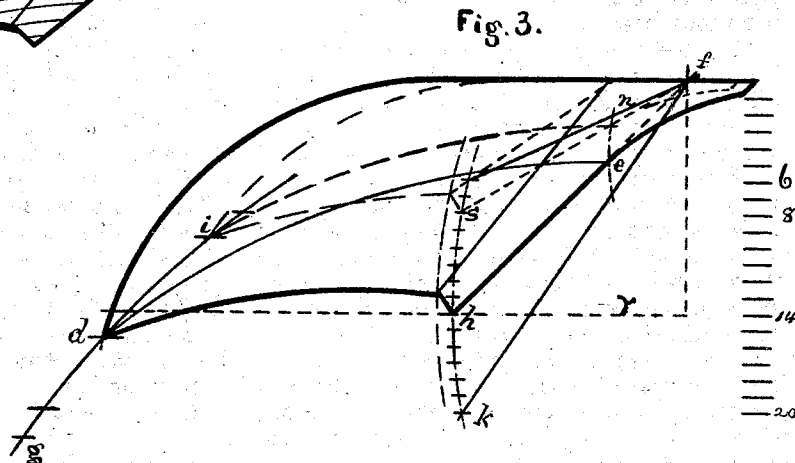
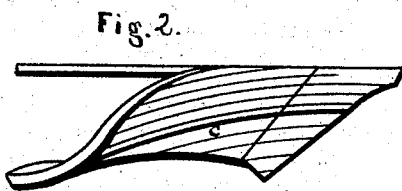
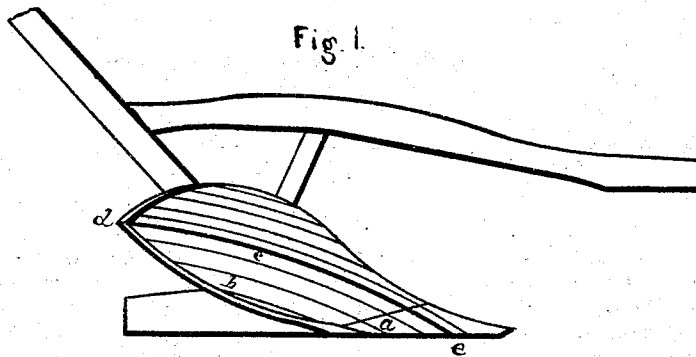


B. C. BRADLEY.

Plows.

No. 154,119.

Patented Aug. 18, 1874.



WITNESSES:

E. A. West.
O. R. Bond.

Bryan C. Bradley

INVENTOR:

UNITED STATES PATENT OFFICE.

BYRON C. BRADLEY, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN PLOWS.

Specification forming part of Letters Patent No. 154,119, dated August 18, 1874; application filed June 12, 1874.

To all whom it may concern:

Be it known that I, BYRON C. BRADLEY, of the city of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Plows, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation; Fig. 2, a top view of the mold-board and share; Fig. 3, an illustration of my way of determining the form of various sizes.

The object of my invention is to construct a plow which will scour readily, and which will pass through the earth and turn the furrow more easily than those now in use; and it consists in giving the share and mold-board a convex form, the crown-line of the convexity being a curved line, preferably the arc of a circle, extending from the delivery-point of the mold-board to a point in the cutting-edge of the share, the distance of this point from the land-side being equal to one-third of the whole length of the cutting-edge.

In the drawings, *a* represents the share; *b*, the mold-board; *c*, the crown-line of the convexity of the share and mold-board. One end of this crown-line is at *d*, the delivery-point of the mold-board. The other end is at *e* in the cutting-edge, and this line is the arc of a circle, struck while the parts are flat, as shown in Fig. 3. The share and mold-board are both made convex and adapted to fit the other parts, and the top of the mold-board is to be curved, as usual. The point of the plow is not convex, but has the usual form.

The drawings represent a fourteen-inch plow.

Fig. 3 is on a larger scale than the others, and shows my plan for determining the outlines of the share and mold-board, and the crown-line of the convexity.

I find that the angle which the cutting-edge of the share forms with the land-side should vary with varying sizes, and that for a fourteen-inch plow this angle should be forty-five degrees, or about that. The delivery-point *d* should be about an inch and a half over or beyond a line drawn through the heel *h* parallel with the land-side.

f is the point where the cutting-edge continued would cross the land-side.

The distance from *d* to *f* in a fourteen-inch

plow should be thirty-two inches. The same line in an eight-inch plow would be twenty-five inches.

In Fig. 3 the heavy outer lines represent the outlines of a share, point, and mold-board of a fourteen-inch plow, the parts lying flat. The line *d e* is the crown-line of the convexity of the share and mold-board.

i is the delivery-point of an eight-inch plow. In a circle passing through these two points will be found the delivery-points of the mold-boards of plows of other sizes; for example, the delivery-point of a twenty-inch plow would be at *g*.

To determine the location of the heel of the cutting-edge of any other given size, I strike a circle, passing through *h*, the radius being fifty-six inches, so that the chord *h f*, continued, will subtend an arc equal to one-fourth of a circle, the line *h f* being at an angle of forty-five degrees with land-side, or with the line *r* parallel with the land-side, the center of the circle being in the line *r* extended. The heel of the cutting-edge of the share of a twenty-inch plow will be at *k*, the heel of an eight-inch plow at *s*. The line *n* shows the line of the cutting-edge of the share of a six-inch plow. The interior dotted lines represent an eight-inch plow.

The angles of the cutting-edges may be varied from those given; but having determined in which size the cutting-edge of the share shall be at an angle of forty-five degrees with the land-side, the angles of the cutting-edges of other sizes can be determined as above.

By adopting substantially the rules given the several parts of the plow will be duly proportioned in plows of different sizes.

I am aware that plows have been made with a convex mold-board and share; but in all cases the crown-line of the convexity of the share and lower part of the mold-board has been in a line parallel with the land-side and along the center of the plow, commencing at the center of the cutting-edge of the share. When so formed the earth has a tendency to pass up over the plow in lines parallel with the land-side, and the furrow is crowded and forced over by the curvature given to the upper part of the mold-board.

When the form is given which I have de-

scribed—that is, when the crown-line of the convexity extends from the delivery-point *d* to the point *e* in the cutting-edge of the share in a curve—the earth, as the plow moves along, passes up over the plow in lines parallel with the crown-line *c* of the convexity, instead of parallel with the land-side. The curved lines in Figs. 1 and 2 indicate the direction of the earth.

For different kinds of plows the dimensions and angles given may be somewhat varied. Those given will be found suitable for stubble-plows.

The location and curvature of the crown-line of the convexity can be slightly varied without very materially injuring the plow or changing the result; but my experiments lead

me to believe that the location and curvature described are the best.

I do not claim, broadly, a plow having a convex mold-board and share; but

What I do claim as new, and desire to secure by Letters Patent, is as follows:

A plow having a convex mold-board and share, the crown point or line of convexity extending from a point in the cutting-edge of the share to the delivery-point of the mold-board upon the line *c*, substantially as and for the purpose specified.

BYRON C. BRADLEY.

Witnesses:

E. A. WEST,
O. W. BOND.