

C. CHRISTENSEN.

PLOW.

APPLICATION FILED OCT. 7, 1907.

938,975.

Patented Nov. 2, 1909.

4 SHEETS—SHEET 1.

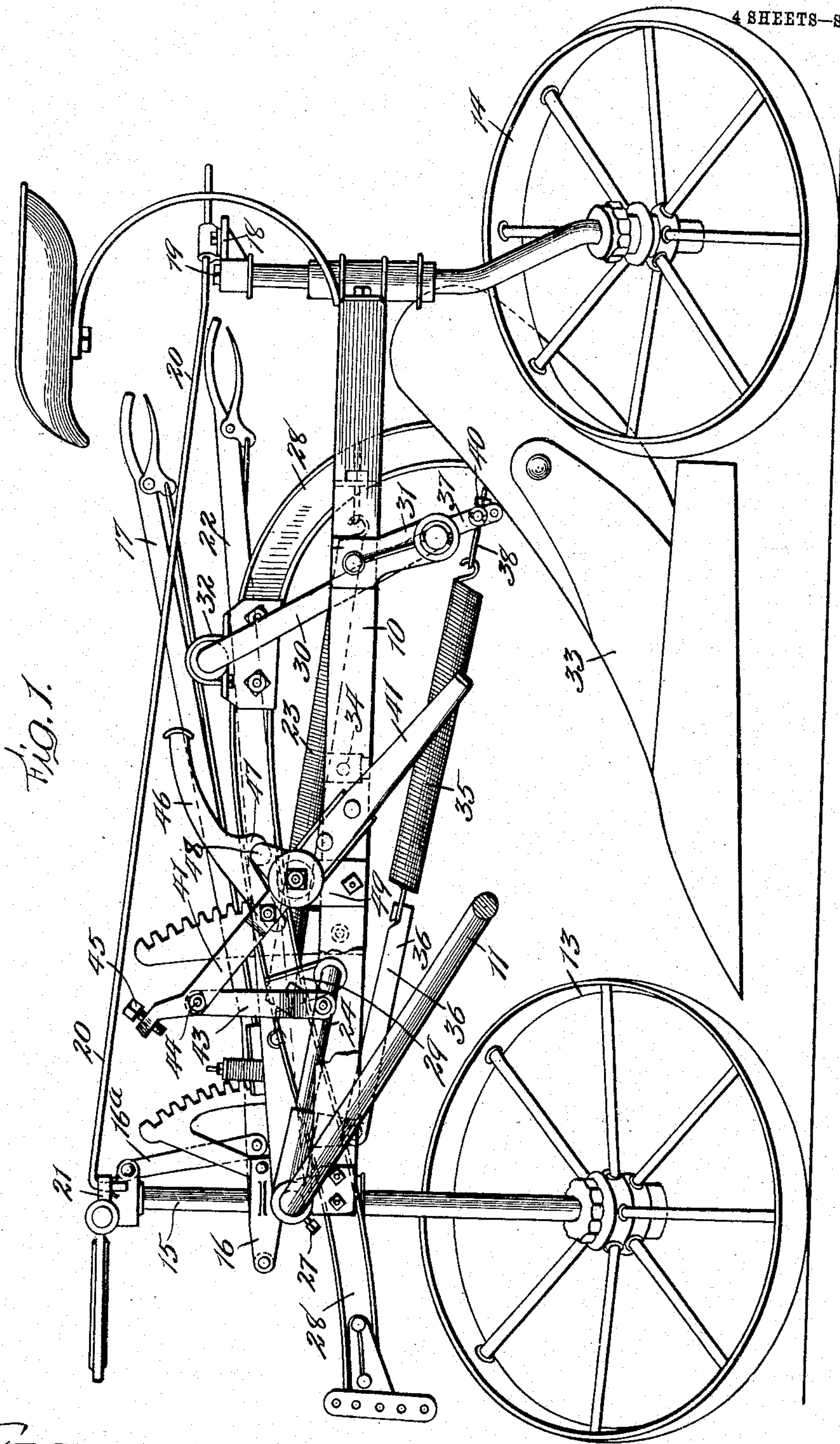


Fig. 1.

Witnesses:
G. P. H. H.
L. V. Lomax & Co.

Inventor
Carl Christensen,
by Bond Adams Ristau Jensen,
his atty.

