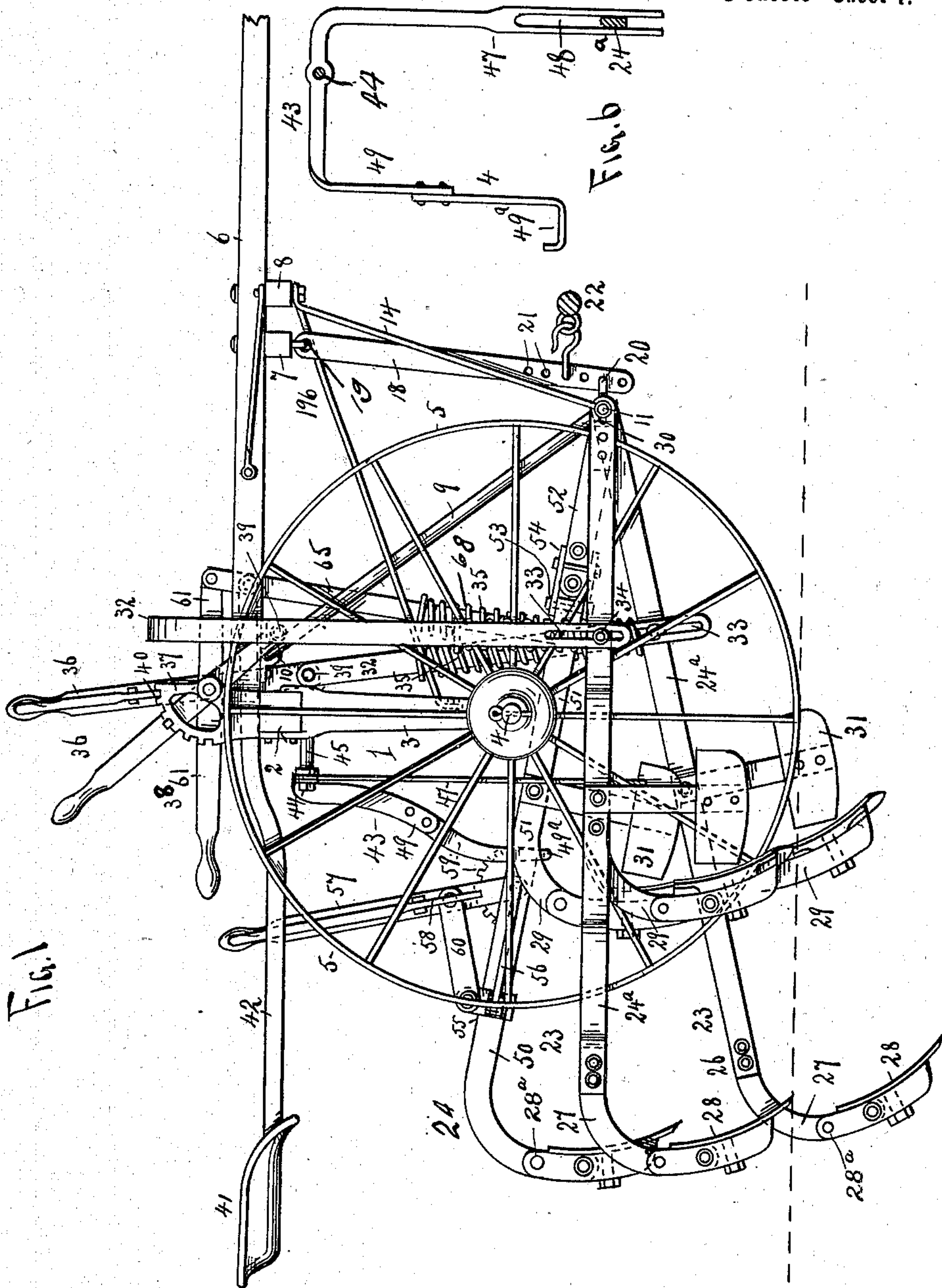
Patented Aug. 27, 1901.

