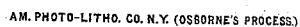


### Plow Moldboard.

Patented May 16, 1842.



# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN PLOWS.

Specification forming part of Letters Patent No. 2,626, dated May 16, 1842.

*To all whom it may concern:*

Be it known that I, CORNELIUS BERGEN, of the city of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Plows; and I do hereby declare that the following is a full and exact description.

Figure 1 represents an oblong block of wood as placed on the draft-board cut into steps, which, when taken off to their angles, give the front of the mold-board. These steps, instead of being made on the principle of a winding stairs, and thus producing a true twist, are so formed as to produce a regular increased twist, thereby embracing the principle of the screw and wedge combined, which cannot be done with the true twist, and is constructed as follows: After determining the length and width of the mold-board, and also the angle or wedging form of the plow, prepare the diagram Fig. 2 to represent the draft-board, on which said block is placed, as in Fig. 1. Divide the lines A and B, Fig. 2, into any convenient number of equal parts of about two inches wide. The mold-board of a two-horse plow, being about thirty-six inches long, will consequently require eighteen divisions. Let these divisions be directly opposite to each other and connect them by the lines *a a*, &c., and draw the diagonal line C, Fig. 2, to correspond to the diagonal line A, Fig. 1, being the wedging form of the plow. Then have the block so cut as to correspond, when placed on the draft-board, to the lines B and C of the diagram Fig. 2, and place it thereon, as represented in Figs. 1 and 3. Then mark the divisions *a a*, &c., on the edge or line A, Fig. 1, of the block, as at *b b*, &c., which line corresponds with the angle or line C, Fig. 2. Let this be done also on the other side of the block where it intersects the line B, Fig. 2, or line of the landside, as represented by A, Fig. 3. Extend these lines perpendicularly up to the top of the block, as *c c*, &c., Fig. 3. This prepares the block to be cut into the divisions 2 2, &c., Fig. 1, longitudinally or lengthwise, the line A, Fig. 3, and the line B, Fig. 2, corresponding to line C, Fig. 1. Then find the increase, as hereinafter described, that will form the divisions 1 1 1, &c., Fig. 1, the other way, and carry over the divisions the desired distance to form the twist of the mold-board, to accomplish which a section of a circle is de-

scribed having for its center the line A of the diagram Fig. 2, commencing at the line B, Fig. 2, being the width of furrow the plow is to take, and extending the other way the distance that the mold-board extends over the line A, Fig. 2, as represented by the circular line D, Fig. 2. This line is divided into the same number of regular increased divisions *e e*, &c., that the lines A and B are of equal divisions. The block is then cut longitudinally or lengthwise to correspond to the equal divisions *a a*, &c., Fig. 2, and marked 2, Fig. 1, whereby it is extended back, and the other way it is cut to correspond to the regular increased division *e e*, &c., Fig. 2, and marked 1, Fig. 1, the 1's representing the risers or twisting divisions, the 2's the longitudinal or equal divisions. The first division, N, of the circle D, Fig. 2, is the increase for every succeeding division or riser, as represented in Fig. 1, and is found by making repeated trials by adding its distance to every succeeding division from the point N to the point M, until it divides said distance or circle into the same number of regular increased parts that the lines A and B contain of equal parts. The said division N is thus increased or diminished until it accomplishes it.

To apply the divisions correctly to the block it must be placed on the diagram or draft-board Fig. 2 in the same situation as when the equal divisions *a a*, &c., Fig. 2, were marked on its edge or line A, Fig. 1, as at *b b*, &c., as before described. The first division or riser, N, Fig. 2, is then laid out on it at *d*, Fig. 1, precisely at the distance from the first division, *i*, of the line B, Fig. 1, that the line A is from B, Fig. 2. The first division or step is then formed, when the block is again placed in the same position to have the next division laid out on it precisely the same way that the first was, and so on until the whole is finished. The distance or width of the lines A B, Fig. 2, is marked on the twisting divisions or risers at 1 1, &c., Fig. 1, measuring from the points *f f*, &c., Fig. 1, which are directly opposite to their respective divisions or the points *b b*, &c., Fig. 1, corresponding to the divisions *a a*, Fig. 2. The mold-board being wider than the distance that the line B is from A, Fig. 2, the steps or divisions are consequently extended beyond the points at 1 1, &c., Fig. 1, to the upper edge of the block, as represented in Fig.

1. While the block has the floor to it to keep it in its true position on the draft-board, let the landside A, the nose-piece, or permanent landside B, Fig. 4, the point D, the share E, and standard F, Fig. 5, be fitted to it, so that it shall retain the same position. This being accomplished, the block is then shaped, reduced to its proper dimensions, the steps cut off to their angles, and the back end of the mold-board taken off with any desirable slope, as at G, Fig. 5.