C. CHRISTENSEN.

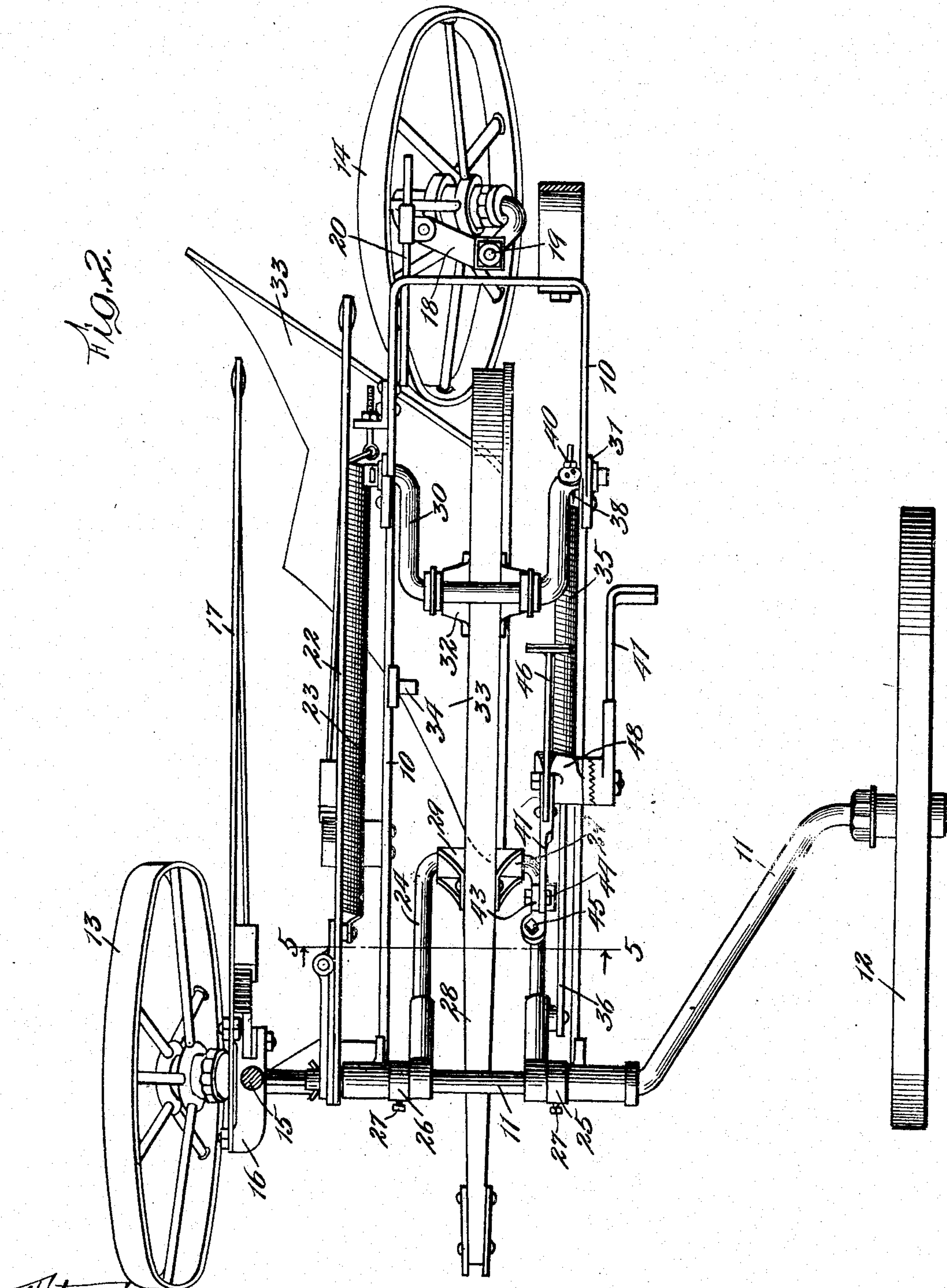
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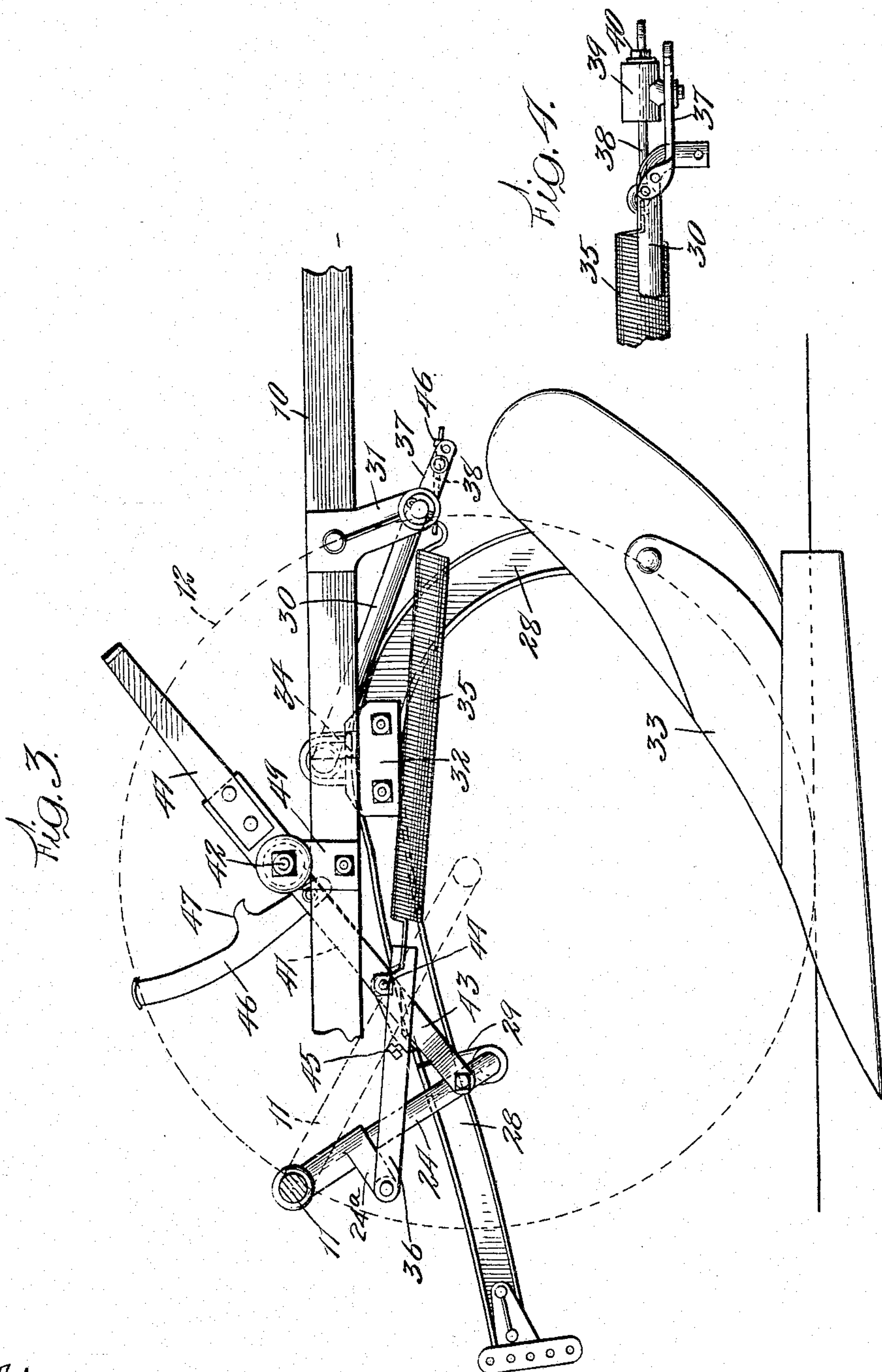
Witnesses:
J. D. Perry
L. V. Tomaruk Jr.

