(Model.)

F. B. HUNT.

Sulky Plow.

No. 232,505. Patented Sept. 21, 1880.

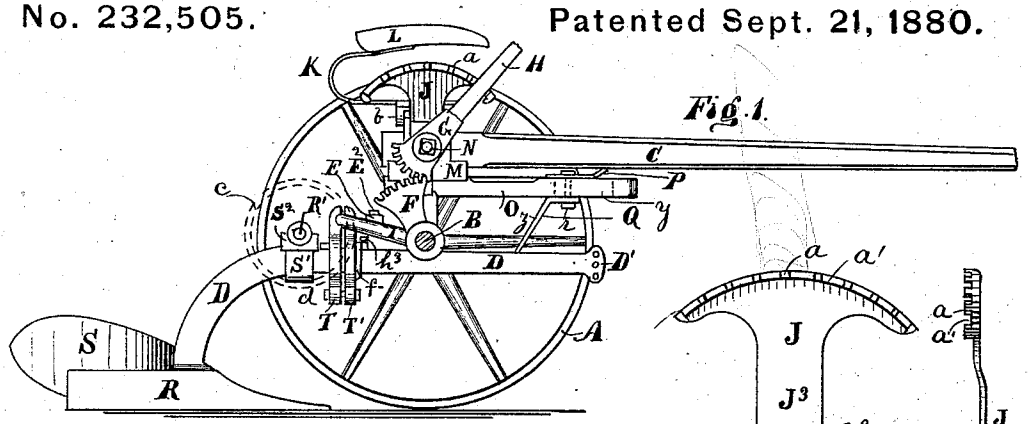


Fig. 1.

Fig. 4.

Fig. 5.

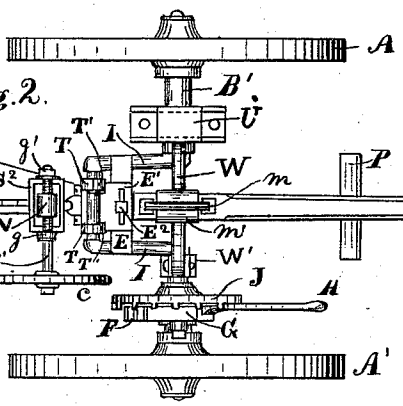


Fig. 2.

Fig. 11.

Fig. 6.

Fig. 7.

Fig. 8.

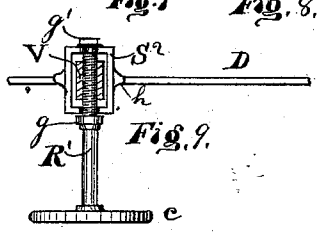


Fig. 9.

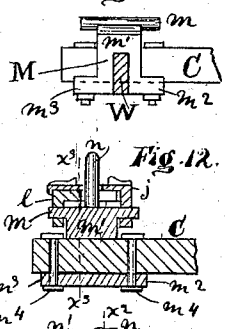


Fig. 12.

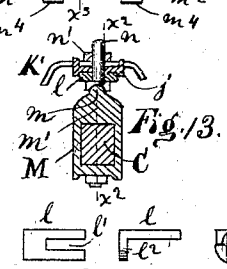


Fig. 13.

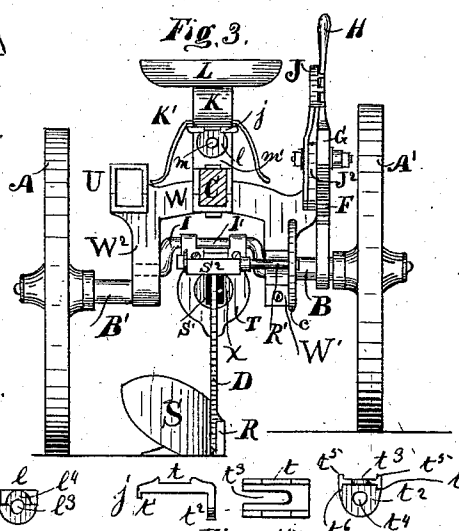


Fig. 3.

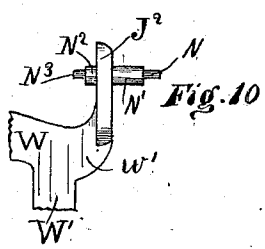


Fig. 10.

Fig. 14.

Fig. 15.

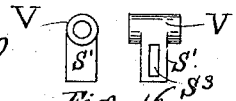


Fig. 16.

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UNITED STATES PATENT OFFICE.

FRANKLIN B. HUNT, OF RICHMOND, INDIANA, ASSIGNOR OF ONE-HALF OF HIS RIGHT TO D. B. ROBBINS.

SULKY-PLOW.

SPECIFICATION forming part of Letters Patent No. 232,505, dated September 21, 1880.

