

No. 749,043.

PATENTED JAN. 5, 1904.

O. E. ELLISON.
DISK PLOW.

APPLICATION FILED AUG. 30, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 3.

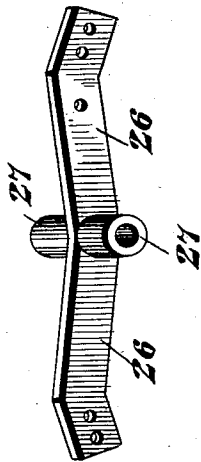


Fig. 4.

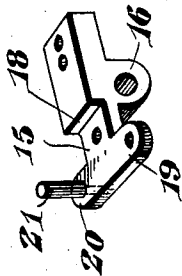


Fig. 5.

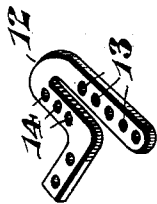
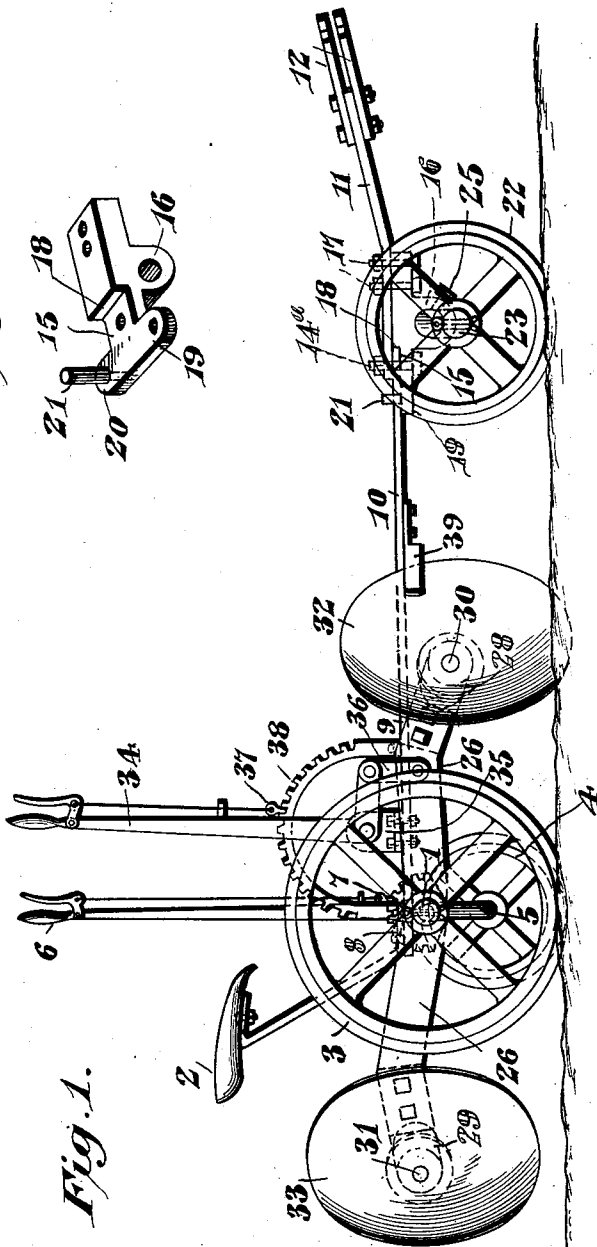


Fig. 1.



O. E. Ellison, Inventor

By

E. L. Siggers

Attorney

Witnesses
Jas. H. McLaughlin
Louis L. Zulihn

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2 SHEETS—SHEET 2.

Fig. 6.

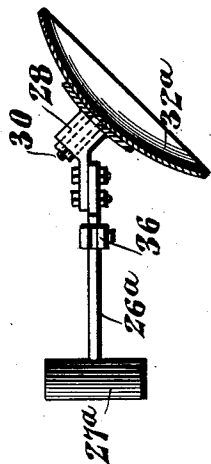


Fig. 7.

