

No. 795,430.

PATENTED JULY 25, 1905.

W. G. DANIELSEN.

DISK PLOW.

APPLICATION FILED NOV. 10, 1904.

3 SHEETS—SHEET 1.

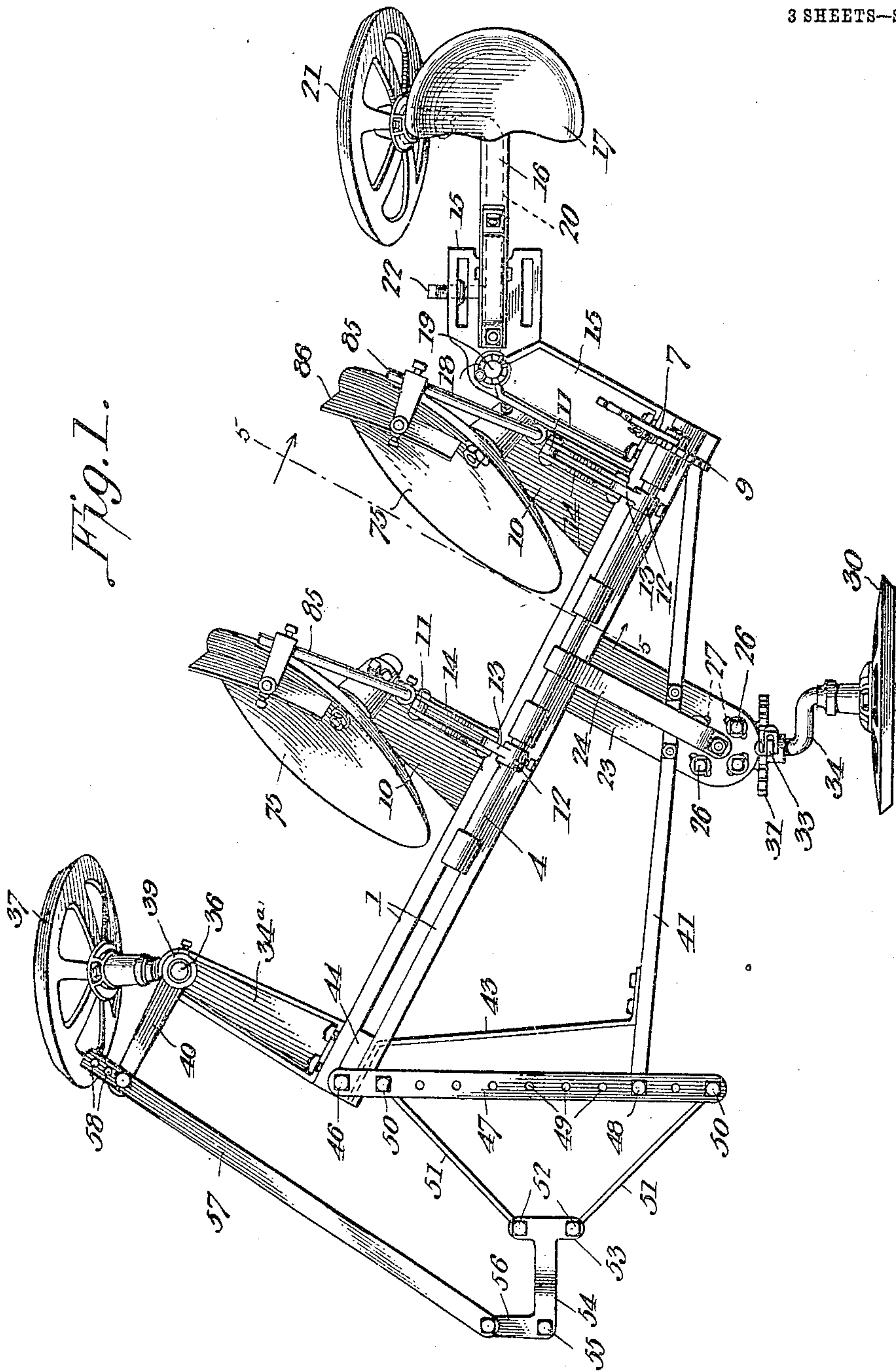


Fig. 1.

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3 SHEETS—SHEET 2.

