

A. C. LINDGREN.  
 PLOWING MACHINE.  
 APPLICATION FILED NOV. 29, 1913.

1,154,995.

Patented Sept. 28, 1915.  
 2 SHEETS—SHEET 1.

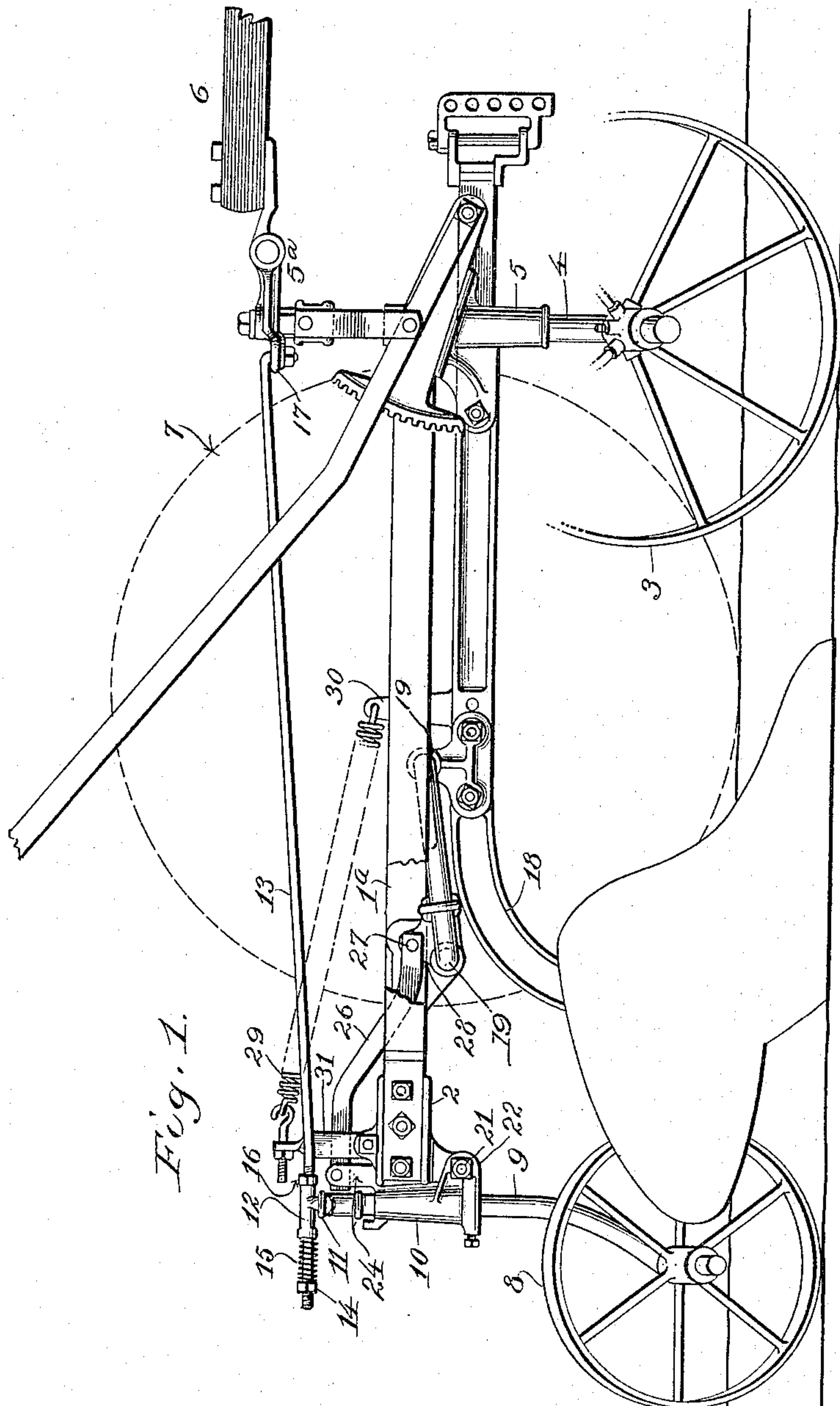


Fig. 1.

Witnesses:  
 M. R. Manning.  
 A. Lawson.