A. METZEL.
SULKY CULTIVATOR.

(Application filed May 4, 1901.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses
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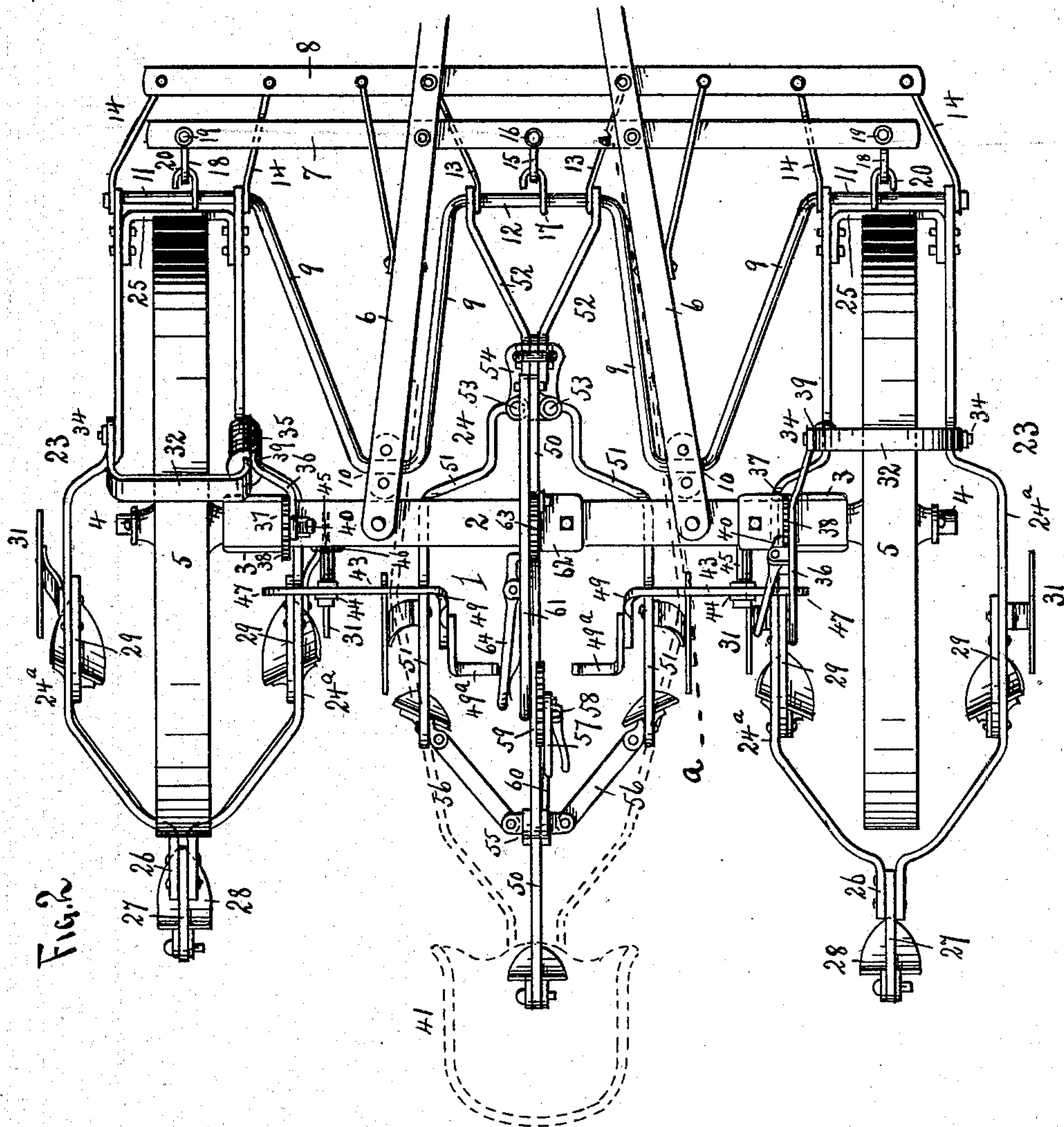
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