



# UNITED STATES PATENT OFFICE.

MARSHALL S. CURTISS, OF BRADFORD, ILLINOIS.

## IMPROVEMENT IN GANG-PLOWS.

Specification forming part of Letters Patent No. 133,206, dated November 19, 1872.

To all whom it may concern:

Be it known that I, MARSHALL S. CURTISS, of Bradford, in the county of Stark and State of Illinois, have invented a new and useful Improvement in Gang-Plows; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a perspective view, the near wheel being removed; Fig. 2 is a plan view, the seat and its supports being removed to show the other parts more clearly; Fig. 3 is a longitudinal elevation; and Fig. 4 is a plan and longitudinal view of the wedge *t* for elevating or depressing the plows.

Like letters in all the figures of the drawing indicate like parts.

The object of this invention is to afford free lateral motion to the axle and wheels of a gang-plow, so as not to interfere with the direct progress of the plows; also, to effect the raising or lowering of the points of the plows by means of the driver's foot; also, to throw or turn the axle forward, so as to elevate the beams and plows out of the soil when desired. The driver manages and guides the plows and machine without leaving his seat, all of which will be hereinafter more fully explained.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

*e* is a horizontal rod, on which the clevis-bolt *f* slides, (or rather the rod *e* oscillates to the right and left within the eye of said bolt *f*.) Said rod is horizontal and held transversely across the machine in proper slots or guides *d d* at either end, where the rod is also attached to a vertical rod, *F*, passing through the platform *B* to the driver's foot. The staples *l l* on the beams *G G* allow the oscillation of the horizontal arm *k* of the lifting-arm *I* to move freely without interfering with the direct progress of the plow, which might otherwise be the case if the arm *I* were attached rigidly to the beams. *F* is a vertical rod, which passes downward through the platform *B* attached to the tongue *C*, and terminating in branching arms which embrace either end of the transverse horizontal bar *e*. The ends of the latter slide in long staples or guides *d d* depending from

and secured to the platform *B*. To the bar *e* is attached the eye of the bolt *f*, which freely slides thereon. The bolt *f* secures at once the rod *e*, the clevis *g* to the beams *G G*, the clevis *g* to which the double-tree *L* is attached. The upper end of the vertical rod *F* terminates above the platform *B* in a foot board or rest, *h*, by which pressure is transferred to the point of the united beams *G G*. *A* is an axle, mounted at either end on wheels, and hinged at *b b* to a platform, *B*, attached to the heel of the tongue *C*. A bar, *I*, is hinged to the front face of the said axle at *i i*, and, passing to the rear down to the beams *G G*, terminates in a cross-piece, *k*, the ends of which slide in long staples *l l* on either beam, so that the latter may be raised so as to elevate the plows from the soil by raising a lever, *D*, from a horizontal position and engaging the same in a notch near the seat *E* between the guides *p q*. This lever is pivoted at *s*, the smaller arm of the same being connected, by a link, *n*, with a short arm, *m*, fixed to the axle *A*. The driver's seat *E* is supported by the standard *r* upon the platform, and by curved supports or guides *p q* upon the tongue or the platform, if required. Between the parallel guides *p q* is a notch or notches near the seat to act as detents for the lever *D*. The lever *D* for elevating the plows out of soil, or for locking the axle in a vertical position when the machine is at work, is pivoted at *s* on the tongue or on the platform, the shorter end being pivoted to a link, *n*, which is, in turn, pivoted to the end of an arm, *m*, projecting forward from the axle *A*. *F* is the vertical rod in the platform *B*, with a foot-board, *h*, near the driver's seat and branching below, and engaged with either end of a transverse horizontal bar, *e*, on which slides the eye of the clevis-bolt *f*. This bar *e* is confined at either end within the vertical staples or guides *d d* depending from and firmly fixed to the platform *B*, and is secured at either end by a nut from escape from said guides. *G G*, the plow-beams, which consist of parallel beams converging to a point at the clevis *g*, to which the double-tree *L* is attached, and are united by cross-pieces, and carry the usual plows *H H*, which have divided standards *u v*, or rather are provided each with an after-brace, the latter being firmly fixed to the beam, and the standards *u v* may be attached to the beams,

respectively, by a vertical bolt or terminal thread on the top of the standard and nut, which can be loosened to force the wedge *t* further forward between the beam *G* and the pin *w* in the standard *u* to depress the points of the plows. The wedge is link-shaped, and tapers horizontally from one end to the other to render it of the proper wedge-form; at the same time, its being a link fits it for permanently inclosing the neck of the standard and securing it from loss. (See Fig. 4.) *I* is a strong iron bar, hinged at *i i* to the front of the axle *A* and passing to the plow-beams *G G*, where it terminates in a transverse arm, *k*, which is engaged at either end in the staples *l l* affixed to the surface of the beams. The arm *k* projects beyond either staple at either end to allow of lateral motion.

The operation of this gang-plow is as follows: The lever *D*, when let fall to a horizontal position, locks and retains the axle *A* in its normal or upright position, as in Fig. 1. When the lever is raised it elevates the whole plow *G G H H*, both at points and heel, but much more at the heel, as in Fig. 3. The guides *d d* permit the head or clevis end of the beams to rise by pressure upward against the vertical bar *F*. The lateral motion and device to obviate its effect upon the true course of the plows has been described above.

Having thus fully described my invention,

what I claim therein as new, and desire to secure by Letters Patent, is—

1. The plow, having a free lateral motion with respect to the wheels and axle *A* by means of the rod *e*, arranged to oscillate within the eye of the clevis-bolt *f* of the plow, in combination with slots or guides *d d*, hinged platform *B*, and hinged iron *I*, having transverse arms *k* arranged to oscillate in slots or guides *l l* of the beams *G G*, substantially as set forth.

2. The vertical rod *F* with foot-board *h*, transverse horizontal bar *e*, clevis-bolt *f*, and slots or guides *d d*, in combination with platform *B* having a hinged connection with axle *A*, so as to effect the raising or lowering of the points of the plows by means of the driver's foot, substantially as set forth.

3. The lever *D*, link *n*, and arm *m* of axle *A* with hinged platform *B* and hinged iron *I*, in combination with the notched parallel guides *p q* and beams *G*, in order to throw or turn the axle forward so as to elevate the beams and plows out of the soil, when desired, substantially as set forth.

In testimony that I claim the foregoing gang-plow I have hereunto set my hand this 22d day of May, A. D. 1872.

MARSHALL S. CURTISS.

Witnesses:

WM. JACK,  
JAMES M. MORSE.