Inventor  
 A. C. Lindgren  
 By his Attorneys  
 Rogers, Kennedy & Campbell

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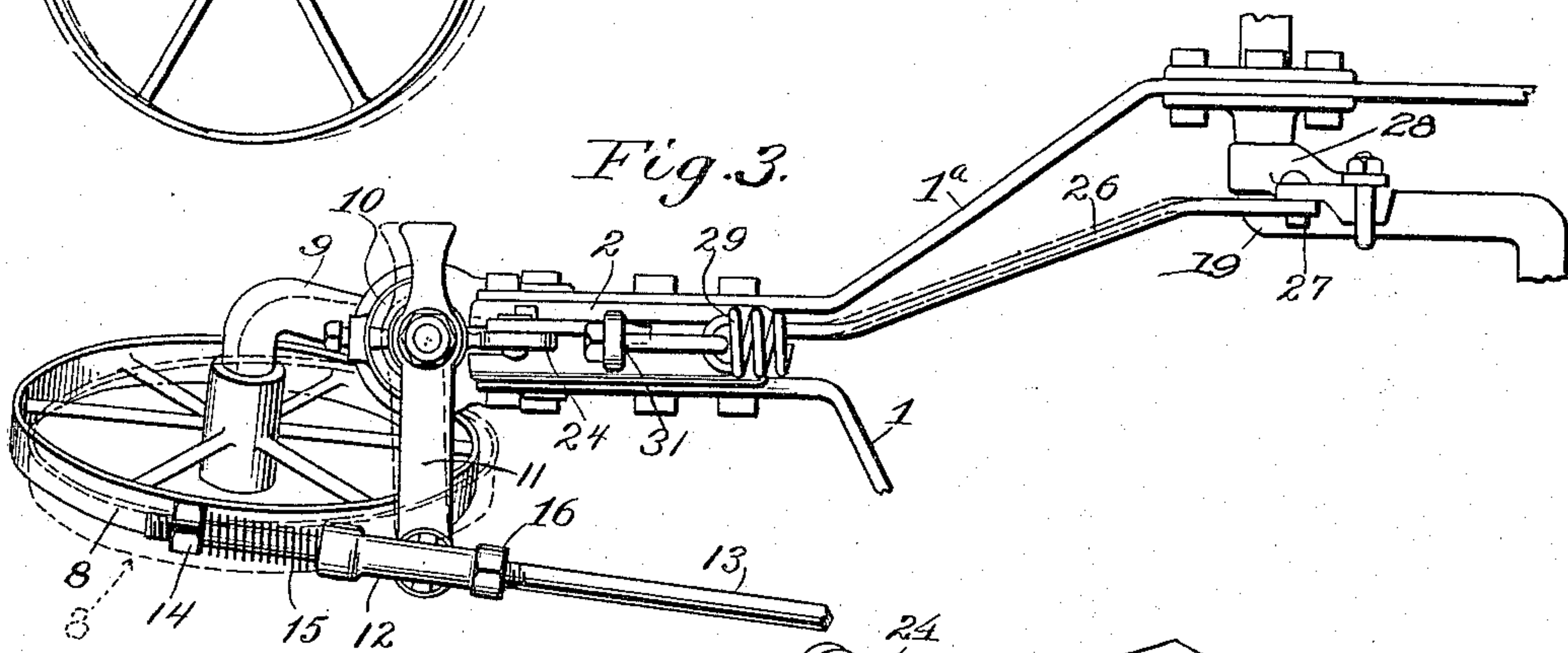
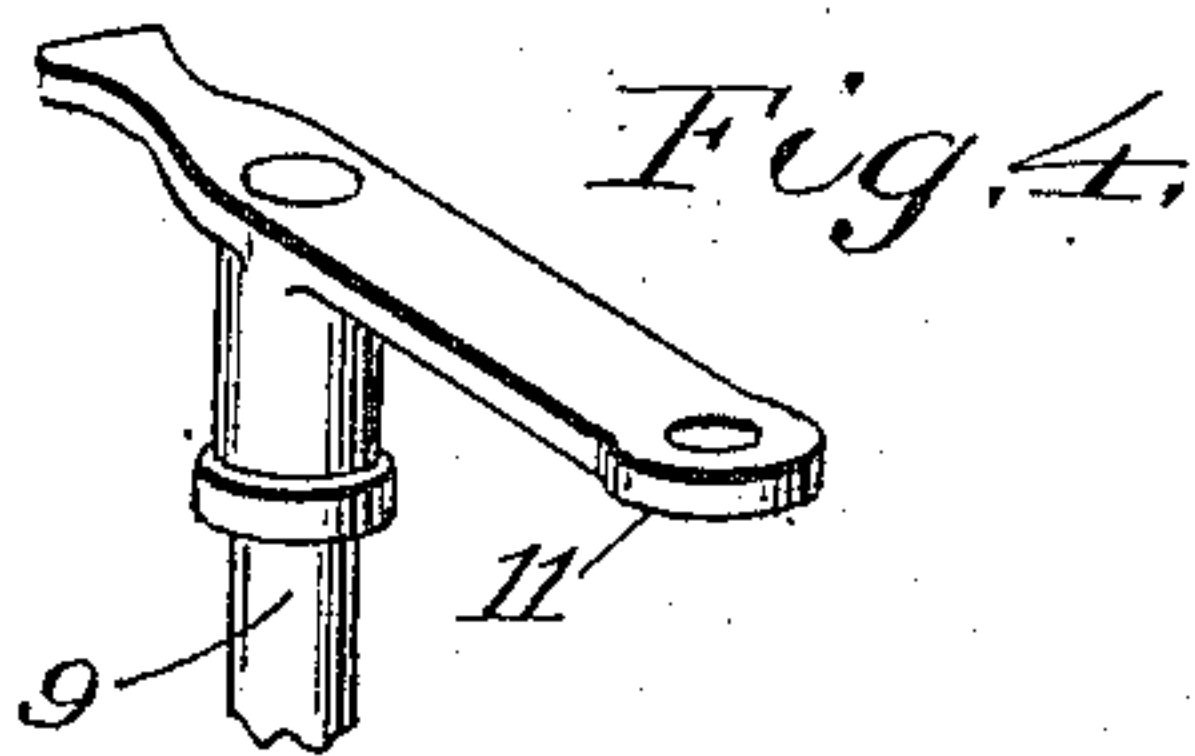
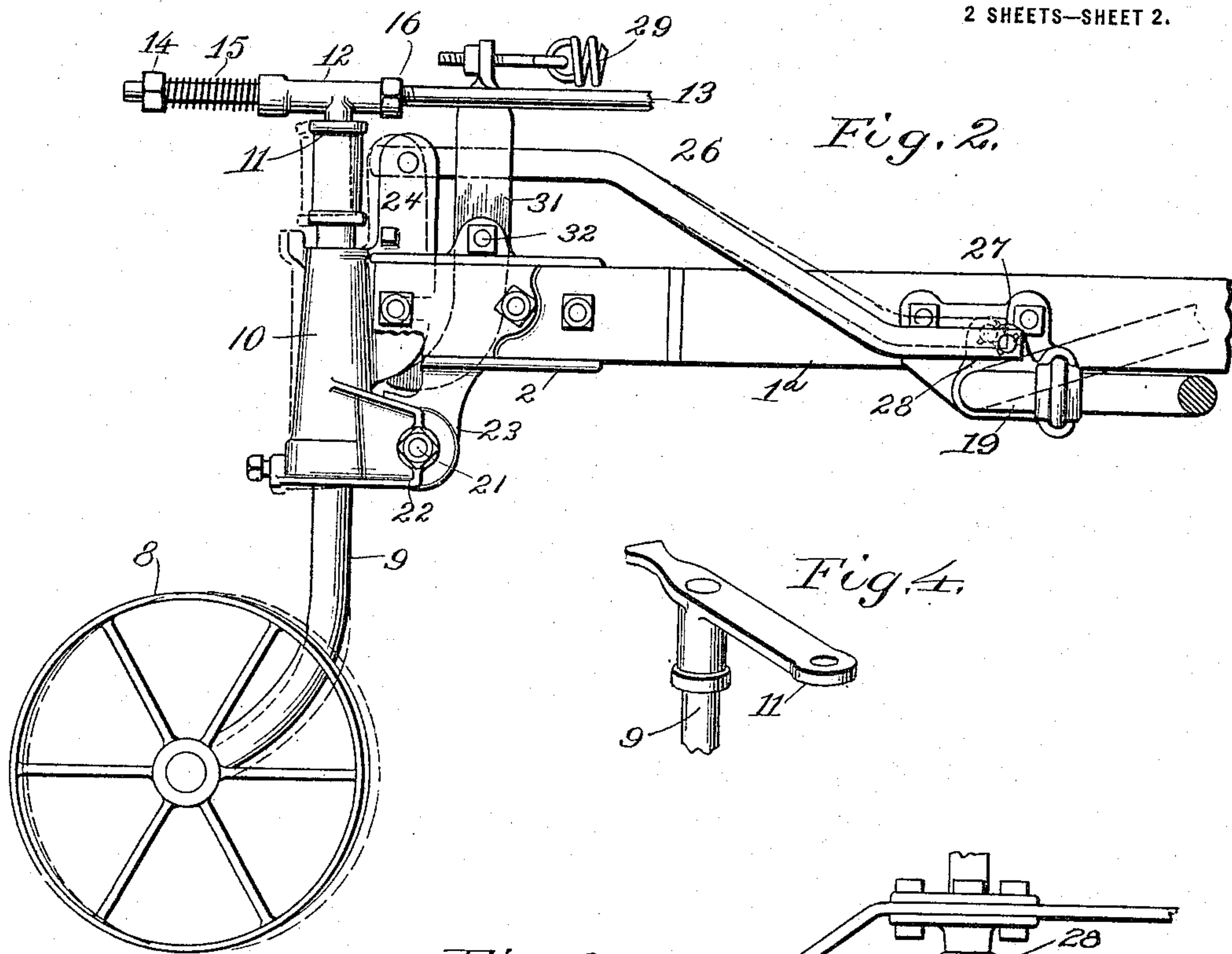