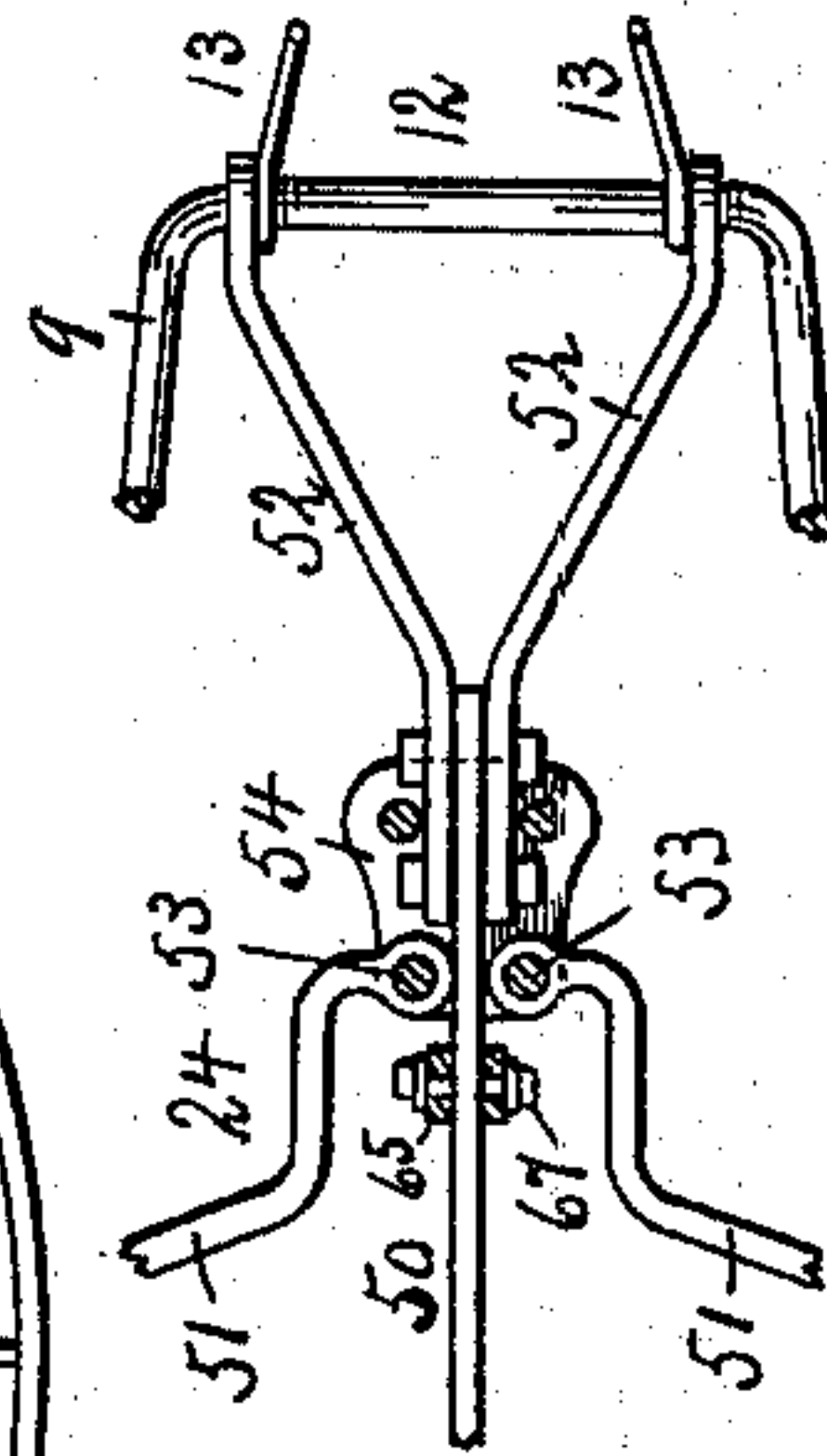
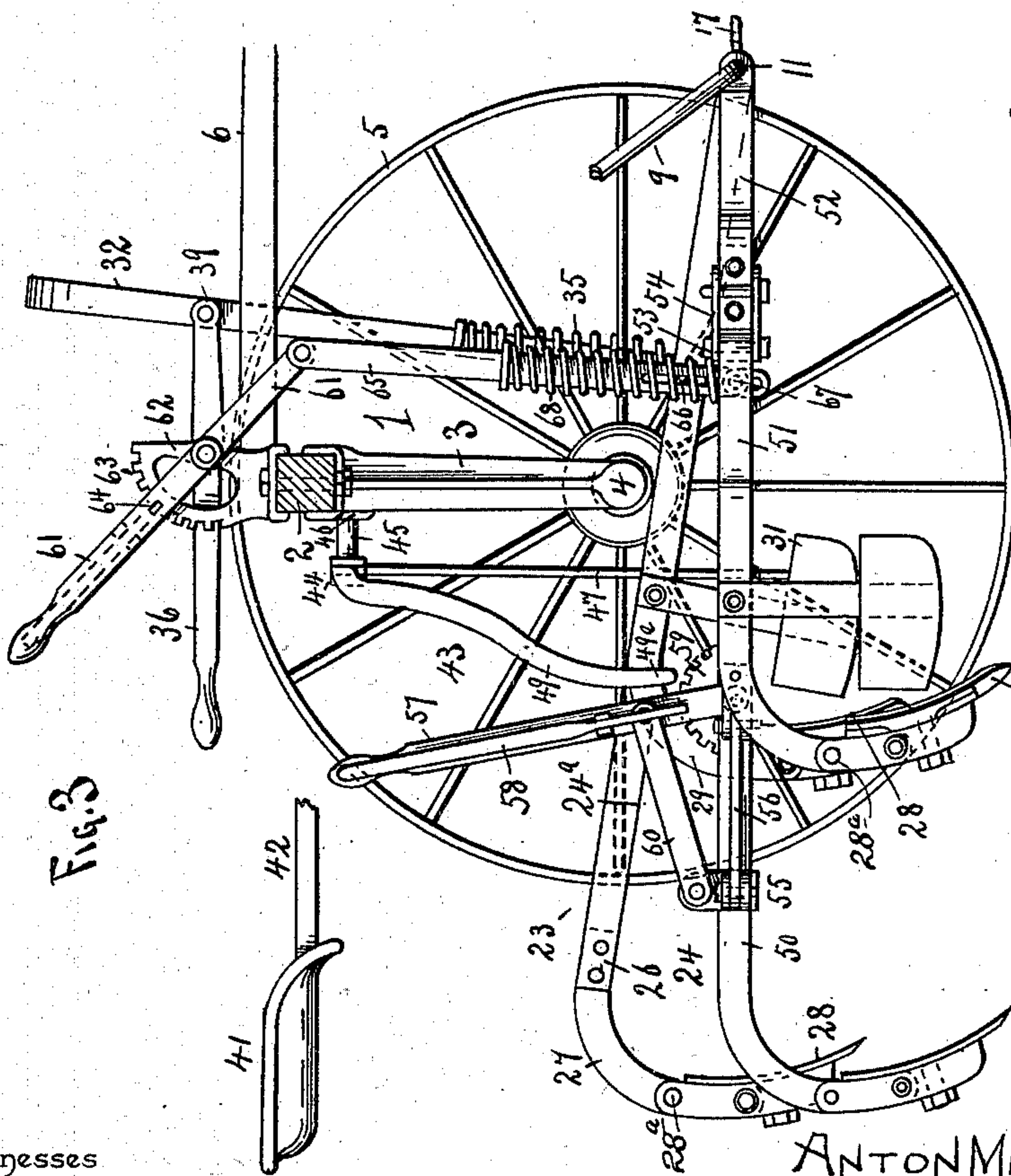