Inventor:
Carl Christensen,
by Donald James Picard, Attorney.

PLOW.

938,975.

4 SHEETS—SHEET 3.



Witnesses:
Wm. D. Perry
 G. V. Lomax Jr.

Inventor:
Carl Christensen,
by Donald Angus Pierce Jackson,
his attys.

C. CHRISTENSEN.

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4 SHEETS—SHEET 4.

Fig. 5.

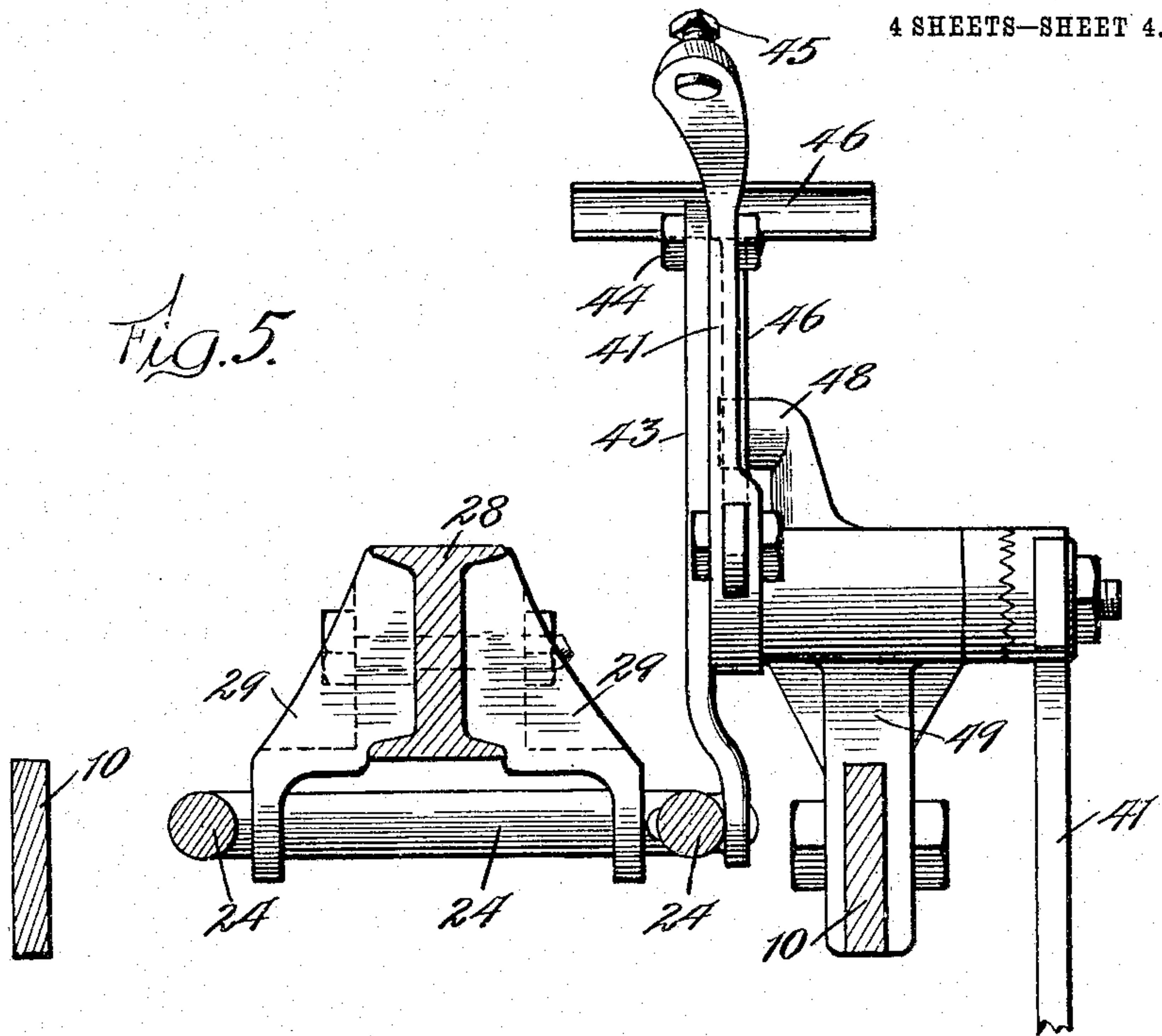


Fig. 6.

