J. WARREN.

Plow.

No. 6,620. Patented July 31. 1849.

Fig. 1.

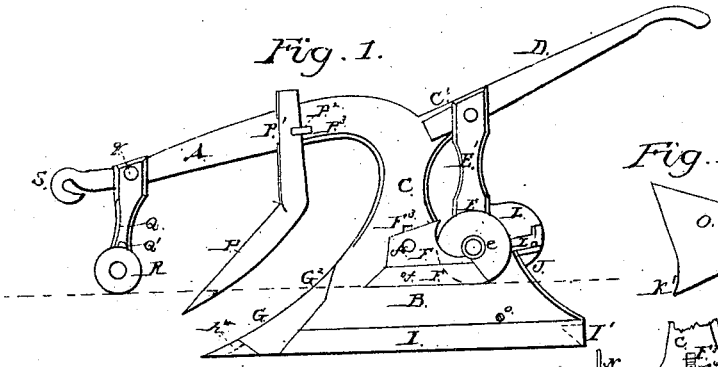


Fig. 15.

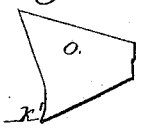


Fig. 14

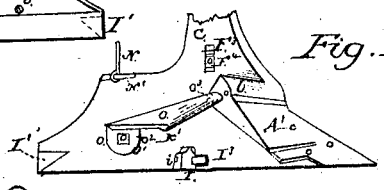


Fig. 2.

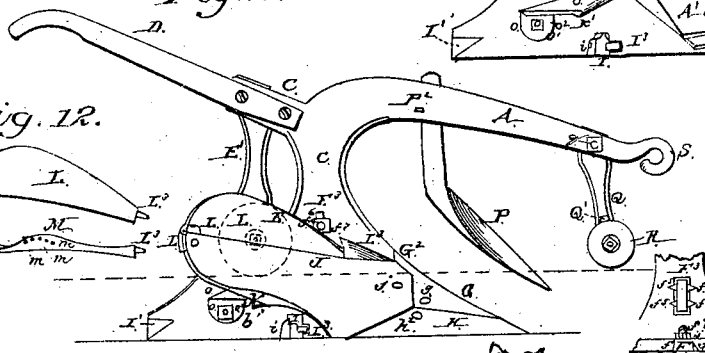


Fig. 12.

Fig. 13.

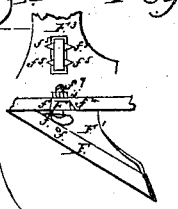


Fig. 8.

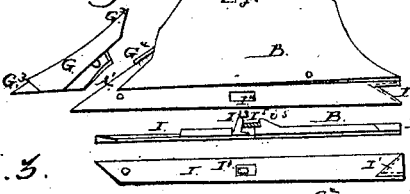


Fig. 4.

Fig. 16.

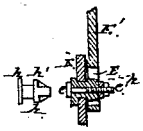


Fig. 10.

Fig. 9.

Fig. 3.

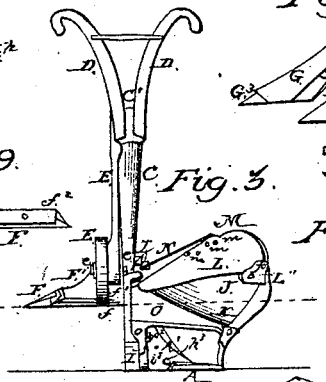


Fig. 5.

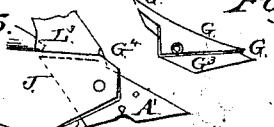


Fig. 6.

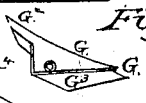


Fig. 11.

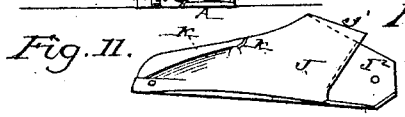
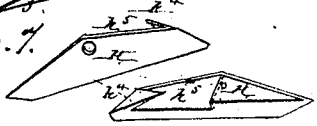


Fig. 7.



