B. B. HAWSE.

FURROW-GAGE FOR PLOWS.

No. 182,665. Patented Sept. 26, 1876.

Fig. 1.

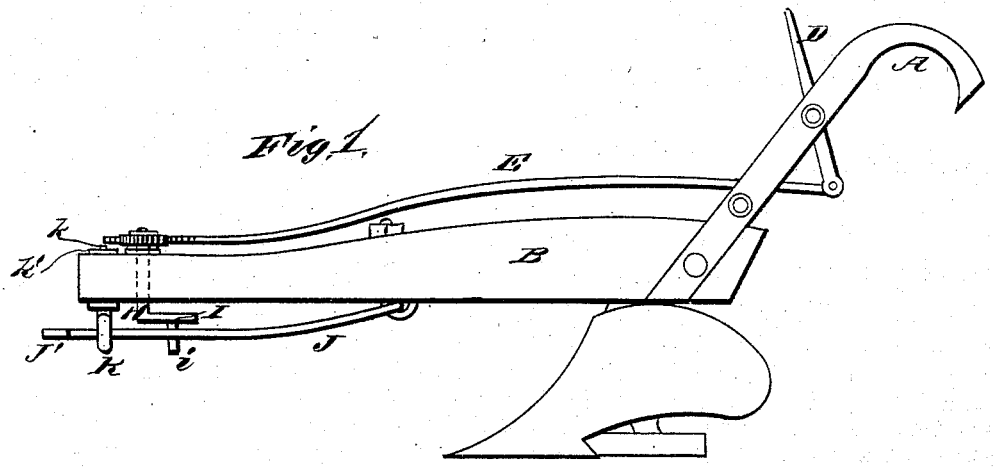



Fig. 2.

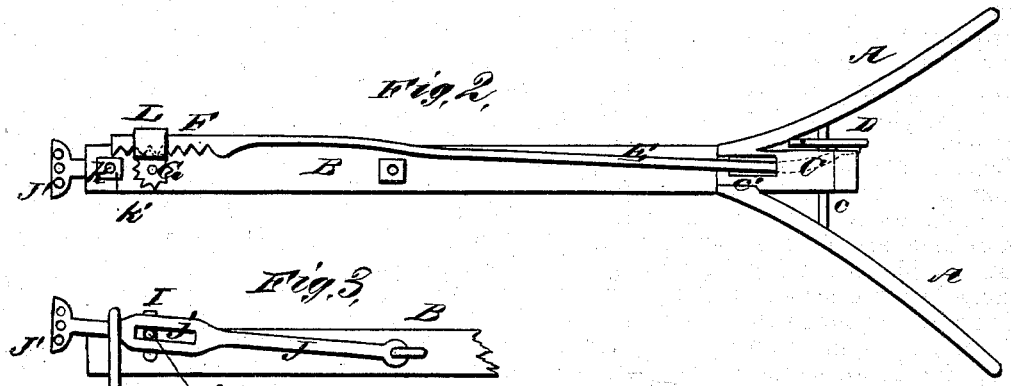



Fig. 3.

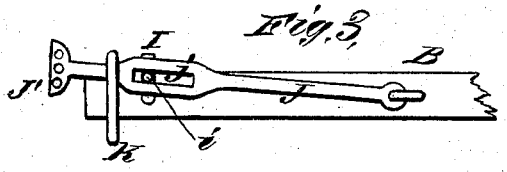
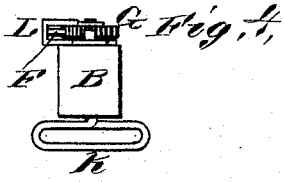



Fig. 4.




WITNESSES

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# UNITED STATES PATENT OFFICE.

BENJAMIN B. HAWSE, OF MORRISVILLE, VERMONT.

## IMPROVEMENT IN FURROW-GAGES FOR PLOWS.

Specification forming part of Letters Patent No. **182,665**, dated September 26, 1876; application filed July 15, 1876.