Fig. 6.

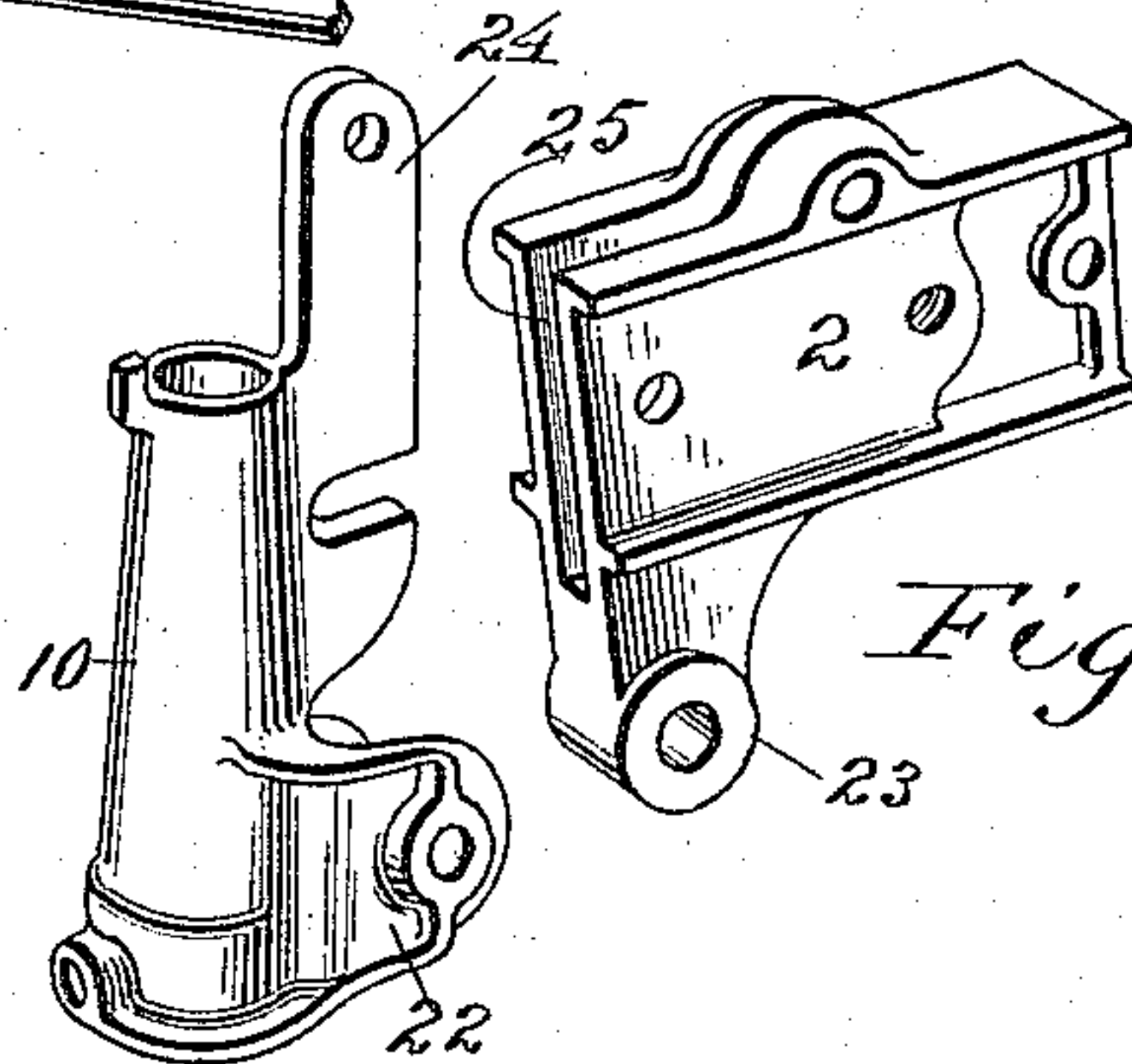
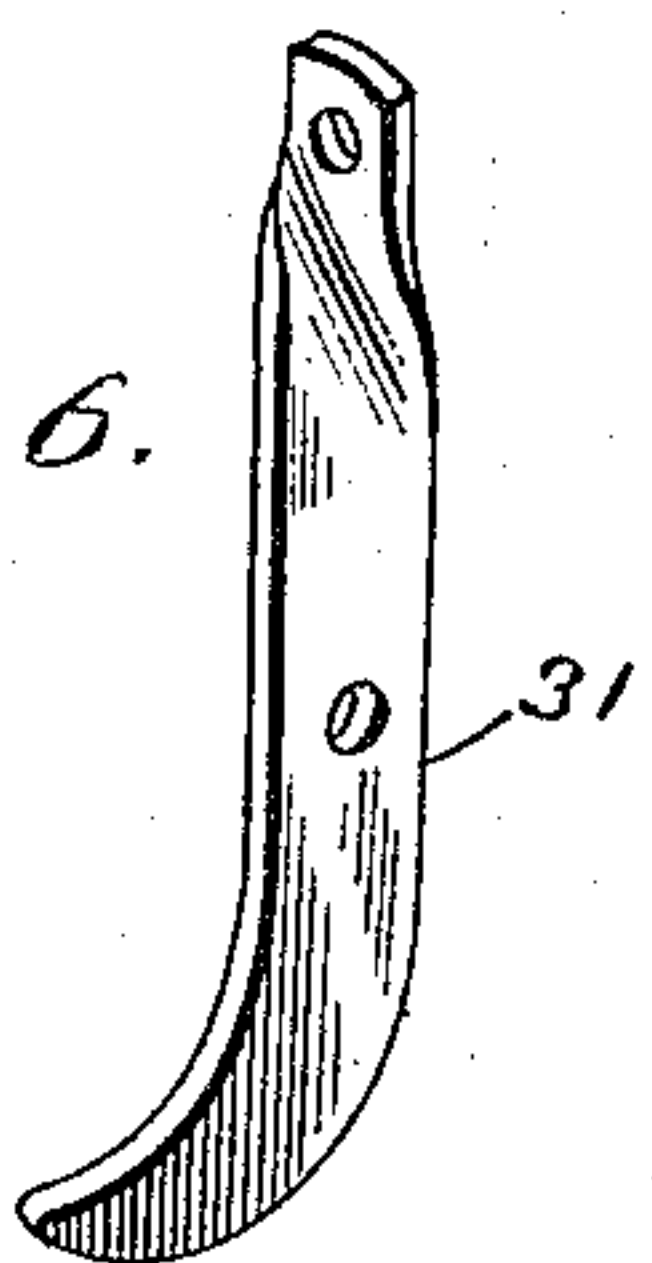


Fig. 5.

Witnesses:  
*W. F. Manning*  
*A. Hanson*

Inventor  
*A. C. Lindgren*  
 By his Attorneys  
*Rogers, Kennedy & Campbell*



# UNITED STATES PATENT OFFICE.

ALEXUS C. LINDGREN, OF MOLINE, ILLINOIS, ASSIGNOR TO MOLINE PLOW COMPANY,  
A CORPORATION OF ILLINOIS.