UNITED STATES PATENT OFFICE.

JESSE WARREN, OF GLENS FALLS, NEW YORK.

IMPROVEMENT IN PLOWS.

Specification forming part of Letters Patent No. **6,620**, dated July 31, 1849.

To all whom it may concern:

Be it known that I, JESSE WARREN, of Glens Falls, in the county of Warren and State of New York, have invented certain new and useful Improvements in Plows, which I denominate "Warren's Changeable Butterfly Plow," of which the following is a full and exact description, reference being had to the drawings hereunto subjoined, which delineate the connection and form of the several parts, and making part of this specification.

Figure 1 is an elevation of the left or land side of the plow. Fig. 2 is an elevation of the right or furrow side of the same. Fig. 3 is a rear elevation of the plow. Fig. 4 is a sectional elevation of the landside, the land-bar and combined bed-point being removed. Fig. 5 is a sectional perspective view of the front part of the plow, the share and combined cutter and bed-point being removed. Fig. 6 is a perspective view of the combined cutter and bed-point detached. Fig. 7 is a perspective and inverted view of the share detached. Fig. 8 is an elevation of the landside of the bed-point, also detached. Fig. 9 is a view of the inner and lower edge of cutter or clearer. Fig. 10 is a view of the inside of the land-bar, and section showing its attachment to the landside. Fig. 11 is an inside view of the mold-board detached. Fig. 12 is an elevation and top edge view of the adjustive mold-board detached. Fig. 13 is a plan or top view of the shield and cutter and a section of the landside, showing the notched mortise F^3, in which the shield is secured. Fig. 14 is an elevation of the inside of the landside, showing the bed or extension on which the front end of the mold-board, combined cutter, and bed-point are secured, the trapezoidal plate being in its proper position. Fig. 15 is a plan of the trapezoidal connecting-plate. Fig. 16 is a sectional view of the pendent arm E′ and adjustive wheel E.

The references used in the specification designate the same parts in the several figures.

The character of my invention and improvements in the plow consists in the construction and combination of the combined cutter and bed-point with the mold-board; also, in constructing the mold-board in two pieces or sections, the upper half of which being movable and made adjustive by means of a hook-bar to give more or less turn to the sward in plowing, and also adapting the mold-board for various kinds of soil; and in combining with the plow next to its landside a sustaining and gaging wheel for gaging the depth of the furrow and relieving the plow; likewise, in placing a horizontal adjustive leveler and weed-cutter in front of the sustaining-wheel, fixed to a shield projecting up in front and over the wheel to protect it from accident; also, the manner of attaching and securing the rear end of the mold-board permanently to the inside of the landside of the plow by means of a trapezoidal-shaped connecting-plate bolted to the landside; and likewise the manner of securing the land-bar to the landside of the plow, a particular description of the construction, connection, and use of the several features above mentioned being as follows:

The material of which my improved plow is constructed is chiefly cast-iron. The beam A, the landside B, and the standard or sheth C are cast in a single piece, and are of the form represented in the drawings, the standard or sheth C being extended at C′ to form a support for the handles D, to which they are attached by screw-bolts.

E is the gaging and sustaining wheel, secured next to the landside to the lower end of a pendent bar, E′, by means of a horizontal stud, *h*, on the neck of which it turns, the shank being square and provided with triangular-shaped cogs *h′* on its vertical sides, which fit into corresponding-shaped notches in the sides of the mortise E^2, Figs. 2 and 16, in which it is secured by means of a bolt, *e*, passed through it and screwed fast by a nut, *e′*, said pendent bar E′ being firmly bolted to the upper end of the standard or sheth at C′. This wheel can be raised or lowered in the mortise E^2 by unscrewing the nut *e′* and moving the cogged shank of the stud *h* from one notch to the other, and made fast by the nut *e′*, in order that a greater or less depth of furrow may be cut, said wheel being designed especially for that purpose.

