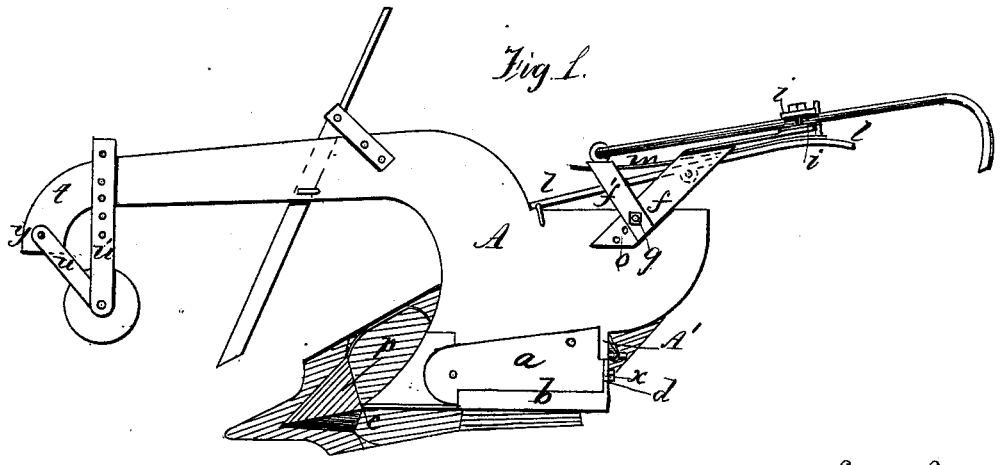
E. C. HODGE.

REVERSIBLE PLOW.

No. 189,558. Patented April 17, 1877.

Fig. 1.



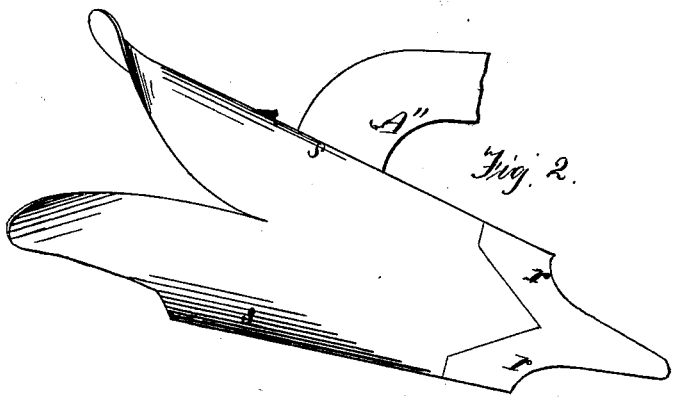


Fig. 2.

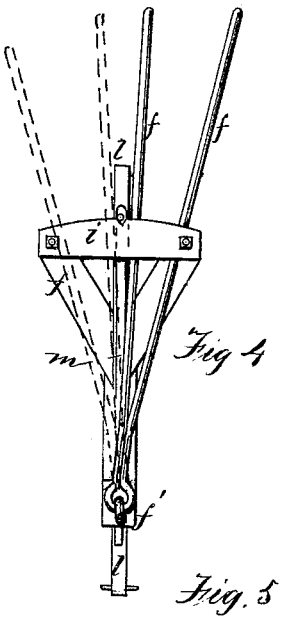


Fig. 4

Fig. 3.

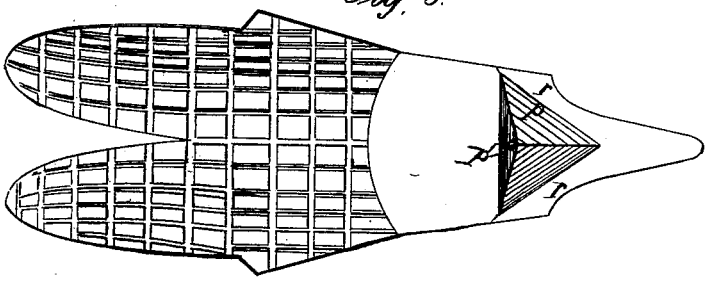
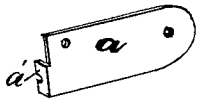


Fig. 5



Witnesses.
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M. Church

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UNITED STATES PATENT OFFICE.