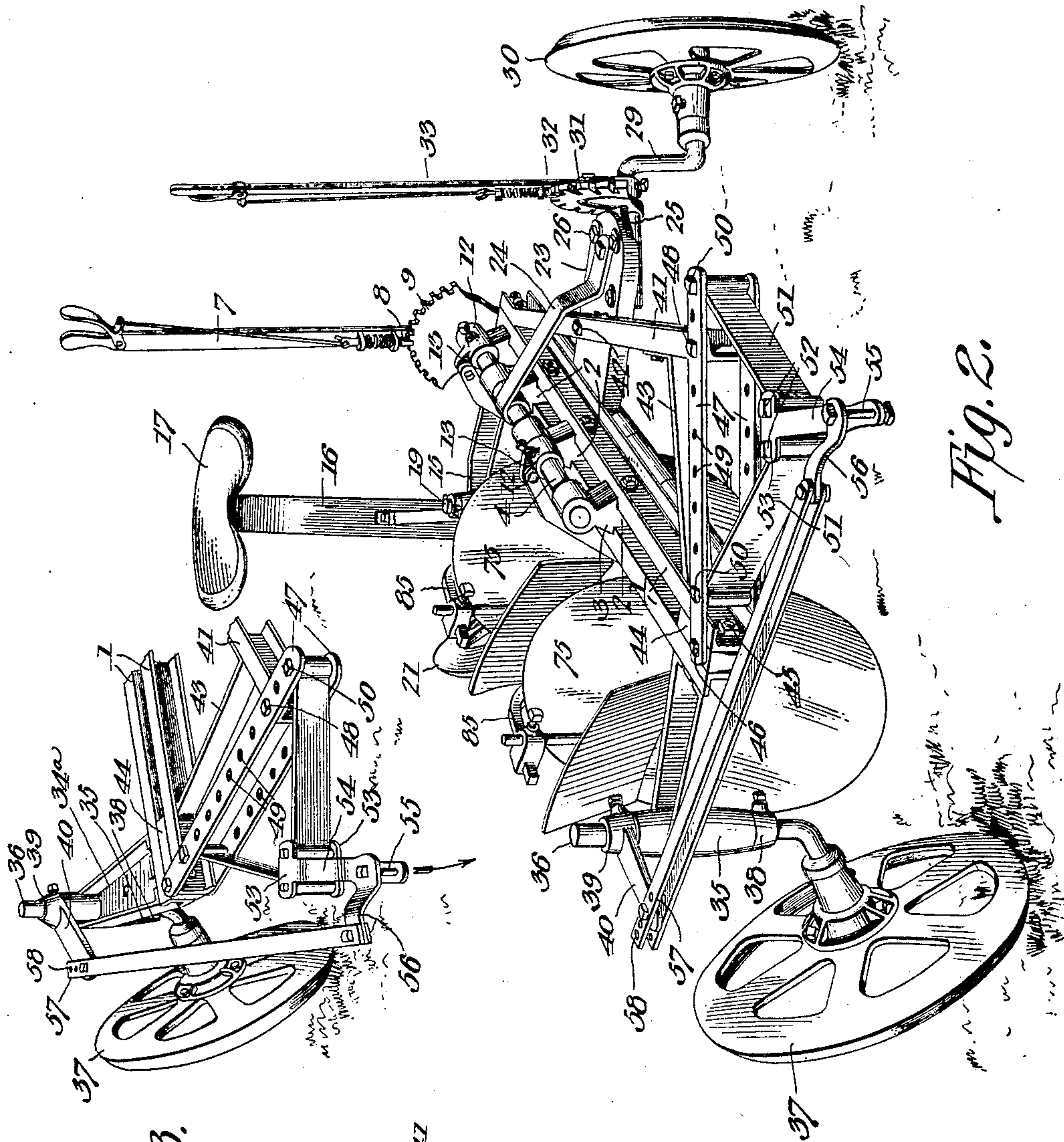


Fig. 3.

