(No Model.)

B. S. BENSON.

PLOW.

No. 264,434. Patented Sept. 19, 1882.

Fig.1.

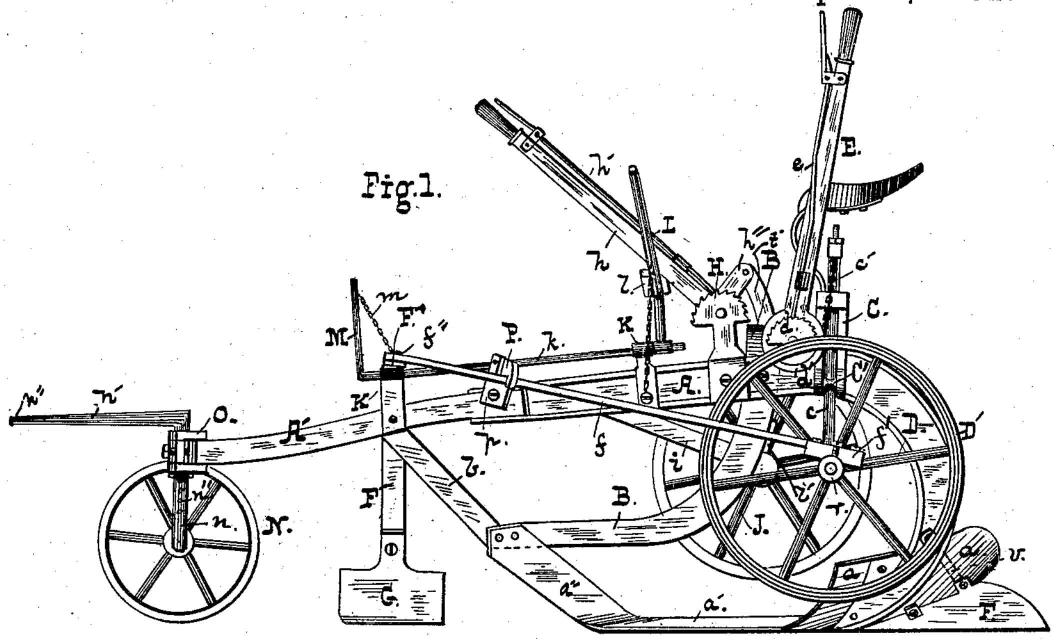
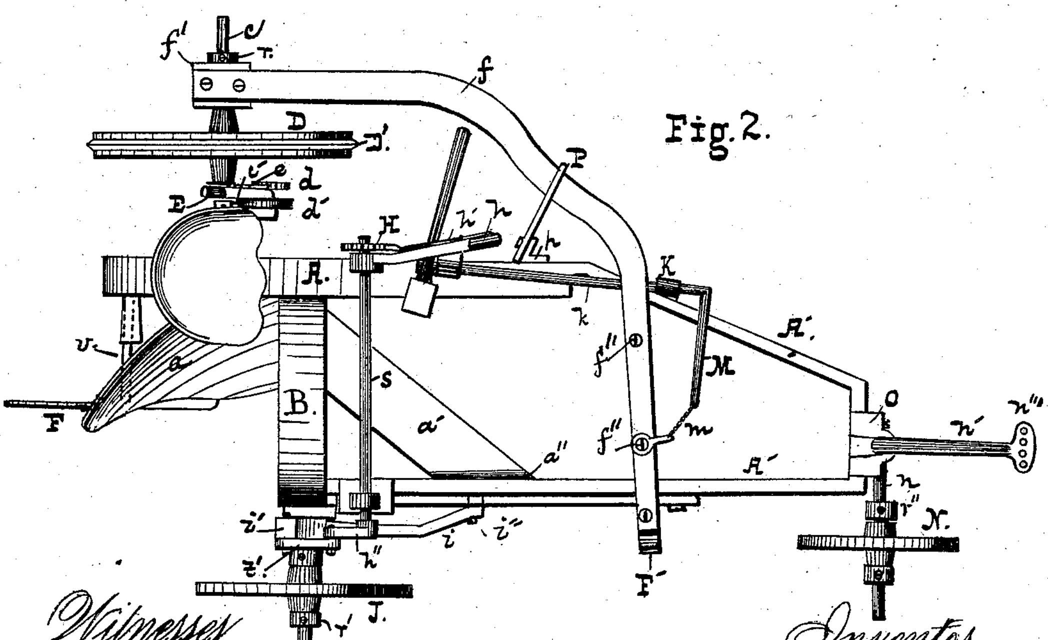


Fig.2.



Witnesses

W. A. Bertram

Jos. H. Bailey.

Inventor

— B. S. BENSON —

by

R. D. Williams.

Attorney

UNITED STATES PATENT OFFICE.

BENJAMIN S. BENSON, OF BALTIMORE, MARYLAND.

PLOW.

SPECIFICATION forming part of Letters Patent No. 264,434, dated September 19, 1882.

Application filed May 6, 1882. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN S. BENSON, of Baltimore city, State of Maryland, have invented certain new and useful Improvements in Plows; and I do hereby declare the same to be fully, clearly, and exactly described as follows, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation, and Fig. 2 is a top plan, of the plow.

My invention relates to wheel-plows of that general class in which the frame runs upon a pair of wheels arranged to be raised or lowered to alter the depth of the furrow, as may be desired, and it has for its object to lighten the draft of the plow and to gage with certainty its cut.

The invention will first be described, and then pointed out in the claims.

In the drawings, A is the beam, to which is attached a mold-board, *a*, reversely-inclined share *a'*, turned up at *a''* and bolted to the frame B. I shall not in this instrument refer particularly to this peculiar mold-board and share, nor set forth their great advantages. This feature is described at length in Letters Patent No. 252,991, granted to me January 31, 1882, to which the reader is referred.