Application filed March 2, 1880. (Model.)

To all whom it may concern:

Be it known that I, FRANKLIN B. HUNT, of Richmond, in the county of Wayne and State of Indiana, have invented a new and useful Improvement in Sulky-Plows, of which the following is a specification.

My invention relates to improvements in sulky-plows, as per specification following; and the objects of my improvements are, first, to provide facilities to permit a rotary or oscillating motion for the plow-beam, for the purpose of leveling the plow, and to permit the plow-beam to be adjusted more or less obliquely to the line of motion of the machine; second, to provide facilities for regulating the oblique position of the plow-beam and holding the same in any desired position, by means of which the plow is adjusted either to or from land and held in position; third, to afford facilities for supporting and giving to the seat a lateral spring-adjustment; fourth, to afford facilities for supporting the quadrant and pivoting the lever; fifth, to provide a movable quadrant that shall be supported by a single stud and the seat-arch; sixth, to construct the seat-arch so that the mechanism may be reversed and adapted to a right or left plow. These objects I attain by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the entire machine with the right wheel removed from its axle. Fig. 2 is a plan or top view of the machine. Fig. 3 is a rear-end elevation of the same. Figs. 4 and 5 are front and side elevations of the detachable quadrant. Fig. 6 is a top view of the swivel-block and case on the plow-beam. Fig. 7 is a side elevation of the swivel-block on the plow-beam. Fig. 8 is a horizontal sectional view of the swivel-block, taken at the line x' x' of Fig. 7. Fig. 9 is a top view of the oblique adjusting devices attached to the plow-beam. Fig. 10 represents a side view of that part of the seat-arch to which the quadrant and levers are attached. Fig. 11 is a cross-section of the seat-arch, showing a side view of the seat and tongue supporting device, which is cast on the seat-arch. Fig. 12 is a vertical longitudinal sectional view taken through the center of the tongue and seat supporting parts of the seat-arch on line x^2 x^2 of Fig. 13. Fig. 13 is a cross-section of the same, taken at the line x^3 x^3 of Fig. 12. Fig. 14 represents a top, side, and end view of one of the pivot-plates for the seat. Fig. 15 is a side, top, and end view of the pivot-plate for the seat. Fig. 16 is a side and front elevation of the adjusting-nut of the plow-beam.

W represents the seat-arch and main reversible frame of the plow, which is of peculiar construction, to wit: The upper portion, W, forms the arch, having in its center a socket, M, and at one side of the center another socket, U. Each socket is designed to receive and hold the tongue C under certain circumstances, as will be hereinafter fully explained.

The sockets U and M are provided with projecting bottom sides, m^2 m^3, for strengthening the tongue-support, and to receive the bolts m^4, which secure the tongue. Above the socket M the iron-work of the arch extends a short distance, as shown at m', and the upper surface of this extension is provided with a round horizontal bar, which is cast onto the arch with its ends projecting beyond the open ends of the socket, as shown in Figs. 2, 3, 11, and 12, to receive and hold the pivot-plates l j.

The right-hand side of the arch W is provided with a projecting arm, w', on which is cast a bracket, J^2, (shown more fully in Fig. 10,) in which bracket is firmly secured the double-ended stud $N'N^2$, having screw-threaded ends N and N^3, on which nuts are screwed to hold the removable quadrant and the lever, as will be hereinafter described.

The lower side of the arch W is provided with the arm W′ on one side and W^2 on the other side, as shown in Fig. 3. To the arm W^2 is firmly attached the furrow-wheel axle B′, on which the wheel A is mounted. Immediately over the axle B′ in the arm W^2 is a bearing for one end of the crank-shaft I. This crank-shaft I I extends back from the arch, as shown in Fig. 2, and has its other bearing in the arm W′ of said arch, and then continues out sidewise, forming the rotating axle B, on which the wheel A′ is mounted. The rotating

axle B and the crank-shaft I I are one piece. On the rotating axle B is firmly secured the cog-segment F, as shown in Figs. 1, 2, and 3.

The detachable quadrant is shown in detail in Figs. 4 and 5. The hole a^2 in the upright part J^3 is designed to fit on the stud N^2, and the notch a^3 is designed to fit over or straddle the projection w' of the arch W, where it is made fast by a nut screwed onto the screw-threaded part N^3 of said stud. The quadrant at the top may be formed of any ordinary means for holding the lever. I prefer, however, the notches a' and projections a in the side, as shown. The lever H is attached to or forms part of the cog-segment G, which is pivoted on the stud N', and secured there by a nut on the screw-threaded part N. The cog-teeth of the segment G work in gear with the cog-teeth of the segment F, as shown more fully in Fig. 1.