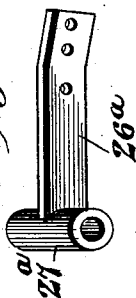
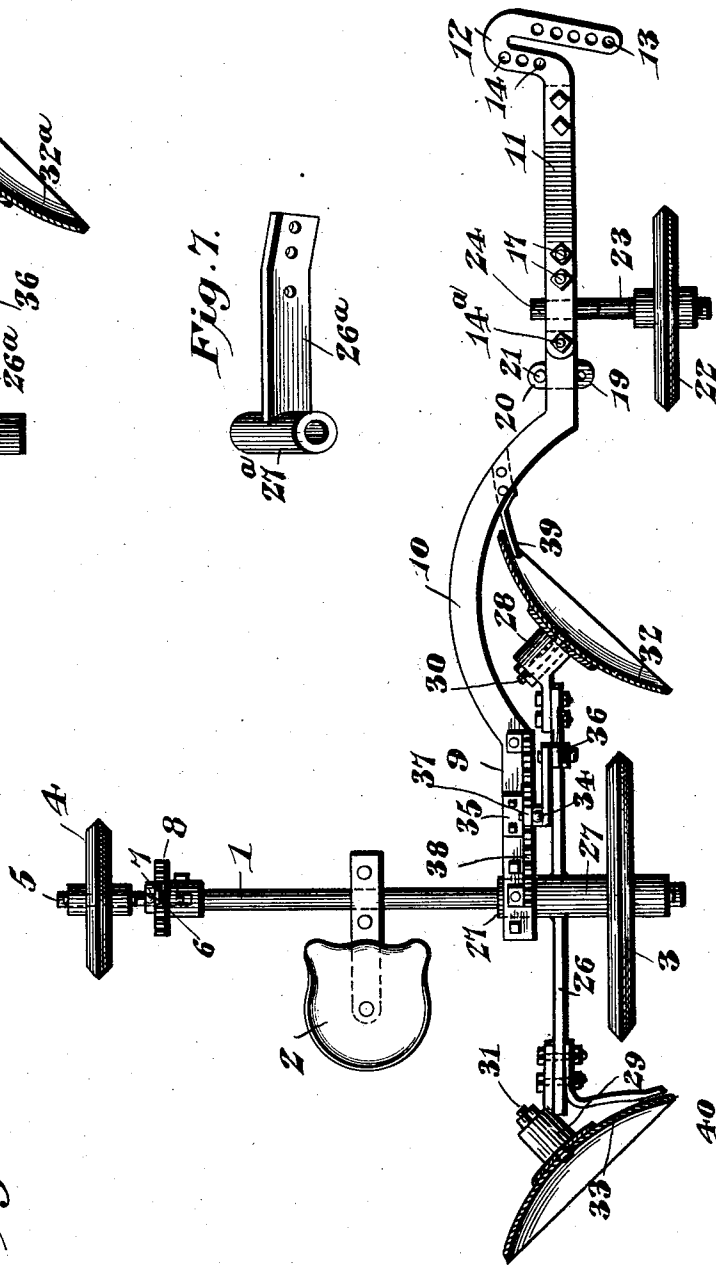


Fig. 2.



O. E. Ellison, Inventor

By

E. G. Siggers

Attorney

Witnesses
Jas. E. McElhannon
Louis G. Julihn

UNITED STATES PATENT OFFICE.

OLIVER E. ELLISON, OF CHATTANOOGA, TENNESSEE, ASSIGNOR OF ONE-HALF TO ERNEST PRENTICE AND JOEL N. McCUTCHEON, OF CHATTANOOGA, TENNESSEE.

DISK PLOW.

SPECIFICATION forming part of Letters Patent No. 749,043, dated January 5, 1904.

Application filed August 30, 1902. Serial No. 121,642. (No model.)

To all whom it may concern:

Be it known that I, OLIVER E. ELLISON, a citizen of the United States, residing at Chattanooga, in the county of Hamilton and State of Tennessee, have invented a new and useful Disk Plow, of which the following is a specification.