Immediately in front of the gaging and sustaining wheel E is secured a horizontal adjustive leveler and weed-cutter, F, arranged at an acute angle to the landside B, projecting outward and backward, and is attached to the lower edge of a curved shield, F′, Figs. 1 and

3, which extends up in front of the wheel E, to prevent sticks, weeds, roots, &c., falling or gathering between the wheel and cutter, which would choke and stop its motion.

The cutter F is secured to the lower horizontal portion of the shield F′ by a screw-bolt, f, and nut f', and has a shoulder, f^2, formed on its inner end, made to fit against the landside and lower corner of the shield, and having its outer end turned inward to form an angular notch, f^3, Fig. 9, which fits over the end of the shield F′, Fig. 3. The ends of the cutter thus embracing the ends of the shield, in addition to the screw-bolt f, firmly secures it from getting loose or breaking.

The shield F′, Figs. 1 and 3, is secured in a notched mortise, F^3, Figs. 4, 13, and 14, in the landside by a square projection, F^4, having cogs f^4, Fig. 13, on its sides, which fit into notches f^5, Fig. 13, in the sides of the mortise F^3. Through the aforesaid shield and projection a screw-bolt, f^6, passes to receive a nut, f^7, on its end, by which the shield and cutter are adjusted by raising or lowering the cogged projection F^4 in the notched mortise and clamping it securely to the landside.

The cutting-edge of the leveler projects outward horizontally and backward obliquely, and may be above or below the level of the wheel, as required.

G, Figs. 1 and 2, is the combined cutter and bed-point, also represented in Figs. 6 and 8. This bed-point is secured to the front part of the landside, which is extended on the right to form a seat, A′, and also for the front end of the mold-board. This cutter and bed-point fits into a depression like that usually made for the common point and share, and is so fashioned and cast as to fit snugly thereto, and is extended at G^2, which forms a continuation of its cutting-edge, fitting in an excavation, G^4, on the landside, and secured by a screw-bolt, g, on its upper surface, and next the landside is a depression, G^3, into and over which fits the front portion of the share H. The cutting-edge of this bed-point may be steel or wrought-iron.

H is the share, whose front end forms the lower portion of the cutter. It is securely fixed to the bed A′ by a screw-bolt, h^2, and nut h^3, screwed against the bottom of the bed. There is a triangular-shaped ear, h^4, cast on its front end, which overlaps the land side of the point and is parallel therewith. It is also excavated on its under side to form a recess, h^5, which fits over and embraces the portion G^3 of the bed-point.

I is the land-bar, of the usual form, secured by means of a triangular-shaped projection, I′, cast on the inside of its rear end, and fitting into a corresponding opening, I^2, in the end of the landside, and is also provided with a tooth, I^3, cast near its center and projecting inward and slightly backward through a mortise, I^4, in the landside, between which and a rib, i^5, a wedge, I^5, is firmly driven, which binds against the inside of the landside, and thus connects the land-bar.

J is the mold-board, constructed and arranged in the usual manner, except that it is but half the usual height and securely fixed to the landside. There is a recess, J^2, on the under side of its front end, which fits over and against the extended front A of the landside, and is bolted thereto by a bolt, j. There is a lip, j', projecting from its lower edge, upon which rests the back portion of the share H.

K, Figs. 3 and 11, is a rib formed on the lower curved rear edge of the mold-board, into which a cavity or hole, k, is formed to receive the projection or point k' on the end of the connecting-plate O, which connects and holds the rear part of the mold-board J firmly in its proper position.

L is the upper adjustive mold-board, being a continuation of the lower part, J, and secured thereto at its rear end by a stout pin, L′, projecting from its lower corner and fitting into a hole or cavity formed in a loop, L^2, bolted to the inside of the mold-board. It is secured at its front end by a similar-formed pin, L^3, entering a hole, l, Fig. 14, formed in a shoulder or top of the extended front A′, on which pivots or pins the said mold-board L turns in giving the same more or less overhanging.

