

R. HARDENBROOK.

Side-Hill Plow.

No. 68,190.

Patented Aug. 27, 1867.

Fig. 1.

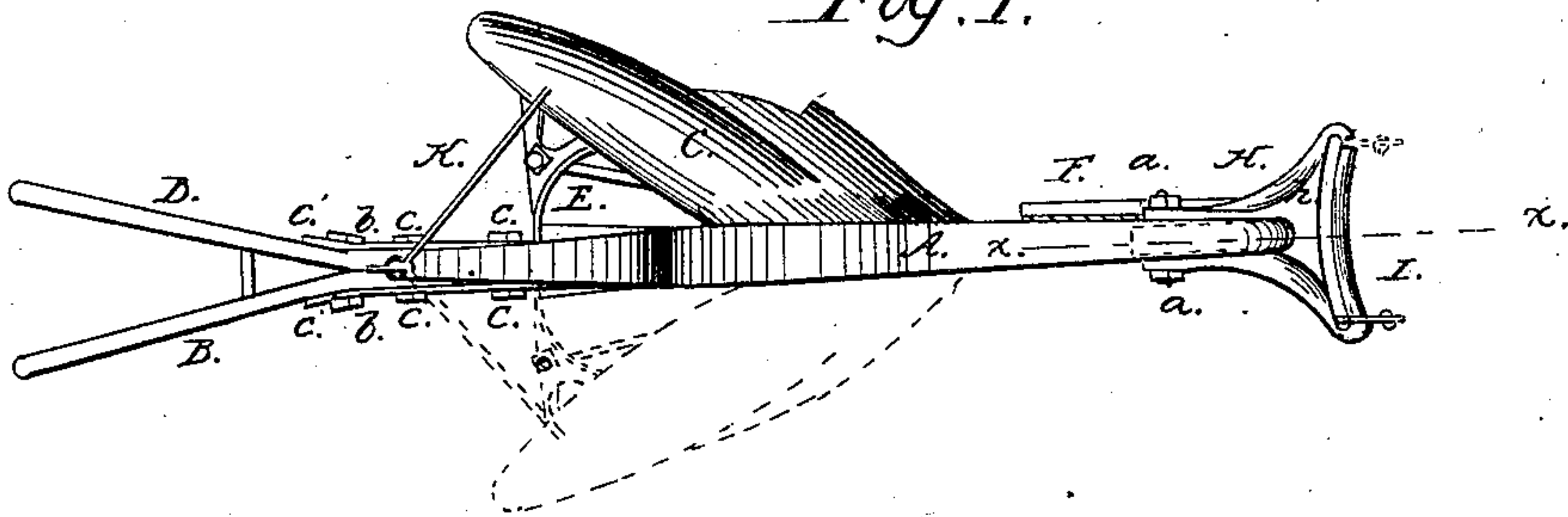


Fig. 2.

