(No Model.) 2 Sheets—Sheet 1.

E. B. DANIELS & E. A. DE WITT.

PLOW SULKY.

No. 280,015. Patented June 26, 1883.

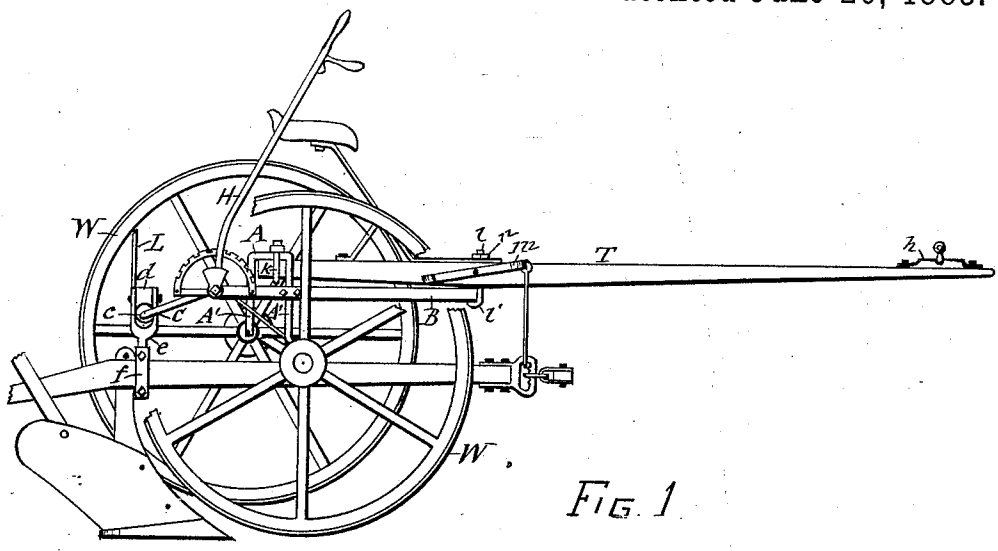


FIG. 1.

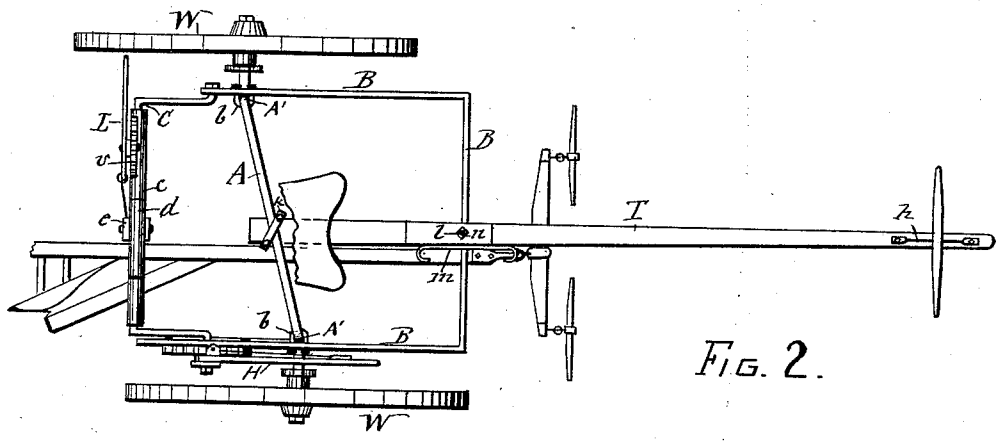


FIG. 2.

WITNESSES

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(No Model.) 2 Sheets—Sheet 2.

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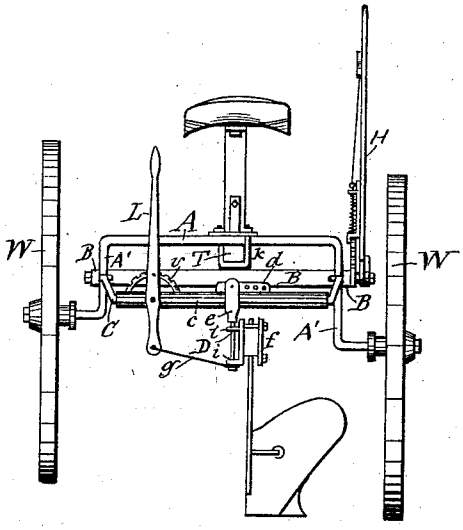


FIG. 3.

