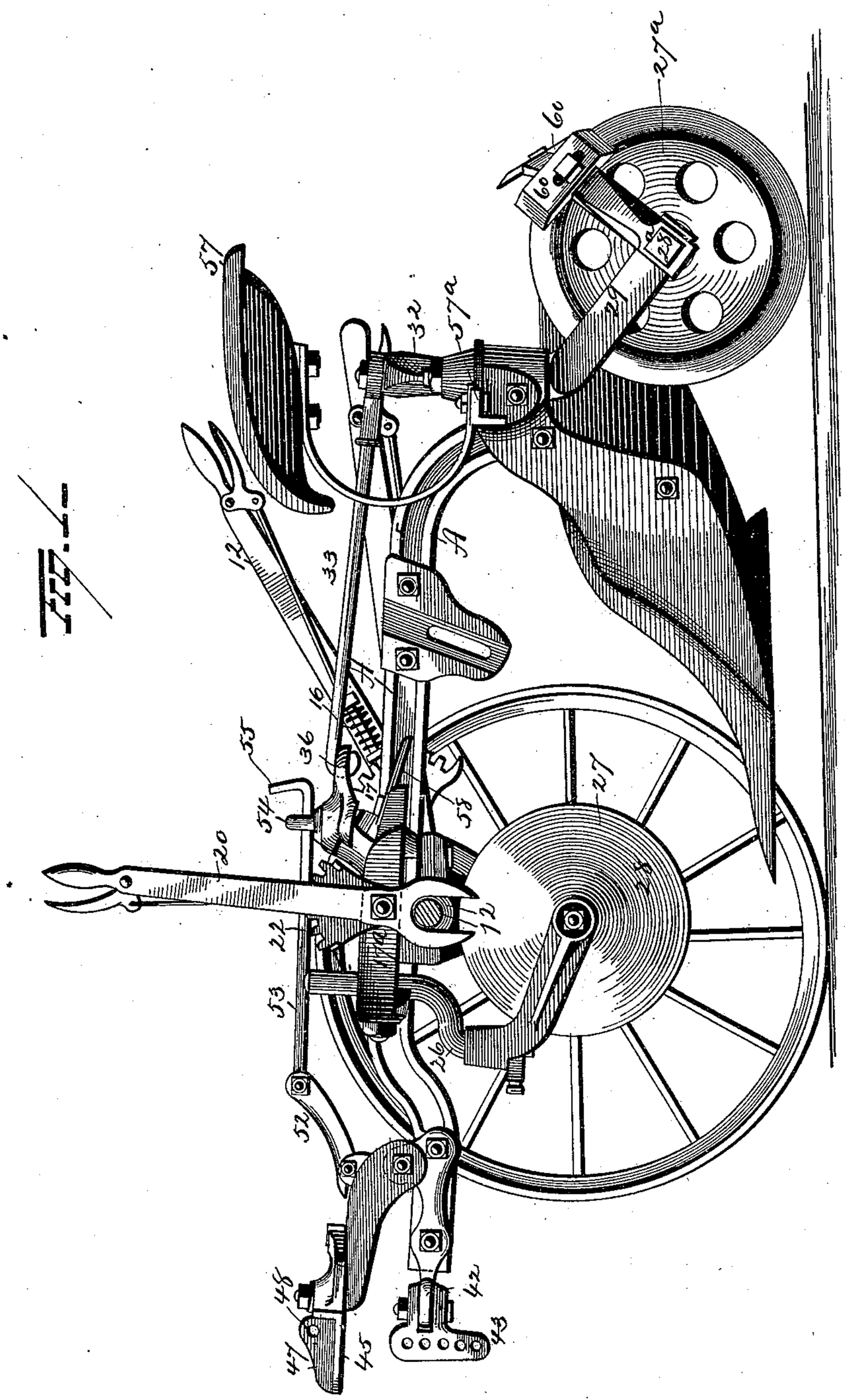
(No Model.) 4 Sheets—Sheet 1.

C. ANDERSON.

SULKY PLOW.

