M. S. CURTISS.
Gang-Plow.

No. 198,190. Patented Dec. 18, 1877

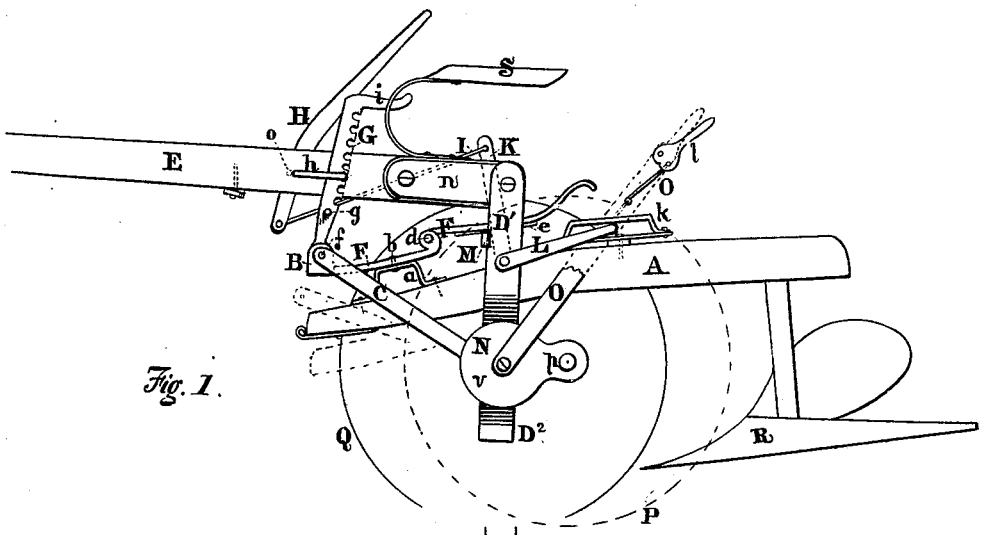

Fig. 1.

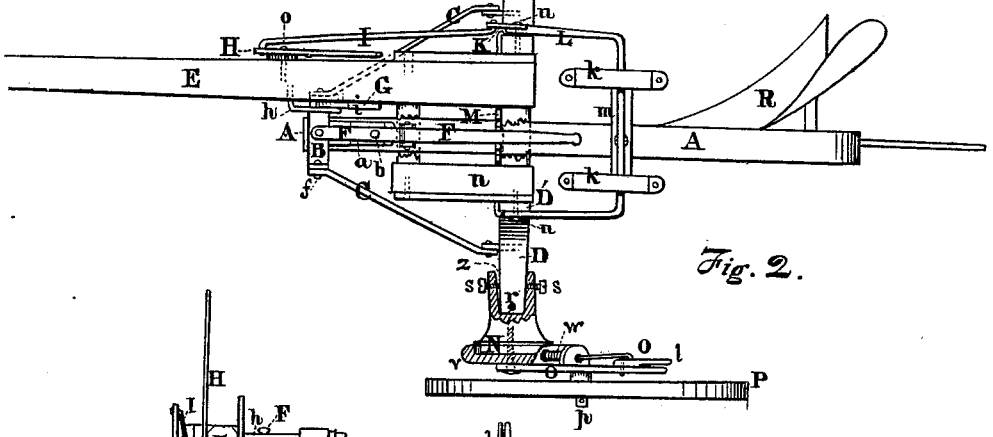

Fig. 2.

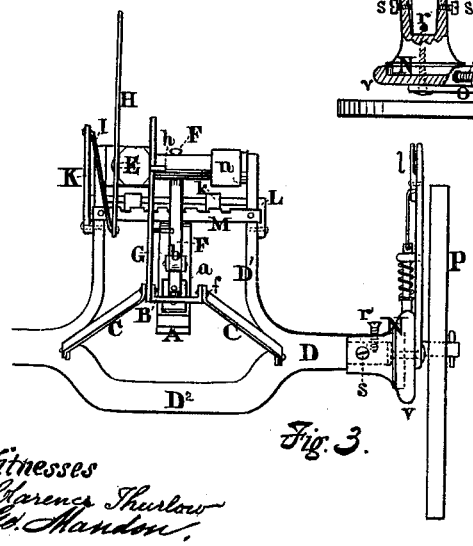

Fig. 3.