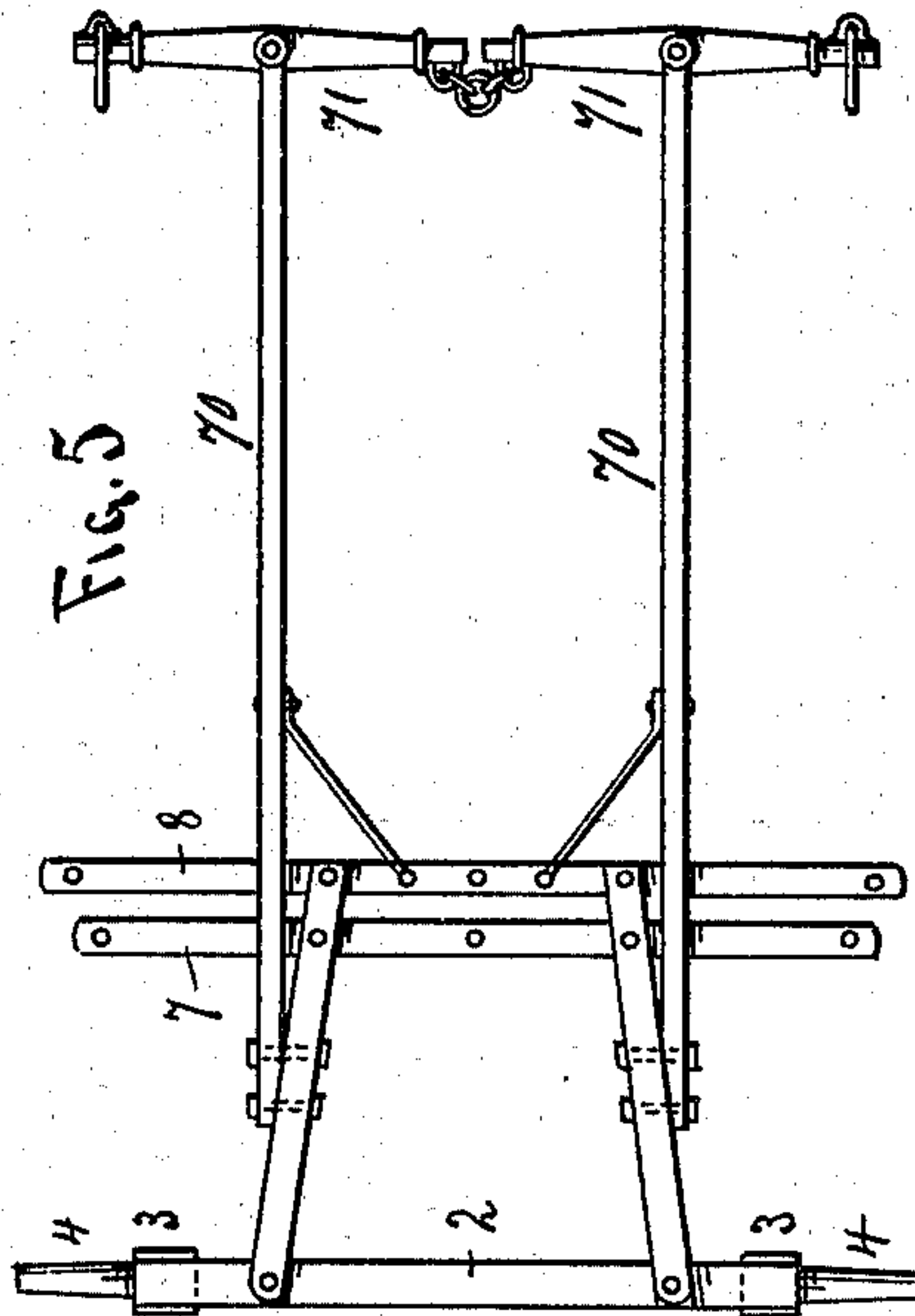
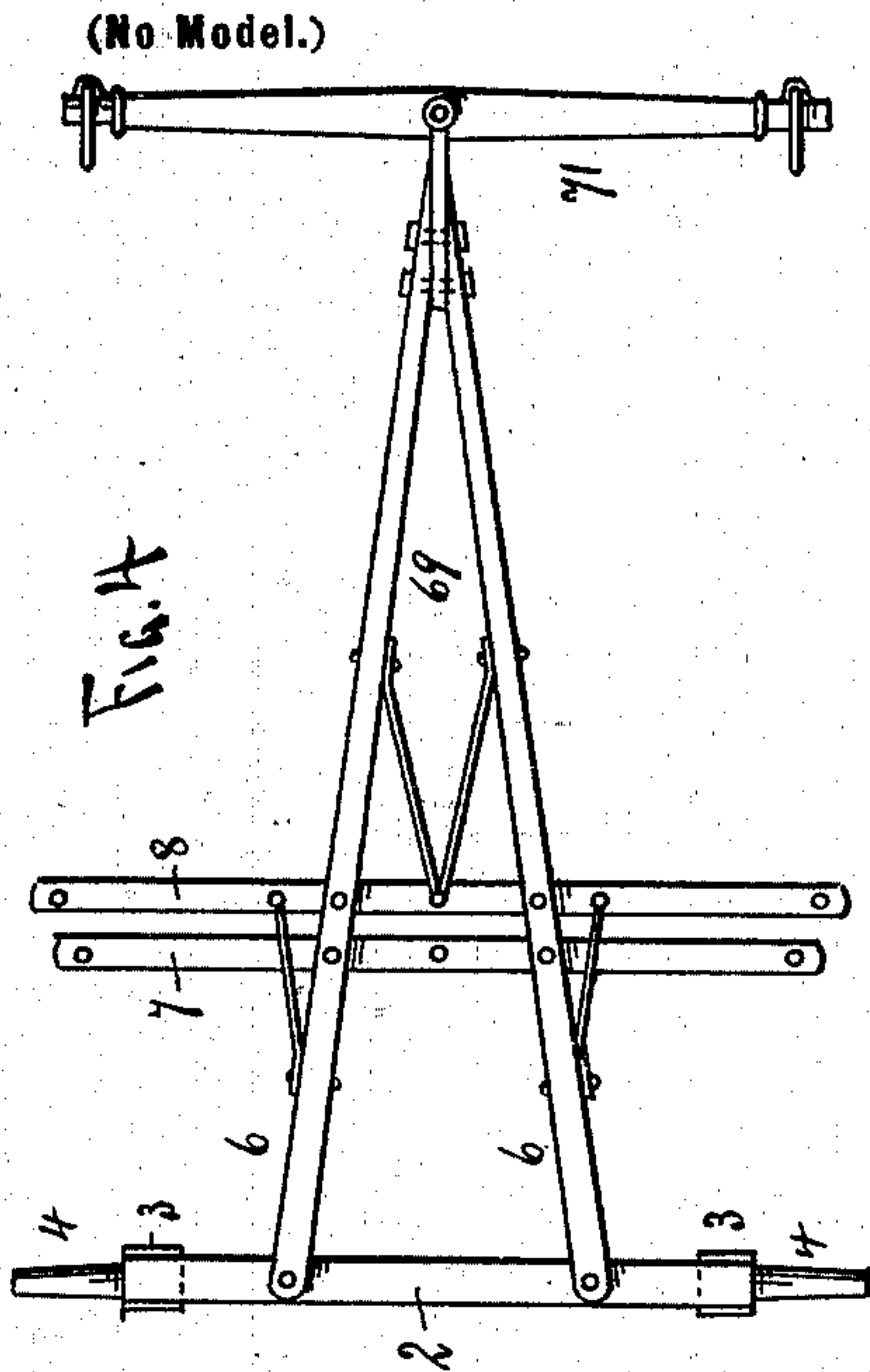
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

