A. DOE.

Side-Hill Plow.

No. 12,310. Patented Jan. 30, 1855.

Fig. 1.

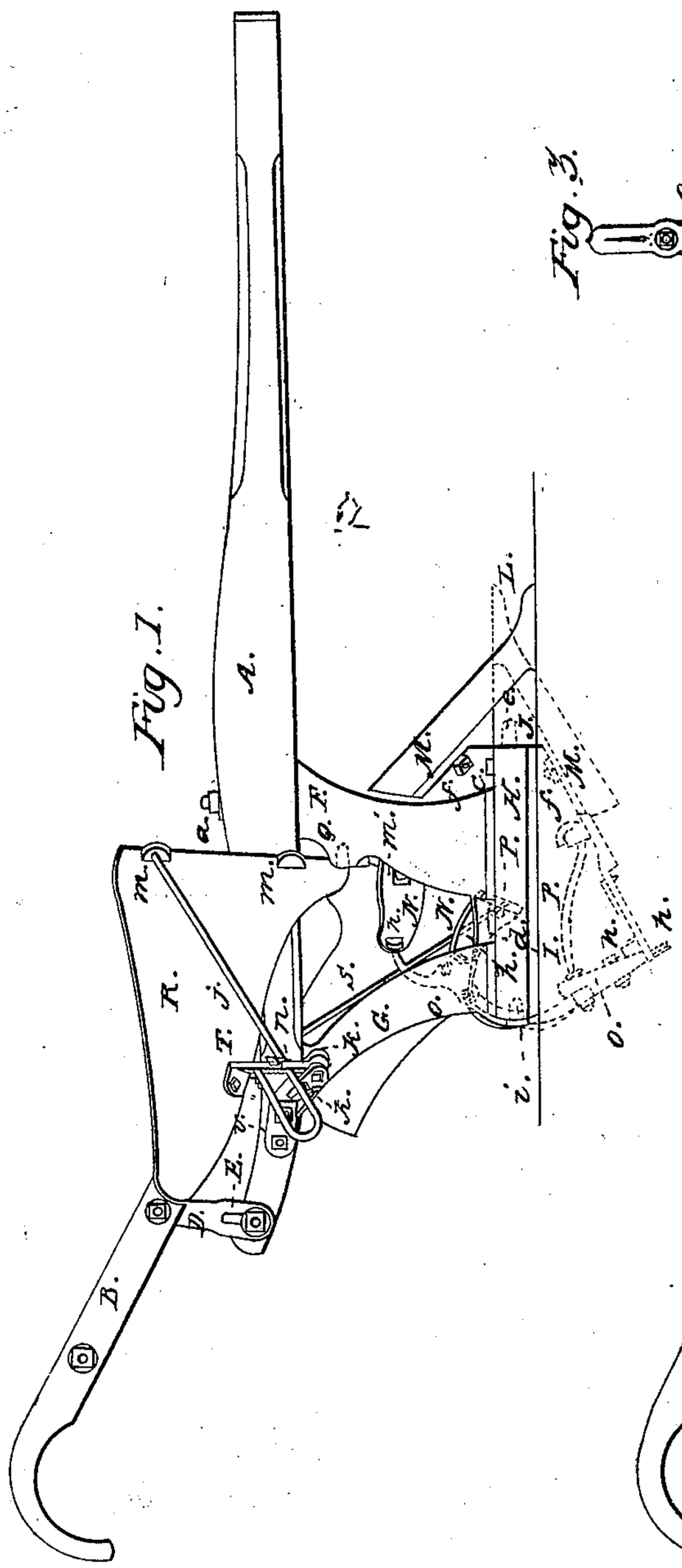


Fig. 3.