## PLOWING-MACHINE.

1,154,995.

Specification of Letters Patent.

Patented Sept. 28, 1915.

Application filed November 29, 1913. Serial No. 803,695.

*To all whom it may concern:*

Be it known that I, ALEXUS C. LINDGREN, a citizen of the United States, residing at Moline, in the county of Rock Island and State of Illinois, have invented certain new and useful Improvements in Plowing-Machines, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to plowing machines of the type embodying a wheeled frame and plowing devices carried thereby, the object of the invention being to insure that the machine will travel straight in the line of draft, and this whether the plow is lowered in action or raised out of action.

In the operation of wheel plows equipped with front and rear furrow wheels, and a landside wheel, the rear furrow wheel is usually set at a slight inclination toward the furrow, in order to relieve the landside friction on the plow body, and when the plow is elevated for transportation on the road or elsewhere, the rear furrow wheel will, owing to the angular position in which it was set for plowing, cause the frame of the machine to swing around and take an angular position relative to the direction of travel, with the result that the land wheel will be dragged sidewise by the team, and the movement of the plow will consequently be attended with difficulties.

My invention provides for overcoming this difficulty, and it consists of means, operating when the plow is elevated out of action, to automatically and positively shift the furrow wheel from its furrowward inclination and set it straight forward and parallel with the landside wheel, so that when the machine is drawn by the team over roads, or from field to field, or at the ends of the furrow, the frame and wheels will travel straight, without the objectionable feature of dragging the landside wheel sidewise.

My invention may be embodied in many different detailed forms and constructions, that shown in the accompanying drawings being merely one by way of example. Therefore it will be understood that the invention in its broader aspects is not limited to the particular embodiment shown, but may be variously changed and modified; and further it will be understood that the invention is not limited to any particular

form or construction of the parts except in so far as such limitations are specified in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a plowing machine having my invention embodied therein. Fig. 2 is a side elevation on an enlarged scale of the rear end of the machine; Fig. 3 is a top plan view of the same; Fig. 4 is a perspective view of the upper end of the rear furrow wheel stem; Fig. 5 is a perspective view of the bearing block for the rear furrow wheel, and the frame casting to which the block is pivoted, said parts being shown separated from each other; and Fig. 6 is a perspective view of a detail. Fig. 7 is a perspective view of another detail.

Referring to the drawings, the frame of the machine comprises parallel frame bars 1, 1<sup>a</sup> connected together at their front ends and converging at their rear ends where they are firmly fixed to opposite sides of a block or casting 2. The frame is supported at its front on the furrow side by a front furrow wheel 3 provided with an upright stem 4 mounted to swivel in a sleeve or socket 5 fixed to the frame. The upper end of the stem is provided with an arm 5<sup>a</sup> to which the draft tongue 6 is connected and by which means the wheel is turned to the right or left by the team, and the machine guided. On its landside, the frame is sustained by a landside wheel 7 mounted in suitable bearings on the frame bar 1<sup>a</sup>, while at its rear, the frame is sustained by a rear sustaining or furrow wheel 8 provided with an upright stem 9 mounted to swivel in a bearing block 10 connected with the rear end of the frame in the manner more fully described hereinafter. The stem 9 has fixed to its upper end an arm 11 extending furrowward, to which arm is pivoted a horizontal fore-and-aft extending sleeve 12. The rear end of a rod 13 extends loosely through the sleeve and is provided on its rear extremity with an adjustable head 14 between which and the rear end of the sleeve, a spiral spring 15 bears, which spring tends to hold an adjustable shoulder 16 on the rod, against the front end of the sleeve. This rod extends forwardly and has its front end connected with an arm 17 in the stem of the front furrow wheel, by which means the two furrow wheels are so connected together that the turning motion of



the front wheel by the draft team to the right or left, will guide the plow in the well known manner.

