(Model.) 2 Sheets—Sheet 1.

E. A. EUSTICE.

Sulky Plow.

No. 237,842. **Patented Feb. 15, 1881.**

Fig. 1.

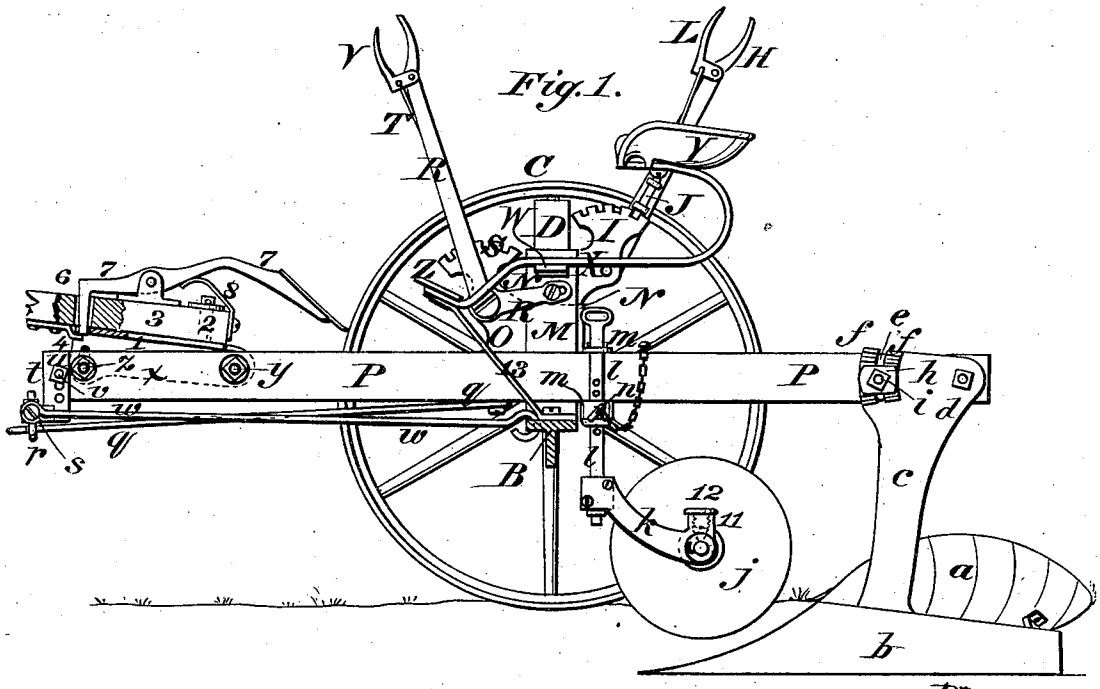


Fig. 2.

