

W. E. Hardin, Gang-Plow.

N^o 75,901.

Patented Mar. 24. 1868.

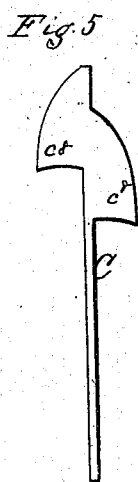
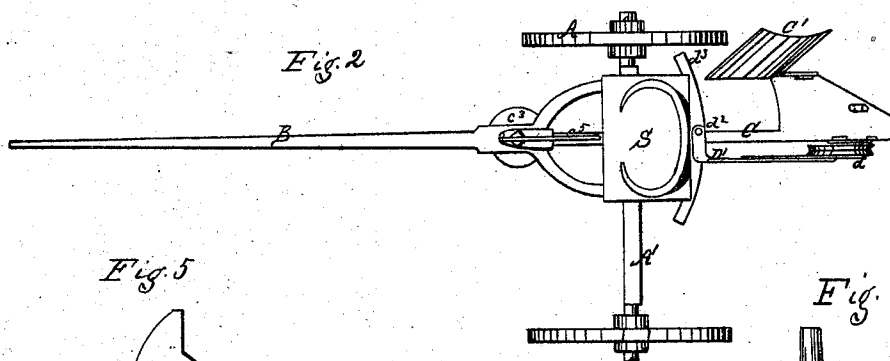
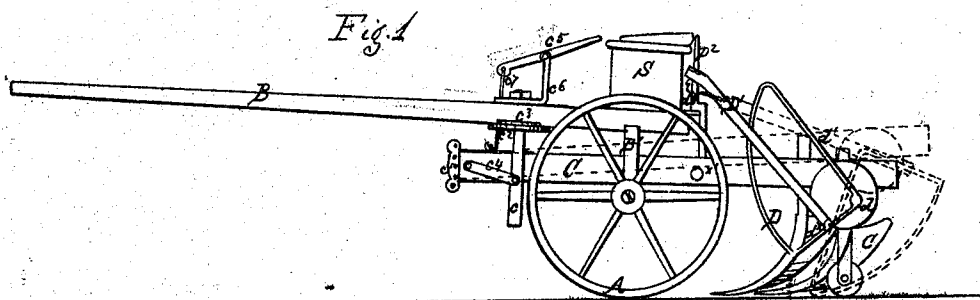


Fig. 3

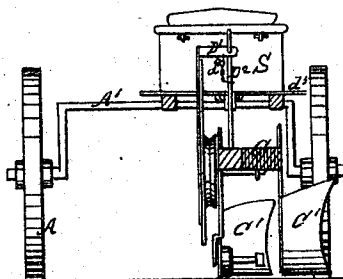
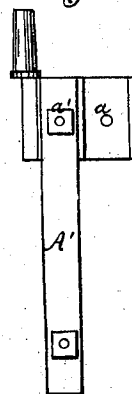


Fig. 4



Inventor

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Witnesses

H. Paul

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WILLIAM E. HARDIN, OF BOWLING GREEN, MISSOURI.

Letters Patent No. 75,901, dated March 24, 1868.

IMPROVEMENT IN PLOUGHS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, WILLIAM E. HARDIN, of Bowling Green, in the county of Pike, and State of Missouri, have invented a new and useful Improvement in Gang-Ploughs; and I do hereby declare that the following is a full and clear description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

This invention relates, firstly, to the mode of attaching the draught to the ploughs, which is done directly to the beam, and also to the method of attaching the beam to the vehicle or carriage upon which it is drawn. The result of these arrangements and combinations is to cause the ploughs to run steadily in the ground, uninfluenced by the undulations of the ground which is being cultivated. The second feature of the invention relates to a self-acting lift, used for the purpose of raising the ploughs out of the ground, when it is required, without the aid of manual labor applied to that purpose. The invention relates, thirdly, to an improved construction of the axle, and, fourthly, to the construction of the plough-beam.

To enable those skilled in the art to make and use my improved gang-ploughs, I will proceed to describe their construction and operations.

Figure 1 of the drawings is a side elevation of the improved plough.

Figure 2 is a plan of the same.

Figure 3 is a rear end elevation.

Figure 4 is an elevation of the axle, showing only one end of it.

Figure 5 is a plan of the beam.