This invention relates to a novel disk plow, the objects being to simplify the construction, to lighten the draft, and to facilitate the adjustment of the parts in accordance with the character of the ground to be worked.

The invention also has for its objects to eliminate the usual frame structure, to provide for the reversal of the plow, and to make provision for the proper retention of the draft-bar in rigid position when the plow is turned either to the right or left. Subordinate to these objects are others which will appear during the course of the succeeding description of that embodiment of the invention which for the purpose of this disclosure is illustrated in the accompanying drawings and succinctly defined in the appended claims.

In said drawings, Figure 1 is a side elevation of my plow complete, showing the front disk moved down to its operative position and the rear disk elevated out of contact with the ground. Fig. 2 is a plan view of the subject-matter of Fig. 1. Fig. 3 is a detail perspective view of the disk, beam, or carrier. Fig. 4 is a similar view of the journal-box of the front furrow-wheel. Fig. 5 is a detail view of one of the plates of the gooseneck. Fig. 6 is a detail view of a disk carried by a disk beam of single form, and Fig. 7 is a detail view of the beam shown in Fig. 6.

Like characters of reference are employed to designate corresponding parts throughout the several views.

The axle 1, located at the rear end of the machine, supports the driver's seat 2, as usual, and is carried by the back furrow-wheel 3 and the land-wheel 4. The wheel 3 is carried directly by the axle 1 and rotates thereon; but the land-wheel 4, which is somewhat smaller than the wheel 3, is carried by a short crank-axle 5, extended into the adjacent end of the axle 1 and designed to be swung by a land-wheel lever 6, for the purpose of properly leveling the main axle 1.

The lever 6 is preferably connected to the crank-axle 5 and is provided with a spring-latch 7, engaging a toothed segment or rack 8, secured to the axle 1. (See Figs. 1 and 2.)

To the axle 1, preferably at a point adjacent to the back furrow-wheel 3, is secured in any suitable manner the end of a forwardly-extending frame 9, having a laterally-deflected portion 10 and pivotally connected at its front end with a tongue 11. The front end of the tongue 11 is provided with a gooseneck 12, preferably comprising a pair of coincident plates bolted to the tongue, as shown in Figs. 1 and 2, and formed with two series of openings 13 and 14, disposed at the right and left sides of the line of draft for the attachment of the clevis or other device, through the medium of which the draft-animals are attached to the plow.

The pivotal connection between the rear end of the tongue 11 and the front end of the frame 9 is effected by a king-bolt 14^a, which also passes through the attaching-plate 15 of a journal-box 16, said plate being rigidly secured to the tongue 11, as by bolts 17, and formed with an offset 18 for the accommodation of the adjacent end of the frame. It will therefore be observed (see Fig. 1) that the front end of the frame 9 will have swiveled connection with the tongue and will lie between the rear end of the latter and the adjacent portion of the attaching-plate 15 of the journal-box. The plate 15 is extended to the rear of the king-bolt 14^a and is provided with oppositely-disposed lateral lugs 19 and 20, provided with openings, one of which is designed to receive a pin 21, which bears against one side or the other of the frame, for the purpose of preventing the swinging of the tongue during the turning of the plow in a manner to be hereinafter described.

The front furrow-wheel 22 is preferably somewhat smaller than the back furrow-wheel 3 and is mounted on a short crank-axle 23, the upper horizontal end 24 of which is journaled in the journal-box 16. The crank-axle 23 is designed to be adjusted longitudinally for the purpose of effecting the lateral adjustment of the front furrow-wheel 22, or

said axle may be swung in an obvious manner for the purpose of properly leveling the frame 9. The axle 23 may be retained in its adjusted positions by any suitable means; but, as shown in Fig. 1, I prefer to employ a set-screw 25, secured in the journal-box 16 and bearing against the axle.

