T. WEAVER.

Sulky Attachments for Plows.

No. 154,306. Patented Aug. 18, 1874.

Fig. 1.

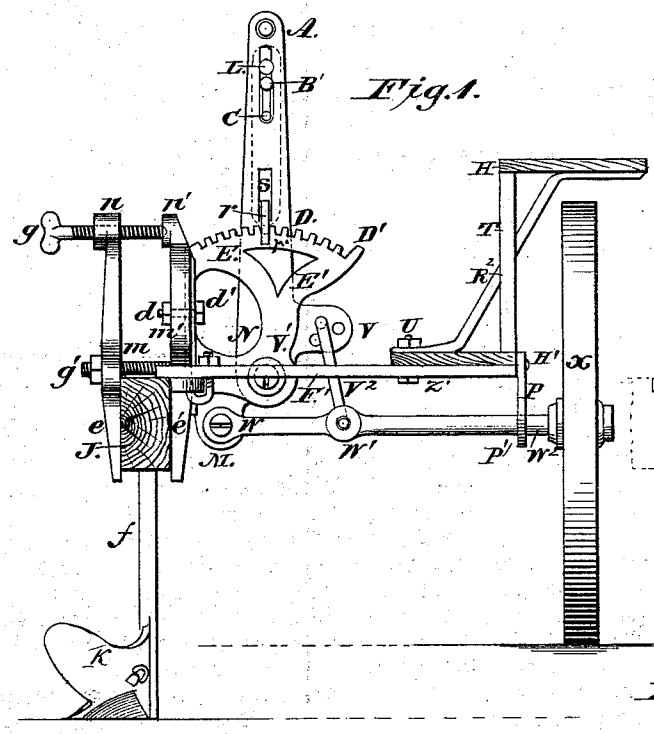


Fig. 3.

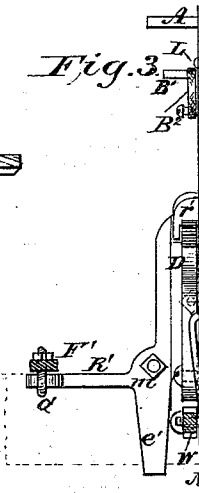


Fig. 4.

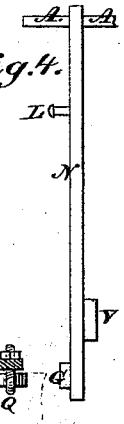


Fig. 5.

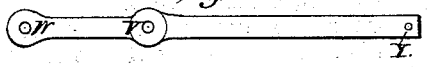


Fig. 6.

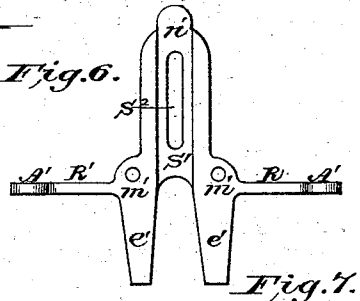


Fig. 7.

Fig. 2.

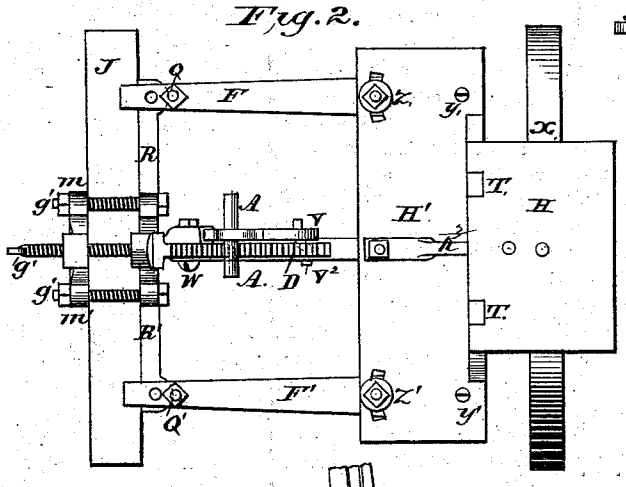


Fig. 8.

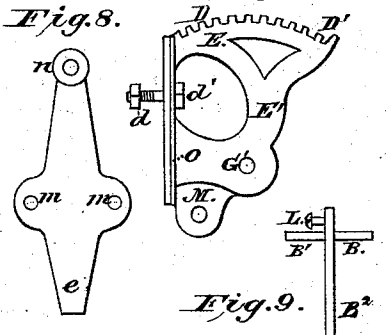


Fig. 9.

