2 Sheets--Sheet 1.

G. MOORE.

Sulky-Plows.

No. 164,929. Patented June 29, 1875.

Fig. 6

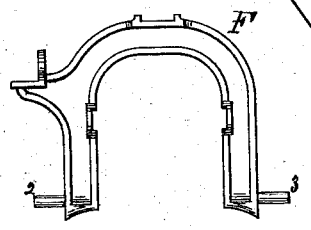


Fig. 7

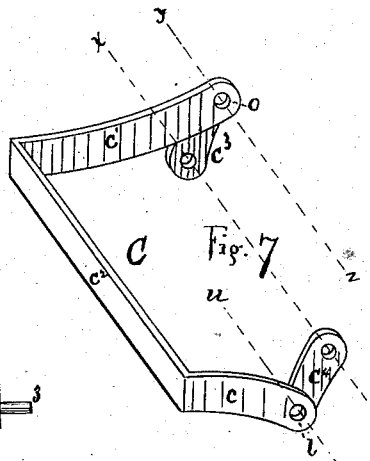


Fig. 5

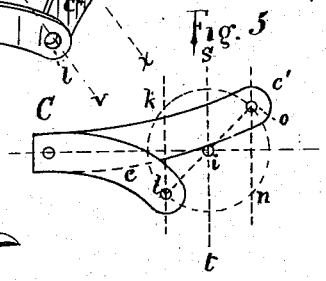
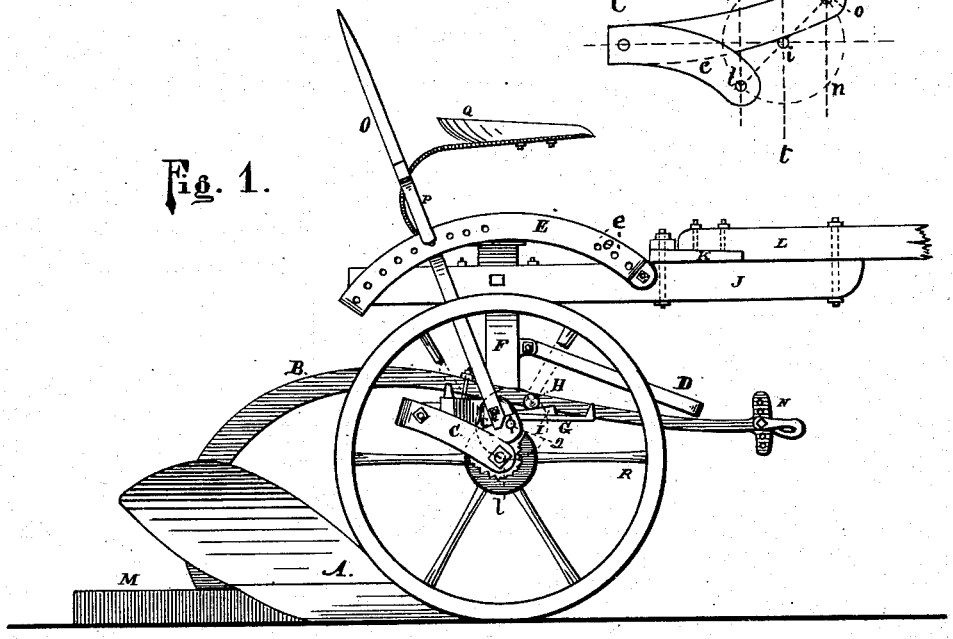


Fig. 1.



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2 Sheets--Sheet 2.

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Sulky-Plows.

No. 164,929 Patented June 29, 1875.

Fig. 3.