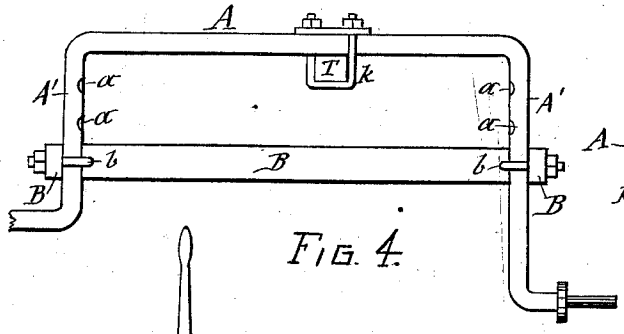


FIG. 4.

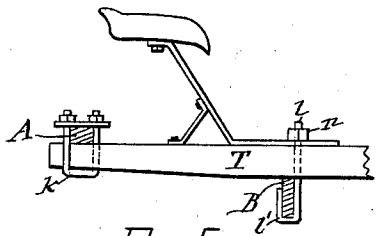


FIG. 5.

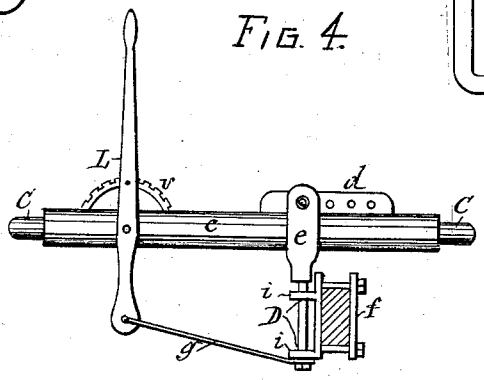


FIG. 6.

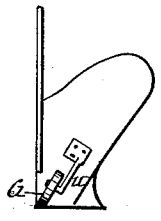


FIG. 7.

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UNITED STATES PATENT OFFICE.

EBENEZER B. DANIELS, OF EAST POINT, PENNSYLVANIA, AND EDWARD A. DE WITT, OF ODESSA, NEW YORK.

PLOW-SULKY.

SPECIFICATION forming part of Letters Patent No. 280,015, dated June 26, 1883.

Application filed November 20, 1882. (No model.)

To all whom it may concern:

Be it known that we, EBENEZER B. DANIELS, of East Point, in the county of Tioga, in the State of Pennsylvania, and EDWARD A. DE WITT, of Odessa, in the county of Schuyler and State of New York, have invented new and useful Improvements in Plow-Sulkies, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention consists in a novel construction and combination of some of the essential parts of a plow-sulky, organized with a view of simplifying and reducing the cost of the manufacture thereof and rendering the same more convenient and effective in its operation, all as hereinafter more fully set forth in the claims.

In the annexed drawings, Figure 1 is a side elevation of our improved plow-sulky. Fig. 2 is a plan view; Fig. 3, a rear end view of the same. Fig. 4 is a detail view of the axle, illustrating the adjustability of its connection with the sulky. Fig. 5 is a detail view of the attachment of the tongue or pole to the sulky. Fig. 6 is an enlarged detail view of the swivel-connection of the plow with the sulky; and Fig. 7 is a rear end view of a plow, showing the means for preventing friction on the land-side thereof.

Similar letters of reference indicate corresponding parts.