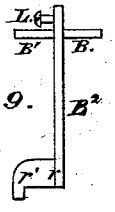
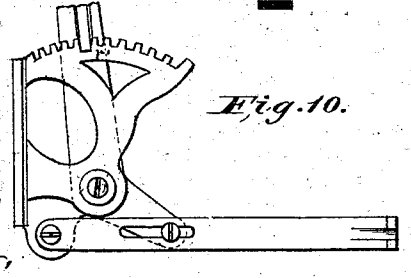


Fig. 10.



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UNITED STATES PATENT OFFICE.

THEOPHILUS WEAVER, OF HARRISBURG, PENNSYLVANIA.

IMPROVEMENT IN SULKY ATTACHMENTS FOR PLOWS.

Specification forming part of Letters Patent No. **154,306**, dated August 18, 1874; application filed June 28, 1873.

To all whom it may concern:

Be it known that I, THEOPHILUS WEAVER, of Harrisburg, county of Dauphin and State of Pennsylvania, have invented an Improvement in Sulky Attachment for Plows, of which the following is a specification:

The nature and objects of my improvement may be inferred from the following declarations of invention: It consists, first, in a pair of improved detachable compensating-clips, bolted together at their middle, distended by set-screws at their tops, to embrace any ordinary plow-beam between their lower limbs, leaving the plow-beam free from any obtruding parts beneath it, to avoid clogging; second, in a pair of arms laterally projected from the body of the major clip, by which the axle and seat are braced and adjusted in a peculiar manner by means of the vertically-rolling joints formed on the clip-arms by the stays and horizontally-shifting joints formed by the other ends of the stays pivoted to and set by screws through the treadle-board, which is the support of the axle and the seat; third, in mounting the seat and treadle-frame on a slider on the axle, and in providing the stays with a series of holes, to make their pitch on the clip-arms variable at pleasure, so that the seat and treadle-frame may be set more or less toward the wheel of the sulky, to balance the driver over it as a center of gravity, thus enabling him to regulate the depth of furrow at will by the disposition of his weight; fourth, in a plow-beam-controlling mechanism, consisting of a triangular or quadrangular disposition of pivots connecting the operating-lever to an adjustable upright frame provided with detents for stopping the lever; also, connecting said lever with the axle by a link hitched adjustably in a foot or arm on the lever, and hitched at its other end in an eye through the axle, measurably removed from its end; also, connecting the butt-end of the axle, by a horizontal swivel-joint, to a foot or arm on the lower margin of the upright, in whose center the first-mentioned pivot or lever-fulcrum is located; fifth, in connecting and guiding the double-handled operating-lever with the segment having the detents for the lever-stop, by providing said stop or plunger with an angular-hooked bit; sixth, in providing the major clip-body with a vertical slot, and a guiding-seat in front of the slot, for the attachment and adjustment of the upright arched frame, to adapt the beam-controlling mechanism to plows of greater or less height of beam, the wheel-axle to remain in its normal or horizontal alignment; seventh, in combining the clips, treadle and seat connections, beam-controlling mechanism, and wheel and axle, in such manner that the attachment is universal, independent of fixed mountings on the plow, and corporate or unbroken when detached.

In the accompanying drawings, making a part of this specification, Figure 1 represents a rear view of my improved sulky attachment, attached to a left-flanker plow. Fig. 2 represents a top view of the same. Fig. 3 is a front or edge view of the beam-controlling mechanism. Figs. 4, 5, 6, 7, 8, and 9 are sectional views, representing, respectively, the operating-lever, axle, major clip, arched frame, minor clip, and detent-plunger.

Similar letters refer to similar parts in the general description.

The major and minor clips, marked respectively m' n' e' and m n e, compose the attaching device. They are connected about their middle by through-bolts g', threaded extensively enough to allow the nuts applied exteriorly to the clips to set the clips against the sides of an iron or wooden plow-beam, as shown at J. The eyes in the clips are made ample enough to pass the bolts g' loosely through them, thus allowing the clips to cant at their ends to align on beams of different outline or cross-section, the limbs e' e' of the major clip being parted, as shown in Fig. 6, to sit against the beam about the swell or eye of the beam, and to afford a good base, on which the whole attachment rests when attached to the beam. The limb e of the minor clip (shown in Fig. 8) is made to set against the opposite side of the beam, and to set midway to the parted limbs of the opposite clip. The clips being applied to the beam as shown in Figs. 1 and 2, the limbs e e' are compressed by the set-screw g, which travels in n, the upper end of the minor clip, and sets in a counter-sink in n', the top of the major clip. This holding device will adapt itself to tapered or