EPHRAIM C. HODGE, OF ONEONTA, NEW YORK, ASSIGNOR OF ONE-HALF OF HIS RIGHT TO DE WITT FORD, OF SAME PLACE.

IMPROVEMENT IN REVERSIBLE PLOWS.

Specification forming part of Letters Patent No. **189,558**, dated April 17, 1877; application filed November 22, 1876.

To all whom it may concern:

Be it known that I, EPHRAIM C. HODGE, of Oneonta, in the county of Otsego and State of New York, have invented a new and Improved Reversible Plow; 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 forming part of this specification.

My invention relates to reversible plows—more particularly to that class of reversible plows represented in Letters Patent granted to me November 1, 1870, and numbered 108,907.

The invention consists in certain improved details, hereinafter more particularly set forth.

In the drawings, Figure 1 is a side elevation of the plow. Fig. 2 is a view of the mold-board, shown in its relation to the beam. Fig. 3 is an inside view of the mold-board. Fig. 4 is a view of the devices by which the handles are connected to the beam. Fig. 5 is a view of a part of the shoe.

Similar letters of reference in the accompanying drawings denote the same parts.

The first part of my invention relates to special device for adjusting the pitch of the axis in relation to the shoe of the plow. The mold-board is pivoted as shown in the patent referred to, in which the bottom of the land-side or shoe is at a depressed angle from the line on which the mold-board turns, for reasons fully set forth in that patent. In that, however, the angle of inclination of the shoe to the pivotal line of the mold-board, and consequently the inclination of the mold-board itself, was always the same. In order that this angle may be varied, as is sometimes desirable, I have made the shoe and land-sides capable of adjustment, so as to elevate or depress the rear of the plow in relation to the bottom of the furrow, and by this means increase or diminish the pitch of the mold-board to the furrow. This elevation of the rear of the plow by means of an adjustable shoe is not new; but in my improvement I have made the shoe in three pieces. In the drawings these pieces are represented at *a a*. One is shown clearly in Fig. 1, but both are exactly alike in construction and attachment to the plow, one being on one side and one on the other, and forming one pair of land-sides of the plow, or the main part thereof. The plate *a* is formed at the forward end in a true circle, and fits against a fixed plate, and is made flush with the surface thereof. The fixed plate is curved to fit the end of the plate *a*, which is pivoted at the center of its circular end. The rear ends of the plates may thus be swung up or down, and may be held in place by a bolt, as shown at *x*, the beam having a series of vertically-arranged holes provided for it in the part A′, to permit of the vertical adjustment. Over these plates is placed the shoe proper, as shown at *b*. This is made with a base and two side flanges, like a channel-iron. The two side flanges fit snugly over the plates *a a*, and hold them securely. The forward end of the shoe is held by a stud, *c*, which passes into an opening under the land-sides of the plow. The rear is connected to the part *a* by means of a lip, *d*, which extends upward and fits over the rear edge of A′. Between it, however, and the edge of A are inwardly-bent flanges *a′ a′* of the plates *a a*. These are bent at right angles to meet and have semicircular notches, which, when the edges are brought together and held by the shoe, form a hole for the bolt *x*. This, passing through a hole in the lip *d*, and through the hole in the edges of the flanges *a′ a′*, connects the parts securely together. The plates *a a*, instead of having the rounded ends, may be carried forward and clamped over the front edge of A′, in the same manner as is shown in my patent heretofore referred to.

The second part of my invention relates to the attachment of the handles to the plow.

The beam A and its rearward extension A′ are of ordinary construction. To the rear part A′ are pivoted two flat bars, *f f*, by a bolt, *g*. These bars are bent to a nearly horizontal position, and extend rearward diverging to support the plates *i i*, between which the handles are held. The bars *f f* are provided below the pivot *g* with holes *o o*, having corresponding holes in A′, by means of which the angle of the bars *f f* may be varied to elevate or depress the handles. To the bars *f f* or to

the beam A are bolted a yoke, *f'*, as represented. This is provided with a loop or other jointed or hinged device, for the attachment of the handles.