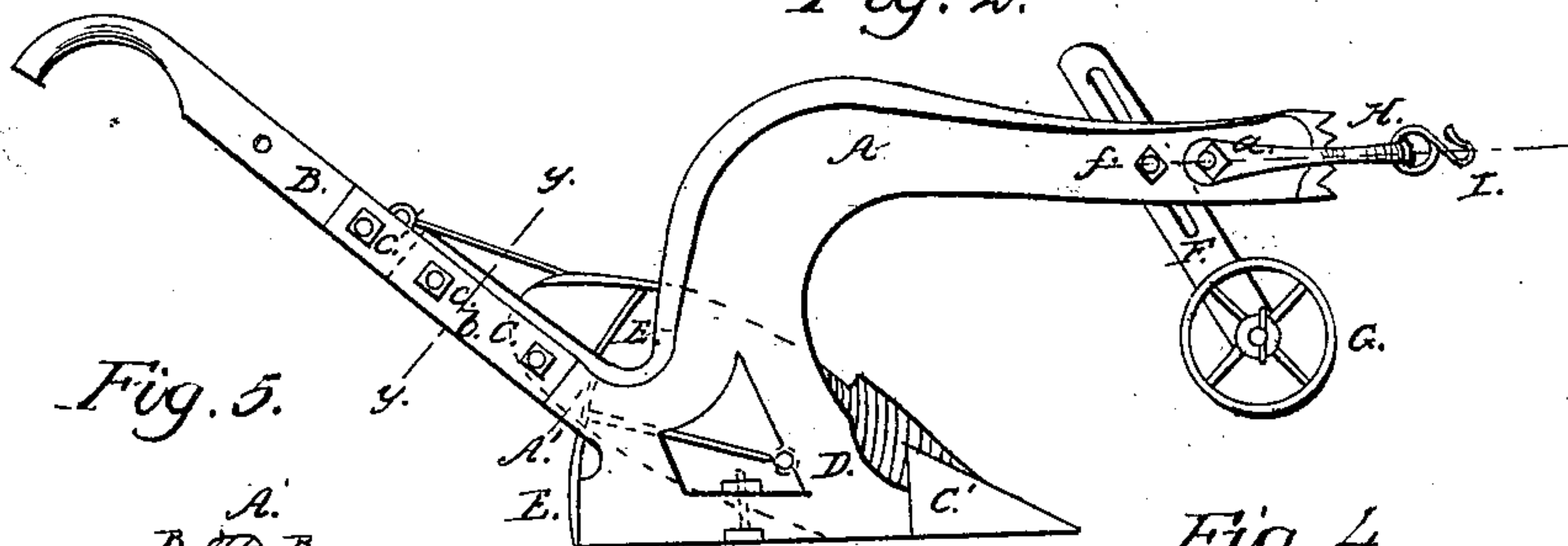


Fig. 5.

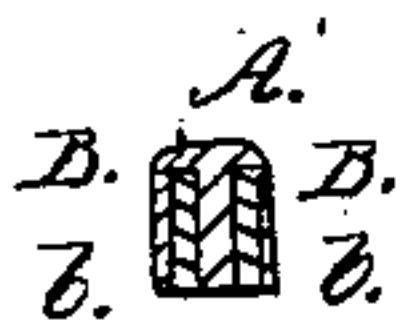


Fig. 4.