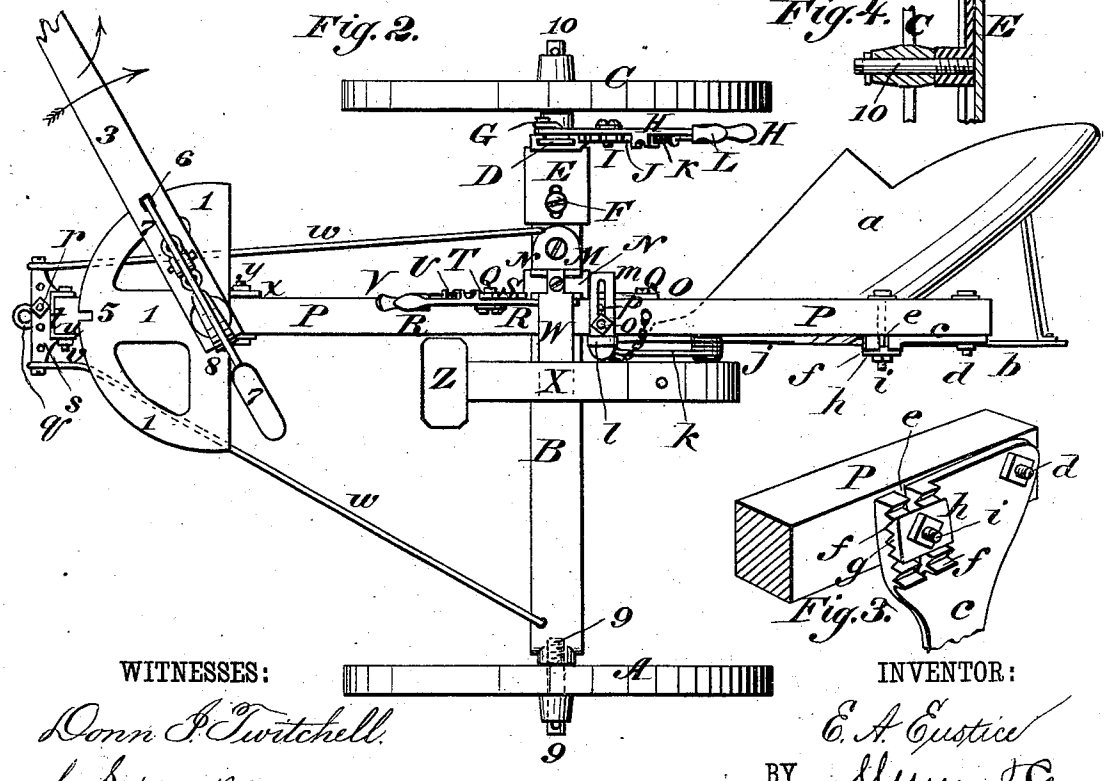


Fig. 4.

Fig. 3.

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(Model.) 2 Sheets—Sheet 2.

E. A. EUSTICE.

Sulky Plow.

No. 237,842. Patented Feb. 15, 1881.

Fig. 5.

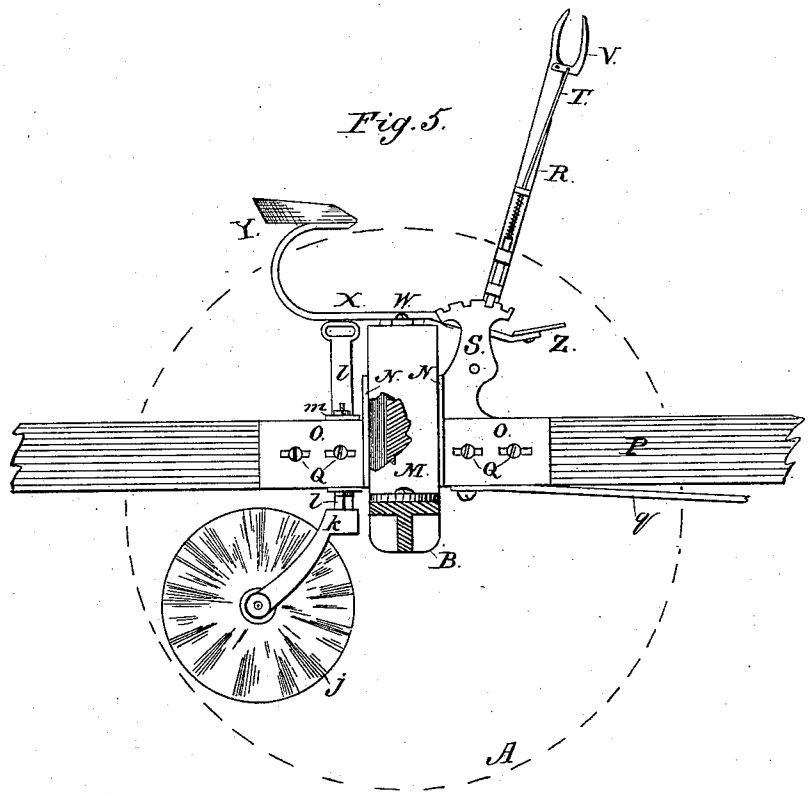


Fig. 6.