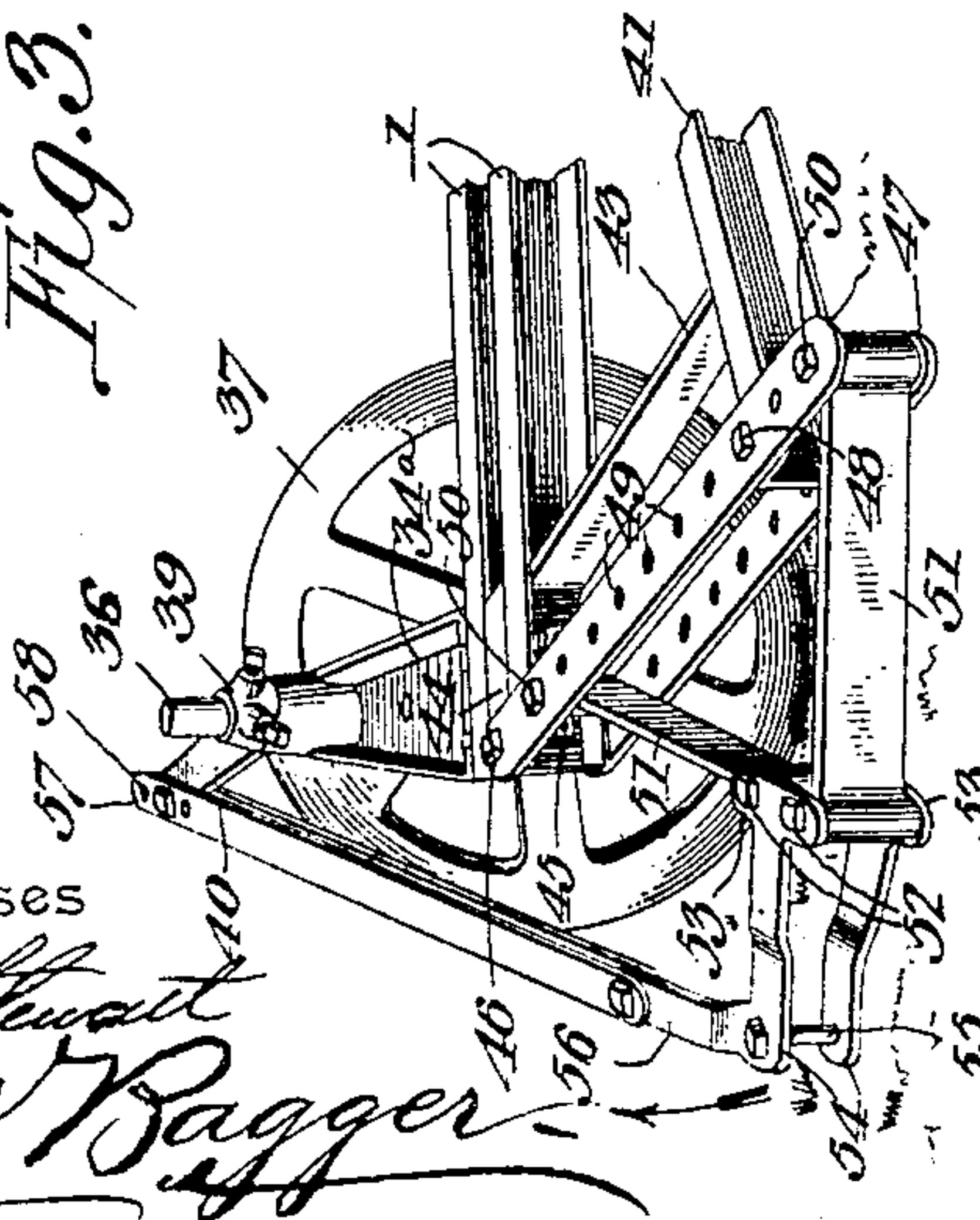


Fig. 4.