In plowing very hard or uneven ground a difficulty was experienced in keeping the width of furrow uniform, the plow being crowded away from the land side, the weight and resistance of the slice of earth which was being turned not sufficing to resist the thrust. I obviate this difficulty by automatically steering the plow by means of the main carrying-wheel, the same constituting a salient feature of my present invention.

The beam A is attached to a frame, A, which is supported on three wheels, D, J, and N. The wheel D is mounted on an axle, *c*, bent at right angles, as shown, the upright portion passing behind a roller, C', and through an upper bearing in a standard, C, securely bolted to the beam A. A lever, E, in convenient reach from the driver's seat, terminates below in a pulley, *d'*, over which a chain, *c'*, leads to the end of the axle *c*. A segment, *d*, ratcheted on its periphery, is secured to the shaft on which the lever E is pivoted, a pawl-bar, *e*, similar to that of the reversing-lever of a locomotive, being carried by the lever E and adapted to engage with the teeth of the segment *d*. It is obvious that upon moving the lever forward from the driver's seat the chain is unwound from the pulley *d'* and the frame A A' is lowered. Reverse movement of the lever lifts the frame, if need be, to an extent to carry the plow clear of the ground. Collars *r r' r''* serve to adjust the wheels D J N on their axles laterally. The axle of the wheel J is attached to a bar, *i*, pivoted at *i''* to the frame A' and turned upward at *i'*, the end of the part *i'* being pivoted to a bar, *t'*, which is pivoted to the short arm *h''*, that is secured to a shaft, *s*, mounted in suitable bearings on the frame. To the other end of this shaft, so as to be in reach from the seat, is a lever, *h*, carrying a pawl-bar, *h'*, adapted to engage with a ratcheted segment, H. Upon rocking the lever *h* back or forth the wheel J is raised or lowered, as will be readily understood.

A beam or bar, *f*, is adjustably secured in a box, *f'*, mounted on the end of the axle *c*, and extends forward and across the frame A', where it is adjustably secured by bolts *f''* to a bar, F'. The latter turns down at the side of the frame, and to its end is secured the landside G.

P is a hinged catch secured to a standard, *p*, and is adapted when lowered to clasp and lock the bar *f*.

A shaft, *k*, mounted in bearings K on the frame, carries a lever, L, provided with a foot-plate, *l*, near the driver's seat, and at its other end the shaft terminates in a lever, M, connected by a chain, *m*, with the bar *f*.

The front wheel, N, is mounted on an axle, *n*, bent thrice at right angles, the upright portion passing through a bearing, O, laterally adjustable on the front bar of the frame, and being provided with holes *n''*, in one of which a pin is inserted, determining the height of the front of the frame above the ground. The forwardly-projecting part *n'* of the axle-bar terminates in a clevis, *h'''*, having a series of holes, in one of which the double-tree hook is inserted.

F is a vertical plate, attached at the side of the mold-board *a*, designed to prevent any slip due to lateral thrust. A brace, V, connects the mold-board with the beam.

In plowing hard ground the wheel D is a simple broad road-wheel, having by preference a rib, D', to prevent lateral slip; but for use in

soft ground I prefer to use the wheel covered by Letters Patent No. 252,348, granted to me January 17, 1882.

In operation, in running the first furrow the bar *f* is locked by the catch P and the wheel J is raised, so as to permit the plowshare to sink to the desired depth. On the return the wheel J runs in the furrow, and is lowered correspondingly, the wheel D running upon the land. The landside G slides and bears against the wall of the slice being cut, and following, of course, the contour of the previous furrow. It will be seen that any lateral movement of the plate G due to turns in the furrow or irregularities causes the horizontal part of the axle *c* to incline to the line of draft, either to the front or rear, steering the plow away from or toward the land. Should there be an obstruction in the way of the landside G, it may be temporarily lifted by depressing the lever L either by the hand or foot.

All the wheels of the plow being susceptible of independent vertical and lateral movement, the nicest adjustment is provided for.

The vertical mold-board F is designed for use in hard ground, where its effect is to prevent any lateral slide of the plow away from the land, due to the thrust upon the share.

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

1. In a plow, a supporting-wheel mounted upon an axle susceptible of angular movement with reference to the line of draft, and adapted, in connection with a gage plate or landside, to automatically steer the plow, substantially as and for the purpose set forth.

2. In a plow, a supporting-wheel susceptible of angular movement with reference to the line of draft, in combination with a gage-plate or landside adapted to follow the contour of the previous furrow and actuate the wheel to steer the plow, as set forth.

3. In a plow, a gage-plate or landside connected with the axle of the supporting-wheel, and adapted in connection therewith to steer the plow, as set forth, in combination with means for lifting said plate to clear obstructions, substantially as described.

4. In a plow, and in combination with its curved mold-board, a reversely-inclined share, *a'*, and a vertical plate, F, adapted to resist lateral thrust, as set forth.

5. In combination with the plow, the supporting-wheel D, susceptible of vertical adjustment and of angular movement with reference to the line of draft, in combination with the bar *f*, curved across the frame and carrying a gage-plate or landside, and means for lifting the same and adjusting it laterally, as set forth.

6. In combination with the plow and frame, a series of vertically-adjustable supporting-wheels, one or more of which are susceptible of angular movement with reference to the line of draft, and means, substantially as described, for determining such movement automatically with reference to the contour of the previous furrow.

7. In combination with the plow and frame, having supporting-wheels D J, one of which is susceptible of an angular movement with reference to the line of draft, the gage-plate G and swiveling-wheel N, vertically and laterally adjustable with reference to the frame, as set forth.

BENJAMIN S. BENSON.

Witnesses:
R. D. WILLIAMS,
JNO. T. MADDOX.