ANTON METZEL, OF WHEATLAND, MINNESOTA.

SULKY-CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 681,239, dated August 27, 1901.

Application filed May 4, 1901. Serial No. 58,785. (No model.)

To all whom it may concern:

Be it known that I, ANTON METZEL, a subject of the Emperor of Austria-Hungary, residing at Wheatland, in the county of Rice and State of Minnesota, have invented a new and useful Sulky-Cultivator, of which the following is a specification.

My invention is an improved sulky-cultivator; and it consists in the peculiar construction and combination of devices herein-after fully set forth and claimed.

In the drawings, Figure 1 is a side elevation of a sulky-cultivator constructed in accordance with my invention, showing the various cultivator-frames disposed in different positions. Fig. 2 is a top plan view of the same. Fig. 3 is a vertical longitudinal sectional view of the same, taken on a plane indicated by the line *a a* of Fig. 2. Figs. 4 and 5 are detail top plan views showing means by which either a two or three horse team may be attached to the cultivator. Fig. 6 is a detail elevation of one of the shifting-levers for shifting the outer cultivator-frames laterally. Fig. 7 is a detail view of the central cultivator-frame.

In the embodiment of my invention I provide an arched axle 1. As shown in the drawings, the arched axle comprises the central cross-bar 2 and the standards 3, which depend from and are secured to the ends thereof. Said standards have on their outer sides at their lower ends spindles 4, on which are mounted the supporting-wheels 5. A pair of draft-bars 6 are attached to the central portion of the arched axle, project forwardly therefrom, and converge toward their front ends. To the under sides of said draft-bars at a suitable distance in advance of the arched axle are secured a pair of cross-bars 7 8, the latter being a slight distance in advance of the former. A substantially W-shaped bent rod 9 is attached to the draft-bars 6 at a slight distance in advance of the arched axle, as at 10. The front lower portions of said bent rod 9 form horizontal transversely-disposed outer pivotal spindles 11 and a central pivotal spindle 12. Said central spindle 12 is connected to the cross-bar 8 by rods 13. Said end spindles 11 are connected to the end portions of the cross-bar 8 by rods 14. A draft-link 15 has its upper

end flexibly connected to the central portion of cross-bar 7, as at 16. The lower end thereof is connected to the center of the spindle 12, as at 17. Similar draft-links 18 have their upper ends connected to the cross-bar 7, as at 19, and their lower ends connected to the end spindles 11 by hooks or similar devices 20. Each of said draft-links 15 18 is provided with a series of adjusting-openings 21 for the attachment thereto of a singletree 22.