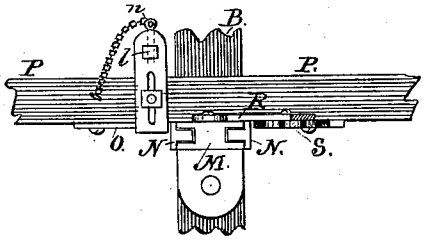


Fig. 7.

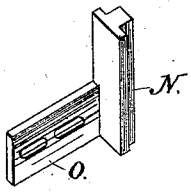
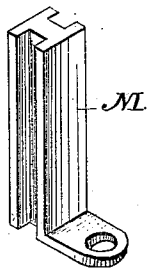


Fig. 8.



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UNITED STATES PATENT OFFICE.

EDWARD A. EUSTICE, OF GREENVALE, ILLINOIS.

SULKY-PLOW.

SPECIFICATION forming part of Letters Patent No. 237,842, dated February 15, 1881.

Application filed October 13, 1880. (Model.)

To all whom it may concern:

Be it known that I, EDWARD A. EUSTICE, of Greenvale, in the county of Jo Daviess and State of Illinois, have invented a new and useful Improvement in Sulky-Plows, of which the following is a specification.

Figure 1 is a sectional side elevation of the improvement. Fig. 2 is a plan view, the driver's seat being removed. Fig. 3 is a perspective view of the mechanism for securing the plow to the beam. Fig. 4 is a sectional elevation of the crank-axle. Fig. 5 is a sectional side elevation. Fig. 6 is a detail plan view of part of the beam-operating mechanism. Figs. 7 and 8 are perspective views of detached parts.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish sulky-plows so constructed that they can turn a square corner, and that they can be readily adjusted to run deeper or shallower in the ground.

In the accompanying drawings, A represents the landside-wheel, which revolves upon a journal, 9, formed upon or rigidly attached to the end of the axle B. C is the furrow-wheel, which revolves upon the journal 10 of an adjustable crank-axle, D. The journal 9 of the landside-wheel A has a screw-thread formed upon its inner end, and is screwed into a screw-hole in the end of the axle B. The journal 10 of the crank-axle D has a screw-thread formed upon its inner end, and is screwed into a screw-hole in the lower end of the vertical arm of the said crank-axle B. With this construction the journals 9 10, when worn, can be detached and replaced with new ones. The vertical arm of the crank-axle D slides up and down in a dovetailed or T groove in the outer side of the upright arm of an angle-bar, E, the lower arm of which rests upon the end part of the axle B, has flanges along its side edges to rest against the sides of the said axle B, and is slotted longitudinally to receive the bolt F, by which it is secured to the said axle B, so that by loosening the said bolt F the wheel C can be moved out or in to adjust the plow to cut a wider or narrower furrow-slice.

To the lower part of the upright arm of the crank-axle D is pivoted the lower end of a short connecting-bar, G, the upper end of which is pivoted to the short arm of a bent lever, H. The lever H is pivoted at its angle to a projection or bracket formed upon or attached to the upper end of the angle-bar E, so that by operating the lever H the furrow-wheel C will be raised and lowered to level the carriage as the plow is adjusted to work shallower or deeper in the ground.

To the upper end of the angle-bar E, or to the projection or bracket formed upon or attached to the said upper end, is attached, or upon it is formed, a ratchet-plate, I, with the teeth of which engages a pawl, J. The pawl J slides in keepers attached to the lever H, is held down by a spring, K, and its upper end is pivoted to the angle of a bent lever, L. The end of the short arm of the lever L is pivoted to the lever H, and its long arm projects into such a position that it can be reached by the hand that grasps the lever H and operated to disengage the pawl J from the ratchet-plate I and allow the lever H to be moved.

To the axle B is bolted the flanged lower end of an upright bar, M, the front and rear edges of which are grooved to receive the bars N. The bars N have flanges formed upon the sides of their outer edges to rest against the edges of the flanges of the bar M, and have flanges O formed upon their outer sides to rest against the side of the plow-beam P. The flanges O are slotted horizontally to receive the bolts Q, by which they are secured to the plow-beam P, so that they can be adjusted to take up the wear. The forward flange, O, is extended upward, and to it is pivoted the angle of a bent lever, R, the short arm of which is slotted to receive the screw or bolt and its tubular washers that pivot it to the bar M, so that by operating the lever R the plow-beam P can be raised and lowered to adjust the plow to work shallower or deeper in the ground.