18 represents a plow beam carrying a mold board plow, and connected with a front bail and a rear bail 19 respectively the rear bail only being shown, which bails are mounted in suitable bearings on the frame bars and extend forwardly, and are jointed to the plow beam, suitable lever mechanism (not shown) being employed to raise and lower the beam, the elevation of the beam causing the bails to swing upwardly on their pivotal connections with the frame, and the lowering of the beam causing the bails to swing downwardly, the bails thus guiding and sustaining the beam in its up and down movements. The foregoing parts may be of the usual and ordinary construction, and except in so far as hereinafter indicated they form no part of the present invention.

In the use of the machine in the field, it is customary to set the rear furrow wheel at a slight inclination toward the furrow, the purpose of which is to cause the machine to travel straight forward parallel with the furrows, such inclined position of the wheel acting to relieve the landside friction on the plow body. When the plow is raised out of action however, if the furrow wheel remains in such inclined position, it will cause the frame of the machine to take an angular position with the objectionable result of dragging the landside wheel sidewise. To overcome this objection I provide means, which when the plow is raised, will automatically turn the furrow wheel from its inclined position, in a landward direction and cause it to occupy a position parallel with the landside wheel, the result being that in the transportation of the machine over roads or through the field with the plow raised, the frame will occupy a position parallel with the line of draft, and the wheels will travel straight forward without sidewise drag. In effecting this action of the furrow wheel I connect the bearing block 10 pivotally to the casting 2 by means of a horizontal pivot bolt 21 which is passed through ears 22 extending forwardly from the lower end of the bearing block, and through a depending lug 23 on the casting 2 extending between the ears. The bearing block is provided with a forwardly and upwardly extending arm 24, the lower portion of which fits loosely in a vertical slot 25 in the casting, while its upper portion extends upwardly beyond the casting and has jointed to it the rear end of a link 26 extending forwardly and pivoted as at 27 to the upper end of an arm 28 fixed to and projecting upwardly from the rear bail just forward of its pivotal axis.

As a result of this construction and arrangement of the parts, when the plow is

elevated, the bail swinging upwardly on its axial connection with the frame will swing arm 28 back, and link 26 will be thrust rearwardly and will swing the bearing block with the inclosed furrow wheel stem, rearwardly on its axis, from the full line position shown in Fig. 3 to the dotted line position in said figure. Owing to the fact that arm 11 on the stem of the furrow wheel, is held by sleeve 12 and rod 13 against fore-and-aft movement, the effect of the rearward movement of the bearing block will be to positively turn the stem therein, which turning action will shift the wheel in a landward direction and the wheel will be held in its shifted position. When the plow is in its lowered position for operation, the parts are so set and adjusted, as by the adjustable shoulder 16 on rod 13, that when the machine travels straight forward, the furrow wheel will incline somewhat toward the furrow as shown by full lines in Fig. 3; and when the plow is raised, the wheel will by the mechanism described, be positively and automatically swung around in a landward direction and will be held in a position parallel with the line of draft and with the landside wheel, as shown by dotted lines in Fig. 4.

Owing to the disposition of the weight of the operator and frame forward of the pivotal axis 21 of the bearing block, and the support afforded by the furrow wheel, back of said axis, considerable resistance will be offered to the rocking of the bearing block in the manner described, and in order to avoid the use of unduly heavy connections from the rear bail to the bearing block, I propose to utilize the lifting spring 29 with which plows of this type are usually equipped for assisting in operating the bearing block. Usually this spring is connected at its forward end to the plow beam as at 30, and has its rear end connected to some fixed portion of the frame. I now connect the rear end of the spring to the upper end of an upright lever 31 pivoted midway between its ends on a horizontal transverse axis 32, in the slot 25 in casting 2, the lower end of the lever being in position to bear against the lower curved end of the arm 24 before alluded to. As a result of this arrangement and construction, when the plow is elevated, the tension of the spring acting on the upper end of the lever, will assist in the operation of rocking the bearing block. When the plow is lowered, the rear bail swinging downwardly on its axis will draw the link 26 forwardly and the bearing block will be rocked forward to its former position, this action causing the furrow wheel stem to turn the wheel back to its former inclination furrowward. It will be seen therefore that while I secure the proper angle of the furrow wheel when the plow is



down in action, there will be no tendency of the frame to shift around and the landside wheel to drag sidewise, when the plow is elevated for transportation or for other purposes.