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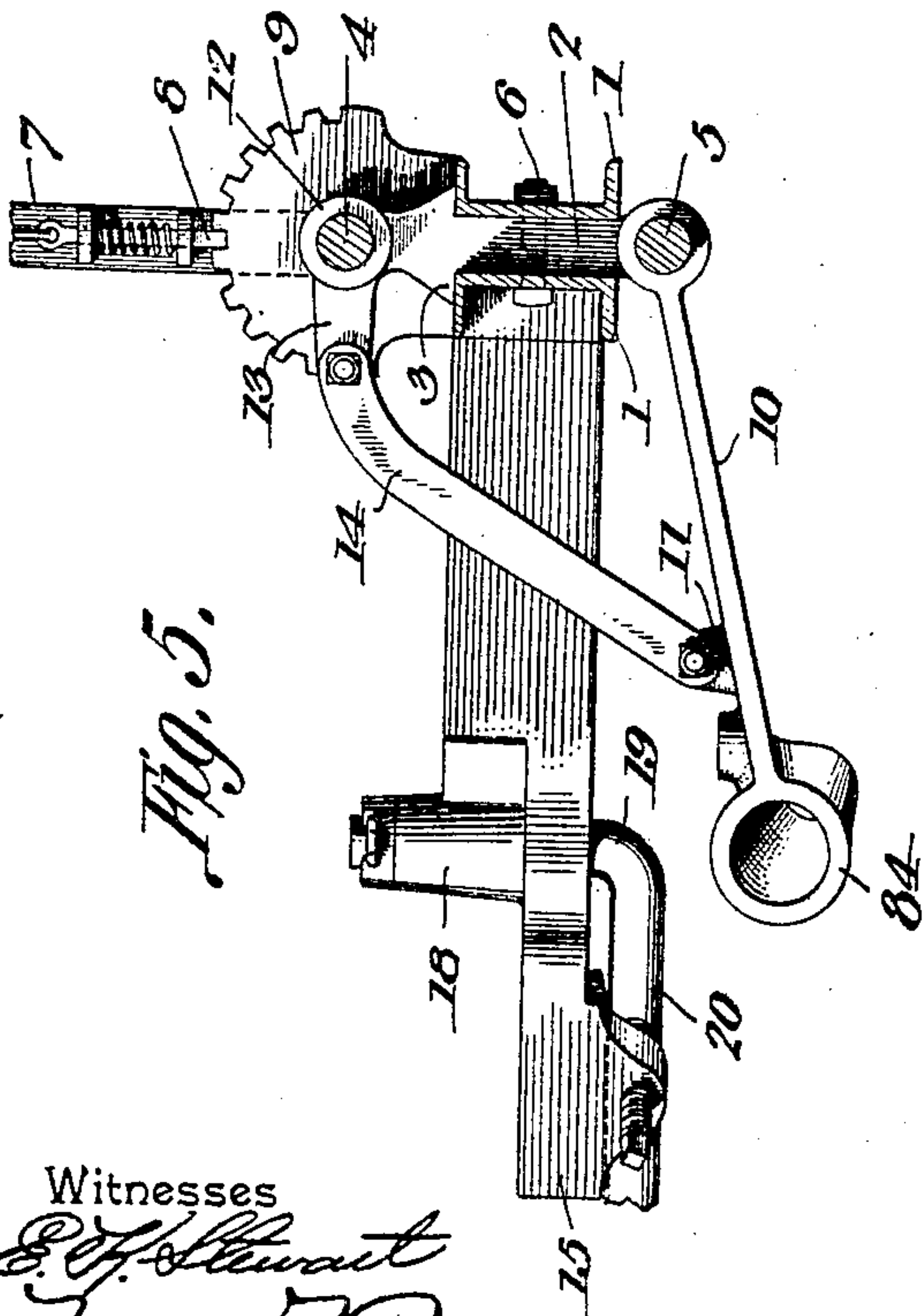
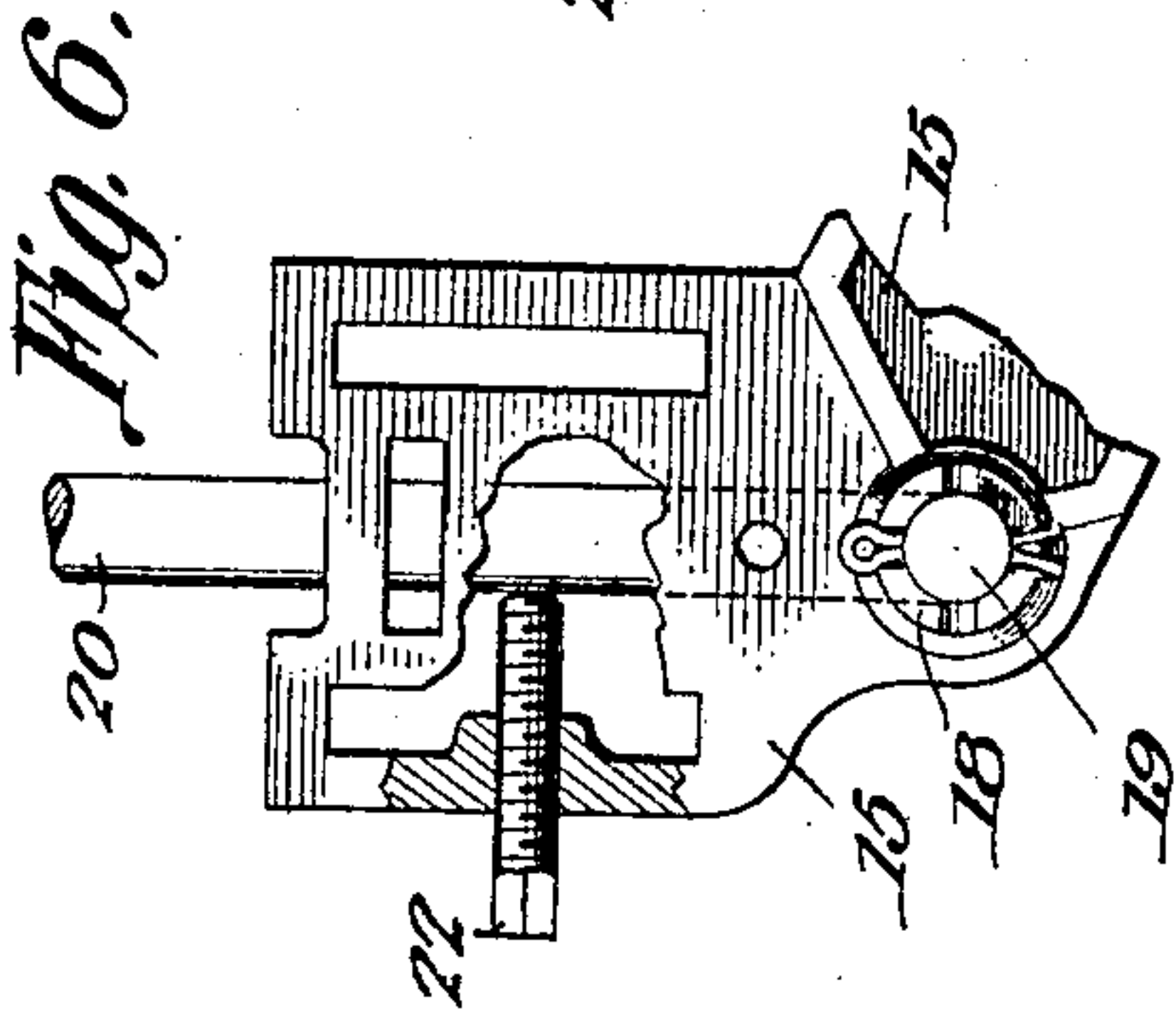