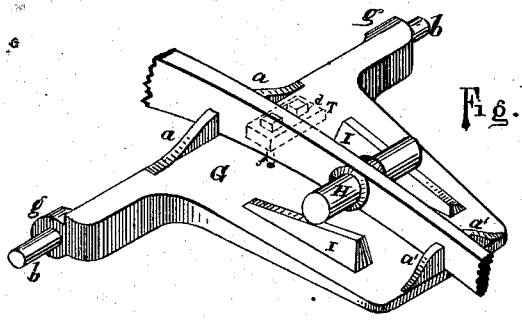


Fig 4

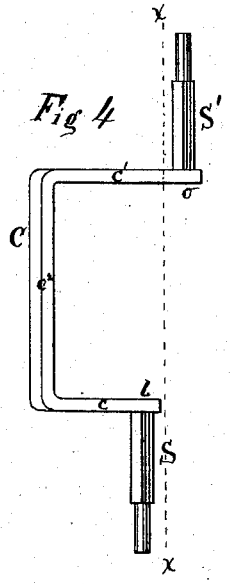
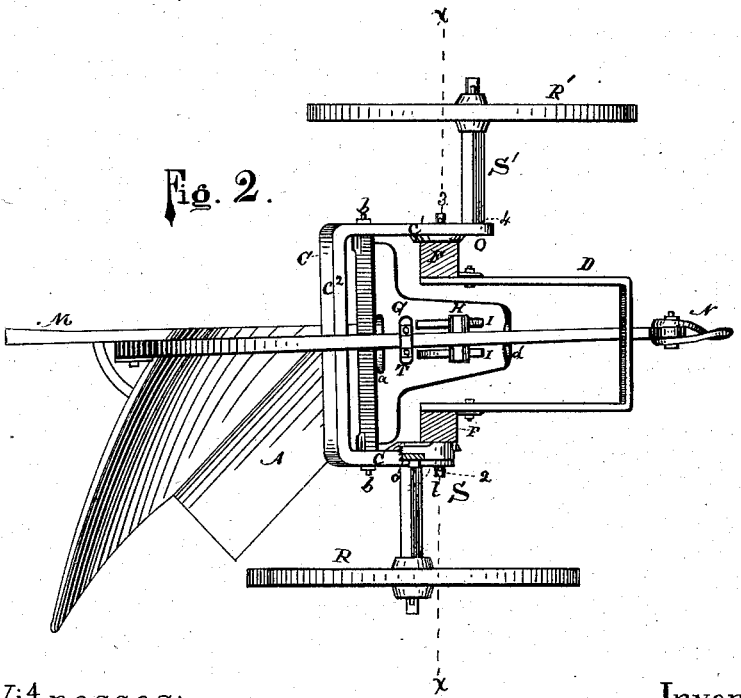


Fig. 2.



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UNITED STATES PATENT OFFICE.

GILPIN MOORE, OF ROCK ISLAND, ILLINOIS.

IMPROVEMENT IN SULKY-PLOWS.

Specification forming part of Letters Patent No. **164,929**, dated June 29, 1875; application filed March 25, 1875.

To all whom it may concern:

Be it known that I, GILPIN MOORE, of Rock Island, in the county of Rock Island and State of Illinois, have invented certain new and useful Improvements in Plows; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in that class of sulky-plows in which is used a crank or bent axle to support the wheels and plow. It has for its object to furnish a plow which will be simple in structure, free from complicated systems of gearing, or levers being operated by a single lever, and which will possess strength, durability, and ease in operation, wherein the axle will be so constructed and arranged that the wheels will be exactly balanced in their movements, one to the other on the center of motion; wherein the driver, in raising or lowering the plow, does not raise or support any portion of his own weight; wherein, with a given movement of the single operating-lever, a greater degree of vertical movement or travel of the wheel-centers of the axle is secured than is accomplished in ordinary plows, maintaining the plow at all times in a level or horizontal position; and wherein the angle of the bottom of the sole-plate may be readily adjusted, all of which will be hereinafter fully explained.

In the drawings, Figure 1 is a side elevation, and Fig. 2 a plan view, of my improved plow. Fig. 3 is an enlarged view of the hinged plate, to which is secured the beam of the plow. Figs. 4, 5, and 7 are plan, end, and perspective views of the crank-axle, with the extensions which support the wheels removed in the last two; and Fig. 6 is the arch or frame which supports the driver's seat, and on which are the journals on which the crank-axle rotates.

A is the plow, and B the beam. C is the crank-axle. It is formed as shown, with the longer and shorter arms c c^1 connected by the bar c^2. The outer ends, at l o, are the wheel-centers, the wheels being attached thereto and supported thereon by suitable projections or spindles S S'. It has a center of motion in the line x x, Figs. 2, 4, and 7, and at i, Fig. 5, on which it rotates in raising and lowering the plow, and on which the wheels are balanced, one to the other, as hereinafter explained. The arm c is inclined downward, and the arm c^1 upward, at such angle as to bring the wheel-centers l o diametrically opposite to each other, and at equal distances from the center of motion x x, and at equal distances from the first in rear, the latter forward of a vertical line, s t, passing through the center of motion, so that a circle described about the line x x, with a radius equal to i l or i o, will intersect the lines u v, y z, drawn parallel to x x through the wheel-centers l o. It will be readily seen that this construction and arrangement exactly balances the wheels R R on the center of motion of the axle C, and that the movement or travel of the wheel-centers, in raising or lowering the plow, will be in the circumference of the circle, as indicated in Fig. 5. The wheel-centers l o are each placed from the vertical line s t a distance equal to one-eighth of the circumference of said circle, which arrangement admits of a movement of said centers from l to k and o to n—one-fourth of the entire circumference—with slight variation or deflection from a perpendicular, so that it will be seen with any given movement of the operating-lever a greater vertical travel of both wheels is secured than is accomplished in any other plow of this class. The arms c c^1 are connected with the center of motion by suitable castings or lugs c^3 c^4, journaled on projections or short axles on the frame or arch hereinafter described. F is the frame or arch, on the top of which is mounted the driver's seat Q. It is provided with the short axles 2 3, which fit into the bearings in the lugs c^3 c^4, and about which the axle C rotates.