Witnesses
Clarence Thurlow
Ed. Mandon,

J. Marshall S. Curtiss
(by E. Thurlow, atty. in fact)

UNITED STATES PATENT OFFICE.

MARSHALL S. CURTISS, OF BRADFORD, ILLINOIS, ASSIGNOR OF TWO-THIRDS HIS RIGHT TO JAMES B. DOYLE AND HARMON PHENIX, OF SAME PLACE.

IMPROVEMENT IN GANG-PLOWS.

Specification forming part of Letters Patent No. **198,190**, dated December 18, 1877; application filed July 3, 1877.

To all whom it may concern:

Be it known that I, MARSHALL S. CURTISS, of Bradford, in the county of Stark, in the State of Illinois, have invented an Improvement in Gang-Plows; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawings, making a part of this specification, in which like letters of reference refer to like parts, and in which—

Figure 1 represents a side elevation with the nearest or crank wheel removed; Fig. 2, superficial view with seat removed; Fig. 3, front elevation with the seat omitted.

The object of this plow is, first, to control the direction of the plow proper by lateral motion of the plow-beam, by means of a laterally-oscillating lever, to obviate the use of clevises or similar adjustable detents for the head of the beam; second, to simplify the means of raising or depressing the plow-beam, so as to be manageable by means of the operator's foot; third, to throw the forward part of the land-sides or crank-wheel, or wheel facing the plow land-side, out of parallelism with its fellow wheel, at small angles, for the purpose of adding to the capability of the plow for taking land readily.

The first object is accomplished by entirely disconnecting the beam-head from the front cross-bar, (to which said beam is usually adjusted by means of clevis or otherwise,) and pivoting the fore part of said beam to a lever, which extends above the beam and in a line with it, the front end of said lever being pivoted to the said cross-bar, while the rear end of the same passes beneath the driver's seat, within easy reach from the latter, and is adjustable in a detent or transverse bar or ratchet.

The second object is accomplished by pivoting to either end of said cross or leading bar (to which the head of the plow-beam would be attached were it not attached to the intermediate lever above mentioned) a brace, each of which runs back divergently, and is pivoted to an eye or staple on the axle or arch. This leading-bar, which carries mediately the beam-head, is elevated or depressed by means of a vertical toothed ratchet or detent pivoted to said bar, and provided with a detent on the tongue of the machine, or other convenient point, and which may be, further, provided with a foot-bar, by which to depress the point of the plow.

The third object I accomplish by mounting the crank-wheel, or wheel which faces the land-sides of the plow, upon a block which has a socket to receive the main axle, so hollowed (with horizontal floor and ceiling and divergent sides) as to allow said block with its wheel to be set at different angles to the main axle by means of set-screws or similar devices, by which means the forward part of the attached wheel may (as said) be angled, or directed outward to draw the point of the plow in that direction, to take more land. I pivot the block to the main axle, by means of a bolt or vertical screw, out of the line of the lateral adjusting-screws mentioned, that there may be no oscillation vertically. This device I also combine with the common crank-wheel and adjusting-lever, as shown in the drawing.

One of the forms in which I construct this plow I will now describe.

In the drawing, A is the plow-beam, (of which more than one can be attached and used,) and is attached to the cross-bar B by means of a lever, F, whose middle part is pivoted to said beam, or to the bridge *a*, the forward end of said lever being pivoted to said cross-bar B, while the rear end of same, which is jointed to the forward end, rests in one of the notches in the transverse toothed detent M, and has a rib, *e*, beneath it for this purpose.

The cross-bar or leader B is pivoted at either end to the respective side braces C C, which diverge back, and are pivoted to the axle D, at opposite ends of the latter. This bar B is depressed or raised, to gage the depth of the plow, by means of the toothed bar G, pivoted to one end of same, and engageable with a staple, *h*, in the side of the tongue E. A foot-bar, *g*, projecting from the lower part of said bar G, is used by the driver or plowman to force the plow-point into the soil to required

depths. Said bar ends in a handle, *i*, as an auxiliary, to engage the same on the staple.