No. 428,295. Patented May 20, 1890.



Witnesses
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(No Model.)

4 Sheets—Sheet 2.

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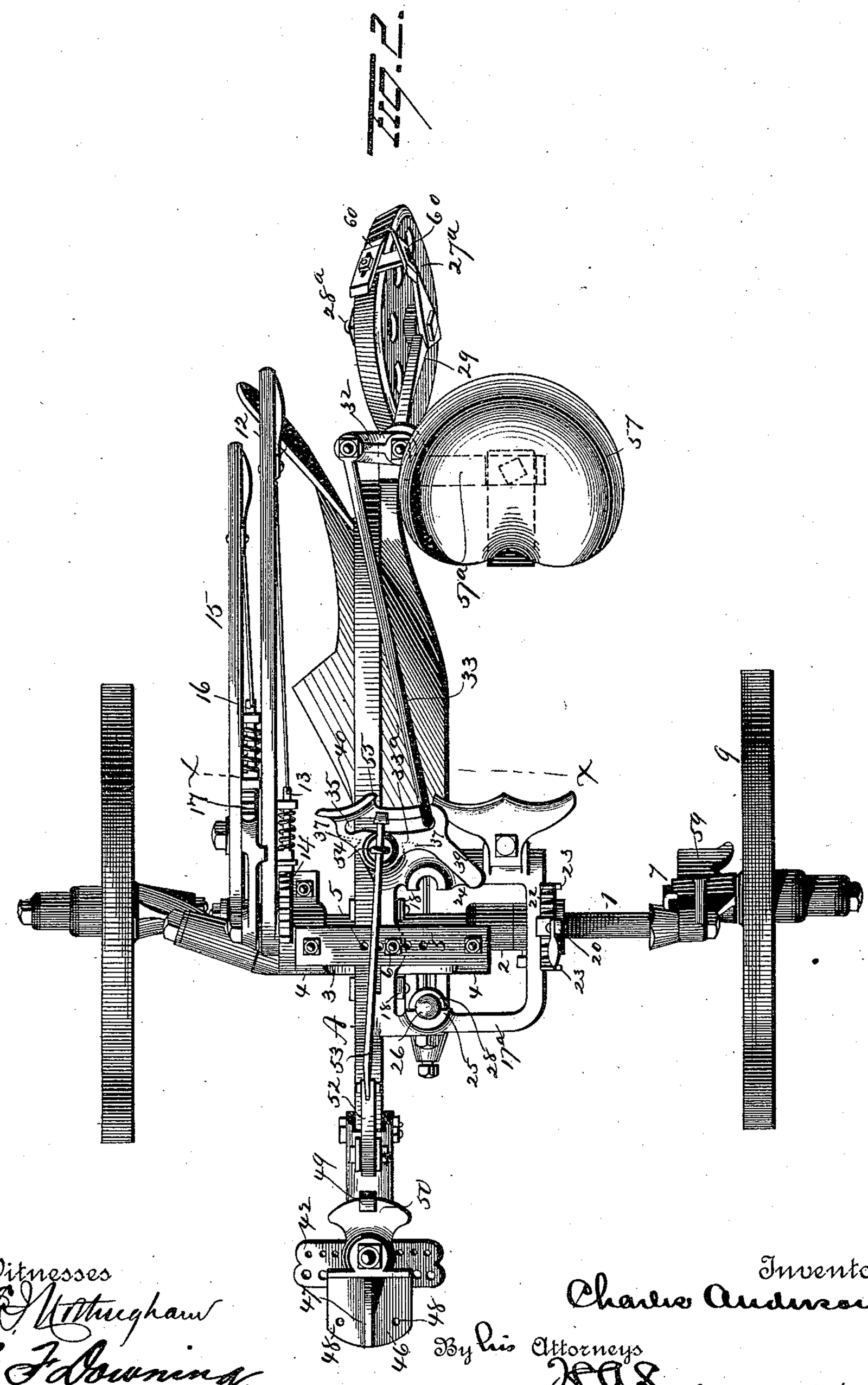
SULKY PLOW.