M is a lip formed on the top of the adjustive mold-board, in which is a series of holes, m, varying in distance from the eye in which the hook-bar turns.

N is a hook-bar, secured in an eye, N′, cast on the upper edge of the landside, its opposite end being turned to form a hook, which enters any one of the series of holes m to hold it in its position, and by which it is adjusted to suit the soil, which may be more or less difficult to turn.

O is the trapezoidal connecting-plate, secured to the landside at its lower rear corner by means of a screw-bolt, o, passed through an ear, o', on its under side, and screwed fast by a nut, o^2, and extending upward toward the front at an angle of about thirty degrees, and resting upon and against a shoulder, o^3, Fig. 14, in the upper part of the extended front A′, and extending outward in contact with the inside of the mold-board J, and connected therewith by the point k' of its outer left end entering the hole k in the rib K on the inside of the lower rear edge.

P is an independent colter, whose upper end is secured on the land side of the beam in a recess between a shoulder, P′, and a tapering hook-wedge, P^2, passed through an opening in the beam, between the shank of the colter and a projection, P^3.

Q is a pendent arm, attached to the beam A near the front end by a screw-bolt, q, and having attached to its lower end an anti-friction wheel, R, which, in connection with the adjustive and sustaining wheel E, prevents the point of the plow entering too far into the soil, and also sustains the weight of the plow, and

consequently diminishes the friction and gives freedom to its motion, the said wheel R being adjusted and secured in a mortise, Q′, in the same manner as the wheel E.

S is a hook, cast with and formed on the end of the beam to which the animals for drawing the plow are geared. This hook is cheap, simple, and durable, and dispenses with the clevis and bolt.

The mold-board J may be removed and replaced by a larger or smaller one in its stead, and secured in the same manner, by which it can be made the largest or smallest sized plow, to suit the character of the soil. It can also be made the best subsoil-plow in use by simply removing therefrom the stationary and adjustive mold-boards. This plow is also susceptible of being adapted to almost any kind of plowing.

The various parts of the plow being connected together in a proper manner for operation, the sustaining and gaging wheel E is first adjusted so that its lower edge will be as far above the bottom of the landside as the depth of furrow required to be plowed. The leveler and cutter is next adjusted in relation thereto, which removes the hillocks, stones, weeds, or other substances from before the wheel and deposits them in the hollow places, so that when the ground is turned over they will be completely buried beneath the soil. The anti-friction and gaging wheel R is then adjusted to govern the depth of the point of the plow and steady and guide it in moving forward, the movable mold-board L at the same time, being made to overhang sufficiently to turn the furrow, is secured by the hook-bar N.

In plowing gravel soil the common plow-point may be sometimes substituted with advantage for the combined cutter and bed-point.

Having thus fully described my improvements in plows and the construction and connection of the several parts thereof, what I I claim as my invention, and for which I solicit Letters Patent, is—

1. The exclusive use of a mold-board composed of two sections or parts, J L, the lower section or part, J, being secured to the landside by the trapezoidal-shaped plate O and extension or bed A′ upon which it rests, the upper section or part, L, being adjustive and joined thereto by projecting pivots L′ L^3, upon which it turns, and adjusted and secured by means of a hook-bar, N, fixed to the landside B, the whole being constructed and arranged in the manner described.

2. The manner of securing and attaching the land-bar I to the landside, as described and represented.

3. The combination of the adjustive weed-cutter and leveler F with the landside and adjustive sustaining-wheel E, as described.

In testimony whereof I have hereunto signed my name, before two subscribing witnesses, this 22d day of October, 1847.

JESSE WARREN.

Witnesses:
I. MANSUR,
PETER H. WATSON.