We now come to consider a most important feature of the invention—to wit., the construction and arrangement of the disks and the manner of mounting and adjusting the same. The disk beam or carrier 26 is carried directly by the axle 1, which latter is received within a bearing-sleeve 27, formed intermediate of the ends of the beam. The beam is thus free to rock upon the main axle of the machine and is provided at its opposite ends with angularly-disposed journal-boxes 28 and 29 for the reception of the stud-shafts 30 and 31 of the reversed disks 32 and 33. The front disk 32 is so disposed with respect to the line of draft that the furrow will be turned to the right, while the disk 33 has an opposite angular disposition to turn the furrow to the left. It therefore follows that by rocking the disk beam upon the main axle 1, either disk will be thrown into the ground and the other elevated to an inoperative position. This movement of the beam is produced by means of a disk-operating lever 34, preferably of bell-crank form, fulcrumed upon a bracket 35, upstanding from the frame and having its short horizontal arm connected by a link 36 to the beam 26 at a point in advance of the axle. For the purpose of retaining the lever 34 in its adjusted positions it is provided with a spring-latch 37, disposed to engage a toothed segment or rack 38, upstanding from and rigidly secured to the frame, as indicated in Figs. 1 and 2. In Fig. 1 I have shown the disk beam 26 in position to present the front disk 32 to the ground and to sustain the rear disk 33 in an inoperative position. Obviously, however, the lever 34 may be swung back for the purpose of rocking the beam 26 to raise the front disk 32 out of the ground and to present the rear disk 33 for use if a reversal of the plow is desired, or the lever may be adjusted to so position the beam 26 that both disks will be raised above the ground, and thus rendered inoperative to facilitate the transportation of the plow from one point of use to another. The disks are provided with suitable scrapers 39 and 40, (see Fig. 1,) the scraper 39 being rigidly secured to that portion of the frame which is deflected for the accommodation of the disk 32, and the scraper 40 being preferably bolted to the securing-bracket of the journal-box 29.

The elimination of the usual frame structure renders a plow constructed in accordance with my invention exceedingly light, and there is therefore very little weight to assist in the depression of the disks. For this reason the opposite ends of the beam 26 are given a downward inclination to dispose

the axis of a depressed disk in a horizontal plane below the axis of the beam. (See Fig. 1.) The result of this relation of the parts is that the resistance opposed by the disk to the forward movement of the plow will tend to swing the beam, and thus throw the disk into the ground.

Briefly, the operation of the plow is as follows: The draft-animals are attached to the gooseneck at the front end of the tongue 11. If the turn at the end of the furrow is to be made to the left, the attachment is effected slightly to the right of the line of draft by means of one of the openings 13, and the pin 21 is inserted in the lug 20. The beam 26 is then rocked, by means of the lever 34, to present the disk 32 to the ground, and as the plow traverses the field the furrow will be turned to the right. When the end of the furrow is reached, the team will be turned to the left, and the tongue 11 will be held in rigid alinement with the frame by the contact of the pin 21 with the left-hand side of said frame in rear of the king-bolt 14^a. If now it is desired to have all the furrows turned in the same direction, the beam 26 is rocked to raise the disk 32 out of the ground and to present the disk 33 in operative position. The plow will now travel in the reverse direction across the field, and the disk 33 will turn the furrow in the same direction that the preceding furrow was turned by the disk 32. If, as is usually the case, it is desired to maintain the flexibility between the frame 9 and the tongue 11, except when making a turn, the pin 21 may be removed entirely and only inserted at such time as a turn is to be made, when, as is obvious, it will be disposed at one side or the other of the frame, accordingly as the turn is to be made to the right or left.

While the reversible form of plow shown in Figs. 1 and 2 is preferable, a beam 26^a of single form, such as is shown in Figs. 6 and 7, may be substituted for the beam 26. The beam 26^a is provided at its front end with a disk 32^a and is formed at its rear end with a bearing-sleeve 27^a for the reception of the main axle 1 of the plow.

It is thought that from the foregoing the construction and operation of my novel disk plow will be clearly apparent; but while the illustrated embodiment of the invention is believed at this time to be preferable I wish to be distinctly understood as reserving to myself the right to effect such changes, modifications, and variations of the illustrated structure as may be properly embraced within the scope of the protection prayed.