No. 428,295. Patented May 20, 1890.



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4 Sheets—Sheet 3.

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SULKY PLOW.

No. 428,295. Patented May 20, 1890.

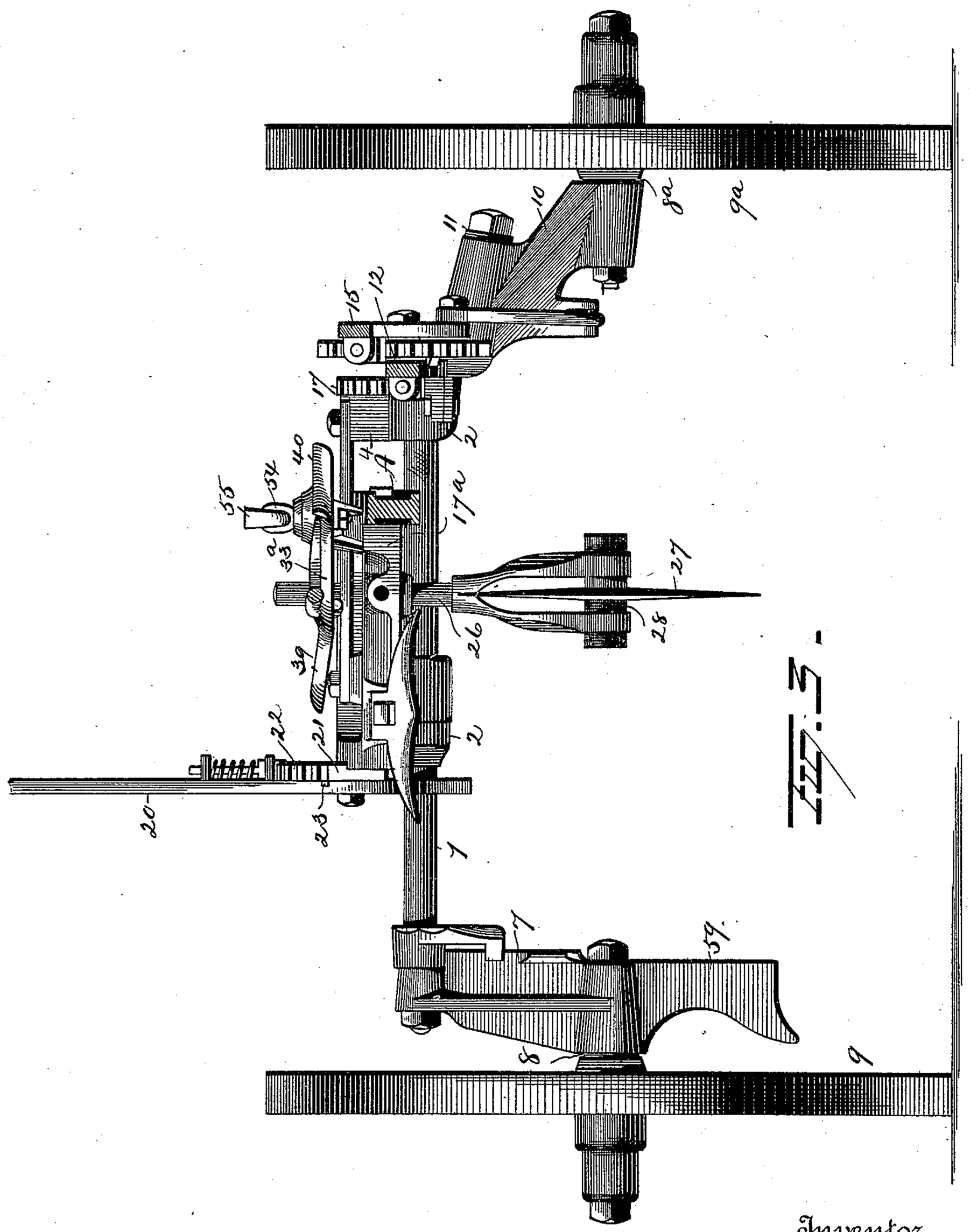

FIG. 3.