E is the tongue, attached rigidly at its heel to the axle-arch D^1, and has an attached seat-platform, *n*; S, the seat.

H is a lever, pivoted to outside of the tongue, and connected by a rod, I, with the upper end of a lever or arm, K, of the plow-lifter L, which, in a well-known form, passes through the horizontal staples or slots *k k*, attached to the rear part of the beam A, and is pivoted at either side to the axle-arch D^1 D^1.

The axle D D^1 D^2 may have a lower reversed arch, D^2, to act in holding down (or throwing) the weeds or grass while the plow covers them.

N represents the axle-block, or block to which the common crank devices N O *p* for leveling the plow may be attached, which is designed, by means of set-screws *s s* and detent or pivot-screw *r*, to set the land-sides wheel P at an opening angle forward to make the plow hug the land more or less, as desired, on this side. This block I make in various ways; but here it consists in providing it with a square socket, to receive the end of the main axle D, with its upper and lower inner surfaces horizontal or parallel, while the vertical sides of same diverge outward, so as to allow said block to be set at different angles with the main axle, by means of set-screws *s s*, on either flank, and which, respectively, impinge upon the end of the main axle D, and, accordingly, as one screw is driven in, and the other more withdrawn, the block is inclined laterally with its attached wheel, while the horizontality of the block and attached short axle is maintained by the horizontal meeting-surfaces of the end of the axle D and those of its socket in said block, the vertical screw or bolt *r* preserving the parts intact while allowing desired lateral adjustment.

The vertical sides of the socket may be made to diverge in the opposite direction with a like effect.

O represents the attached lever for leveling the plow, pivoted to the crank-plate *v* by the same bolt or screw which pivots the latter to the block N; *p*, the wheel-axle. The lever is provided with the usual spring-detents *l w* for setting the wheel P.

The operation of this plow is as follows: The head of the beam A is regulated laterally, to take more or less land, by the lever F by which said beam is attached to the leader or cross-bar B. The head of said beam A is gaged to the proper depth by means of the toothed bar G, and the said cross-bar B pivoted to the pivotal braces C C. The plow and beam are entirely raised from the soil by means of the lever H operating on the lifter L, which is confined within the staples *k* of the beam A.

The adjusting-block N has a socket, *z*, with diverging sides fitting upon the parallel sides of the end of the main axle D, while the set-screws *s s*, laterally entering the socket *z*, unite to set the block so as to throw the front part of the wheel P outward to draw the point of the plow in that direction, to take more or less land; at the same time the vertical bolt or screw *r* acts as a pivot for the purpose, but prevents any other motion of the block upon its axle excepting the lateral motion.

What I claim as my invention is—

1. A beam-adjusting lever as a connection between the plow-beam and its draft-bar B or transverse hitching-bar, said lever pivoted at its forward end to said draft-bar, and behind said bar again pivoted to the plow-beam, and having a detent at the rear, for the purpose of the lateral adjustment of the head of said beam in taking more or less width of land in plowing, substantially as and for the purposes described.

2. The combination of the lever F with the plow-beam A and a transverse draft-bar, adapted to swing the front end of the plow-beam laterally, substantially as and for the purposes described.

3. The combination of the lever F, to move the plow-beam horizontally, with the detent-bar M and the draft-bar or leader B, substantially as and for the purposes described.

4. The combination of the lever F, bar B, detent-bar G, and staple *h* or detent of beam E, substantially as and for the purposes described.

5. The draft-bar or beam-supporter B, pivoted to the pivotal braces C and to the forward end of lever F, substantially as and for the purposes described.

6. The combination, with the beam A, provided with lever F, and connected to bar B, operated by the notched detent-bar G, of the lifter L, with its slides *k*, arm K, connecting-rod I, and lever H, attached to the tongue, substantially as described.

In testimony that I claim the foregoing gang-plow I have hereunto set my hand this 28th day of June, A. D. 1877.

MARSHALL S. CURTISS.

Witnesses:

HENRY W. WELLS,

CLARENCE THURLOW.