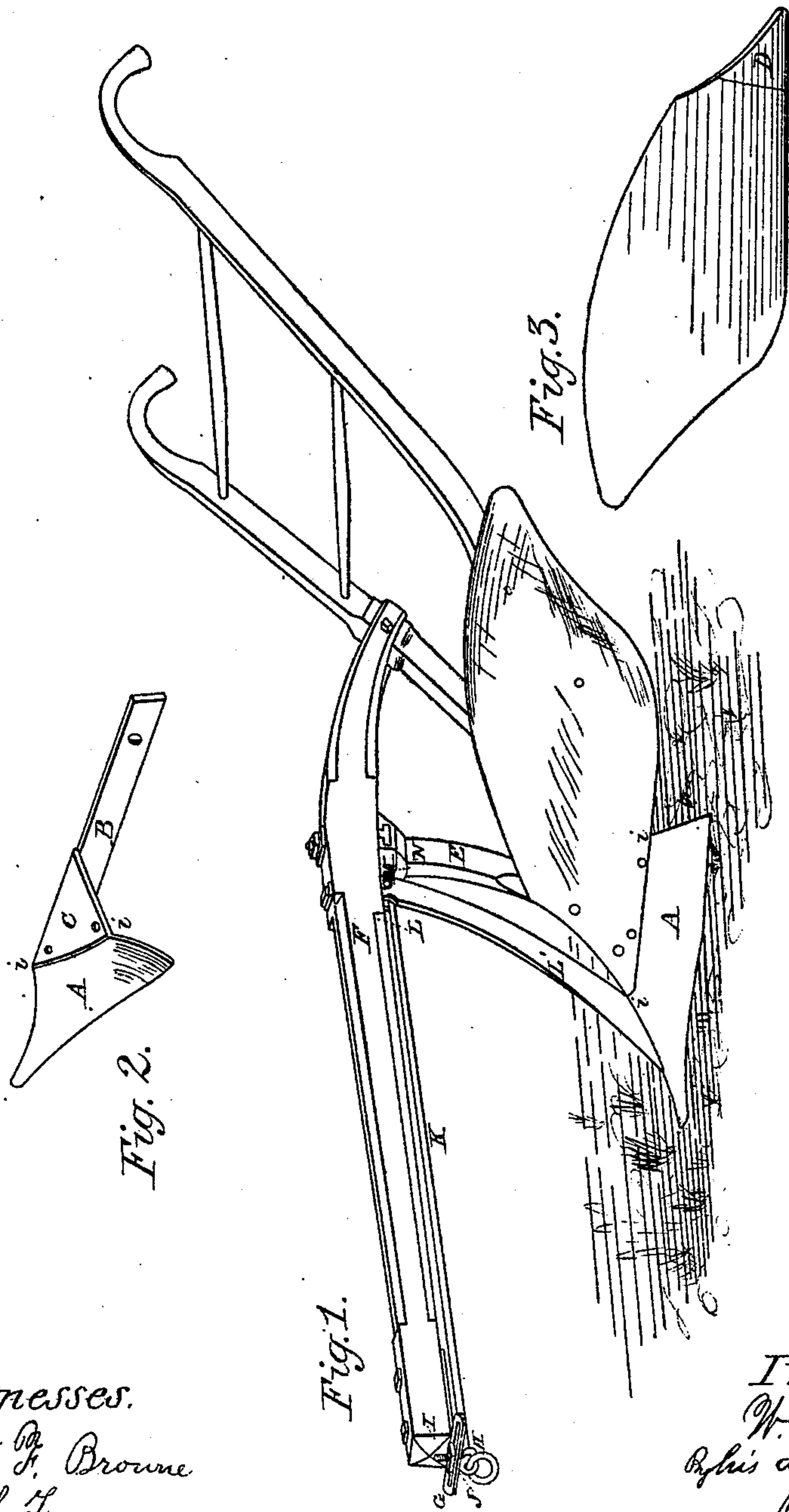


W. D. MILLER.
PLOW.

No. 91,472.

Patented June 15, 1869.