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(No Model.)

4 Sheets—Sheet 4.

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SULKY PLOW.

No. 428,295. Patented May 20, 1890.

FIG. 4.

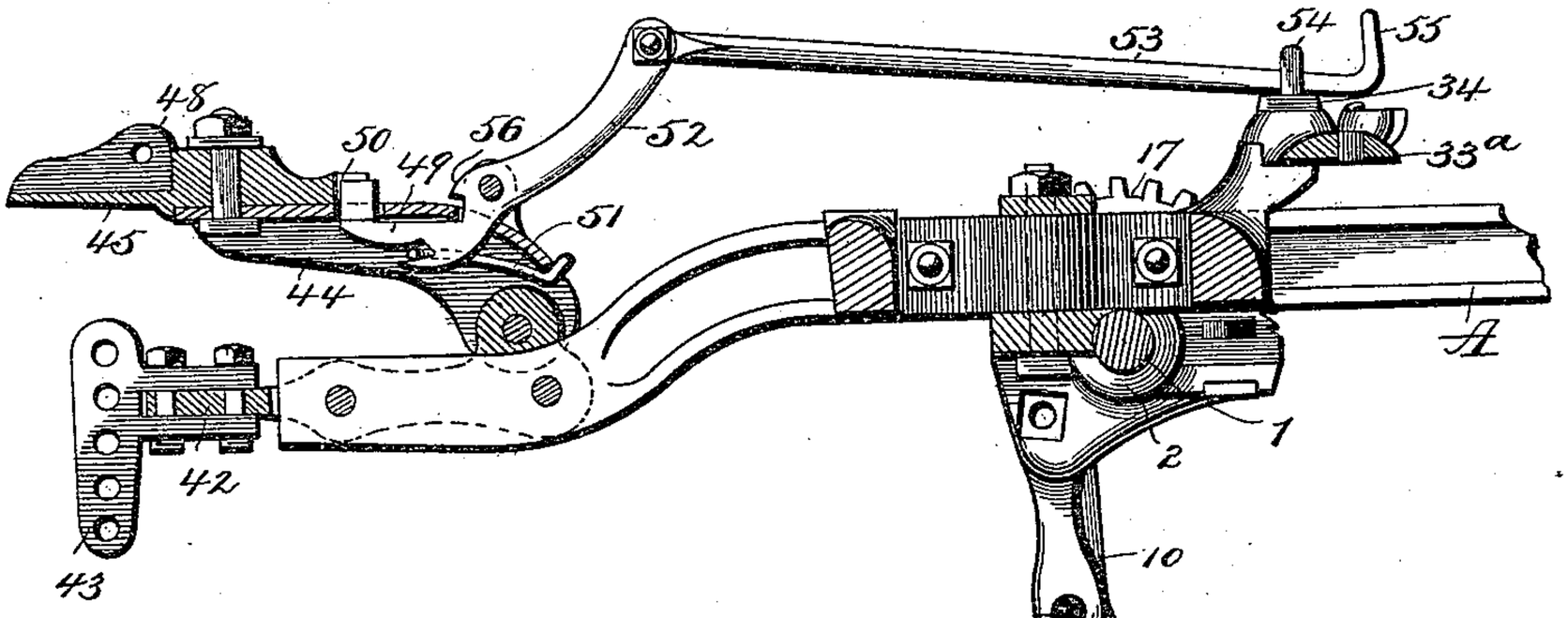

FIG. 5.

