2 Sheets—Sheet 1.

S. F. WADLEIGH, O. N. & G. S. ROBERTS.

Plow.

No. 207,834. **Patented Sept. 10, 1878.**

Fig. 1.

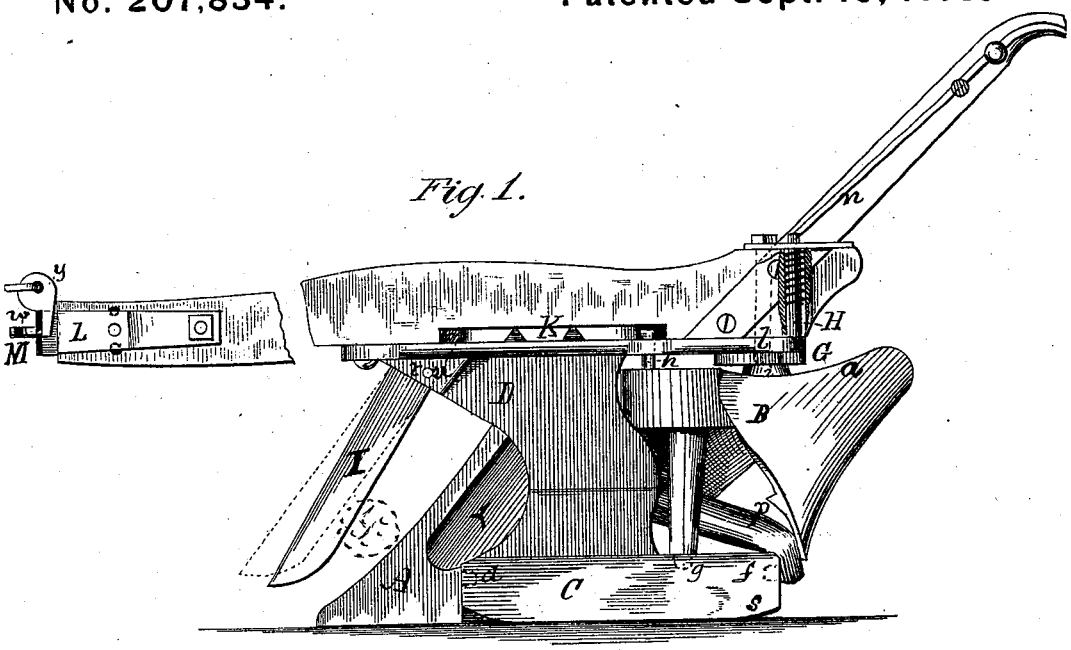


Fig. 2.

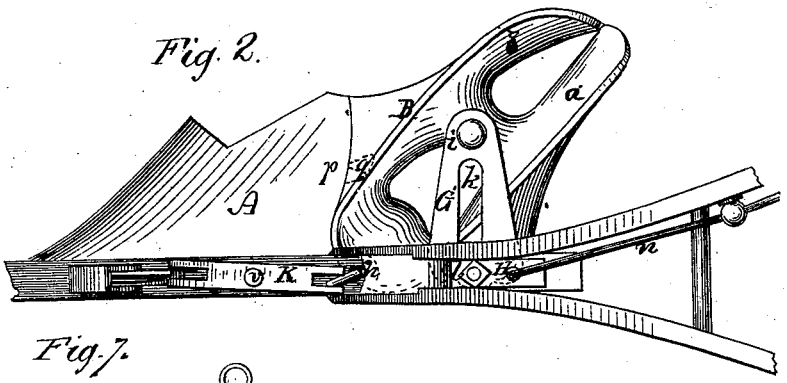


Fig. 7.

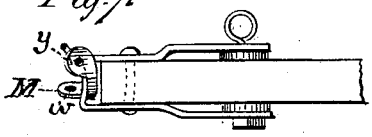
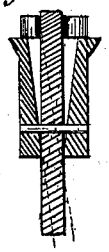


Fig. 8.



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2 Sheets—Sheet 2.