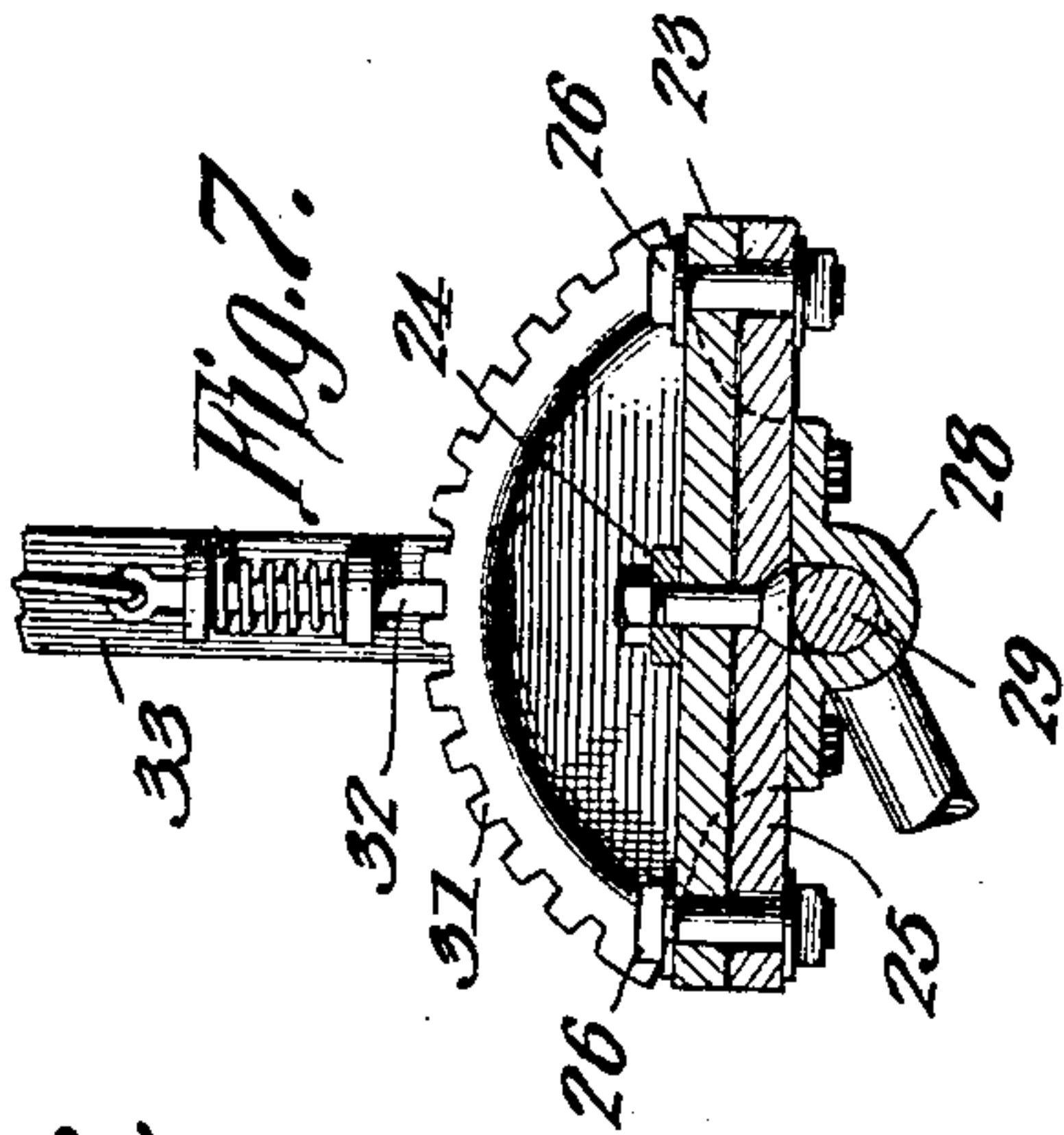
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3 SHEETS—SHEET 3.