Having thus described my invention what I claim is:

1. In a plowing machine, the combination of a frame, a plow sustained thereby and movable upwardly to an inoperative position for transporting the machine, a sustaining wheel mounted on the frame and movable to vary its angle relatively to the line of travel of the machine, and means for automatically moving said wheel to vary its angle when the plow is raised to inoperative position, said means acting to hold the wheel in its changed position while the plow is in inoperative position for transportation.

2. In a plowing machine, the combination of a frame, a plow sustained thereby and movable upwardly to inoperative position for transportation, a sustaining wheel mounted on the frame and movable toward the land to vary its angle relatively to the line of travel, and means operating automatically on the upward movement of the plow in operative position, to shift the sustaining wheel toward the land and retain it in its changed position.

3. In a plowing machine, the combination of a frame, a plow sustained thereby and movable up and down, a rear sustaining wheel mounted on the frame, and means for automatically swinging said wheel toward the land when the plow is raised.

4. In a plowing machine, the combination of a frame, a plow sustained thereby and movable up and down, a rear sustaining wheel mounted on the frame and movable to change its angle relatively to the line of travel of the machine, and means for controlling the movements of said wheel, said means operating when the plow is down to hold the wheel inclined toward the furrow, and operating when the plow is raised to turn the wheel toward the land.

5. In a plowing machine, the combination of a frame, a plow sustained thereby and movable up and down, a swiveling sustaining wheel mounted on the frame, and means controlled by the up and down movements of the plow for positively swiveling said wheel.

6. In a plowing machine, the combination of a frame, a plow sustained thereby, and movable up and down, a swiveling sustaining wheel mounted on the frame, and means acting to positively swivel said wheel when the plow is raised.

7. In a plowing machine, the combination of a frame, a plow mounted thereon and movable up and down, a rear furrow wheel mounted on the frame to turn horizontally on an upright axis, and suitable

means operating when the plow is raised to positively turn said wheel.

8. In a plowing machine, the combination of a frame, a plow sustained thereby and movable up and down, a rear furrow wheel mounted on the frame, and means operating on the up and down movements of the plow, to automatically and positively vary the angle of the furrow wheel.

9. In a plowing machine, the combination of a frame, a plow mounted thereon and movable up and down, a bearing block movably mounted on the frame, a sustaining wheel provided with an upright stem mounted to turn in said block, means controlled by the elevation of the plow for moving the block, and means controlled by the movement of the block for turning said stem therein.

10. In a plowing machine, the combination of a frame, a plow sustained thereby and movable up and down, a bearing block movably mounted on the frame, a rear furrow wheel provided with an upright stem mounted to turn in said block and provided with an arm, means for holding said arm against fore and aft movement at a point beyond the stem, and means controlled by the elevation of the plow for moving the bearing block.

11. In a plowing machine, the combination of a frame, a plow movable up and down relatively thereto, a bearing block mounted on the frame and movable longitudinally of the same, a rear sustaining wheel provided with an upright stem mounted to turn in said block, an arm on the stem, means for holding said arm at a point beyond the axis of the stem against movement longitudinally of the frame, and means acting when the plow is elevated to move the block longitudinally.

12. In a plowing machine, the combination of a frame, a plow sustained thereby and movable up and down, a bearing block pivoted to the frame on a horizontal transverse axis, a rear furrow wheel provided with an upright stem mounted to turn in said block, an arm on the stem, means for holding said arm against longitudinal movement at a point beyond the axis of the stem, and means controlled by the elevation of the plow for rocking the bearing block on its axis.

13. In a plowing machine, the combination of a frame, a plow, a swinging bail pivoted to the frame and connected with the plow for raising the same, a bearing block movably mounted on the frame, operative connections between the bail and block for moving the latter when the bail is operated to raise the plow, a rear sustaining wheel carried by the block and movable relatively thereto to change the angle of the wheel relatively to the line of travel of the machine,



and means controlled by the movement of the block for changing the angle of the wheel.

14. In a plowing machine, the combination of a frame, a plow mounted thereon to move up and down, a bearing block movably mounted on the frame, a sustaining wheel provided with a stem mounted to turn in said block, means controlled by the elevation of the plow for moving said block,

means operating on the movement of the block to turn the stem therein, and a plow lifting spring acting on the block to assist in moving the latter.

In testimony whereof I have affixed my signature in presence of two witnesses.

ALEXUS C. LINDGREN.

Witnesses:

L. C. BLANDING,  
JAMES J. LAMB.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."