It will be observed that while the axle B affords facilities for the wheel A' to revolve on, yet the axle and its crank I are rotated by operating the lever H and segments G F. Thus the crank I may be raised or lowered at pleasure, whether the machine is in motion or at rest, and the crank can be held rigid at any required position by the lever H and quadrant J a a'.

The pivot-block l is constructed like that shown in the three views of Fig. 14. The slot l' is beveled underneath, and is designed to receive the bolt n, the head of the bolt being held fast in the beveled part l^4. The lug l^2 is provided with a hole, l^3, to fit on the rear end of the bar m, above the arch W. The pivot-plate j is also of peculiar construction, as shown in the three views of Fig. 15, to wit: It is similar in general construction to the other pivot-plate, l—that is, it has a slot, t^3, to straddle the bolt n, with a lug, t^2, and a hole, t^4, to fit on the other end of the bar m. The upper outer parallel edges, however, are further provided with flanges t^5, having a cross-notch, t, to receive the spring K'; and the lower outer parallel edges are also provided with flanges t^6, between which the outer edges of the plate l fit; and the rear end, on the under side, is provided with a flange, t', to lock over the rear end of the plate l. The plate l is placed on the bar m by inserting said bar into the hole l^3. The bolt n is then slipped into the slot l', with its head resting on the bar m. The plate j is then placed on the bar m by inserting the bolt n in the slot t^3, and inserting the front end of the bar m into the hole t^4. When the plate j is properly adjusted the plate l is held firm below by the flanges t^6 and t', and both plates prevented from twisting around or slipping off of the ends of the bar m, as shown in Figs. 12 and 13.

Above the plate j and in the cross-slot t is located the curved spring K'. This spring has a hole in its center, in which the bolt n is inserted. The ends of this spring K' curve downward on each side of the seat, and their lower ends rest on the upper edge of the arch W, thus permitting the seat to rock sidewise. The seat-spring K is also provided with a hole, in which the bolt n is inserted, and the whole seat-supporting and rocking devices are secured in place by the nut n' when screwed home on the single bolt n. The seat-spring K extends back some distance and curves upward and forward, and the seat L is made fast thereto in the ordinary manner. Immediately under the center of the seat L and to arch W the foot-rest bracket O is secured. This bracket O extends forward parallel with but underneath the tongue C, and its front end is provided with a slot, y, (shown by dotted lines in Fig. 1.) Across the top of this bracket O is the foot-rest P, which is secured by the bolt r, and made adjustable either to or from the arch W in the slot y. The same bolt r that secures the adjustable foot-rest to the bracket O also secures the stop-bar Q to the under side of the bracket O. The lower end of the stop-bar Q is designed to prevent the plow-beam D from rising too high up.

On the crank I I is pivoted a pendant, composed of two parts—to wit, the parts T and T'—a rear view of which is shown in Fig. 3, a top view in Fig. 2, and a side view in Fig. 1. These two parts T T' of the pendant are provided at their upper edges with semicircular recesses to clamp loosely the part I' of the crank, and are secured on the crank by bolts d. The central part of each of these parts T and T' is provided with a round opening, and the inner edges of said openings are beveled to receive the beveled edges of the swivel-block X, Figs. 6, 7, and 8. This swivel-block X also is of peculiar construction, to wit: Besides the beveled edges before referred to, each side of the block is provided with a lug near the top. The lug h^2 has a screw-threaded hole, in which the set-screw h^3 operates for securing the plow-beam D to the block. The lug h' on the opposite side of the block is provided with a notch in its outer edge, in which fits the lug h on the case S^2.

The central part of the block X is perforated with a hole, i, which is rectangular in its vertical section and wedge-shaped in its horizontal section. In this rectangular and wedge-shaped hole the plow-beam D is inserted and made fast by the pivot end of the set-screw h^3, which, while holding the plow-beam near its middle and preventing it from moving forward or backward in the block X, yet at the same time permits a diagonal adjustment of the beam in the wedge-shaped hole, so that the front end of the beam may be adjusted either to or from the land.

Immediately in the rear of the pendant T T' and its swivel-block is a horizontal rectangular frame or case, S^2.

In the horizontal rectangular frame is located the screw-shaft R', Fig. 9, said shaft being held in the frame by suitable bearings at each end of the frame. On the screw part

of the shaft R′ is a nut, V, the lower side of which projects downward, and is provided with a sleeve, S′, having a rectangular opening to receive and hold the plow-beam D, and to which it is made fast.

The case S^2, by reason of its lug *h* engaging in the notch of the lug *h′* on the swivel-block, always retains its relative position with the block X and pendant T T′, no matter what position the nut V occupies in said case.

To the outer end of the shaft R′ is secured a hand-wheel, *c*, for operating the screw and moving the nut V laterally in the case S^2, by means of which the diagonal adjustment of the plow and plow-beam either to or from land is accomplished.