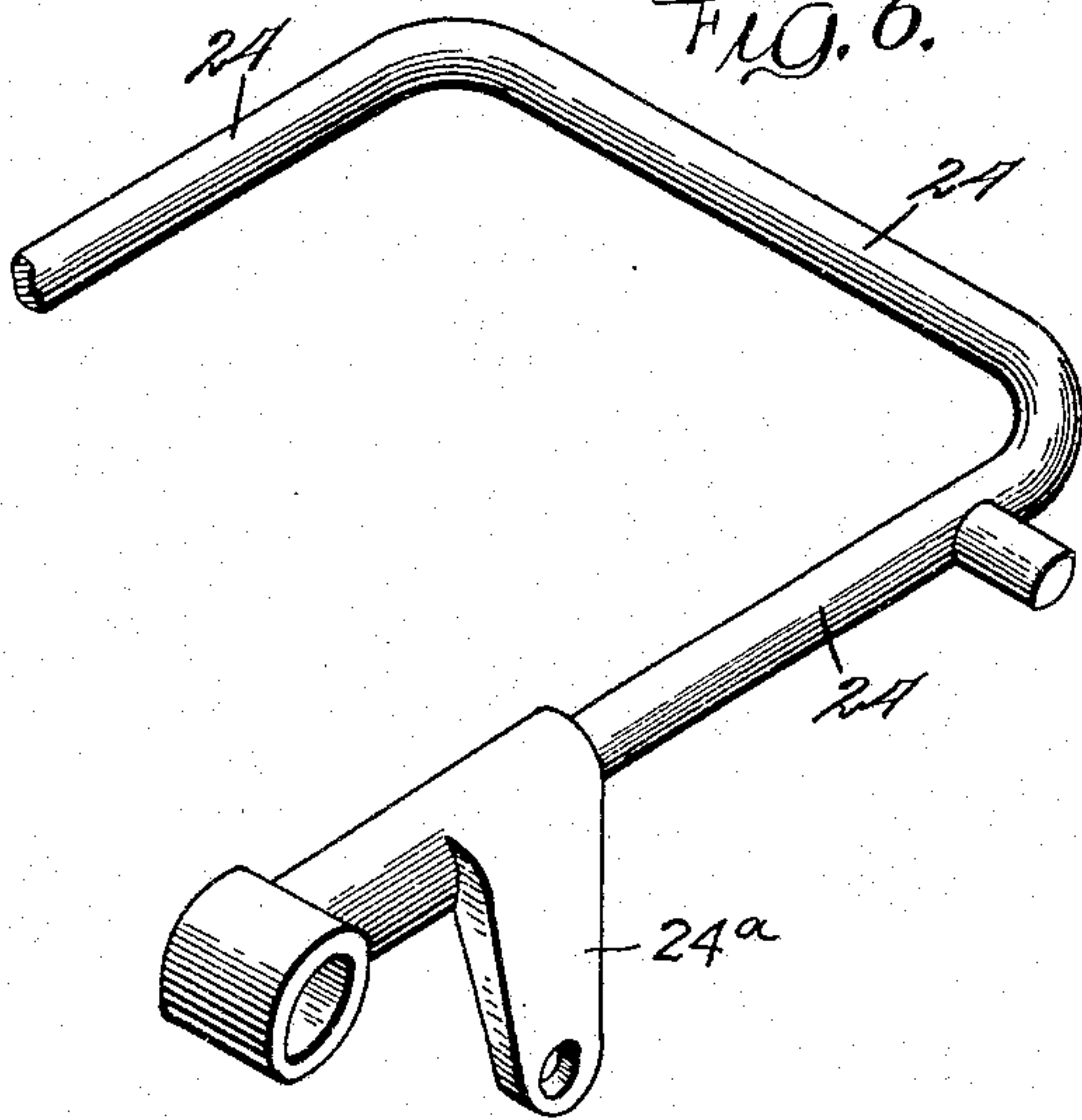
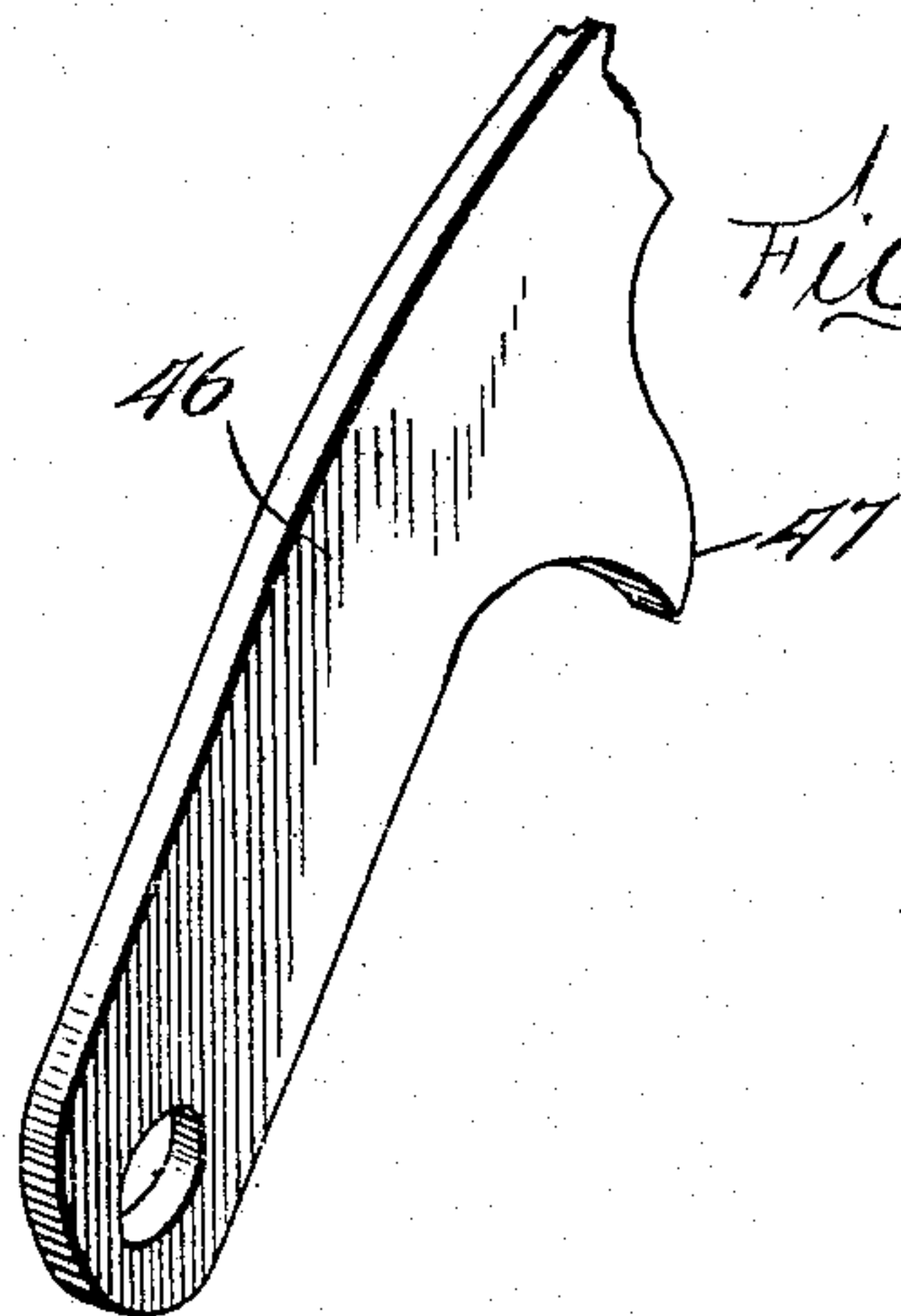


Fig. 7.



Witnesses:
Ed. Perry
L. V. Donarusk.

Inventor:
Carl Christensen,
by Donald Angus Pickard-Johnson,
his atty.

UNITED STATES PATENT OFFICE.