Witnesses
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UNITED STATES PATENT OFFICE.

WILHELM G. DANIELSEN, OF LOGAN, UTAH.

DISK PLOW.

No. 795,430.

Specification of Letters Patent.

Patented July 25, 1905.

Application filed November 10, 1904. Serial No. 232,193

To all whom it may concern:

Be it known that I, WILHELM G. DANIELSEN, a citizen of the United States, residing at Logan, in the county of Cache and State of Utah, have invented a new and useful Disk Plow, of which the following is a specification.

This invention relates to riding disk plows; and it has for its object to simplify and to improve the construction of devices of this class.

With these ends in view the invention consists in an improved riding-frame adapted to be used in connection with one or more disks.

The invention further consists in the improved construction of means for manipulating the disks to set them into or to elevate them from the ground, as may be required.

The invention further consists in the improved construction and arrangement of means for guiding or directing the plow by means of the rear furrow-wheel, which constitutes a steering-wheel or rudder-wheel.

The invention further consists in the improved construction and arrangement of means for adjusting the land-side wheel to the direction of the draft.

The invention further consists in the improved construction and arrangement of the draft-operating mechanism and the means connecting the same with the leading furrow-wheel.

The invention further consists in the improved construction and novel arrangement and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of embodiment of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that recourse may be had to any changes and modifications which come fairly within the scope of the invention and which may be resorted to without departing from the spirit or sacrificing the efficiency of the same.

In said drawings, Figure 1 is a top plan view of a riding disk plow constructed in accordance with the principles of the invention, the device being equipped with a gang of two disks. Fig. 2 is a perspective front view of the machine. Fig. 3 is a perspective detail view showing the front end of the frame and the leading furrow-wheel in the position occupied in the act of turning to the left. Fig.

4 is a similar perspective view of the front end of the frame and related parts, but showing the parts in the position occupied in the act of turning to the right. Fig. 5 is a transverse sectional view taken in front of the rear end of the main frame-beam and looking in a rearward direction, showing also one of the disk-carrying arms and a portion of the axle of the rear furrow-wheel. Fig. 6 is a top plan view, partly in section, of a portion of the arm supporting the rear furrow-wheel. Fig. 7 is a sectional view taken transversely through the supporting means of the land-side wheel.

Corresponding parts in the several figures are indicated by like characters of reference.

The main supporting-frame of the improved plow includes two channel-beams 1 1, which are placed on edge with their channels facing outward. These channel-bars are spaced apart at suitable intervals by means of blocks 2 2, having overhanging flanges 3, supported upon the upper edges of the channel-bars. Said blocks are provided at their upper and lower ends with bearings for shafts, (designated, respectively, 4 and 5,) and the blocks are secured between the channel-bars by means of bolts 6, whereby the said channel-bars are securely connected and whereby a shaft-supporting structure of great strength and rigidity is secured. The rear end of the shaft 4 carries an adjusting-lever 7, which is mounted securely upon said shaft for the purpose of tilting or rocking said shaft in its bearing. The adjusting-lever 7 carries a spring-actuated pawl 8, engaging a suitably-supported rack-segment 9, for the purpose of retaining the lever 7 and the shaft 4 in any position to which they may be adjusted.

The shaft 5 serves to support the disk-carrying arms 10, of which any desired number may be mounted upon said shaft, according to the dimensions of the frame. The disk-carrying arms are firmly secured upon the shaft 5, and they are provided near their outer ends with lugs 11. Suitably mounted upon the shaft 4, as by means of adjusting-screws 12, are collars 12, having laterally-extending arms 13, which are connected, by means of links 14, with the lugs 11 of the disk-carrying arms. It will be seen that by this construction by rocking the shaft 4 in its bearings, which may be done by means of the hand-lever 7, the free ends of the disk-carrying arms may be elevated or depressed, as may be desired.

15 designates an angular casting, which is securely attached to the rear end of the compound beam formed of the channel-bars 1 1 and from which it extends laterally, as shown. Bolted or otherwise attached to the upper side of this casting is a resilient bar 16, carrying the seat 17. The casting 15 is provided upon its upper side with a boss 18, forming a socket for the reception of the vertical arm 19 of the axle 20, which supports the rear furrow-wheel 21. Said axle, it will be observed, is capable of swinging in a horizontal plane, and its movement in the direction of the furrow is limited by a set-screw 22, extending laterally through the casting 15. The natural tendency of the rear furrow-wheel 21 when the plow is in operation would be to swing in the direction of the furrow, and this tendency is regulated and restrained by means of the set-screw 22, as will be readily understood. Hence the furrow-wheel 21 will operate as a rudder-wheel or steering-wheel for the reason that any tendency to side draft in either direction may be overcome by loosening or tightening the set-screw 22, so as to properly regulate the position of the furrow-wheel 21.

Extending laterally from the compound beam in the direction of the land side is a bracket 23, the inner end of which may be loosely mounted upon the shaft 5 and the outer end of which is preferably loosely connected, by means of a strap 24, with the shaft 4, whereby the said bracket is secured firmly in position. The outer end of the bracket 23 supports a block 25, which is connected with said bracket by means of bolts 26, which extend through slots 27, admitting of the axial adjustment of said block. The latter is provided on its under side with a sleeve 28, constituting a boxing or bearing for the axle 29 of the land-wheel 30. The block 25 also carries a rack-segment 31, adapted to be engaged by a spring-actuated dog 32, connected with an adjusting-lever 33, which is firmly mounted upon the axle. The latter is constructed in the usual manner with a crank 34, so that by properly adjusting the lever 33 the wheel may be raised or lowered with relation to the frame. The axial adjustment of the block 25 also enables the land-wheel to be adjusted with relation to the line of draft, which is important for reasons which will be hereinafter explained.

Extending laterally in the direction of the furrow side from the front end of the compound beam is a bracket 34^a, provided at its outer end with a vertical bearing 35 for the axle 36 of the leading furrow-wheel 37, which is mounted upon a crank at the lower end of said axle. The axle 36 is provided with set-collars 38 39, whereby it is adjustable in its bearings, and the upper set-collar 39 has a laterally-extending arm 40.