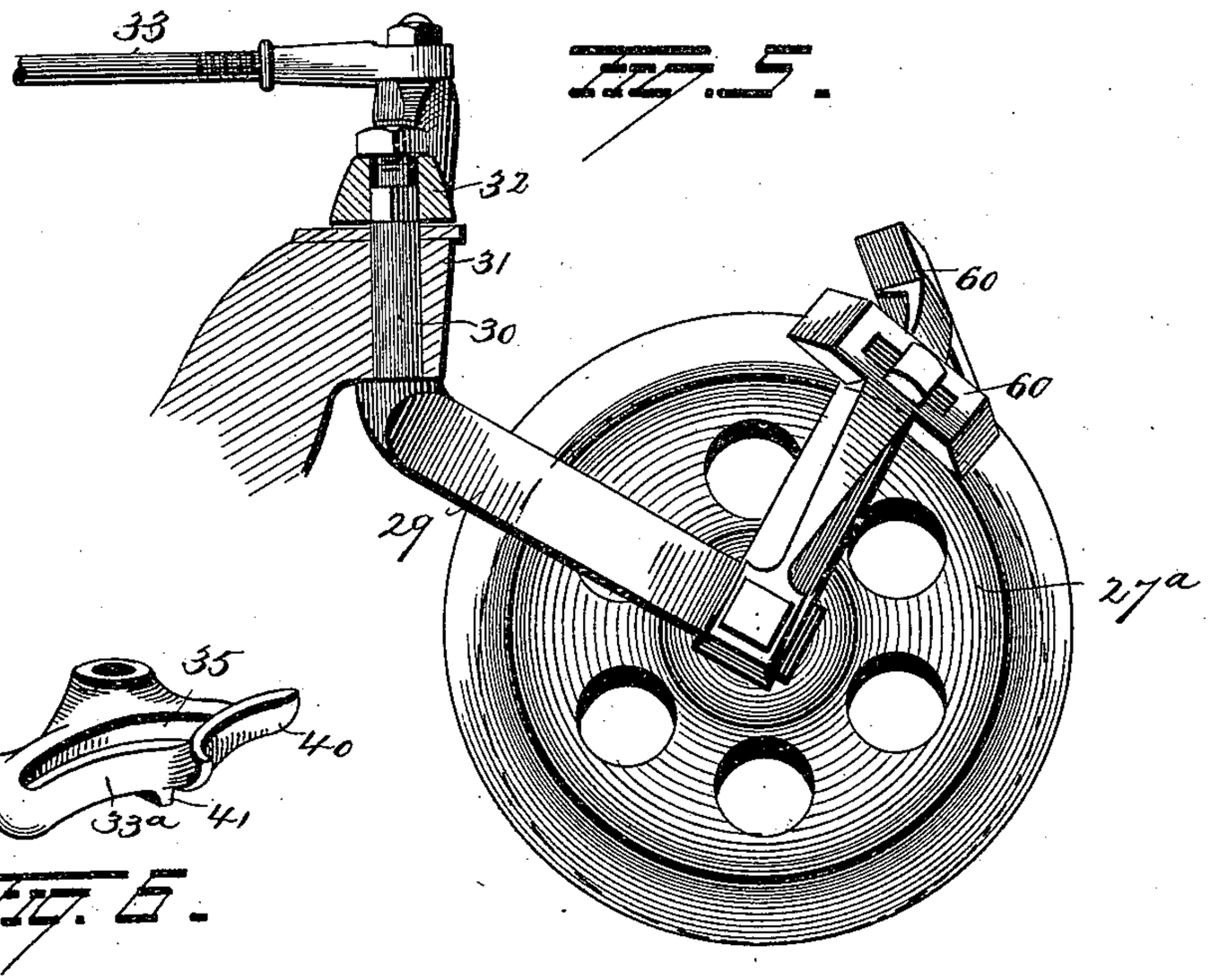

FIG. 6.

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UNITED STATES PATENT OFFICE.

CHARLES ANDERSON, OF SOUTH BEND, INDIANA, ASSIGNOR TO THE SOUTH BEND IRON WORKS, OF SAME PLACE.

SULKY-PLOW.

SPECIFICATION forming part of Letters Patent No. 428,295, dated May 20, 1890.

Application filed December 2, 1889. Serial No. 332,286. (No model.)