CARL CHRISTENSEN, OF BRADLEY, ILLINOIS, ASSIGNOR TO DAVID BRADLEY MANUFACTURING COMPANY, OF BRADLEY, ILLINOIS, A CORPORATION OF ILLINOIS.

PLOW.

938,975.

Specification of Letters Patent.

Patented Nov. 2, 1909.

Application filed October 7, 1907. Serial No. 396,250.

To all whom it may concern:

Be it known that I, CARL CHRISTENSEN, a citizen of the United States, residing at Bradley, in the county of Kankakee and State of Illinois, have invented certain new and useful Improvements in Plows, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to wheeled plows, and has particularly to do with the mechanism for raising and lowering the beam and plow.

It has for its object to provide a new and improved arrangement of lifting devices by which the plow may be quickly lowered point first to run into the ground and may also be readily lifted out of operative position.

In the accompanying drawings,—Figure 1 is a side elevation, illustrating my improved plow, the land-wheel being removed; Fig. 2 is a plan view thereof; Fig. 3 is a detail, illustrating parts of the lifting mechanism; Fig. 4 is a detail, showing some of the connections of the rear bail; Fig. 5 is an enlarged detail, being a partial cross-section on line 5—5 of Fig. 2; Fig. 6 is a perspective view of a part of the front bail; and Fig. 7 is a partial view of the latch-lever.

Referring to the drawings,—10 indicates a U-shaped frame, which at its front end is connected to the land-wheel axle 11 so that said axle with the frame 10 together make up the frame of the machine.

12 indicates the land-wheel, 13 the furrow-wheel, and 14 the caster-wheel. The furrow-wheel is mounted on a suitable support having a vertical spindle 15 which is connected with the land-wheel axle 11 through a bracket 16 which may be raised and lowered by means of a lever 17, the bracket 16 being connected with the spindle 15 by a link 16^a, shown in Fig. 1. The caster-wheel is provided with a crank-arm 18 at the upper end of a caster-wheel spindle 19, said arm being connected by a connecting-rod 20 with an arm 21 at the upper end of the furrow-wheel spindle 15 in the usual way.

22 indicates a lever mounted on and keyed to the land-wheel axle 11 for rocking the same to raise and lower the front portion of the frame, said axle being bent, as shown in Fig. 2, so that by partially rotating it the

land side of the front portion of the frame may be elevated or depressed. A spring 23 is connected at its rear end with the frame and at its forward end with the lever 22, as shown in Fig. 1, and serves to assist in the operation of said lever to raise the frame.

24 indicates a front bail, the ends of which are pivotally mounted upon the land-wheel axle 11, being held in place by collars 25—26 secured by set-screws 27, as shown in Figs. 1 and 2. The bail 24 extends backward and downward from the intermediate portion of the land-wheel axle 11, as shown in Fig. 1. When the plow is in its elevated position, the bail 24 is inclined slightly downward from the horizontal. When the plow is in the ground, however, it extends downward at a sharp angle, as shown in Fig. 3.

28 indicates the plow-beam, which is pivotally connected with the intermediate portion of the bail 24 by a bracket 29, or other suitable connection, as shown in Fig. 2.

30 indicates a rear bail, the ends of which are pivotally mounted in suitable brackets 31 depending from the rear portion of the frame, as shown in Fig. 1. Said bail extends forward and upward, as shown in Fig. 1, and the rear portion of the plow-beam 28 is pivotally connected therewith by a bracket 32, or other suitable connection.

33 indicates the plow.

34 indicates a stop secured to the frame 10 in position to intercept the rear bail 30 when it reaches its lowermost position and prevent it from descending farther. Said stop may be adjusted but is firmly secured to the frame so that it acts as a rigid stop to limit the downward movement of said bail.

35 indicates a lifting spring, the forward end of which is connected by a strap 36, or other suitable means, with an arm 24^a carried by the front bail and depending therefrom near its pivot, as best shown in Figs. 3 and 6, the rear end of said spring being connected to an arm 37 which forms an extension of one of the arms of the bail 30, as best shown in Figs. 1 and 4. The spring 35 is connected with the arm 37 by means of a rod 38, which is connected with said spring and passes through a swiveled block 39 pivoted at one side of the arm 37, as

shown in Fig. 4. A nut 40 on the rod 38 provides for adjustment of the spring. As the arm 37 is rigidly connected with the bail 30 and extends below the pivot of said bail, when the upper end of the bail swings forward and downward in lowering the plow into operative position, the arm 37 will swing upward and backward. At the same time the arm 24^a will be carried forward and downward by the swinging of the front bail in that direction incident to the lowering of the plow. Consequently the ends of the spring 35 will be drawn apart, putting the spring under tension as the plow moves down into operative position. The result is that the spring acts with greater force at the beginning of the lifting operation. Thus the lifting effect of the spring is automatically increased by the movement of the bails in lowering the plow into operative position.