To the forward flange, O, is attached, or upon it is formed, a ratchet-plate, S, with the teeth of which engages a pawl, T. The pawl T slides in keepers attached to the lever R, is held down by a spring, U, and its upper end is pivoted to the angle of a bent lever, V. The end of the short arm of the lever V is pivoted to the lever R, and its long arm projects into

such a position that it can be grasped by the hand that grasps the lever R and operated to raise the pawl T and allow the said lever R to be moved to adjust the plow.

To the upper end of the bar M is attached the end of a horizontal bar, W, to the other end of which is attached the standard X. The upper part of the standard X is curved upward and forward into U shape, and to its upper end is attached the driver's seat Y. The lower part of the standard X is curved downward and forward, and to its end is attached a foot-rest, Z, and a brace, 13, extending to the axle to give strength to the seat. The weight of the driver is thus supported from the axle of the carriage.

a is the mold-board, *b* is the landside, and *c* is the standard, of the plow. The upper end of the standard is made wide, rests against the side of the rear end of the beam P, and has a hole in its rear upper corner to receive the bolt *d*, which passes through it and through the plow-beam P.

In the forward upper corner of the standard *c* is formed a slot, *e*, leading down from the upper edge of the said standard, and curved upon the arc of a circle having its center at the center of the hole for the bolt *d*.

Upon the outer side of the standard *c*, and along the edges of the slot *e*, are formed, or to it are attached, corrugations or teeth *f*, to engage with corresponding corrugations or teeth *g* formed upon the side of a washer, *h*, through which, through the slot *e*, and through the plow-beam P passes the bolt *i*, so that by loosening the said bolt *i* the point of the plow can be raised or lowered to cause the plow to run shallower or deeper in the ground. With this construction, by applying the washer *h* with its teeth *g* outward, bringing its smooth side against the teeth *f* of the standard *c*, the plow will be held in place under ordinary circumstances; but should its point strike a solid obstruction the said plow will swing back, and will thus be kept from being broken.

j is a rotary colter, which is placed over the colter of the plow, and is pivoted to the rearwardly-projecting fork *k*. The fork *k* is swiveled to the lower end of the standard *l*, which is made square to fit into and slide in square holes in the ends of two bars, *m*, where it is secured in place by a pin, *n*, passed through a hole in the end of the lower bar, *m*, and through a hole in the said standard *l*. Several holes are formed in the standard *l* to receive the pin *n*, so that the colter *j* can be adjusted higher or lower, as required. The bars *m* are placed the one above and the other below the beam P, and are slotted longitudinally to receive the bolt *o*, which passes through them and through the said beam P, so that by loosening the bolt *o* the colter *j* can be adjusted laterally to bring it exactly over the colter of the plow. The slotted bars *m* are kept from turning upon the bolt *o* by a pin, *p*, passing through the beam P, and which is made of such a length that its ends will project into the slots of the said bars *m*.

In the upper side of the ends of the branches of the fork *k* are formed screw-holes leading into the cavities of the said ends, and into which are screwed oil-cups 11 to receive oil, which are provided with screw-covers 12 to keep out the dirt, that the bearings of the colter *j* will be kept lubricated, and the annoyance of frequent oiling the said bearings will be avoided.

To the lower side of the beam P, a little in front of the axle B, is pivoted, by a bolt or other suitable means, the rear end of the rod *q*, to the forward end of which the draft is applied, and which passes through the eye of an eye-bolt, *r*, attached to the cross-head *s* of the clevis. Several holes are formed in the cross-head *s* to receive the eyebolt *r*, so that the direction of the draw-rod *q*, and consequently of the line of draft, can be adjusted laterally, as may be desired.