Securely connected with the compound

beam at or near the rear end of the latter and diverging forwardly therefrom in the direction of the land side is a channel-bar 41, which constitutes a portion of the frame and which is connected with the bracket 23 by means of a bolt 42. A transverse brace 43 connects the beam 41 with the compound beam 1 1 near the front end of the latter. The channel-bars 1 1, composing the said compound beam, are spaced apart at their front ends by a block 44, through which passes a connecting-bolt 45. Said spacing-block is also vertically perforated for the reception of a connecting-bolt 46, which is connected, by means of a pair of straps 47, with a bolt 48, extending vertically through the front end of the frame-bar 41. The straps 47, which constitute the front end of the plow-frame, are provided with spaced perforations 49 for the passage of bolts 50, which are pivotally engaged by the links or draft-bars 51. The front ends of these links are connected, by means of bolts 52, with the extremities of the cross-bars 53 of T-couplings 54, the shanks of which are extended forwardly and connected by a bolt 55, which serves for the attachment of the draft. One of the T-couplings is provided with a laterally-extending arm 56, which is connected, by means of link-rods 57, with the laterally-extending arm 40 of the set-collar 39 upon the axle 36 of the leading furrow-wheel, the link-rods 57 being each provided with a plurality of perforations 58 to enable the desired adjustment to be made.

It will be seen from the foregoing description that by properly adjusting or shifting the position of the draft-links 51 with relation to the straps 47, which constitute the front of the frame, the main beam 1 1 of said frame may be disposed at various degrees of obliquity with relation to the line of draft. When the obliquity is slight or when, in other words, the main beam is disposed approximately in the line of draft longitudinally, the disks will nearly track each other, and consequently a narrow furrow will be turned. By increasing the degree of obliquity of the beam the disks, which are designated 75, will be spaced laterally, and the width of the furrow will be correspondingly increased. This capability of adjustment is considered a feature of considerable importance and value in this invention. It is, moreover, obvious that when adjustment is made of the draft-links adjustment of the furrow-wheels may also be made in order that the proper relative position of said wheels shall be maintained. This is accomplished in the case of the front furrow-wheel by adjustment of the bolt which connects the links 57 with the arm 40—in the case of the rear furrow-wheel by simple adjustment of the set-screw 22. The land-side wheel will likewise be adjusted by turning the block 25 axially to the desired extent upon the securing-bolts 26.

The disk-carrying arms 10 have been shown

as provided with bearings for adjustable brackets 85, carrying scrapers 86, which engage the faces of the plow-disk for the purpose of clearing the latter from adhering mud and obstructions.

From the foregoing description, taken in connection with the drawings hereto annexed, the operation and advantages of this invention will be readily understood by those skilled in the art to which it appertains. The plow-frame is of a light and durable construction, and the parts are so combined and arranged as to admit of all necessary adjustment in a simple and effective manner.

An important feature of this invention is the facility with which the plow may be turned at the corners of the field. This will be readily understood by reference to Figs. 3 and 4 of the drawings, in which is illustrated the relative position of the draft members when the plow is being turned to the left and to the right, respectively. In either case it will be seen that the shank 54 of the draft member or head will be swung to a position approximately at right angles to the position which it occupies when the draft is straight ahead. The entire draft will thus be thrown upon one of the draft-links 51, and the entire stress of the draft will thus be exercised in the turning of the plow. By turning the draft-head in the proper direction the leading furrow-wheel will likewise be turned, owing to the presence of the connecting-links herein described, and the said furrow-wheel will thus move unobstructedly in the proper direction.

Having thus described the invention, what is claimed is—

1. A compound plow-frame beam comprising two side members and blocks spacing the same apart, and a plow-carrying rock-shaft journaled in said spacing-blocks.

2. A plow-frame, a pair of rock-shafts journaled in said frame one above the other and in approximately the same vertical plane, plow-carrying arms upon one of said rock-shafts, arms radiating from the other rock-shaft, and links connecting said radiating arms with the plow-carrying arms.

3. In a plow, a main frame-beam disposed obliquely with relation to the line of draft, a rock-shaft supported in longitudinal and parallel relation to said main beam, a plurality of plow-carrying arms secured upon and extending radially from said rock-shaft, and means for manipulating the rock-shaft to effect vertical adjustment of the plows.

4. A plow-frame, a rock-shaft having a disk-carrying arm provided with a lug, an auxiliary rock-shaft, a collar adjustable upon the auxiliary rock-shaft having a laterally-extending arm, and a link connecting said arm with the lug upon the disk-carrying arm.

5. In a plow, a main frame-beam comprising a pair of channeled side members, spac-

ing-blocks interposed between the ungrooved sides of the members, and connecting means extending through said blocks and side members; and a plow-supporting rock-shaft journaled in the spacing-blocks.

6. A wheel-supported plow-frame including a main beam disposed obliquely to the line of draft, a rock-shaft supported in longitudinal and parallel relation to said frame-beam, a plurality of plow-carrying arms extending radially from the rock-shaft and adjustable therewith, and means for regulating the obliquity of the frame-beam to regulate the width of the cut of the individual plows.