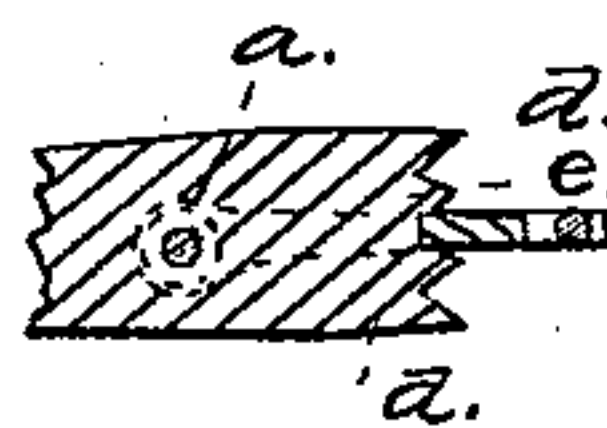
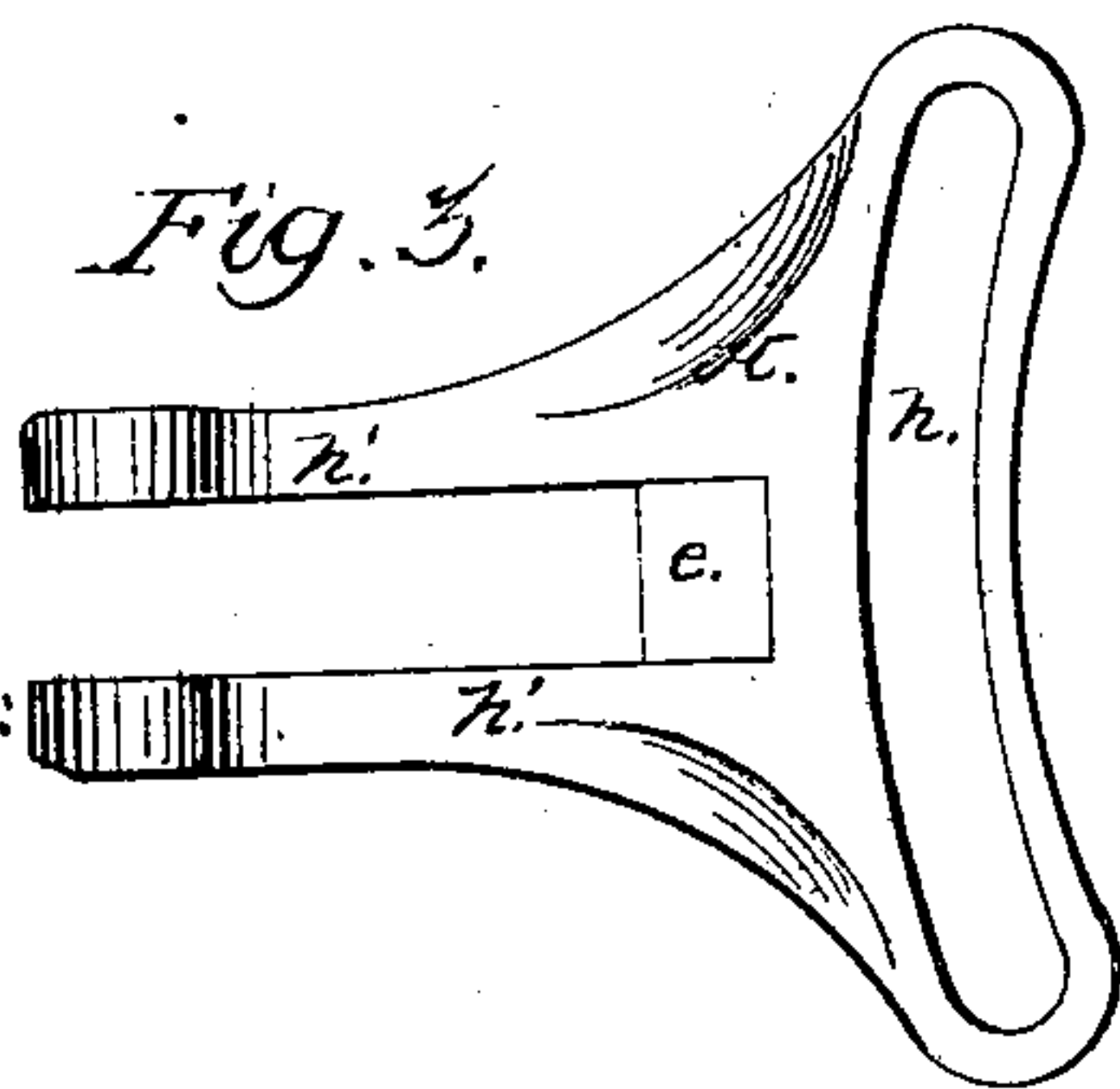


Fig. 3.



Witnesses:

W. Smith  
W. Branch

Inventor:

R. Hardenbrook  
by his Attorney  
Addison M. Smith

# United States Patent Office.

RICHARD HARDENBROOK, OF BATH, NEW YORK.

Letters Patent No. 68,190, dated August 27, 1867.

## IMPROVEMENT IN GRAPE-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, RICHARD HARDENBROOK, of Bath, in the county of Steuben, and State of New York, have invented certain new and useful Improvements in Grape-Ploughs; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a plan or top view of a grape-plough constructed in accordance with and embracing my invention.

Figure 2 is a side elevation of the same, taken from the land-side.

Figure 3 is a plan view of the clevis, enlarged.

Figure 4 is a longitudinal vertical section of the forward end of the beam and the clevis, taken in line *x x*, fig. 1; and

Figure 5 is a section through the plough-beam extension or tail-piece and handles, taken in line *y y*, fig. 2.

Similar letters of reference denote corresponding parts in all the figures.

My invention relates to that class of ploughs more particularly designed for and adapted to the culture of grapes, in which the entire plough is contracted in width from the ordinary construction to enable it to pass readily through between the vines without danger of catching or injuring the same, and is, in this instance, made reversible to adapt it to pass back and forth between the same rows for the purpose of properly cultivating the same upon the adjacent sides.

The invention consists in a novel construction of the clevis, whereby the adjustment of the line of draught is made automatic when the plough is reversed, and whereby the depth of furrow is regulated by the adjustment of the clevis upon a single pivotal bolt, as hereinafter explained; and it further consists in providing the plough-beam with a flanged extension or tail-piece, to which the handles are secured by means of straps and through-bolts, as hereinafter explained.