What I claim is—

1. In a disk plow, the combination with an axle supported by wheels at the opposite ends thereof, of a frame having the form of a single bar extending forwardly from the axle adjacent to one of the wheels, and a rocking disk-carrying beam mounted on the axle between the frame-bar and the adjacent wheel.

2. In a disk plow, the combination with an axle, and a frame having the form of a single bar extending therefrom, of a land-wheel and furrow-wheels supporting the frame and axle, a disk beam mounted to swing from the axle, a disk carried by the beam, and means for swinging the beam to raise and lower the disk.

3. In a disk plow, the combination with the axle, of land and furrow wheels supporting the same, a frame having the form of a single bar extending from the axle adjacent to the furrow-wheel, a disk beam mounted to swing from the axle between the frame and the furrow-wheel, a disk carried by the beam, and means carried by the frame for swinging the beam and for retaining the same in its adjusted positions.

4. In a disk plow, the combination with the axle, of land and furrow wheels supporting the same, a single frame-bar extending from the axle adjacent to the furrow-wheel and formed with a laterally-deflected portion, a disk beam mounted to swing from the axle, a disk carried by the beam and extending into the deflected portion of the frame, a lever fulcrumed upon the frame and connected to the beam to swing the same, and a latch for retaining the lever in its adjusted position.

5. In a disk plow, the combination with the axle, and a single frame-bar extending forwardly therefrom, of a land-wheel and furrow-wheels supporting the frame and axle, a rocking beam mounted intermediate of its ends upon the axle between the frame and the furrow-wheel, reversely-disposed disks carried by the beam at opposite sides of the axle for alternate presentation to the ground through the rocking of the beam, and means carried by the frame for adjusting the beam.

6. In a disk plow, the combination with the axle, and a frame-bar extending forwardly from the axle adjacent to one end thereof and formed with a laterally-deflected portion, of a rocking beam mounted on the axle between the frame-bar and the adjacent end of said axle, reversely-disposed disks at the opposite ends of the rocking beam, one of said disks being extended into the deflected portion of the frame-bar, scrapers arranged to scrape the disks and carried by the beam and frame respectively, means for adjusting the rocking beam to present either of the disks

to the ground, and land and furrow wheels supporting the frame and axle.

7. In a disk plow, the combination with the axle, frame, land-wheel, and furrow-wheels, of a pair of reversely-disposed disks, a carrier common to said disks and movable independently of the frame to present either disk to the ground, and means carried by the frame for adjusting and retaining the carrier.

8. In a disk plow, the combination with an axle, a back furrow-wheel mounted at one end thereof, a land-wheel adjustably mounted at the opposite end thereof, and a driver's seat supported by the axle between the wheels, of a frame secured at its rear end to the axle adjacent to the back furrow-wheel and having a laterally-deflected portion, a beam having a sleeve rotatable upon the axle, a disk supported at the end of the beam and extending into the deflected portion of the frame, a lever mounted on the frame for adjusting the position of the beam, and a front furrow-wheel adjustably supporting the front end of the frame.

9. In a disk plow, the combination with an axle, a back furrow-wheel mounted at one end of the axle, a short crank-axle adjustably secured to the opposite end of the main axle, a land-wheel carried thereby, a lever for adjusting the crank-axle, and a driver's seat supported by the main axle intermediate of the ends thereof, of a frame secured at its rear end to the axle adjacent to the back furrow-wheel, a rocking beam mounted intermediate of its ends upon the axle and disposed adjacent to the frame, reversely-disposed disks supported by the opposite ends of the beam, a lever supported by the frame adjacent to the main axle and connected to the beam to rock the same, a latch and rack for retaining the lever in its adjusted positions, a tongue pivoted to the front end of the frame, a journal-box rigid with said tongue, a crank-axle supported by the box, and a front furrow-wheel mounted on said last-named crank-axle.

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

OLIVER E. ELLISON.

Witnesses:

E. J. DILLARS,
J. W. JOHNSON.