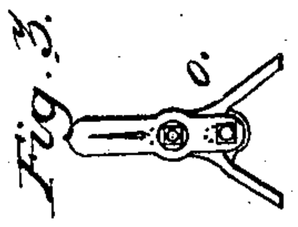
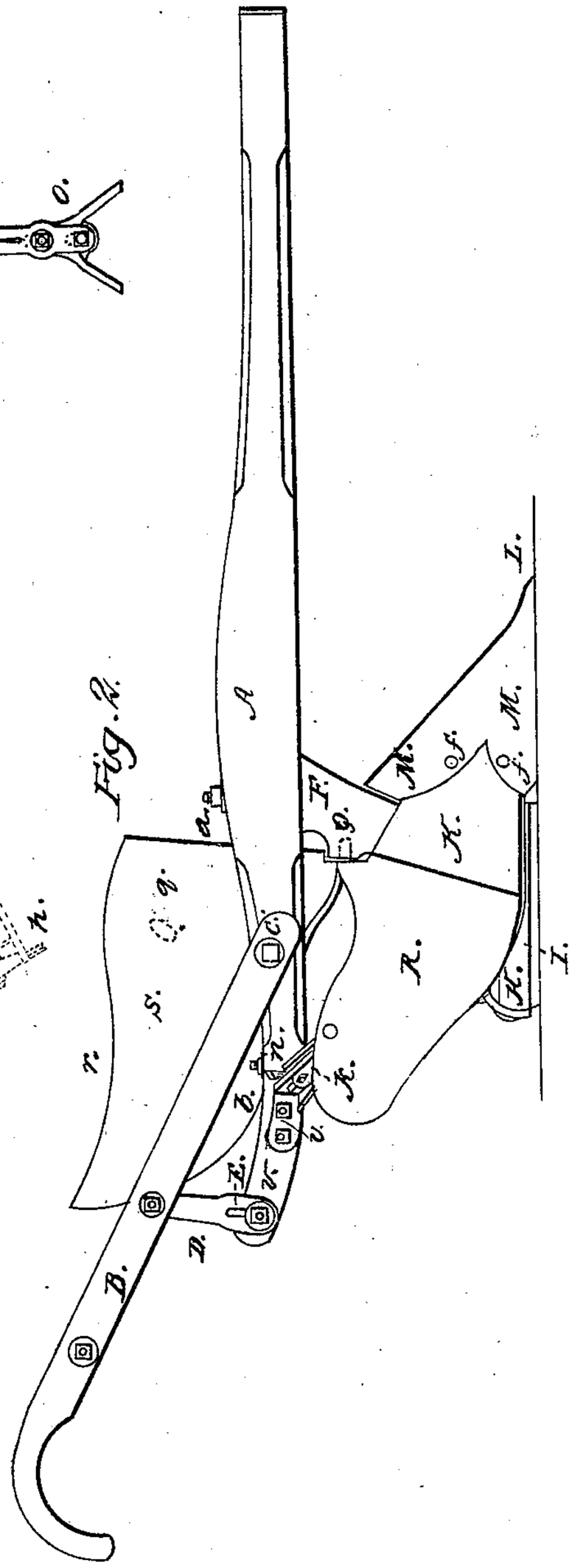


Fig. 2.



UNITED STATES PATENT OFFICE.

ALFRED DOE, OF CONCORD, NEW HAMPSHIRE.

IMPROVEMENT IN PLOWS.

Specification forming part of Letters Patent No. **12,310**, dated January 30, 1855.

To all whom it may concern:

Be it known that I, ALFRED DOE, of Concord, in the county of Merrimac and State of New Hampshire, have invented certain new and useful Improvements in Plows; and I do hereby declare that the same are described and represented in the following specifications and drawings.

To enable others skilled in the art to make and use my improvements, I will proceed to describe their construction and use, referring to the drawings, in which the same letters indicate like parts in each of the figures.

Figure 1 is an elevation of the plow with the common furrow-board raised and the sub-furrow board in place. Fig. 2 is an elevation of the plow with the common furrow-board in place and the sub-furrow-board raised. Fig. 3 is an elevation of the pronged brace which supports the rear of the shares as seen when looking at the rear of the plow.

The nature of my invention consists in so constructing a plow that it can be readily adapted to three different kinds of plowing—viz., common level land, subsoil, and side hill plowing—and in subsoil plowing to turn the subsoil-furrow thoroughly pulverized upon the top of the furrow previously plowed, the several parts being so constructed and arranged that the plowman can make the necessary changes to perform each kind of plowing with facility and with the least possible delay while at work in the field, and the whole being so constructed as to make a stronger, better, and more serviceable plow than any heretofore made with mold-boards vibrating independent of the point and share.

In the accompanying drawings, A is the beam, to which the lower ends of the handles B are fastened by the bolt *c*, the rear end of the beam being connected to the handles by the slides D, which are provided with slots E, so as to adjust the handles to suit the plowman.

F is the front standard; G, the rear standard, and H the landside, all of which may be cast in one piece and fastened to the beam by the bolts *a* and *b*, or otherwise. There is a bottom plate or shoeing, I, made a little wider than the thickness of the landside and fastened to it by the bolts *c* and *d*.

The fore end of the landside H is provided with a pivot, *e*, (represented in dotted lines,) fitted to a socket in the body J, which is made in the form represented, consisting of the fore part of the furrow-board *k* and that portion of the plow to which the point L and shares M M are fastened by the bolts *f f*, which point and shares are cast in one piece in the form represented.