B represents a rigid horizontal frame in the form of the three sides of a square or rectangle, the free ends of which project toward the rear of the sulky, said frame being supported by the axle A, on which the carrying-wheels W are journaled. The axle A is of sufficient length to reach obliquely or diagonally across the frame B, and at the outside thereof it is cranked or bent downward, forming pendent arms A′, from the lower extremity of which project outward the spindles on which the wheels W are journaled. The axle A, being secured stationary in an oblique or diagonal position on the frame B, brings the furrow-wheel ahead or nearer to the front of the sulky than the land-wheel. The pendent arm A′ adjacent to the furrow-wheel is longer than the pendent arm immediately back of the land-wheel, thereby bringing the former wheel lower than the latter wheel and maintaining the sulky in a horizontal position when in operation.

The object of permanently securing the carrying-wheels in their before-described relative position also is to tilt the plow toward the land side while forming the first furrow, thereby guiding the plow more easily in a straight line, the tilting of the plow being caused by the travel of the relatively lower furrow-wheel on the ground level with that on which the land-wheel travels. Furthermore, the aforesaid arrangement of the lower furrow-wheel, being ahead of the land-wheel, serves to prevent the land-wheel from running into the furrow when turning corners in plowing, and the furrow-wheel is kept out of the way of the earth thrown up by the plow. The setting ahead of the furrow-wheel also admits of setting the plow farther ahead under the sulky, and thus allows us to hitch the double-tree directly to the end of the plow-beam.

The attachment of the frame B to the axle A we make adjustable, so as to accommodate the sulky to different heights of plows, said attachment consisting in providing the arms A′ of the axle with a series of notches or indentations, *a a*, at different points of their length, and fastening the arms to the side rail of the frame B by a clip or staple, *b*, embracing the arm in such a notch *a* as may be required, and passing with its extremities through the aforesaid side rail, at the opposite side of which the clip is provided with nuts for tightening the same, as best seen in Fig. 4 of the drawings. The adjustment of the elevation of the frame to conform to the height of the plow to be used is effected by slackening or loosening the clips sufficiently to allow them to slip from notch to notch *a* on the arm A′, and after the frame is set in its desired position tightening the clips, as before described.

On the rear end of the frame B is hinged a bail or cranked cross-bar, C, which supports the rear end of the plow, and is arranged to raise and lower the plow by means of a lever, H, connected to the end of said bail and op-

erated in the manner similar to the corresponding lever shown in the patent to E. B. Daniels, dated November 1, 1881.

On the straight transverse or main portion of the bail or cross-bar C we fit loosely a sleeve, *c*, extending the length thereof, so as to prevent its longitudinal displacement.

The top of the sleeve *c* is provided near one end with an elongated lug, *d*, having a series of perforations for the reception of the bolt, by means of which a hanger, *e*, is suspended therefrom in such a manner as to allow said hanger to oscillate laterally or at right angles to the line of draft.

On the lower end of the hanger *e* is swiveled, in any well-known and suitable manner, the clamp *f*, by which the rear end of the plow is attached to the sulky, said clamp consisting of two plates, between which the plow-beam passes, and is clamped by bolts passing through the two plates, above and below the plow-beams, as best seen in Fig. 6 of the drawings. One of the clamp-plates is provided with ears *i i*, through which passes loosely a rod projecting downward from the hanger *e*, and provided on its extremity with a nut or head, on which rests the lower ear, *i*, of the plow-clamp. The aforesaid connection of the clamp *f* with the hanger *e* forms a swivel, D, which allows the plow to turn in a horizontal plane. The object of this arrangement is to allow the plow to turn square corners without being raised out of the ground, said result being due to the loose connection of the plow on the sulky, which enables the plow to continue to a great extent in a straight course while turning the sulky until the horses are brought around and started at right angles from the preceding furrow. The resultant draft on the forward end of the plow-beam then turns the plow abruptly into line for forming the succeeding furrow. Furthermore, the before-described swivel-connection of the plow on the sulky affords sufficient lateral play to the plow to allow it to yield to heavy stones, and effectually obviates torsional strain on the sulky. The series of holes in the lug *d* allows the hanger *e* to be shifted so as to carry the plow a greater or less distance from the furrow-wheel, according to the width of the furrow to be plowed. The plow is adjustably sustained in its vertical position by means of a lever, L, pivoted on the sleeve *c*, and having its lower extremity connected with the lower end of the hanger by a rod, *g*. A semicircular rack, *o*, fixed to the top of the sleeve, and a suitable dog or pawl connected with the lever and engaging with the rack in any well-known manner, serves to lock the lever so as to retain in their desired vertical position the hanger *e* and plow connected thereto.