41 indicates a lifting-lever fulcrumed at 42 upon the frame and connected at its forward end by a link 43 with the bail 24 at a point near the connection of said bail with the plow-beam, as shown in Figs. 1 and 3.

44 indicates a pivot, which connects the link 43 with the lever 41.

45 indicates a screw-stop, which is carried on the front end of the lever 41 and is adapted to be adjusted to limit the movement of the lever 41 and link 43, said stop being adapted to bear upon the upper edge of the link 43 when the lever and link come into alinement, or approximately so, depending on the way in which said stop is set. By permitting said lever and link to come into alinement, when the plow is in its lowermost position the plow will be automatically locked in the ground. As the front bail is connected with the lever 41 at a point forward of the fulcrum thereof it is apparent that by depressing the rear end of the lever the rear portion of the front bail will be swung upward, thereby raising the front end of the plow-beam; at the same time the rear bail being also connected with the beam will be swung upward, raising the rear portion of the plow-beam. The rear portion of the beam, however, will not be lifted as much as the front portion owing to the fact that the front bail swings through a much greater arc than the rear bail when the lifting lever is operated.

For locking the beam in its elevated position, as well as for releasing and depressing it, I provide a latch-lever 46 which is pivoted upon the lifting-lever 41 forward of the fulcrum thereof and is provided with a hook or latch 47 adapted to engage a suitable stop 48 carried by the frame, as shown in Figs. 1 and 5, said stop being preferably formed as a part of a bracket 49 which supports the fulcrum of the lever 41. When the lever 41 is depressed to raise the plow-beam to its

highest position, the latch-lever 46 falls over until its hook 47 engages the stop 48, as shown in Fig. 1. The end of the latch-lever 46 projects near enough to the driver's seat so that by pressing forward on the upper end of said lever the latch may be released and the bails swung downward to lower the plow-beam. The lower end of the latch-lever 46 is fitted in a suitable socket in the forward portion of the lever 41, so that it cannot swing forward on said lever beyond a position substantially at right angles with the lever, as shown in Fig. 3.

By the construction described the plow-beam may be very quickly tilted downward and lowered to cause the point of the plow to enter the ground and may be locked either in the ground or in elevated position by operating the foot-levers described. The spring 35 being put under greater tension by the lowering of the plow into operative position, serves to assist in raising the plow, so that it is readily operated to move it into either of its positions. The operator by pressing forward on the latch-lever 46, when the plow is in carrying position, at once releases it and depresses it, point first, so that the plow quickly enters the ground and finds its proper level by reason of the swinging of the bails 24—30 down to their lowermost positions, determined by the stop 34. The plow is locked down when the link 43 comes into alinement with the lever 41, as hereinafter described. By simply depressing the lever 41 the beam is released and raised to carrying position, where it is automatically locked by the latch-lever 46.

That which I claim as my invention, and desire to secure by Letters Patent, is,—

1. In a plow, the combination of a wheeled frame, front and rear bails extending transversely thereof, said front bail extending rearwardly from its support, the rear bail extending forward and upward, a beam pivotally connected with said bails, and a lifting lever connected with one of said bails for rocking them to raise and lower the beam.

2. In a plow, the combination of a wheeled frame, front and rear bails extending transversely thereof, said front bail extending rearwardly from its support, the rear bail extending forward and upward, a beam pivotally connected with said bails, a lifting lever connected with one of said bails for rocking them to raise and lower the beam, and a lifting spring connected with said bails for aiding in raising the beam.

3. In a plow, the combination of a wheeled frame, front and rear bails extending transversely thereof, said front bail extending rearwardly from its support, the rear bail extending forward and upward from its support, a beam pivotally connected with said bails, a lifting lever fulcrumed on the

frame and connected with the front bail for rocking the bails to raise and lower the beam, and a latch-lever carried by the lifting lever and adapted to engage a stop to lock the beam in its uppermost position.

4. In a plow, the combination of a wheeled frame, a front bail extending backward and downward from its pivot, a rear bail extending upward and forward from its pivot, a beam pivotally connected with said bails, a lever mounted on the frame, and a link connecting said lever with the rear portion of the front bail.

5. In a plow, the combination of a wheeled frame, a front bail extending backward and downward from its pivot, a rear bail extending upward and forward from its pivot, a beam pivotally connected with said bails, a lever mounted on the frame, and a link connecting said lever with the rear portion of the front bail, said link being adapted to move into alinement with said lever when the front bail is in its lowermost position.

6. In a plow, the combination of a wheeled frame, a front bail extending backward and downward from its pivot, a rear bail extending upward and forward from its pivot, a beam pivotally connected with said bails, a lever mounted on the frame, a link connecting said lever with the rear portion of the front bail, said link being adapted to move into alinement with said lever when the front bail is in its lowermost position, and a latch carried by said lever for locking the beam in its uppermost position.

7. In a plow, the combination of a wheeled frame, a front bail extending backward and downward from the front portion of said frame, a rear bail extending forward and upward from the rear portion of said frame, said rear bail having an arm extending downwardly from the point of its support on said frame, a spring connected with said arm and with the front bail, a plow-beam connected with said bails, and a lifting lever for raising said bails to lift the plow-beam.