To all whom it may concern:

Be it known that I, CHARLES ANDERSON, of South Bend, in the county of St. Joseph and State of Indiana, have invented certain new and useful Improvements in Sulky-Plows; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in sulky-plows, the object being to greatly reduce the number of parts necessary, and at the same time provide a plow of increased efficiency, capable of being turned in very small space and having its various levers and shifting mechanism arranged within convenient reach of the driver, so that he may raise or lower the plow, change the angle of the furrow-wheel, swing the axle around, and turn the machine without dismounting.

A further object is to provide simplified mechanism for swinging the axle, for regulating the movement of the machine, and varying the elevation of the plow proper to suit the conditions or requirements.

With these ends in view my invention consists in certain novel features of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation. Fig. 2 is a plan view. Fig. 3 is a transverse sectional view on line *x x* of Fig. 2; and Figs. 4, 5, and 6 are detail views of various parts.

A represents the beam of the plow, and 1 is the axle. The latter preferably extends transversely beneath the beam and is loosely supported in boxes 2 2 in the outer ends of the cross-head 3. This cross-head may be differently formed, but preferably consists of a pair of parallel plates bolted together and held apart a suitable distance to receive the plow-beam between them by means of the ends 4 4. Corresponding holes 5 5 are made in the two plates to receive a pin or king-bolt 6 for pivotally securing the axle or cross-head to the beam or some immediately connected part of the machine. The several holes 5 5 are made for the purpose of shifting the axle and cross-head endwise or laterally with reference to the beam.

An arm 7, adjustably secured to one end of the axle 1, is furnished at its free end with an outwardly-projecting skein 8, which extends into the hub of the ground or bearing wheel 9, and the other bearing-wheel, or, as it is designated, the "furrow-wheel" 9^a, receives and supports the skein 8^a on the opposite side of the machine, and this skein projects outwardly from an arm 10, loosely mounted on the downwardly and rearwardly projecting spindle 11, the purpose of which, instead of the wheel being on the axle proper, is to admit of its inclination being changed relative to the furrow being plowed, and independent of the other bearing-wheel and other parts of the machine when desired.

The end of the axle 1 adjacent to the furrow-wheel 9^a protrudes a short distance from its bearing-box 2, and on it the hand-lever 12 is rigidly secured. This hand-lever projects backward within easy reach of the driver, and it is provided with a spring-actuated latch 13, which engages the teeth of the segment 14 on the end of the cross-head 3, locking it at any inclination between vertical and horizontal, the effect of which is to lower or raise the plow relative to the bearing-wheels, to cut the soil a variety of different depths, as required. This result is produced by changing the position of the arms 7 and 10 from vertical to horizontal positions, if need be, or at any inclination between these points, or, in other words, it simply amounts to lowering the axle to lower the plow and raising the axle to elevate the plow. The hand-lever 12 is connected with the loosely-mounted arm 10 through the medium of a supplementary hand-lever 15, which is similar to lever 12 and pivotally connected with the latter, and whose function it is to change the angle of the furrow-wheel independently of the other parts of the machine. The two levers 12 and 15 constitute one compound lever, and the latter is locked at different positions by the latch 16 engaging the teeth of segment 17.

For the most part the mechanism described is covered in my former patents and is merely

described in a general way to render clear what follows, which comprises the salient features of the present invention.

A frame or yoke 17ª, conveniently of rectangular form, is rigidly secured by bolts or other means 18 18 to the side of the beam A over the axle, and the king-bolt, which pivotally connects the cross-head with the beam of the plow, passes through a hole made in this yoke or frame close to the beam. The axle 1, having pivotal connection with the beam or frame of the plow, is locked in position or swung around by means of the forked hand-lever 20, fulcrumed on the outer end of the yoke. The forked end of this lever spans the axle, with which it has loose connection, so that as the lever is moved back or forward the axle is swung on its pivot for the purpose of turning the plow. This forked lever is provided with the usual slide-latch 21, which engages teeth on the segment 22, secured to the yoke by the side of the lever. Lugs 23 23 on this segment limit the motion of the lever. This lever only requires attention when the ends of the furrows are reached and the plow is to be turned within the shortest possible radius. Sockets 24 and 25 are formed in the front and rear side of the yoke or frame 17ª, and in either of them, as found most expedient, the stem 26 of the sod-cutting wheel 27 is held by the eyebolt 28 or equivalent means.