In connection with the sulky I employ a pair of outer cultivator-frames 23 and a central cultivating-frame 24. Each of the frames 23 comprises a pair of longitudinal bars 24^a, which are shaped as shown in Fig. 2 and have their front ends pivoted on one of the outer spindles 11 and connected together by a cross-bar 25, the rear ends of said bars 24^a being connected together, as at 26, a foot or standard 27 for a suitable cultivating point or shovel 28 being secured between the rear ends of said bars. Said bars are also adapted for the attachment thereto of other feet or standards, as at 29. The front ends of the bars 24^a are provided with elongated slots 30, through which the spindles 11 extend. Thereby the rear portions of said cultivator-frames 23 are adapted to be shifted laterally toward and from each other. The slots 30 admit of this motion of the said frames on the said spindles 11. Preferably, and as here shown, each of the feet or standards is provided with a pivoted lower section and with a wooden break-pin 28^a, whereby when one of the cultivating points or shovels encounters an unyielding obstruction the wooden pin breaks and the lower section, with the point or shovel, turns back, thus avoiding breakage. I may also, as here shown, employ fenders 31 in connection with the cultivating shovels or points, attached by their feet or standards to the bars 24^a. The form of the frames 23 here shown adapts the same for the attachment thereto of either three or five cultivating points or shovels, as may be desired. Within the scope of my invention the construction of the frames 23 may be modified, and I do not limit myself in this particular. It will be observed by reference to Fig. 2 of the drawings that the bars 24^a of the cultivator-frames 23 are on opposite sides of the supporting-wheels 5 and that the cultivating points or shovels at the

rear ends of said frames operate directly in rear of said wheels.

Inverted-U-shaped yokes 32 are disposed astride of and over the wheels 5 and have their lower ends provided with slots 33. The lower ends of said yokes bear against the bars 24^a of the cultivator-frames 23 and are attached thereto by bolts 34, which operate in said slots 33. Thereby said yokes are adapted to play vertically on said frames 23. Springs 35 on said yokes bear downward on said bars of said cultivator-frames. Hand-levers 36 are fulcrumed on brackets 37, which are attached to the arched axle and are provided with rack-sectors 38. The front ends of said hand-levers are pivotally connected to the yokes 32, as at 39. Said levers, as will be understood, serve to raise and lower said yokes, and hence to raise and lower said cultivator-frames 23, and said levers are provided with suitable spring-pressed locking-dogs 40, of the usual construction, which by engagement with the rack-sectors 38 lock said levers, and hence said cultivator-frames, in any desired position. Owing to the springs 35, which bear downward on the cultivator-frames 23, and the lost motion between said frames and the yokes 32, said cultivator-frames are adapted when in operation to move upwardly independently of said yokes to permit the cultivating points or shovels to pass over an obstruction, as a stone or a root, and thereby avoid breakage.

A seat 41 for the driver is supported by bars 42, that project rearwardly from the arched axle. A pair of shifting-levers 43, which are of the construction shown in Fig. 6 of the drawings, are pivotally mounted, as at 44, on spindles 45, that project rearwardly from brackets 46, which are secured to the rear side of the arched axle. The outer arms 47 of said shifting-levers are slotted, as at 48, the inner bars 24^a of the cultivator-frames 23 being disposed and adapted to play vertically in said slots 48, and the inner arms 49 of said shifting-levers are provided with supports 49^a for the feet of the driver. Thereby the driver is enabled to shift the rear ends of the outer cultivating-frames 23 at will toward and from each other to avoid an obstruction or to avoid destroying stands of plants which are out of line with the rows.

The central cultivator-frame comprises a central bar 50 and a pair of side bars 51. A pair of draft-links 52 are bolted to opposite sides of the central bar 50, at the front end thereof, and are pivotally attached at their front ends to the spindle 12. The bars 51 have their front ends pivotally attached, as at 53, to a clip 54, of suitable construction, which is secured at the front end of the central bar 50. The latter is of suitable length and is adapted at its rear end to carry a suitable cultivating point or shovel, and on the said central bar 50 is a clip 55, which is adapted to be movable longitudinally thereon. Links 56 are pivotally attached at their rear ends to the said slidable clip 55 and have

their front ends pivotally connected to the rear ends of the bars 51. A hand-lever 57 is pivotally connected at its lower end to the bar 50 and is provided with a spring-pressed locking-dog 58, of the usual construction, which in coaction with a rack-segment 59 locks the said lever at any desired adjustment. Said lever is connected by a link 60 to the slidable clip 55. Hence by means of the said lever said clip may be adjusted forward or rearward on the bar 50, and the side bars 51 may be thereby adjusted laterally toward and from the center bar 50. Each of the side bars 51 is preferably of substantially the same form as the bars 24^a of the side or outer cultivator-frames 23 and is adapted for carrying one or more cultivating points or shovels.