It will be seen that, by reason of the axles 2 3, which support the frame F, being in the center of motion of the axle C, the driver will have no part of his own weight to lift or support in raising or lowering the plow. It will be further seen that, by reason of the equalized or balanced movement of the wheels, the plow will be at all times preserved in a level or horizontal position.

G is a hinged plate, to which the beam of the plow is secured. It is supported with capability of vertical rotary movement on the rod *b*, passing through the lugs *g g*, and also through the rear ends of the arms *c c*^{1} of the crank-axle C. It is provided at its front and rear with projections *a a'*, between which the beam B passes. H is a stud passed through the beam B, and projecting on either side, the projecting portions resting on inclines I, formed on the plate G. These inclines are formed in opposite directions, the object of which is that the beam may be tilted toward either side by simply moving the same forward or backward, as the case may be. It will be seen that the positions of the stud and the inclines could readily be reversed, the former being secured to the plate G and the latter to the beam B, and the same results accomplished, the beam being thus tilted to either side for the purpose of adjustment of the angle of the sole or bottom of the plow.

The beam is held in the desired position, when adjusted, by tightening the nuts of the bolts *f*, which are fixed to the plate G, and pass through the retaining-plate T, placed on the upper surface of the beam.

To the casting *c*^{4} I attach a lever-arm, O, which passes up, and is held in position by the side of the driver's seat by means of the segment E, bolted to the frame J, to which the tongue L is attached; the lever O being provided with a stud or projection, which enters one or other of the openings in the arch when the lever is required to be kept in any given position, but when the lever is to be moved the same is simply sprung a little toward the driver, when it can be readily moved in either direction.

D is a bent arm attached to the arch-piece F, and serves as a support for the feet of the driver. It is arranged far enough above the beam B to admit of the turning up of the latter sufficient to run the plow out of the ground. The parts being in the position shown in Fig. 2, when it is required to raise the plow, the lever O is turned over to the right, as indicated by the arrow. This motion will cause the arms *c c*^{1} to rotate about the short axles 2 3, and the ends thereof to travel through the spaces *o n i k*, Fig. 5, thereby raising the plate G, and consequently the beam B and plow A. In doing this, owing to the arms *c c*^{1} of the crank-axle C being of different lengths, as shown, the extensions S S$'$ to the short axles 2 3, and the peculiar construction and arrangement of the parts, a compound motion is communicated to each of the wheels, which, while it raises the plow, keeps the frame and plow in a horizontal position, each of the wheels having an equal vertical motion communicated to it.

When it is desired to lift the plow entirely out of the ground for any purpose it is only necessary to turn the lever O over to one of the openings or notches at *e*, which will bring the cross-piece *c*^{2} against and force upward the front end of the beam B, thereby inclining the point of the plow upward sufficiently to cause it to run out of the ground. The plate G being hinged to the axle C, hereinbefore explained, readily admits of and adjusts itself to this movement, while at the same time and with same movement of lever the wheels will be preserved on the same horizontal plane or level, and the vertical position of the plow and frame maintained.

When it is desired to throw the plow deeper into the ground the lever O is turned in the opposite direction, thereby causing the axes of wheels and the bottom of the plow to be thrown away from each other, and as a consequence causing the plow to cut deeper. The plow is locked at any desired depth by the projection on the lever O entering a proper opening in the segment E.

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

1. In combination with a plow-beam and carrying-plate, the wedge-shaped projections I, inclined in opposite directions, to tilt the plow laterally, substantially as shown and specified.

2. In a sulky-plow, the crank-axle C, having the arms *c c*^{1} arranged and pivoted to the arch or frame F, and connected with and supporting the axes of the wheels R R eccentrically, substantially in the manner and for the purposes described.

3. The plate G, having the projections *a a a' a'* and inclines I, and hinged to the arms *c c*^{1} of the crank-axle C, substantially as shown, and for the purposes specified.

4. The combination, with the beam B, of the plate G, provided with inclines I and projections *a a'*, substantially as and for the purpose set forth.

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

GILPIN MOORE.

Witnesses:
EDWARD D. SWEENEY,
CHARLES L. WALKER.