The rear end of the plow-beam is supported by the caster-wheel 27ª. This wheel is mounted on a spindle 28ª, projecting laterally from an arm 29, loosely mounted in the rear end of the plow-standard or in the beam of the plow. The stem 30, or portion of the caster-carrying arm, protrudes through the box 31, in which it is held, and on this end the crank-arm 32 is securely held. A pitman 33, preferably an extensible one, is pivotally connected at its rear end with the outer end of this crank-arm 32, and by means of the pitman the caster-wheel is swung in either direction. A foot-lever 33ª, with which the forward end of the pitman is connected, is pivoted on a bearing-post 34, which extends upwardly from the rear end of the yoke or frame 17. This lever 33ª is horizontally mounted and provided with an elongated slot 35, preferably extending in the form of a slight curve throughout the length of the main portion of the lever, and in this slot the hooked forward end 36 of the pitman rests freely. The foot-lever is provided on its lower face with two stops 37 37, which by their contact with the bearing-post 34 limit and define the throw of the lever. Foot-rests 39 and 40 are formed on the opposite ends of the lever, so that its position may be controlled by the foot of the operator. When the foot of the driver is placed on the left-hand rest 39, the slot 35 extends transversely of the beam and the stop 37 is in engagement with the bearing-post, and the arm which supports the caster-wheel is held rigid, the hook 36 being loosely confined between the end of the slot and a lug 41, this portion of the slot 35 being approximately in the arc of a circle whose center is at the opposite end of the pitman 33. Such connection allows the hook a slight lateral movement which does not affect the caster-wheel. When turned in the opposite direction, the slot extends more nearly in the direction of the plow-beam, thus releasing the hooked ends so that it may slide freely the length of the slot, allowing the caster-wheel to swing in either direction.

The forward end of the plow-beam is provided with the usual clevises 42 43, and, furthermore, it has the tongue-support 44 pivoted thereto. A plate 45 is pivoted on the outer end of this tongue-support. This plate is flattened at the outer end 46 and has a vertical central plate 47 in the middle. The tongue is adapted to be split at its rear end to receive this plate 47, and nails, rivets, or bolts are inserted vertically and horizontally through the tongue and the holes 48 48 in the plates 45 and 47. The pivoted plate 45 is locked to the tongue-supporting arm by a spring-actuated latch 49, which normally enters a notch 50 in the rear end of the plate 45. Said latch is pivoted in the rear end of the support 44, and a spring 51 forces the latch automatically to its normal position upon being released. The latch terminates at its rear end in an upwardly-projecting arm 52, and a pitman 53, pivotally connected with this arm, extends rearward and passes loosely through the eye bolt or loop 54 in the bearing-post 34, terminating in the foot-rest 55, upon which the driver places his foot in order to release the latch from the notch 50 to allow the tongue to turn. As before stated, the spring forces the latch back again as soon as the notch is opposite it and forces the pitman back. A stop 56 in the arm 52 limits its upward movement.

There are a few other features shown—such as the seat 57 on the laterally-projecting arm 57ª, the foot-rest 58 on the yoke 17ª, the foot-lever 59 on the arm 7, and the dirt-scrapers 60 60 over the caster-wheel—which require no description, as they are covered in my former patents; and hence,

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a sulky-plow, the combination, with the beam, of an axle having pivotal connection with the beam, whereby it may be swung on its pivot to turn the plow, and means for changing the pivot, substantially as set forth.

2. In a sluky-plow, the combination, with the beam, of a cross-head composed of a pair of plates having pivotal and adjustable connection with the beam, and a rocking axle loosely supported in the cross-head, substantially as set forth.

3. In a sulky-plow, the combination, with the beam and a cross-head composed of a pair of plates having pivotal and adjustable connection with the beam, of a rocking axle

loosely supported in the cross-head, and hand-levers for rocking the axle and swinging it on the pivot, substantially as set forth.