A hand-lever 61 is fulcrumed to a bracket 62, which is secured on the center of the arched axle and is provided with a segment-rack 63. Said hand-lever has a spring-pressed locking-dog 64, of the usual construction, which by engagement with the said segment-rack locks said lever at any desired adjustment. A link 65 has its upper end pivotally connected to the front end of said hand-lever 61. The lower portion of said link has a slot 66, and said link is attached to the central bar 50 of the central cultivator-frame by a pivot-bolt 67, which operates in said slot. Thereby lost motion is provided between said link and said central cultivator-frame, and while the latter is adapted to be raised or lowered by said link when the hand-lever is operated said cultivator-frame is adapted to rise independently of said link and lever. A spring 68 on said link bears downward on the central cultivator-frame and keeps the same depressed, with its cultivating points or shovels in operation in the soil. In the event that an obstruction is encountered the spring 68 enables the cultivator-frames to ride over the same.

The machine is adapted to be drawn by a two-horse team or a three-horse team, at will. When only three cultivating points or shovels are carried by each of the cultivator-frames, as shown in the drawings, two horses are enabled to readily draw the cultivator. When two horses are thus used, I provide the sulky-frame with a tongue 69, which is formed by prolonging the draft-bars 6. In this event the singletrees are attached to the draft-links 18 only. When three horses are used, I provide the cultivator-frame with a pair of draft-poles 70, as shown in Fig. 5. In this event a singletree is attached not only to each of the draft-links 18, but also to the central draft-link 15. One horse is disposed between the poles 70 and one on the outer sides thereof. Suitable neck-yokes 71 may, as is shown in Figs. 4 and 5, be also used.

Having thus described my invention, I claim—

1. In a sulky-cultivator, the combination of a sulky-frame, cultivator-frames flexibly connected thereto, means to raise and lower said

5 cultivator-frames, and shifting-levers fulcrumed to said sulky-frame and connected to said cultivator-frames, the latter having vertical lost motion on said shifting-levers, substantially as described.

10 2. In a sulky-cultivator, the combination of a sulky-frame, cultivator-frames flexibly connected thereto, means to raise and lower said cultivator-frames, and shifting-levers fulcrumed to said sulky-frame, said shifting-levers having slots 48 engaged by bars of said cultivator-frames, whereby the latter are adapted to play vertically in said shifting-levers, substantially as described.

15 3. In a sulky-cultivator, the combination of a sulky-frame, cultivator-frames flexibly connected thereto, means to raise and lower said cultivator-frames, and shifting-levers 43 fulcrumed to said sulky-frame, each of said shifting-levers having an arm 47 connected to one of said cultivator-frames and an arm 49 provided with a foot-support 49^a, substantially as described.

25 4. In a sulky-cultivator, the combination of a sulky-frame, cultivator-frames flexibly connected thereto, means to shift said cultivator-frames laterally and a centrally-disposed cul-

tivator-frame having laterally-shiftable side bars, substantially as described.

5. In a sulky-cultivator, the combination of 30 a sulky-frame, cultivator-frames flexibly connected thereto, means to shift said cultivator-frames laterally, and a centrally-disposed cultivator-frame having a central bar, laterally-shiftable side bars having their front ends 35 flexibly connected thereto, a slidable clip on said central bar, and links connecting said clip to said laterally-shiftable side bars, substantially as described.

6. In a sulky-cultivator, the combination of 40 a sulky-frame, a cultivator-frame flexibly connected thereto, a lever, mounted on said sulky-frame, a link connecting said lever to said cultivator-frame, the latter having vertical lost motion on said link, and a spring on said 45 link bearing on and depressing said cultivator-frame, 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.

ANTON METZEL.

Witnesses:

ALBERT J. FALTOR,
CHAS. L. MARX.