Fig. 6 shows an improved point of a self-sharpening plow, constructed so as to fit up to the mold-board, with a half-round, as at 2. 1 is a hole into which a small knob to the mold-board catches to prevent it from coming off. Toward the back end it is jogged in, so as to leave a shoulder, *a*, in a diagonal position, which fits up to the front end of the mold-board, which is of corresponding form, as at *d*, Fig. 5, the opposite side of the point being precisely the same form, the shoulder thereof being consequently in a contrary direction to the shoulder *a*, Fig. 5, which enables it to be reversed. Still nearer to the back end it is also jogged in on each side, as at *ff*. This is to prevent it from being moved sidewise when receiving a blow. This necessarily points out the form of that part of the mold-board to correspond to it. The front or outside end of the point at *b* is flattened in the form of a wedge.

Fig. 7 shows the improved share, which is also fitted to the under side of the mold-board and the ends thereof, at the same time intersecting the under shoulder of the point. It is provided with a shoulder, *a*, extending lengthwise and diagonally, so as to place the wing of the share farther out when fitted up to the mold-board, the opposite side being precisely the same form, with the exception of having the shoulder in a diagonal direction to the shoulder 2, as represented by the dotted line *b*. It has also two catches or hooks at the shortest part, as 1 and 2, one of which catches behind the back end of the point and the other behind the mold-board, which is of corresponding form, and vice versa when inverted, designed to prevent the share from coming off when the plow is drawn back.

Fig. 8 shows the gripe, which secures the point and share firmly to the mold-board by a bolt (represented at 3, Fig. 5) passing through the mold-board, and also through the hub 1, Fig. 8, having a nut below the pipe, which has a cavity, 1, Fig. 9, on the under side thereof for the purpose.

2, Fig. 8 is a hole through which a horizontal bolt, 1, Fig. 4, passes, and which secures the movable landside A, Fig. 4, to the permanent landside B, Fig. 4, having a nut to it behind or inside, which bolt answers as a hinge or pivot, on which the gripe turns when it becomes necessary to renew or reverse the point and share, to accomplish which it is merely necessary to turn over the plow and unscrew

the nut which holds the gripe at 1, Fig. 9, to the mold-board about half an inch.

3, Fig. 8, is the end of the gripe, corresponding with the shoulder of the point *a*, Fig. 6.

4, Fig. 8, is a jog to permit the back end of the gripe to pass behind the nose-piece or permanent landside B, Fig. 4, and held thereto by a horizontal bolt, 1, Fig. 4, which assists also to hold the movable landside A, Fig. 4.

5, Fig. 8, is a convex cavity to fit the half-round 2, Fig. 6, of the point.

2, Fig. 9 is a side view of the gripe as seen at 3, Fig. 4, in its connected situation.

Fig. 10 shows a piece to heighten the mold-board when required. It extends from the back end of the mold-board to the standard at 4, Fig. 5, so shaped as nicely to fit the top of the mold-board, and is about of the same thickness. Its width is about three inches; but this is not material. It is secured to the mold-board by a hook, 1, projecting downward, and catches to a notch, 4, Fig. 4, so that when the handle is screwed to the mold-board it holds it as firm as needful, and at the other end it is secured by a projection, 2, Fig. 10, extending from the end thereof to the opposite side of the standard, which has a small knob, 2, Fig. 4, cast to it to prevent it from rising. It can consequently be attached or detached by merely unscrewing the bolt which holds the handle at Fig. 4. The object of this additional piece is to plow extremely deep, and is used to take up a second slice out of the furrow previously made and cast it above. It is also very serviceable when plowing weedy ground.

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

1. The peculiarity of the form of the mold-board as produced by the combination of the increased twist and wedge, the advantages of which are that it materially lessens friction, and consequently the traction or draft is much diminished, the covering is more uniform on every part of it, which causes it to do its work in a superior manner.

2. The manner in which the point and share are formed and held to the mold-board, the peculiarity of their construction, and the manner in which they are held in their place by means of the gripes, which enables them to be made of cast-iron instead of wrought, sufficiently strong for all purposes, and consequently the annual cost is much cheaper.

3. The additional piece to heighten the mold-board when desired, the advantages of which are that a second slice may be taken out of the bottom of a furrow previously made and cast completely above, which answers the purpose of trenching as performed with a spade. It is also of great service when plowing weedy ground, all as herein described.

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