4. In a sulky-plow, the combination, with the beam and a cross-head composed of a pair of plates having holes therein, whereby it is adjustably and pivotally connected with the beam, of a rocking axle loosely supported in the cross-head, and hand-levers for rocking and swinging the axle, substantially as set forth.

5. In a sulky-plow, the combination, with the beam, a yoke secured thereto, and a cross-head pivotally connected with the yoke, of an axle loosely supported in the cross-head, a hand-lever secured to the axle for rocking it, and a hand-lever pivoted to the yoke and having a forked lower end which receives the axle and is adapted to swing it on its pivot, substantially as set forth.

6. In a sulky-plow, the combination, with the beam having a yoke or frame secured thereto and a cross-head pivotally connected with the yoke, of an axle, bearing-wheels, a compound lever for rocking the axle and varying the inclination of one of the wheels, and a hand-lever pivoted to the yoke and provided with a forked lower end adapted to embrace the axle, whereby the latter may be swung upon its pivot, substantially as set forth.

7. In a sulky-plow, the combination, with the beam and an adjustable cross-head having pivotal connection therewith, of a rocking axle loosely supported in the cross-head, bearing-wheels for supporting the axle, a compound hand-lever secured to the axle and adapted to rock the latter and change the inclination of one of the bearing-wheels, and a hand-lever for swinging the axle on its pivot, substantially as set forth.

8. In a sulky-plow, the combination, with the beam, of a caster-wheel loosely supported at or near the rear end of the beam, a pivoted foot-lever, and a pitman having pivotal connection at one end with the caster-wheel and a loose connection with the foot-lever, substantially as set forth.

9. In a sulky-plow, the combination, with the beam, of a caster-wheel pivotally supported at or near the rear end of the beam, a pivoted foot-lever having an elongated slot therein, and a pitman pivotally connected at one end with the caster-wheel and having a hook at the opposite end which extends into the slot in the foot-lever, substantially as set forth.

10. In a sulky-plow, the combination, with the beam and a caster-wheel loosely supported at or near the rear end of the beam, of a pivoted foot-lever having stops thereon to limit its movements, and an elongated slot and an extensible pitman having pivotal connection with the caster-wheel and its hooked forward end lying loosely in the slot in the foot-lever, substantially as set forth.

11. In a sulky-plow, the combination, with the beam and plow proper, an arm pivotally supported in the standard of the plow, a caster-wheel revolubly supported on this arm, and a crank-arm secured to the stem of the caster-wheel arm, of a pivoted foot-lever having an elongated slot therein, stop and foot rests thereon, and a pitman pivoted to the crank-arm at one end and having a hook at the opposite end which extends loosely into the slot in the foot-lever, substantially as set forth.

12. In a sulky-plow, the combination, with the beam and a rectangular yoke or frame secured thereto, said yoke having sockets formed therein, of a sod-cutting wheel, the stem of which is adapted to be held in one of the sockets in the yoke, and a foot-rest secured on said yoke, substantially as set forth.

13. In a sulky-plow, the combination, with the beam, of a pivoted tongue-supporting arm, a tongue-plate pivoted to said arm, and a spring-latch adapted to normally engage and hold said pivoted plate, substantially as set forth.

14. In a sulky-plow, the combination, with the beam, of a tongue-supporting arm pivoted thereto, a tongue-plate pivoted to said arm, a spring-actuated latch, and a pitman for disengaging said latch from the pivoted plate, substantially as set forth.

15. In a sulky-plow, the combination, with the beam, of a pivoted tongue-plate having the horizontal and vertical plate with holes therein to receive devices for securing the tongue to the plate, a pivoted latch, a V-shaped spring for actuating the latch, an arm on the latch, a shoulder on the arm, a pitman pivoted to the arm, and a foot-rest on the free end of the pitman, for the purpose substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

CHARLES ANDERSON.

Witnesses:
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JNO. T. WALKER.