On the arms I I of the crank is secured a cross-bar, E, on which, either above or below, is also secured a slotted adjustable plate, E′, by a bolt, E^2. The rear end of this adjustable plate E′ projects back between the upper ends of the pendant that is pivoted to the crank part I′, and this crank part I′ is long enough to allow of considerable adjustment of the pendant laterally in either direction from the central position shown in Fig. 2. This lateral adjustment is made in either direction by loosening the bolt E^2 and moving the plate E′ either to the right or left, as desired, thus adjusting the pendant to one side or the other laterally of the crank, and consequently giving to the plow-beam more or less permanent adjustment to either side of the line of draft, the diagonal adjustment of the plow being regulated by the screw R′ and its mechanism as follows: If it is desired to adjust the plow-point toward the land, the wheel *c* is operated so as to screw the nut V toward the left-hand side of the case S^2. This adjustment throws the front end of the plow-beam obliquely to the right and adjusts the plow-point toward the land.

It is obvious that the reverse adjustment of the nut V will throw the plow-beam obliquely to the left and the plow-point away from the land.

The depth of the furrow is regulated by the lever H and its connecting mechanism with crank-axle and plow-beam. Thus, if the lever H is moved backward the crank part I′ is lowered, carrying with it to a corresponding distance the plow and plow-beam, and vice versa.

I am aware that prior to my present invention a patent was granted me January 28, 1879, No. 211,662, for improvement in sulky-plows, in which patent many of the devices and combinations of devices shown in this application were there shown, described, and claimed. I therefore do not claim such devices and combination of parts, broadly; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. In combination with the pendant or plow-beam-supporting pivoting device T T′, attached to the crank, the bar E, also secured to the side arms of the crank, and the adjustable slotted plate E′, as and for the purpose specified.

2. The pendant or plow-beam-supporting device T T′, combined with the swivel X, said swivel provided with a wedge-shaped hole, *i*, for the plow-beam to move obliquely in, and also provided with a lug, h^2, and a set-screw, h^3, at one side and a notched lug, *h′*, at the other side, substantially as described, for the purpose specified.

3. The swivel device X, provided with the wedge-shaped hole *i*, for the plow-beam to receive an oblique adjustment in, and also provided with the lug h^2 and set-screw h^3 at one side and a notched lug, *h′*, at the other side, substantially as shown, for the purpose specified.

4. In combination with the plow-beam D, the oblique adjusting device composed of the hollow case S^2, having a lug, *h*, on one side to engage in the notched lug *h′* of the swivel device, the screw-shaft R′, nut V, and hand-wheel *c*, as and for the purpose specified.

5. In a sulky-plow, the oblique adjusting device V R′, combined with the oscillating or rotating adjusting device X for the plow-beam, the pendant T T′, the crank I I I′, and adjustable block E′, as and for the purpose specified.

6. In a sulky-plow, the beam D, provided with the sleeve S′, combined with the oblique adjusting device composed of the hollow case S^2, having a lug, *h*, on one side to engage in the notched lug *h′* of the swivel device, the screw-shaft R′, nut V, and hand-wheel *c*, the swivel X, and the pendant T T′, as and for the purpose specified.

7. In a sulky-plow, the seat-arch W, provided with the sockets M and U, having their lower edges projecting on both sides to form a strong support for the tongue and permit the mechanism to be reversed to adapt it to a right or left hand plow, substantially as described.

8. In a sulky-plow, the seat-arch W, provided at one side with a bracket, J^2, combined with the double-ended stud $N' N^2$, the removable quadrant J, and lever H G, substantially as described, for the purpose specified.

9. In a sulky-plow, the quadrant J, having retainers for the lever H on one side of the arch and a downward-projecting arm, J^3, provided with a hole, a^2, and a notch, a^3, at its lower end, substantially as shown, for the purpose specified.

10. In combination with the curved seat-spring K, the spring K′, having its downward-curved ends operating on the upper edge of the arch W, as described, for the purpose specified.

11. In combination with the horizontal longitudinal pivot *m*, the pivot-plate *l*, the pivot-plate *j*, the stud-bolt *n*, and the seat-springs K and K′, substantially as described.

12. In a sulky-plow, the combination of the plow-beam-supporting devices T T′, the ob-

lique adjusting devices S″ R′ V *c*, the vertical adjusting-crank I I I′, and the lateral adjusting slotted plate E′, as and for the purpose specified.

13. In a sulky-plow, the seat-arch W, having a central seat mounted on a spring, K, and supported laterally by the spring K′, combined with the central forward-projecting arm O, having a slot in its outer end, and the foot-rest P, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

Witnesses: FRANKLIN B. HUNT.
E. O. FRINK,
G. H. RENNETT.