The rear of the fore part of the furrow-board *k* is provided with two arms, N N, which extend back and are provided with ears *h h*, as represented, to receive the ends of the pronged brace O, which is made in two parts and bolted together, one or both parts being provided with slots for said bolts, so that it may be lengthened or shortened to vary the landing of the plow. This brace is provided with a pivot, *i*, (represented in dotted lines,) fitted to a socket in the rear end of the landside H, so as to allow the body J with the point and shares and the fore part of the furrow-board to vibrate on the pivots *e* and *i* from the position represented in Fig. 1 and swing under the landside, as represented by red lines, and raise upon the opposite side of the standard F to the position represented in Fig. 2.

The under side of the board *k* is provided with an ear for the hook of the bolt P, which connects the body J and brace O together, so as to hold the former on the pivot *e* and the pivot of the latter in the socket in the landside.

The front standard, F, has an enlarged projection, Q, upon it, provided with two sockets for the pivots of the furrow-boards R and S. (Represented by dotted lines.) The furrow-board R is designed for common level-land or side hill plowing, and is constructed in the form represented, and has the arm T fastened to it near its rear end, which arm is hinged to the stand U, so as to vibrate and allow the furrow-board to be turned to either of the positions represented in the drawings.

The stand U is made in the form represented and bolted to the beam A. It is also provided with a slot for the bolt which fastens the pieces *k k* to it, which pieces form the connection with arm T, and they may be set nearer to or farther from the beam to adjust the furrow-board to the desired position and adapt it to the width of the furrow to be turned. The spring-catch *n* is fastened to the stand U, and catches the arm T when the furrow-board R

is raised to the position represented in Fig. 1, and holds it up by the side of the beam.

The furrow-board R is provided with two lugs, *m m*, which fit into holes in the arms N N when the board is turned down, one of which holes is seen at *m'*, Fig. 1. The sliding rod *j* is made in the form represented and fitted to slide in the arm T and lug *m*, and is pushed in when the furrow-board is turned down to fasten it upon the arms N N, and can be drawn back when it is to be raised.

Each of the arms N N is provided with a lug at its rear end for the furrow-board to rest against. One of these lugs is seen at *p*, Fig. 1.

I have described the right-hand furrow-board and its appurtenances. A left-hand furrow-board, just the reverse of the one described, is applied to the opposite side of the plow with its appurtenances for common level-land and side-hill plowing; but when it is desirable to subsoil when plowing in one direction and turn the subsoil-furrow upon the top of the furrow plowed in the opposite direction, the left-hand furrow-board is removed and a subsoil-furrow board, S, put in its place. This furrow-board is made in the form represented, and its rear end is made to stand higher and farther from the beam than the common furrow-board, and its lower edge is hollowed out or curved, as represented at *r*, Fig. 2, so as to raise the subsoil-furrow up and carry it out and turn it upon the top of the common furrow just plowed, when the plow is run in the opposite direction. This subsoil-furrow board is provided with a lug, *q*, upon its under side, (represented by dotted lines in Fig. 1,) which corresponds with the lug *p* on the arm N when the furrow-board is in place, so as to hold its lower edge farther from the landside and raise up its rear end.

The prominent advantages of my improved plow are as follows, viz:

First. By the alternate use of the two common furrow-boards it is adapted to hillside and level-land plowing with equal facility, and will accomplish either at the common depth equal to the best of the level-land plows, and by its use all the furrows may be turned in one direction, thereby avoiding all center or dead furrows and ridges of back-furrows and the travel of the team around the ends of the land.

Second. By the alternate use of the subsoil-furrow board deep, fine, pulverized plowing may be obtained from six to fourteen inches in depth with about half of the team required for the same depth with the common plow now in use.

Third. By the use of these plows farmers with small teams can plow their land deep and subsoil them without hiring an addition to their team.

Fourth. There is also a great saving in working land thus plowed, and the crops materially increased thereby.

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

1. Two separate furrow-boards arranged to vibrate perpendicularly independent of the point and share so as to turn alternately right and left furrows on level or inclined land with equal facility, operating in combination with a swivel-point and shares arranged to vibrate under the landside with the body or front portion of the furrow-boards, substantially as described.

2. In combination with the swivel-point, shares, body, and one of the furrow-boards mentioned in the above claim, a sub-furrow-board arranged to vibrate perpendicularly, so constructed as to turn a subsoil-furrow in one direction upon the top of the furrow just plowed in the opposite direction, thereby making it serve as a common plow in one direction and a subsoil in the other, substantially as described.

In testimony whereof I have hereunto signed my name in the presence of two witnesses.

ALFRED DOE.

Witnesses:

JOHN I. JOHNSON,

THOMAS WADLEIGH.