*To all whom it may concern:*

Be it known that I, BENJAMIN B. HAWSE, of Morrisville, in the county of Lamoille and State of Vermont, have invented a new and valuable Improvement in Furrow-Gage for 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 annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a side elevation of my furrow-gage, and Fig. 2 is a plan view thereof. Fig. 3 is a bottom view, and Fig. 4 is a front elevation, of the same.

My invention consists in a furrow-gage or regulator for plows, constructed with a laterally-vibrating draft-bar, a vertical crank having a horizontal arm for operating said draft-bar, and suitable mechanism for turning said crank, together with certain auxiliary devices, all substantially as hereinafter set forth.

In the accompanying drawings, A A represent the plow-handles, and B the beam, to the under side of which the plow-point, mold-board, &c., are to be attached by standards in the ordinary manner. C is a standard or post, secured between handles A A, and supporting a cross-rod, *c*, on which is pivoted a vertical lever, D, of the first kind. The lower end of said lever is secured to the rear end of a shifting-rod, E, which passes through perforation *c'* in standard C, and extends along the entire length of beam B, a little above the same. Said shifting-rod carries at its forward end a rack, F, which meshes with a cog-wheel, G, fast on the upper portion of a vertical crank-shaft, H, which passes down through a perforation in beam B. The lower end of crank-shaft H is provided with a horizontal arm, I, on which is secured a downwardly-projecting pin, *i*, that engages with the sides of slot *j* in draft-bar J. Said draft-bar is pivoted at its rear end to the under side of beam B, and supported in front by a loop, K, secured to said beam in such manner as to be vertically adjustable, thereby regulating the depth of the furrow. This vertical adjustment is preferably effected by a rod, *k*, secured to the upper side of loop K, which passes up through beam B, and is screw-threaded on its upper end. This is raised and lowered by means of a nut, *k'*. L is a bent metal guide-plate, secured to the upper side of beam B, and operating to hold rack F in engagement with toothed wheel G.

The front end of draft-bar J is provided with an extension, J', to which is attached the clip or clevis holding the whiffletree or evener.

The operation is as follows: Lever D is rocked forward or backward, communicating longitudinal motion in the reverse direction to rod E and rack F, and thereby turning wheel G, crank-shaft H, and arm I to the right or the left, as the case may be. This correspondingly vibrates the draft-bar, and when said bar reaches the end of its vibration it is locked against casual displacement by means of the cogged wheel and rack already described.

By reason of the change in the line of draft thereby produced, the plow-point will be turned more into or from the land, as may be preferred, and the width of the furrow will be correspondingly varied. The maximum width of the furrow is further regulated by making pin *i* detachable from arm I, and providing two or more holes or other points of attachment in said arm. The operative length of the crank is thereby increased or decreased at will, and also the consequent throw of the draft-bar to right or left.

Various modifications may be made without departing from the spirit of my invention. For instance, the pin may be on the draft-bar and the slot in arm I. Also, an upper horizontal crank-arm may be substituted for toothed wheel G, and loosely connected to rod E, rack F being dispensed with. But I prefer the arrangement shown, as it accomplishes all that is accomplished by the one last mentioned, and more besides.

It is obvious that a cam may be substituted for the crank in shifting the draft-bar laterally. I do not, therefore, design to limit my claim to the crank alone, but my invention includes the equivalents thereof.

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

1. In a furrow-gage for plows, the combination of a vertical crank-shaft, having a horizontal arm, with a laterally-vibrating draft-bar and suitable shifting mechanism, substantially as and for the purpose set forth.

2. The combination of shifting-rod E, having rack F, with wheel G, crank H I, pin *i*, and slotted draft-bar J, substantially as and for the purpose set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

BENJAMIN B. HAWSE.

Witnesses:
ORLO CADY,
ELLEN L. CADY.