The plates *i i* are held apart by thimbles on the bolts just enough to admit the handles. These handles *k k* are of ordinary construction. They may be pivoted to the yoke *f'*, or to the rear edge of the beam A. The connection must, in either case, be such as to admit of lateral play of the handles, so as to allow them to be changed from one side to the other, when the mold-board is changed, to permit the attendant to walk in the furrow. Between the bars *f f*, and extending through the yoke *f'*, is a lever, *l*, substantially such as is shown in my patent heretofore referred to, by which the mold-board is held to the beam. This lever is provided with a spring, *m*, by which the forward end is held down into contact with the mold-board. The rear end of the lever is also provided with a pin or stud, which, when the mold-board is hooked in place, extends upward across the path of the handles, and locks them on one side or the other. Obviously the same movement which unlocks or locks the mold-board unlocks or locks the handles, and the movement of the two may be simultaneous. The catch, however, so far as it relates to the handles, is automatic in its action, and although I have shown a spring, a weight might be substituted therefor.

The depression and elevation of the handles, provided for by the pivoting of the bars *f f*, has a positive value in relation to the plow, and also in relation to the adjustable shoe. In any plow it would admit of adjustability to men of different heights; but in this it is especially valuable, as the adjustment of the shoe renders the adjustment of the handles necessary for the same man.

The third part of my invention relates to the construction of the mold-board, and the arrangement thereof in relation to the beam.

The mold-board and point are made in two parts, as usual. These parts, which should be made of hard iron, I connect to each other and to the beam by means of a saddle, *p*. This, being a separate piece, may be made of requisite toughness, hardness not being an essential quality. The bearing for the pivoted connection of the mold-board is in the apex *p*. The mold-board is made with a checked interior surface, formed by ribs in the metal running substantially at right angles to each other. This renders the mold-board stronger with less metal than if made with a plane surface throughout.

The point of the plow is made, as shown at *r r*, with cutting-edges. These serve to cut the sod vertically, and, at the same time, to cut underneath, which is especially desirable in boggy soils. The general form of the mold-board is modified only in this respect. The edges *s* are made continuous with those of the points, and the mold-board is pushed forward of the curved part A″ of the beam. This gives space for weeds and like substances to pass off sidewise without being drawn back into the angle between the edge of the mold-board A″, and there caught to choke the plow.

The fourth part of the invention relates to the construction of the forward end of the beam, and the connection of the wheel thereto. The beam A is made with a downward curve, *t*, to the lower end of which are pivoted, at *y*, the arms *u u*, which, in connection with the vertical arms *w' w'*, carry the wheel. The axis of the wheel is at the joint in the arms, and, as the arms *w' w'* are drawn up, the wheel, moving in an arc, of which the center is at *y*, is raised in nearly vertical direction without being thrown back to any injurious extent, while the bend in the beam gives room for the wheel in deep plowing, and, at the same time, allows space for the row of holes, by which the necessary variation is given to the height of the draft.

I claim as my invention—

1. The combination of the plates *a a* and shoe *b*, the parts being hinged at the forward ends thereof, and the rear adjustable vertically, as set forth.

2. The combination of the lever by which the mold-board is locked, the spring by which it is held down, and the pin or stud fixed thereon to lock the handles, as set forth.

3. The combination of the bars *f f*, pivoted to A', the plates *i i*, and the adjustable handles, as set forth.

4. The yoke *f'*, in combination with the pivoted handles and with the locking-lever *l*, arranged within the yoke, as set forth.

5. The improved mold-board for plows, formed with the checkered interior surface.

6. In combination with the point, having the two cutting edges, the mold-board, formed with both its edges continuous with the straight edges of the point, and arranged in the described relation to the curve of the beam, as set forth.

7. The curved end of the beam A, in combination with the arms *u u* and straps *w' w'*, by which the wheel is raised or lowered, as set forth.

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Witnesses:

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CHAS. T. BUSH.