2 Sheets—Sheet 1.

A. FRANKLIN.

Plow.

No. 96,907. Patented Nov. 16, 1869.

Fig. 1

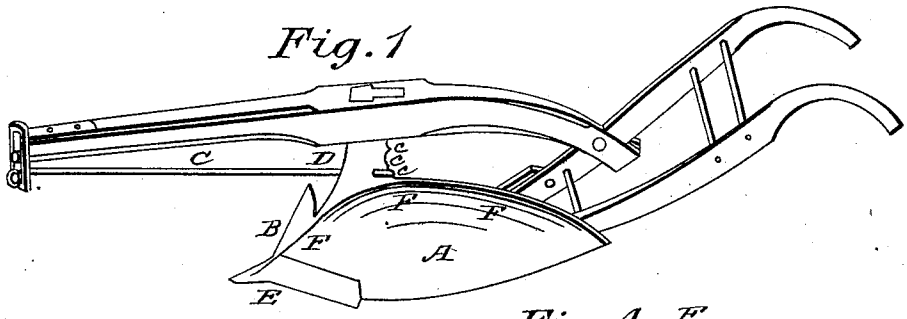


Fig. 4

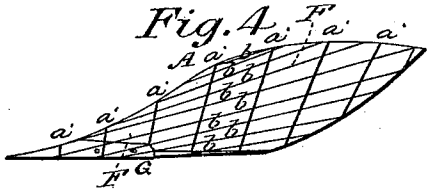


Fig. 2

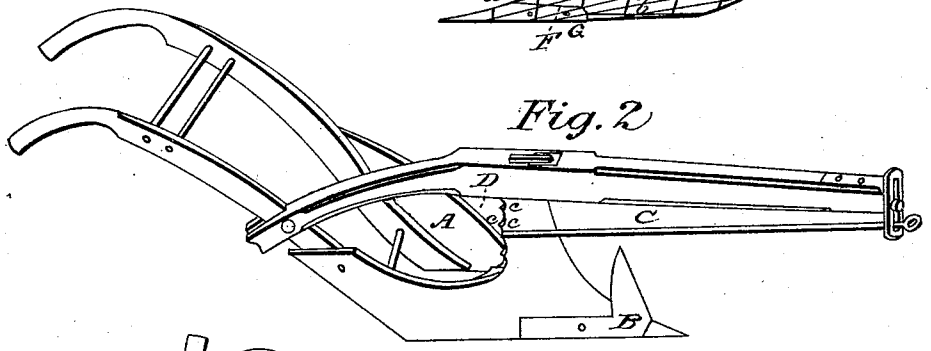
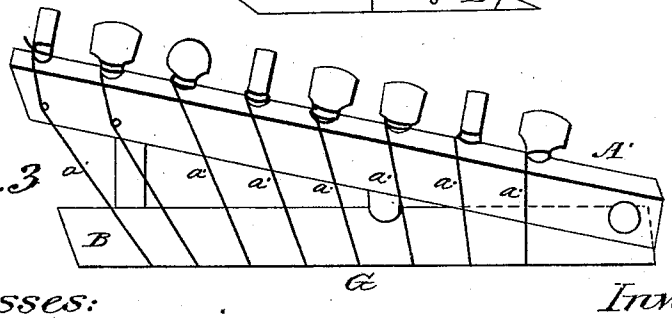


Fig. 3



Witnesses:

J. F. Schnuberger

B. L. Comuse

Inventor:

Asahel Franklin

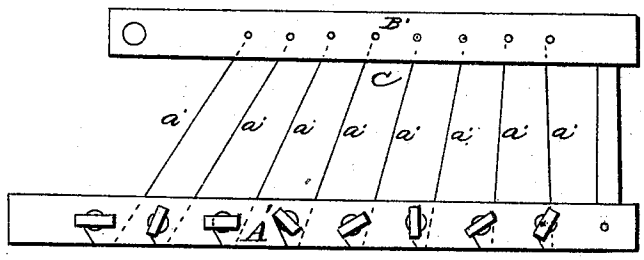
2 Sheets—Sheet 2.

A. FRANKLIN.

Plow.

No. 96,907. Patented Nov. 16, 1869.

Fig. 5



Witnesses:

Leonard Curtis
Harry King

Inventor:

Asahel Franklin
per
Alexander & Mason
Attys.

UNITED STATES PATENT OFFICE.

ASAHEL FRANKLIN, OF SPRINGFIELD, OHIO.

IMPROVEMENT IN PLOWS.

Specification forming part of Letters Patent No. **96,967**, dated November 16, 1869.

To all whom it may concern:

Be it known that I, ASAHEL FRANKLIN, of the city of Springfield, county of Clarke, and State of Ohio, have invented certain new and useful Improvements in Plows; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, in which similar letters of indicate corresponding parts.

The nature of my invention consists in the construction of plows by certain fixed rules, varying only according to the size and purpose for which the plow is to be used.

First, I construct a pattern of the sized plow I desire to make, which pattern is made by rules hereinafter described; and it consists of a frame of wood or other material, with cords, wires, or their equivalents stretched upon the same, so as to form a spiral from the point of the plow to the rear of the mold-board, making the pitch of this spiral less for sod and greater for loose ground.

The object of my invention is to secure regularity and evenness of turning of the earth from the furrow, lessen the amount of draft, and insure the scouring of the mold-board over its entire surface by constructing the same by a pattern laid off geometrically, upon scientific principles, the rules for its construction applying to all kinds of plows; also, to give additional strength to a plow, when required, for hard ground or sod by an adjustable draft-rod, which is secured to the post of the plow at its rear end, and can be raised or lowered and kept in place upon the post by notches or ratchets on the back of the same, into which the hook on the rod is fitted.