square beams, to narrow or broad beams, and can be instantly detached by undoing the set-screw *g*. The other parts of the sulky attachment being supported on the major clip, as hereinafter set forth, it will be observed that no extraneous or fixed mountings are required on the plow-beam, and that the holding device is applicable to either right or left flanker plow-beam. It is, therefore, universal and independent in its nature, and leaves the under side of the beam free from obstructing parts which would clog the cleaver. The major clip is provided with laterally-extended arms R R^1 near the middle of its body for the support of the stays F F′, as shown in Fig. 2, which are attached to the clip-arms by the minor clips Q Q′, which are a small size of ordinary carriage-axle clips, the stays F F′ being perforated with pairs of holes equally distant, to allow the seat and treadle-frame to be more or less shifted relatively to the clip-arms R R^1, which are connected to the stays by hook-bolts, or their equivalents, loosely, to allow the plow to roll freely on a horizontal longitudinal joint. The said stays F F′ extend from the clip-arms in direction as shown in Figs. 1 and 2, and have their outer ends adjustably attached to the under side of the treadle H′, which is mounted transversely above the axle W W^1 W^2, so as to be balanced about equally over it, its rest on the axle being secured by a chair, P, which is bolted to the treadle, and has an eye or slot at P′ in it, to freely admit the axle through it, this being required to compensate by shifting on the axle in operating the beam-controlling mechanism. The said stays F F′ are pivoted by bolts *y y′* to the treadle H′, as shown, and are clamped by binding-screws Z Z′ in slots described from the pivots *y y′* as centers.

The treadle H′ is thus adapted to be shifted fore or aft, in relation to middle of the clip attachment, and its adjustment takes the axle with it by means of the chair P P′, by which it is connected therewith, as stated. This longitudinal horizontal adjustment of the treadle and axle is required to compensate for the side draft of the sulky attachment on the gage of the plow, its tendency being to increase the breadth of furrow, and must be regulated either by the plow-clevis or by this mode of adjustment.

As the plow is desired to be left intact in its regulation, so that it may be in working condition when the sulky is temporarily detached in plowing stumpy, rocky, or other irregular area of soil, it is found expedient to make the attachment self-compensating for its side draft.

The treadle is located centrally over the axle to enable the driver to throw his weight in favor of deep or shallow furrow.

The driver's seat H is supported by brace R^2 and standards T T on the treadle H′, in such position, as shown, to overhang the sulky-wheels more or less, in order that the driver may throw his weight on the wheel as a center of gravity in relation to the gage of the plow. The treadle H′ and operating-lever A N are arranged, also, to enable the driver to stand on the treadle by supporting one hand on the lever-handle.

The major clip has a vertical groove or seat, S^1, on its face, for the reception and guidance of the upright jamb O of the arched frame E E′, and has a slot, S^2, in the middle of said seat S^1, through which, by a binding screw or bolt, *d d′*, said arched frame is adjustably attached to the major clip-body, as shown in Figs. 1. 2, 6, 7. This vertical adjustment is required to maintain the axle in its normal horizontal direction, as plow-beams differ in height, and this difference must be made up by adjustment of the arched frame E E′, which has an extension, M, at its lower margin, to which the butt-end W of the axle is pivoted by a horizontal connecting-bolt, as shown in Figs. 1, 2, and 3. The arched frame E E′ (shown in Figs. 1 and 7) has an eye, G′, as a bearing for the hub G, the fulcrum of the operating-lever A N, shown separated and combined in Figs. 4 and 1, respectively. Said frame E E′ has an arch, D, of detents, described with G′ as a center, the end thereof terminating in the guard D′, which limits the throw of the lever by the bit *r* of the plunger connected with said lever. The operating-lever A N is provided with two handles, A A, set oppositely on its upper end, is slotted to pass through it one of the plunger-handles, B′, and a rivet, L, by which the plunger is held against the lever at its upper end, said rivet and handle being allowed to traverse the slot as a guide for the plunger. Said lever has also a slot, S, in its body immediately above the arched head of detents on frame E E′, and the plunger has a bit, *r*, whose blade, reaching through said slot S, engages the teeth of the arched frame, and also holds the lever against the side of said frame E E′, by a bill-form projection, *r′*, which reaches down on the opposite side of the frame E E′, so as not to be disengaged in its office, while the plunger is withdrawn to release its bit *r* from the detents D.