7. A wheel-supported plow-frame including a main beam disposed obliquely with relation to the line of draft, a pair of rock-shafts supported by said main beam one above the other and in approximately the same vertical plane, plow-carrying arms connected with one of said rock-shafts, adjusting means connected with the other rock-shaft, connecting means between said rock-shafts to effect simultaneous adjustment of both, and means for regulating the obliquity of the main frame-beam with relation to the line of draft.

8. In a plow, a main frame-beam comprising a pair of channeled side members, spacing-blocks interposed between the ungrooved sides of said side members and having overhanging flanges, and connecting means extending through said blocks and side members; a plow-supporting rock-shaft journaled in the spacing-blocks below the side members, a rock-shaft supported in the spacing-blocks above the side members, and connecting means whereby adjustment of the upper rock-shaft will effect a corresponding adjustment of the lower or plow-carrying shaft.

9. A compound beam including two side members, spacing blocks and bolts spacing and connecting said side members, rock-shafts journaled in the spacing members above and below the beam, disk-carrying arms connected with one of said rock-shafts, and lifting means connecting the other rock-shaft with the disk-carrying arms.

10. A compound beam including two side members, spacing members having overhanging flanges engaging the side members, connecting-bolts, shafts journaled in the spacing members above and below the side members of the beam, disk-carrying arms connected with one of said rock-shafts, an adjusting-lever connected with the other rock-shaft and having a locking member, a segment-rack engaged by said locking member, and lifting means connecting the rock-shaft having the adjusting-lever with the disk-carrying arms.

11. A plow-frame including a main beam, a side beam connected with the rear end of the main beam and diverging forwardly, connecting means between the front ends of the main beam and the side beam, a rock-shaft

journaled upon the main beam, a disk-carrying arm upon said rock-shaft, and means for manipulating the latter.

12. A plow-carrying main beam including two side members spaced apart, a spacing-block between the front ends of said side members, a side beam connected with the rear end of the main beam and diverging forwardly, rigid connecting means between the front end of the side beam and the spacing-block at the front end of the main beam, draft-links connected pivotally with said rigid connecting means, and a T-head connecting the front ends of said draft-links.

13. A plow-carrying main beam including two side members spaced apart, a vertically-perforated spacing-block between the front ends of said side members, a side beam connected with the rear end of the main beam and diverging forwardly, a pair of straps connecting the front end of the side beam with the vertically-perforated spacing-block at the front end of the main beam, draft-links mounted adjustably between said straps, and a T-head connecting the front ends of said draft-links.

14. In a riding-plow, a main beam, a pair of rock-shafts supported by said beam one above the other and in approximately the same vertical plane, a side beam connected with the rear end of the main beam and diverging forwardly, rigid connecting means between the front ends of the main and side beams, draft-links connected adjustably with said rigid connecting means, and a T-shaped clevis connecting the front ends of the draft-links.

15. In a plow, a main frame-beam disposed obliquely to the line of draft, a forwardly-extending side beam connected at its rear end with the main beam and having its front end spaced from said main beam by rigid connecting means, draft means connected adjustably with said connecting means, a plow-carrying rock-shaft journaled upon and in longitudinal and parallel relation to the main beam, and rotary supporting means.

16. A plow-frame including an obliquely-disposed main beam, a plow-carrying shaft journaled upon said main beam in longitudinal and parallel relation thereto, a bracket extending laterally from the front end of the main beam, a shaft journaled vertically in

said bracket and having a furrow-wheel-carrying crank, an arm extending radially from said shaft, draft-links connected adjustably with the front end of the frame, a T-headed clevis connecting said links, and a link adjustably connecting said clevis with the arm radiating from the wheel-carrying shaft.

17. A plow-carrying frame including a main beam, rock-shafts supported above and below said main beam, a laterally-extending bracket connected with one of said shafts, a brace connecting said bracket with the other shaft, a block connected for axial adjustment with the bracket, and a land-wheel-carrying crank-axle journaled upon said block.

18. A plow-carrying frame, draft-links connected adjustably with the front end of the frame, a T-head connecting the front ends of said draft-links, a vertical bearing connected with the plow-frame, a furrow-wheel-carrying shaft journaled in said bearing, an arm extending radially from said shaft, and connecting means between said arm and the T-head.

19. A plow-carrying frame, draft-links connected adjustably with the front of said frame, spacing and connecting means for the front ends of said links, an arm extending at right angles to said spacing and connecting means, a swiveled axle carrying a furrow-wheel and having a radially-extending arm, and links connecting said arm adjustably with the arm extending from the connecting means of the draft-links.

20. A plow-carrying frame, rotary supporting means for the same including a leading furrow-wheel and a swiveled axle for the same, a collar mounted upon said axle and having a radially-extending arm, draft-links connected adjustably with the plow-frame, a T-head pivotally connected with the front ends of said links and having a laterally-extending arm, and a link connecting said arm with the arm extending from the collar upon the axle of the furrow-wheel.

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

WILHELM G. DANIELSEN.

Witnesses:

FREDERICK SCHOLES,
OLAF I. PEDERSEN.