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Fig. 3.

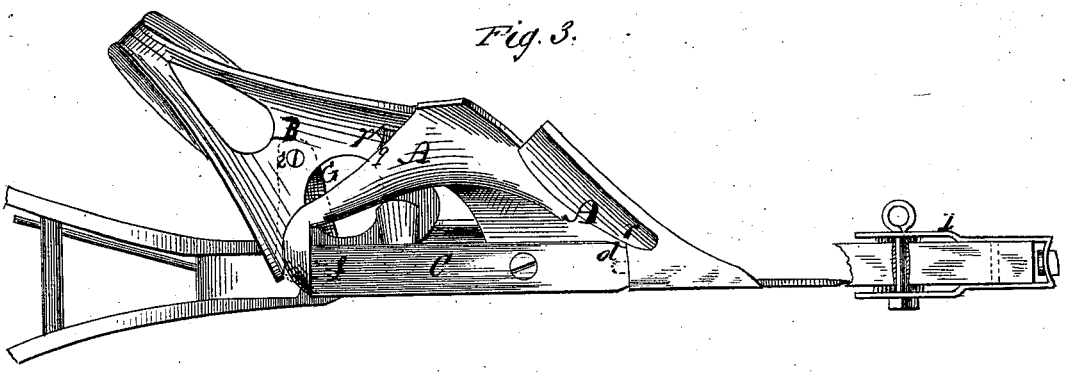


Fig. 5.

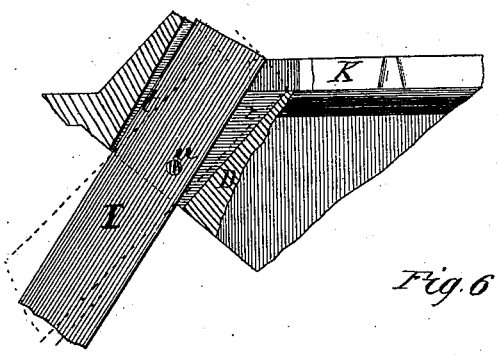


Fig. 4.

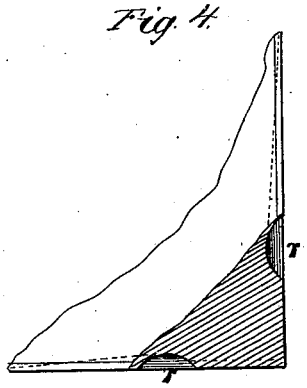
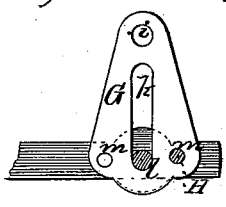


Fig. 6



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UNITED STATES PATENT OFFICE.

SIMEON F. WADLEIGH, OREN N. ROBERTS, AND GEORGE S. ROBERTS, OF MEREDITH, NEW HAMPSHIRE.

IMPROVEMENT IN PLOWS.

Specification forming part of Letters Patent No. **207,834**, dated September 10, 1878; application filed February 1, 1878.

To all whom it may concern:

Be it known that we, SIMEON F. WADLEIGH, OREN N. ROBERTS, and GEORGE S. ROBERTS, of Meredith, in the county of Belknap and State of New Hampshire, have invented an Improved Plow; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

Figure 1 is a side view of the plow; Fig. 2, a top view and partial horizontal section of the same; Fig. 3, a bottom view thereof; Figs. 4, 5, 6, 7, and 8, views of parts detached.

Like letters designate corresponding parts in all of the figures.

Our plow belongs to the class of hill-side or reversible mold-board plows, though some of its features are applicable to plows of general construction.

Our improvements thereon will herein be specified in order.