The length of the plunger-stem B^2 is such as to present the handle B^1 and the bit *r* thereon through the lever A N at like places in the slots therein, and said slots are prolonged sufficiently only to allow a limited throw of the plunger, and to be stopped by the ends of the slots. The plunger has also a duplicate handle, B, opposite to the handle B^1, as shown in Fig. 9, so that, when the plunger and lever are united, as shown in Fig. 3, the fingers may reach and retract the plunger-handle, while the palm of the same hand rests on and operates the lever-handle on either side, the handles being duplicated to adapt it equally well for right or left flanker-plow attachment. A gum band, B^3, stretched over handle B^1 and a stud on the lever, acts to hold the plunger B^2 down to a

sure bite in the detents made for its bit. The lever is also provided with an arm, V, projecting from the body of the lever, and perforated to receive a rod, V^2, or strap and bolt, by which the lever is hitched to the axle, the other end of the rod or strap being pivoted to the axle at W^1, as shown in Fig. 1, the axle shown in Fig. 5 being a round bar, provided with flattened places for the pivot-holes at W and V, and having a linchpin-hole at Y.

It will be observed on inspecting Fig. 1 that the three pivots W W^1 V form a nearly equilateral triangle, the side W V being the longest. The said long side has another pivot, V^1, near its middle, which is the fulcrum of the lever A N, which stands vertically over its fulcrum in its normal position.

Two cases arise on vibrating the lever from the position shown:

Case first. If the lever be vibrated away from the plow, the axle remaining comparatively level, the fulcrum V^1 will distort the imaginary triangle, the pivots W and V will approach each other, and the four pivots W W^1 V V^1 will form a quadrangle; the frame E E′, and consequently the plow, will be canted away from the sulky-wheel, or thrown more or less on its share, as desired, either to take wider furrow or to turn a headland, when the plow may ride on the mold-board.

Case second. If from the position stated above the lever be vibrated toward the plow, the fulcrum V^1 will be carried into the interior of the imaginary triangle, and the frame E E′, and consequently the plow, will be canted toward the sulky-wheel, or directed to gage a narrower furrow.

If the sulky-wheel is traveling upgrade in relation to the plane of the plow, the lever must be vibrated according to case first. If on down-grade, it must be vibrated according to case second.

The intermediate grades between high and low surface, between the plow and the wheel, may all be substantially anticipated by the driver by selecting a proper detent for the lever, to equalize the operation of drawing a uniform furrow over rolling surface, the roll of the beam-canting mechanism being sufficient to balance the inequality either way.

A long-felt want, it is believed, is met by this attachment, which is adapted to all plow structures in common use, whether of iron or wooden beam, right or left hand flanker, for level or rolling surface, in a cheap, convenient, unmistakably simple, and perfectly self-constituted mechanism.

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

1. The clamp-holder constructed substantially as herein set forth, in combination with the plow-beam J and the sulky attachment proper, for the purpose set forth.

2. The major clip *m′ n′ e′*, provided with the arms R R^1, in combination with the stays F F′ of the treadle H′, united by the axle-clips Q Q′, or their equivalents, to form the rolling joint, substantially as and for the purpose herein set forth.

3. The stays F F′, pivoted to the treadle H′ at *y y′*, and clamped adjustably by the binding-screws at Z Z′, in combination with the sulky-axle W W^1 W^2, by means of the chair P P′, or its equivalent, when the fore and aft shifting of the axle is thereby effected, substantially in the manner as and for the purpose herein set forth.

4. The groove S^1 and slot S^2 in the major clip, in combination with the vertical jamb O of the arched frame E E′, secured together by the bolt and nut *d d′*, or their equivalents, for the purpose herein set forth.

5. In combination with segment E E′, having detents D and guard D′, the slotted lever A N and plunger B^2, having hooked bit *r r′*, to reach through said slotted lever, and hold it adjusted and applied to the segment, substantially in the manner described.

6. The arrangement of the pivots W, W^1, V, and V^1 to form the triangle or quadrangle in canting the plow-beam, substantially as herein set forth.

7. The combination of the lever A N, rod or strap V^2, frame E E′, and axle W W^1 W^2, these parts operating conjointly to control the beam J, substantially as set forth.

In testimony that I claim the foregoing as my invention I have hereunto set my hand this 29th day of July, 1873.

THEOPHILUS WEAVER.

Witnesses:

ABRAHAM BOWERS,

D. A. KEPNER.