The rear side of the cross-head *s* is notched, and to it, in the bottom of said notch, is attached, or upon it is formed, an upwardly-projecting bar or plate, *t*, to rest against the forward end of the plow-beam P. Upon the side edges of the plate *t* are formed rearwardly-projecting flanges *u*, which overlap the sides of the forward end of the plow-beam P, and have holes formed through them to receive the bolt *v*, which also passes through the beam P, and thus secures the clevis to the said beam. Several holes are formed in the flanges *u* to receive the bolt *v*, so that by removing the said bolt the clevis can be raised or lowered to raise or lower the forward end of the draw-rod *q*, and thus adjust the direction of the line of draft vertically to cause the plow to run deeper or shallower in the ground.

To the ends of the clevis cross-head *s* are attached the forward ends of two brace-rods, *w*, the rear ends of which are attached to the end parts of the axle B to strengthen the connection between the plow-beam P and the carriage against side strain in turning.

x is a plate placed against the side of the forward end of the plow-beam P, and secured to the said plow-beam by two bolts, *y z*. The bolt *y* passes through a hole in the plow-beam P and through a hole in the rear end of the plate *x*. The bolt *z* passes through a hole in the plow-beam P and through a slot in the forward end of the plate *x*. The slot in the forward end of the plate *x* is curved upon the arc of a circle having its center in the center of the bolt-hole in the rear end of the plate *x*, so that the forward end of the plate *x* can be adjusted higher or lower by loosening the bolts *y z*.

To the upper edge of the plate *x* is rigidly attached the middle part of a semicircular plate, 1, with its curved edge forward and with its straight edge at right angles with the plow-beam P.

To the rear part of the semicircular plate 1, in the center of the circle of which the said

plate is a part, is attached a bolt, 2, which passes up through a hole in the rear end of the tongue 3, and has a key passed through or a nut screwed upon its upper end to secure the said tongue in place upon the said bolt.

To the lower side of the tongue 3 is attached a keeper, 4, which underlaps the curved edge of the plate 1 and prevents the forward part of the tongue from rising from the forward part of the plate 1.

In the center of the curved edge of the plate 1, and over the central line of the plow-beam P, is formed a notch, 5, to receive a catch-pin, 6, formed upon or attached to the forward end of a lever, 7, which is pivoted to a support attached to the tongue 3. The rear end of the lever 7 projects at the rear end of the tongue 3 into such a position that it can be readily reached and operated by the plowman with his foot. The rear end of the lever 7 is held up, holding the pin 6 pressed down to engage with the notch 5 by a spring, 8, attached to the rear end of the tongue 3, and pressing against the lower side of the rear part of the said lever.

With this construction, when the plow is at work the tongue 3 is parallel with the beam P, and the pin 6 rests in the notch 5, holding the said tongue firmly in position. When the plow is to be turned at the corner of a land the plowman presses his foot upon the rear end of the lever 7, which raises the pin 6 out of the notch 5 and allows the tongue 3 to be turned upon its pivot 2 to either side as the team is turned without changing the position of the plow. As the team starts forward in the new direction the plow is turned at right angles, or at the angle which the new direction makes with the former direction, and at once begins to cut a furrow, no ground being left unplowed, and no wide space being required for turning the machine. With this construction, also, the machine will be turned by draft applied to the draw-rod by the traces, each horse drawing his own share, and not by side pressure applied to the end of the tongue.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with the wheel-spindle having the vertical arm D, and the link and lever H G, of the angular flanged bar E, its vertical part forming a groove for the spindle-arm, and a rack to secure the wheel in vertical adjustment, and its horizontal part slotted and seated upon axle B, whereby the axle may be extended, substantially as shown and described.

2. The combination of the grooved and flanged bar M, bolted to axle, the bars N, having flanges to rest against said bar M, and slotted extension-plates O, bolted to the plow-beam and forming a slide to lift the beam P, and the bolts Q, all substantially as shown and described.

3. The plow-standard *c*, having a rear hole to receive bolt *d*, a curved front slot, *e*, the corrugations *f*, the toothed washer *g h*, and the bolt *i*, as and for the purpose described.

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Witnesses:
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JOHN HENRY PHILLIPS.