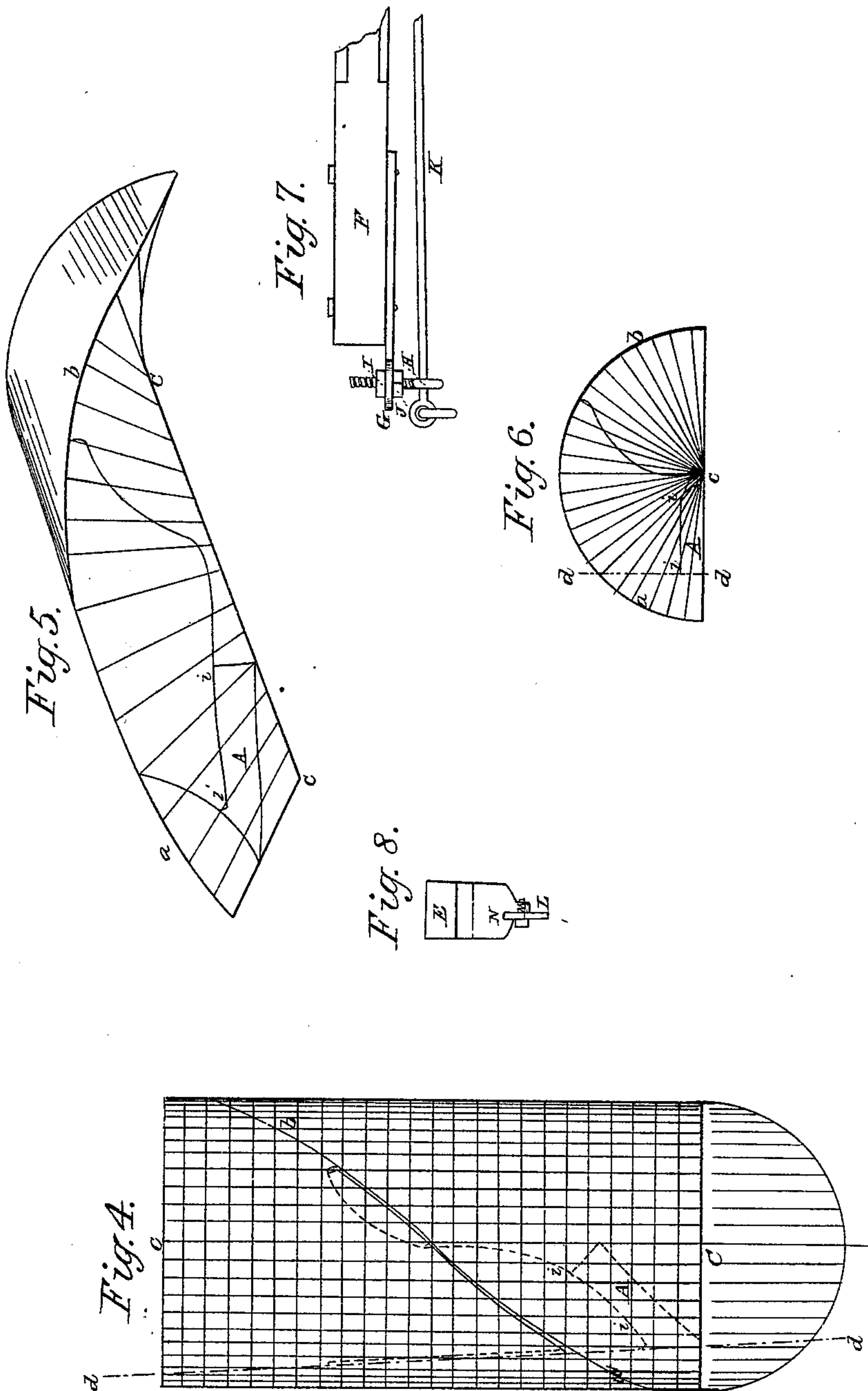
Witnesses.
Wm H. Browne
R. S. Turner.

Inventor.
W. D. Miller
By his atty,
R. D. Smith

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United States Patent Office.

WILLIAM D. MILLER, OF ENON, OHIO.

Letters Patent No. 91,472, dated June 15, 1869.

IMPROVEMENT IN PLOWS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, WILLIAM D. MILLER, of Enon, in the county of Clark, and State of Ohio, have invented a new and useful Improvement in Plows; 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, in which—

Figure 1 is a perspective view of my plow.

Figure 2 is an inner side of mould-board, detached.

Figure 3, perspective view of share and landside, detached.

Figures 4, 5, and 6, views of mould-board shape, showing method of obtaining curve, &c.

Figure 7 is a side elevation of the outer end of the plow-beam and attachments.

Figure 8 is a plan of the head of the plow-post.

I am aware that a great variety of plans for the construction of mould-boards have been proposed, but a very large proportion of them have been designed for special conditions of soil or purpose to be accomplished.

A practical experience of twenty years in the construction and use of plows has convinced me that while the true principle of construction has been nearly approached, no plow, for the general purposes of such an implement in the United States, has hitherto exhibited the best performance possible.

The plan of construction herein explained produces, as I believe, a plow more nearly perfect in the distribution of friction, and the consequent uniformity and ease of operation, than any other with which I am acquainted.

The basis of my system is a segment of a true spiral surface or screw; and

My invention relates to the adjustment of this surface, in respect to the line of progression, so as to elevate and reverse the sod with the least possible amount of frictional resistance.

Figs. 4, 5, and 6 are drawn to a proportionate scale.