To enable others to construct and use my improvement, I will describe the same with reference to the drawings, in which—

A represents the plough-beam, made of any usual or desired material, as wood or cast iron, and in the form substantially as shown in the drawing, figs. 1 and 2, and provided with the flanged extension or tail-piece A', which forms a convenient means of attachment and support of the handles B B. The form of the tail-piece or extension A', together with the arrangement of the handles relative thereto, is shown in cross-section, fig. 5, said handles being clamped and secured thereto by means of metal straps *b*, and through bolts *c c*, (see figs. 1 and 2.) C is the reversible mould-board, connected at its forward end to a triangular block or point, C', which, at its rear or base, is provided with a socket to receive and allow it to turn upon a pivot formed on an arm or brace, D, extending from the plough-beam or upon the forward end of a shoe-piece or runner secured thereto, and E is a rear brace connected to the mould-board, and, by a pivot or joint similar to that above described, to the rear end of the shoe or runner, or to a rear brace extending from the plough-beam or tail-piece, as shown in fig. 2 of the drawing. F is an adjustable slotted arm, connected by means of a bolt, *f*, to the beam A at or near its forward end, and having the ground-wheel or roller G mounted on its lower end for the purpose of regulating and controlling the depth of furrow, and rendering the plough of easy draught. H is the clevis, made or cast in one piece in the form shown in detached plan view, fig. 3, that is to say, expanded in width at its forward end, and provided with the elongated and slightly curved slot *h*, and with the arms or fork *h' h'*, which are perforated at their rear ends, as shown in fig. 2, to receive the bolt *a*, by means of which the clevis is attached to the beam A. Said clevis is further provided in its fork or at the junction of the arms with the expanded slotted portion of the clevis, with a V-shaped lip, *e*, adapted to fit in any one of a series of notches, *d*, of a corresponding shape, formed in the forward end of the plough-beam, or of a metal plate secured thereto, in such manner as to allow the vertical adjustment of the clevis by the loosening or withdrawal and replacing of the bolt *a*, by which it is secured to the beam, and about which it is adjusted as a centre, thereby changing the line of draught, and, in connection with the adjustable ground-wheel H, regulating the depth of furrow at will. By making the slot in the clevis in the curved form shown, a forward inclination is given to the draught or bearing-face, on which the draught or coupling-ring rests, from a point central in the width of the clevis and slot to the ends thereof, in such manner that should the link or coupling be displaced or removed from the proper end by a sudden jar or a temporary deflection of the line of draught, it will be caused immediately to return auto-



matically to its place by such inclination of the retaining face of the clevis. This is not the case with any form of clevis now in use with which I am acquainted. I is a loop or link of S form, one arm or hook of which passes through the elongated slot in the clevis, and is free to slide from end to end thereof upon the clevis, as the plough is reversed, or it is desired to change the line of draught. To the other arm of said hook the whiffle-tree is connected by the usual ring or link. Said arm is provided with a pendent ring or lip, arranged as shown, fig. 2, and which serves to allow the ready attachment of the whiffle-tree, but prevents its accidental withdrawal by dropping down behind the ring or other device through which the connection is formed. K is a hook or link, of any suitable construction, connected to the plough-beam and to the rear end of the reversible mould-board in such manner as to permit the said mould-board to be readily reversed, and to properly hold the same in either position, as shown in fig. 1.

The operation of the several parts will be readily understood without further description.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The clevis H, provided with the elongated slot *h*, perforated arms or fork *h' h'*, and lip *e*, when connected to the notched beam A by means of the single pivotal bolt, substantially as and for the purpose described.

I also claim the curved form of the slot *h*, or the equivalent thereof, whereby a forward inclination is given to the draught-bearing surface of the clevis from the centre to the ends thereof, substantially as described.

I also claim the flanged extension or tail-piece A', formed on the beam A, as a means of attachment of the handles B B, as described.

In testimony whereof I have hereunto subscribed by name this 6th day of July, 1867.

RICHARD HARDENBROOK.

Witnesses:

T. BOVIER,  
M. BROWNELL.