First, in order to turn the furrow more perfectly, we divide the mold-board in two sections, the division being at such a line as to confine the point or share and the furrow-lifting part in the front section, A, and the rear section, B, to form the furrow-inverting part. The front section, A, is pivoted to the ends of the shoe of the plow, so as to turn under the same in shifting from one side to the other. The rear section, B, is double, having two inverting-wings, *a b*, right and left, substantially as shown, so that by swinging the section from one side to the other on vertical pivots at the front end, the furrow-inverter on either side is brought into position. We are thus enabled to produce a furrow-inverter perfect in its action, leaving the shoe and lifting part of the mold-board free to be formed of the required shape to perform their functions properly.

The front section, A, is pivoted to the shoe C by pivots *d f*, respectively, having bearings in the front and rear ends of the shoe. When this section is set free on either side of the plow it is shifted to the other side by moving the plow laterally on the ground. The shoe C, at the bottom of the land-side D, is made wide to give it strength and allow for wear without weakening the sockets or bearings of the mold-board pivots *d f*. It is attached removably to the bottom of the land-side, so that not only is it little liable to be worn out, but, when it does give way from excessive wear, it can be replaced at little cost, and therein is an improvement on the usual mode of pivoting the mold-board to the land-side itself, the latter being comparatively thin, and soon weakened by wear against the land, and, once broken, it is costly to replace the same.

The rear section, B, of the mold-board, being double, swings on a nearly-vertical axis, one pivot, *g*, thereof being journaled in the upper side of the shoe C, near the rear end, and the upper pivot, *h*, being journaled in a rearward extension of the land-side, close under the plow-beam E. The limit of this section's movement is effected by means of a slotted link, G, pivoted at one end to the top of the section, as at *i*, while the slot *k* plays over a fixed pivot, *l*, on the under side of the plow-beam or the extension of the land-side. The extreme end of the slot holds upon the pivot to limit the movement of the section, and the length of the slot is sufficient to allow the link to turn from one side of the plow to the other.

The section is held at either extreme, right or left, by means of two holes, *m m*, therein, into one of which, according to the position of the section, a sliding catch or bolt, H, springs or drops when in proper position. This bolt or catch is withdrawn, for shifting the section, by a rod, *n*, reaching up by one of the handles of the plow, as shown. A spring may serve to force the bolt or catch into its hole in the link.

In reversing the plow the forward section, A, is first turned to the opposite position, and the rear section, B, is then shifted. The latter has a stud or projection, *p*, at the forward edge of each mold-board side, which fits against a projection, *g*, under the adjoining edge of the front section, A, and holds the same in position. The said section is not set free till the rear section is unlocked by drawing up the sliding bolt H.

An improvement in the share of the plow consists in a hollow, *r*, one in each position thereof, Figs. 1, 3, and 4, in the under side, near the point, whereby the plow enters the ground more readily, and performs its work,

especially in strong ground, better, and runs more easily.

Another improvement in the plow consists in the form of the shoe C, as seen in Fig. 1. Near the rear end it is rounded or turned upward, somewhat as at *s*, giving to the shoe a partial rocker form. By this improvement the plow is much more easily controlled—more leverage is obtained to keep the plow from running too deeply in the ground and to guide the plow out of the ground, when required. At the same time the form does not interfere with the proper action of the shoe in the furrow, the remainder thereof being straight.

We have an improved arrangement and operation of the colter I, as follows:

First, the colter is mounted in a socket, *t*, in the front part of the land-side D, and does not extend upward into the beam of the plow at all. Not only is this a strong and durable construction and does not weaken the plow-beam, but it enables us to apply an improved self-releasing action to the colter more conveniently and effectively. Thus,

Secondly, since stones and other obstructions are very liable to become lodged between the colter and the front edge of the plow share or point, we arrange the colter so as to allow it a free swinging up-and-down movement to a limited extent on a pivot, *u*, in the socket *t* of the land-side, the socket flaring somewhat at the upper end, as seen in Fig. 5, to allow and limit this movement. The colter moves freely to the extent allowed, dropping when raised again by its own weight, so that it ordinarily rests in its lowest position, as shown by full lines in Fig. 1; but when an obstruction gets caught between the colter and plow-point the colter is lifted thereby, and the obstruction is set free again and discharged. The position of the colter is at an angle sufficiently acute to the line of draft of the plow to cause any obstruction to lift the colter, if once under its point, by the forward motion of the plow. This improvement is applicable to all plows with colters.