Another part of my invention consists in the construction and use of an angular cutter-bar, as hereinafter described, and securing the same by a bolt or bolts to the land side of the plow, where it is fitted into a depression formed for it, this mode of applying the cutter-bar giving greater strength to the same, and being easily applied or removed when required.

The principles of my invention apply to plows of different material and for different purposes.

To enable those skilled in the art to make and use my invention, I will proceed to describe the construction and operation of the same.

Figure 1 represents a plow, in perspective view, to which my improvements are attached, the view being taken from the mold-board side. Fig. 2 is a perspective view from the reverse or land side of the same plow. Fig. 3 is a perspective view of the pattern-frame by which my plow is constructed, this view being taken from the mold-board side of the pattern. Fig. 4 is a view of the mold-board and share of a plow constructed with my improvements, showing lines corresponding with the cords upon the pattern-frame in Fig. 3, by which the contour of the mold-board is given; also, pitch-lines crossing these running from the point to rear of mold-board. Fig. 5 is a plan view of the frame or pattern before one piece is elevated at the one end to the angle required.

In Fig. 1, A represents the mold-board; B, the cutter-bar; C, the draft-rod running back through the clevis and secured by its hooked end in one of the notches *c* upon the back part of post D. In this view the draft-rod C is shown hooked into the lowest notch *c* on the post D, as it is used when the plow is required for sod or hard ground. It will be seen that this application of the draft-rod greatly strengthens the plow, and takes the strain off the beam. The mold-board A has a curve, F, running from the point of the plow backward, just under its upper edge, about three-fourths of the length of the same. This curve, inclining the upper edge of the mold-board outward, insures the proper and even turning of the earth from the plow, and prevents any portion of it from falling back into the furrow.

In Fig. 2 the cutter-bar B of an angular form is shown as let into a depression made to receive it on the land side of the plow, the long arm of the cutter-bar plate extending back on the plow and fastened in its place by a bolt or bolts. The front part of the cutter-bar plate fits into a vertical dovetailed or beveled groove, which strengthens and secures it at the point part. The notches *c c* on the back part of post D, into which the hook of draft-rod C is secured, are also shown in this figure.

In Fig. 3 the two pieces A′ and B′ are framed together, as shown in the drawings, and more perfectly exhibited in the model pattern-frame, by cross-ties, the pattern-frame being made to correspond in width at the front (inside) with the width of the plow for which it is designed.

The piece A′ runs obliquely backward and upward, and crosses the perpendicular above the base-line G at a point about three-fourths the length back from point to rear of mold-board, or about one-third of the revolution of a screw of which the spiral formed by the lines or cords *a′ a′* forms a section. These lines or cords are attached to the piece B′ along the base-line G, and are stretched across the pattern frame upon A′ and B′, receding upward and backward from each other and from the base-line G, their divergence forming the spiral section upon the pattern-frame, and shown also in Fig. 3. The pitch-lines, as shown in Fig. 4, obtain their position and relative distance from each other from the shape given to the mold-board by the cords or lines *a′ a′*.

It will be seen that the cords *a′ a′* diverge backward from each other toward the upper and rear portion, which corresponds with the rear end of the mold-board A.

The manner and the rules by which the pattern for making the mold-board is laid off are as follows: First, drawing two parallel lines in accordance with the width of the plow required, one of these lines to represent the land side and the other the mold-board side of the plow, of sufficient length to include the extreme length of the plow from point to rear of mold-board, the mold-board line to be the base-line. Then draw the first radial line across from one parallel line to the other, at the place where the point of the plow will come. Then from this line space off divisions on the base-line, in the proportion of two to three upon the land-side line. Draw lines across. Then lay the frame-pieces for A′ and B′, in Fig. 3, with their inside edges upon the parallel lines, the edge of the piece B for the base-line G and the piece A upon the land side. Attach the frame-pieces together at the front end, as shown in Fig. 3. If the plow is to be thirty-six inches in length, the parallel lines should be about ten inches apart, and the frame-pieces A′ and B′, fastened by the cross-tie at the point, ten inches apart on their inside. Now, raise the seen end of the piece A′ up from the plane on which B′ stands, so that the angle it describes will be about ten degrees, which will leave the distance about nine inches for the height of the mold-board at the rear end. Now, the lines drawn from A′ to B′ or cords attached will describe the spiral, the pitch or twist being proportionate to the distance from first radial line to where the piece A′ crosses the perpendicular above the base-line G or its approximation to that point.

For a plow of thirty-six inches in length, the distance is about three-quarters back from the point or from the first radial line, the height of the rear end of the mold-board being about nine inches and width of plow ten inches, or about these proportions When the proper pitch is given for the form of the mold-board by the twist and obliquity given to the frame-pieces A′ and B′, as described, they are fastened together at their rear ends, and the cords stretched upon them show the true form of the mold-board described, it being convex transversely, while the pitch-lines are straight.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. Constructing the mold-board of a plow from a pattern laid off substantially in the manner and for the purposes herein set forth.

2. The mold-board A, having the curve F in the upper portion, running from the point of the plow backward, as shown and described, for the purposes set forth.

3. Changing the draft of a plow by means of notches, ratchets, holes, or their equivalents on the back or rear of the main post for the confinement of the end of the draft-rod, so that in lowering the end upon the post the rod will form a brace to strengthen the plow when used in hard or sod ground.

Witness my hand to this application for a patent for my improvement in plows, this 16th day of March, 1869.

ASAHEL FRANKLIN.

Witnesses:
G. F SCHNEEBERGER,
B. C. CONVERSE.