As is usual with gang-ploughs, there are two wheels, A A, connected together by the axle A', which serves as a support for the back end of the tongue B; and the driver's seat, S, which may be shifted forward or backward, as may be required to properly balance the machine. The forward end of the plough-beam C is arranged to slide up and down in the stand e, which is attached to the lower side of the tongue in front of the axle, and is provided with a clevis, e', to which the power or team is directly hitched, thus securing a direct line of traction between the breasts of the animals drawing the machine, and the ploughs C'. By this arrangement the ploughs will be enabled to run smoothly and steadily in the ground, without being raised up out of the same, by means of the wheels running over undulations or hillocks on the surface of the field.

The top end of the stand e has a washer, e'', which rests against the table e'', secured to the bottom side of the tongue. The upper end of the said stand e is formed into a round bolt, which passes up through the tongue, and is secured in position therein by means of a nut screwed on above the tongue. The plough-beam, stand e, and its washer e'', swing around, laterally, on this rounded bolt, as upon a king-bolt or pivot. Two links, e'', one on each side of the beam, connect it with the stand e, so as to allow it to play up and down, but at the same time so as to prevent it from being drawn laterally out of said stand. A lever, e'', placed immediately in front of the driver's seat, and resting on its fulcrum, e'', erected upon the tongue, is connected with the forward end of the plough-beam by the rod e'' in such a manner that the driver may at discretion raise or lower the front end of the beam, and so regulate the depth of the furrows.

The self-acting lift, by means of which the ploughs are raised up out of the ground, is constructed and operated as follows: A segmental bar, D, is connected with its hub, d, eccentrically, by means of the arms d'. The hub d is attached to the back end of the plough-beam in such a manner that it may be revolved around its axis in a fore and aft direction. An arm or rod, D¹, is pivoted at x to the shorter one of the arms, d', and the upper or forward end of the said arm or rod, D¹, has an elbow, which is perforated at d'', so that, by means of said perforation, it may be hooked on to the top end of the hooked rod D², and by this means hold the lifter D¹ in its proper position while the ploughs are down in the ground. The hooked rod D² is pivoted to the beam C at x', and it should be provided with a spring at some convenient position near the said point x', so as to throw it forward and enable it to hook on top of the segmental bar d'', when it is raised up. When the driver wishes to raise up the ploughs while they are still in the furrow, he will disengage the rod D¹ from the top end of the hooked rod D², and allow it to drop down, the chain d'' preventing it from falling too far. The act of disengaging the rod D¹ from its upper fastening will allow the segmented bar D to fall on the ground, and its longer arm

being forward, as is shown in fig. 1, it will, by means of its friction on the ground, be compelled to roll over, and when it reaches the position shown by the dotted lines in fig. 1, it will have raised the ploughs up out of the ground, and the moment they are up high enough to allow the catch or hooked rod D^2 to do so, it will catch on top of the bar d^3 , and retain them in that position until the driver is ready to throw them down, which he will do by simply pushing the rod D^2 back so as to disengage it from the bar d^3 . While the lifter D d^1 is up in the position shown by the dotted lines in fig. 1, the perforation d^2 is replaced upon the top end of the rod D^2 , preparatory to another lifting operation.

As it is intended to use this plough either as a gang-plough or as a subsoiler, it becomes necessary to construct the axle A' and the beam C in such a manner as to render the machine readily adjustable to the purpose to which it is to be applied. With regard to the axle, this is accomplished by having the arms a of metal, and having an upper and lower socket in each, for the reception of the wooden axle A' , which is to be formed of two pieces, one to be placed on each side of the arm-pieces, and bolted through by means of the bolt a' , as is clearly shown in fig. 4. By this arrangement the axle can be raised up or lowered down in either of the sockets, or at either end, as may be required to adapt either wheel to run in the furrow or on top of the ground.

With regard to the alterations in the beam C , that will be required to fit it for different kinds of work, there will be the addition of an extra side lug, c^3 , as is shown in fig. 5. The ploughs C' are to be attached to the side of the beam, or to one or both of the lugs c^3 , as is clearly shown. By using the lug or lugs c^3 , only one plough-beam is used, and the machine is thereby cheapened and better adapted to its work than by using two beams, as is the usual practice.

Having described my invention, what I claim, is—

1. The lifter D d^1 D^2 , when constructed and operated as described and set forth.
 2. The adjustable axle A' a , when constructed and employed in the manner shown and described.
- In testimony of which invention, I hereunto set my hand:

WM. E. HARDIN.

Witnesses:

M. RANDOLPH,
GEO. P. HERTHEL, Jr.,
H. PAULL