Third, the colter also has a positive lateral movement especially adapted to a hill-side or reversible mold-board plow, the socket *t* being widened from the lower end upward to allow this movement, as shown in Fig. 2. The upper end of the colter is embraced by the forked forward end of a lever, K, which is located under the plow-beam and over the land-side, and is pivoted at *v*, so as to swing horizontally thereon. The rear end of the lever is also forked, or equivalently constructed, to connect it with the upper pivot, *h*, of the rear section, B, of the mold-board, this point having a forward projection or equivalent construction, as shown in Fig. 2, so that as the said mold-board section is swung from side to side it will vibrate the said lever and cause the said lateral movement of the colter to such an extent as to bring it in line with the cutting-edge of the point and land-side, as desired, to whichever side the mold-board may be shifted.

We also employ an improved clevis to adapt the plow to hill-side plowing, so that the plow will run equally well on the side of a hill and upon level ground.

The difficulty which we overcome by our improvement is this: If a plow is made so that with a central draft it will "land" just right on level ground, and take just as wide a furrow as it can turn, and no more, and the plow is put on a hill-side, it will have a tendency to work down-hill, and will not take enough land. The team also inclines to walk on the lower side of the furrow, thus aggravating this tendency of the plow.

Our self-adjusting clevis, which corrects this defect, is constructed as follows:

The clevis-strap L reaches forward beyond the end of the plow-beam far enough to receive a swivel-link, M, having an eye, *w*, in its pivot, that extends through the strap and on which the swivel turns, and having another eye, *y*, in its swivel part. When a central draft is wanted, as for plowing on level ground, the draft-chain is hooked into the pivot-eye *w*; but for hill-side plowing the chain is hooked into the swivel-eye *y*. Then the tendency of the team to swing down the hill causes the swivel always to swing automatically to the furrow side, as shown in Fig. 1, and thereby to direct the plow-beam to the land-side, and thus counteract the wrong tendency of the plow. The swing of the clevis-swivel is made to such an extent as thus to direct the plow to take the proper width of furrow. It will be seen that as the plow is reversed the swivel of the clevis will automatically change its position to the furrow side, and constantly retain its position there. To assist this action, the forward end of the clevis-strap is curved forward somewhat at the corners, as shown. There may be a close draft-link in each clevis-eye to receive the hook of the draft-chain; but a single link, with an opening in one side, by which to disengage it from and re-engage it in either eye, will serve for both eyes.

The clevis-strap is adjusted up and down by holes in the beam and in sides of the strap, with an adjusting-pin, as shown in Fig. 1. Also, the side straps of the truck-wheel, when employed, are secured in bends of the clevis-strap, and held secure by tightening the nut on the pivot-bolt of the clevis-strap, as shown in Fig. 2.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. In a hill-side plow, a divided mold-board, one section thereof comprising the point and share, or furrow-lifting part, to swing under the plow, and the other section forming a double furrow-inverter, to swing around horizontally at the rear of the plow, the two sections locking together on each side of the plow, substantially as and for the purpose herein specified.

2. A shoe, C, removably attached to the land-side D, and having a wide sole, of rocker form, substantially as and for the purpose herein specified.

3. A plow-colter, I, mounted in a socket, *t*, of the land-side D, and having both a lateral and up-and-down swinging movement therein, substantially as and for the purpose herein specified.

4. The combination of the laterally-swinging colter I, pivoted lever K, forked at its two ends, the crank-shaped pivot *h*, and the mold-board section B, substantially as and for the purpose herein specified.

5. The slotted link G, constructed as described, and the fastening bolt or catch H, in combination with the stud *l* and rear mold-board section, B, substantially as and for the purpose herein specified.

6. A plow-clevis provided with a swivel-link, M, in combination with the clevis-strap L, constructed, arranged, and operating substantially as and for the purpose herein specified.

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