It will be observed that by the lever L the hanger *e* can be swung laterally into an oblique position, and when thus set the corrrsponding oblique position of the plow tends to crowd the same either from or toward the previously-formed furrow, as may be desired. The hinge obtained by the loose connection of the sleeve *c* with the cross-bar C allows the plow to swing rearward when first set into the ground. The rearward thrust of the plow throws the point thereof into such an angle as to cause it to quickly enter the ground. A pressure on the usual foot-lever, *m*, connected with the forward end of the plow, depressing the same, assists the aforesaid operation of the plow, the subsequent draft on the plow straightening the same for plowing the furrow at its requisite and uniform depth.

We are aware that axles of sulky gang-plows have been fixed stationary on the sulky obliquely to the line of draft and provided with cranked arms of equal lengths, from which arms projected the spindles for the reception of the carrying-wheels; but such sulky-plows require the carrying-wheel on one side of the sulky to be larger than that on the opposite side thereof, in order to carry the sulky in a horizontal position while traveling in a furrow. By our improvement the axle, while held stationary in its oblique position on the sulky, has its cranked or pendent arms so constructed as to sustain the sulky in a horizontal position while traveling in a furrow by means of carrying-wheels of equal diameters, thus avoiding the tendency of crowding the sulky out of its direct line of travel and rendering the operation of the same easier for the team drawing the plow.

T denotes the pole or tongue of the sulky. Said pole rests on top of the front cross-bar of the sulky-frame B, and has its rear end passing under the axle A, and is adjustably attached to said parts by means of a bolt, *l*, passing vertically through the pole, and formed underneath the same with a hook, *l'*, in which lies the cross-bar of the frame B, the upper end of the bolt being provided with a nut, *n*, by means of which the bolt can be tightened to firmly clamp the aforesaid parts together. The rear end of the pole is connected to the axle by a clip, K, embracing the pole, and having its extremities passing through a clip-bar placed diagonally across the top of the axle, above which clip-bar the clip is provided with nuts for drawing the pole up against the axle and securely fastening it thereon. By slackening the bolt *l* and clip K the pole can be shifted bodily laterally without changing its parallelism with the line of draft, and can thus be secured at a greater or less distance from the center of the sulky, according to the width of the furrow to be plowed. The neck-yoke we permanently attach to the pole by means of an elongated bail, *h*, secured at its two ends to the pole, the neck-yoke being provided with an ordinary ring or eye, through which the aforesaid bail passes.

In order to obviate the friction of the landside of the plow, we connect to the plow a friction roller or wheel, G, in such a manner as to cause said roller to travel in the furrow adjacent to the landside thereof, and to stand obliquely toward the mold-board, to which it is

connected by a cranked arm or gudgeon, *u*, firmly secured to the back of the mold-board, and provided with a suitable journal-bearing for the roller G, as shown in Fig. 7 of the drawings.

Having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In combination with the sulky-frame B, the axle A, having its main or central portion secured stationary in a diagonal position on the sulky, and formed with pendent arms A′ A′, of different lengths, to receive carrying-wheels of equal diameters, substantially as described and shown, for the purpose set forth.

2. In combination with the cross-bar C and plow P, the sleeve *e*, loosely encompassing said cross-bar, and provided with the perforated elongated lug *d*, the hanger *e*, suspended from said lug, the clamps *f*, swiveled on said hanger, and the lever L, connected with the foot of the hanger by a rod, *g*, all as shown and described, for the purpose set forth.

In testimony whereof we have hereunto signed our names and affixed our seals, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 15th day of November, 1882.

EBENEZER B. DANIELS. [L. S.]
EDWARD A. DEWITT. [L. S.]

Witnesses:
WM. C. RAYMOND,
F. H. GIBBS.