I will first describe the principle of the method by which the proper configuration of my mould-board may be obtained.

First suppose a cylinder of, say, fifty-two inches in length and twenty-six inches diameter. Cut this cylinder longitudinally in two equal parts. The rectangular surface produced by the division will represent the base of the plow or furrow-plane. This half cylinder is represented in figs. 4, 5, 6.

Upon the surface of the block so formed draw the spiral *a b*, having a pitch of one hundred and four inches. Cut this block along the line *a b*, so as to form a curved surface, one edge of which shall be on said line, and the other edge on the axial line *c c*, and so that all superficial lines perpendicular to said axial line shall be straight. There will then have been developed a section of a true spiral or screw.

Upon this spiral surface delineate the figure of the

mould-board of the plow, as shown in figs. 4, 5, 6, occupying in length thirty-six inches, and between two planes, perpendicular to the furrow-plane, and parallel with the axial line *c c*, and distant therefrom about twelve inches on the landside and ten inches on the furrow-side.

I am aware that it has been proposed to construct mould-boards for plows upon a principle similar to those above described; that is to say, upon the basis of a true spiral or screw-surface, but that feature only forms a part of my invention, as I have discovered that the best results require that the axis *c c* should, during operation, be inclined to the line of progression. I therefore incline the landside plane, as shown by the line *d d* in fig. 4, toward the axial line at the point of the share, so as to bring the said point about two inches less distant from the axial line *c c* than the heel of the landside.

This inclination of the landside to the axis of the mould-board is of the highest importance, and enables the mould-board to follow up the furrow-slice more closely as it falls over from the turning line.

I have now described the principle upon which the curvature of my mould-board is obtained, but it will not be necessary, in practice, that the details herein described should be strictly adhered to, as every skillful mechanic will be able to obtain the true curves by other and perhaps shorter practical methods well known to the art.

In order to vary the disruptive powers of the mould-board, it will only be necessary to increase or diminish the proportionate length of the plow, so as to make the curvature more or less abrupt.

I will now describe the detail of construction as applied in practice.

The mould-board, so called, terminates at the line *i i*, and the plowshare *A* is joined to the mould-board on that line, so that it may be removed at pleasure, for the purpose of repair or renewal.

The share *A* is forged solid with the landside-bar *B* and the connecting-web *C*, and is made thickest at the cutting-edge, because at that point the friction is greatest.

The upper edge of the share is provided with a proper rebate, to receive the lower edge of the mould-board, so that the two parts will be held rigidly in place, and the upper or frictional surfaces flush with each other.

The mould-board is preferably made of steel, formed into shape between dies constructed with the proper curvature. The edges are then trimmed to pattern. The forward end or point of the mould-board should be made thicker than other portions of the same, because the chief friction and labor of raising the furrow-slice comes upon that portion of said board. I therefore weld a piece of steel to the under side of said board, as shown at *D*, fig. 3, and thereby render the

board at least twice as durable as it would be without said addition.

The post E is cast with a flange projecting behind, and fitted to the under side of the mould-board, to which it is securely fastened by bolts.

The head of the post is cast with a transverse \perp -slot, to receive the corresponding head of a bolt, which thence passes upward through the plow-beam F, and with a nut clamps the post and beam firmly together, and also permits a lateral adjustment of the beam to adapt the plow to a team of two or three horses.

At the forward end of the beam is a horizontal clevis-plate, G, and an eye-bolt, H, which may be moved back and forth in the clevis-plate, and clamped at any desired point by the clamping-nuts I J.

The eye-bolt H may also be elevated or depressed by moving said nuts I J along the bolt, and the direction of the draught is thereby raised or depressed.

The draught-rod K passes through the eye-bolt H, and is secured to the beam by means of a bolt, L, at a point just in advance of the post E, and the team is attached at its forward end.

To secure a bearing for the whole depth of the furrow, a landside-plate is secured to the post E and to

the landside-handle, extending upward from the edge of the landside B sufficiently far to give a bearing for the whole depth of the furrow.

The cutter L' is secured, at its lower end, by a toe, which projects downward into a socket made in the share, near its edge, and at its upper end it is secured to a lug, M, cast solid with the standard, and the rear edge is also received in a groove, N, which is made in the front edge of the standard for that purpose.

By these means the cutter is very firmly secured in place, and admits of a lateral adjustment of the beam without affecting the position of the cutter.

Having now described my invention,

What I claim as new, is—

1. A plow mould-board, constructed upon the principle and in the manner substantially as set forth.
2. The lug M and groove N, in combination with the cutter L' and post E, as set forth.

Subscribed this 2d day of April, 1869, in presence of—

WM. D. MILLER.

Witnesses:

A. A. BAKER,

A. W. HEMPLEMAN.