8. In a plow, the combination of a frame, a land-wheel axle extending transversely thereof, a bail pivotally mounted on said axle and extending rearwardly therefrom, a rear bail supported by the frame and extending upward from the point of its support, a beam connected with said bails, and a lever for rocking said bails to elevate the beam.

9. In a plow, the combination of a frame, a land-wheel axle extending transversely thereof, a bail pivotally mounted on said axle and extending rearwardly therefrom, a rear bail supported by the frame and extending upward from the point of its support, a beam connected with said bails, a lever for rocking said bails to elevate the beam, and a lever for rocking said land-wheel axle.

10. In a plow, the combination of a wheeled frame, front and rear bails extending transversely thereof and adapted to swing vertically independently of the frame, said front bail extending rearwardly from its support, the rear bail being pivoted upon the frame at its lower end and extending forward and upward, a beam pivotally connected with said bails, and a lifting lever connected with one of said bails for rocking them to raise and lower the beam.

11. In a plow, the combination of a wheeled frame, front and rear bails extending transversely thereof and adapted to swing vertically independently of the frame, said front bail extending rearwardly from its support, the rear bail being pivoted upon the frame at its lower end and extending forward and upward, a beam pivotally connected with said bails, a lifting lever connected with one of said bails for rocking them to raise and lower the beam, and a lifting spring connected at its front end with said front bail and at its rear end with the rear bail for aiding in raising the beam.

12. In a plow, the combination of a wheeled frame, front and rear bails extending transversely thereof and adapted to swing vertically independently of the frame, said front bail extending rearwardly from its support, the rear bail extending forward and upward, a beam pivotally connected with said bails, a lifting lever connected with the front bail for rocking the bails to raise and lower the beam, and a latch-lever carried by the lifting lever and adapted to engage a stop to lock the beam in its uppermost position.

13. In a plow, the combination of a wheeled frame, a front bail extending backward and downward from the front portion of said frame, a rear bail extending upward and forward from the rear portion of said frame, said bails being adapted to swing vertically independently of the frame, a beam pivotally connected with said bails, a lever mounted on the frame, and a link connecting said lever with the rear portion of the front bail.

14. In a plow, the combination of a wheeled frame, a front bail extending backward and downward from the front portion of said frame, a rear bail extending upward and forward from the rear portion of said frame, said bails being adapted to swing vertically independently of the frame, a beam pivotally connected to said bails, a lever mounted on the frame, and a link connecting said lever with the rear portion of the front bail, said link being adapted to move into alinement with said lever when the front bail is in its lowermost position.

15. In a plow, the combination of a wheeled frame, a front bail extending backward and downward from the front portion of said

frame, a rear bail extending upward and forward from the rear portion of said frame, said bails being adapted to swing vertically independently of the frame, a beam pivotally connected with said bails, a lever mounted on the frame, a link connecting said lever with the rear portion of the front bail, said link being adapted to move into alinement with said lever when the front bail is in its lowermost position, and a latch carried by said lever for locking the beam in its uppermost position.

16. In a plow, the combination of a wheeled frame, a front bail pivoted at its upper end and extending backward and downward from the front portion of said frame, a rear bail pivoted at its lower end and extending forward and upward from the rear portion of said frame, said bails being adapted to swing vertically independently of the frame, said rear bail having an arm extending downwardly from the point of its support on said frame, a spring connected with said arm and with the front bail, a plow-beam connected with said bails, and a lifting lever for raising said bails to lift the plow-beam.

17. In a plow, the combination of a frame, a land-wheel axle extending transversely thereof, a bail pivotally mounted on said axle and extending rearwardly therefrom, a rear bail supported by the frame and extending upward from the point of its support, said bails being adapted to swing vertically independently of the frame, a beam connect-

ed with said bails, and a lever for rocking said bails to elevate the beam.

18. In a plow, the combination of a frame, a land-wheel axle extending transversely thereof, a bail pivotally mounted on said axle and extending rearwardly therefrom, a rear bail supported by the frame and extending upward from the point of its support, said bails being adapted to swing vertically independently of the frame, a beam connected with said bails, a lever for rocking said bails to elevate the beam, and a lever for rocking said land-wheel axle.

19. In a plow, the combination of a frame, front and rear bails extending transversely thereof, a beam pivotally connected with said bails, and a lifting spring connected with said bails and put under tension by the swinging of said bails in lowering the beam into operative position.

20. In a plow, the combination of a frame, front and rear bails extending transversely thereof, a beam pivotally connected with said bails, one of said bails having an arm extending beyond the pivot thereof, and a lifting spring connected with said arm and with the other bail and put under tension by the swinging of said bails in lowering the beam into operative position.

CARL CHRISTENSEN.

Witnesses:

WM. R. BOND,
T. N. MAINS.