S. A. KNOX.

Plow.

No. 198,028. Patented Dec. 11, 1877.

FIG. 1.

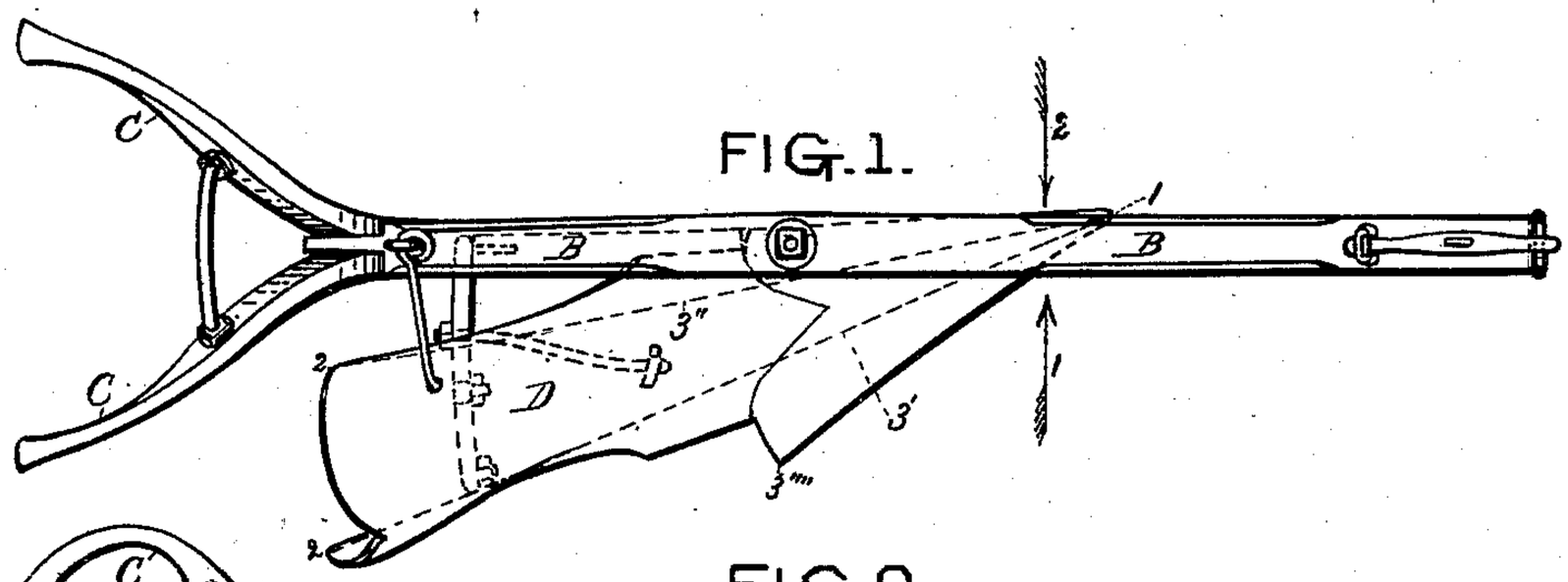


FIG. 2.

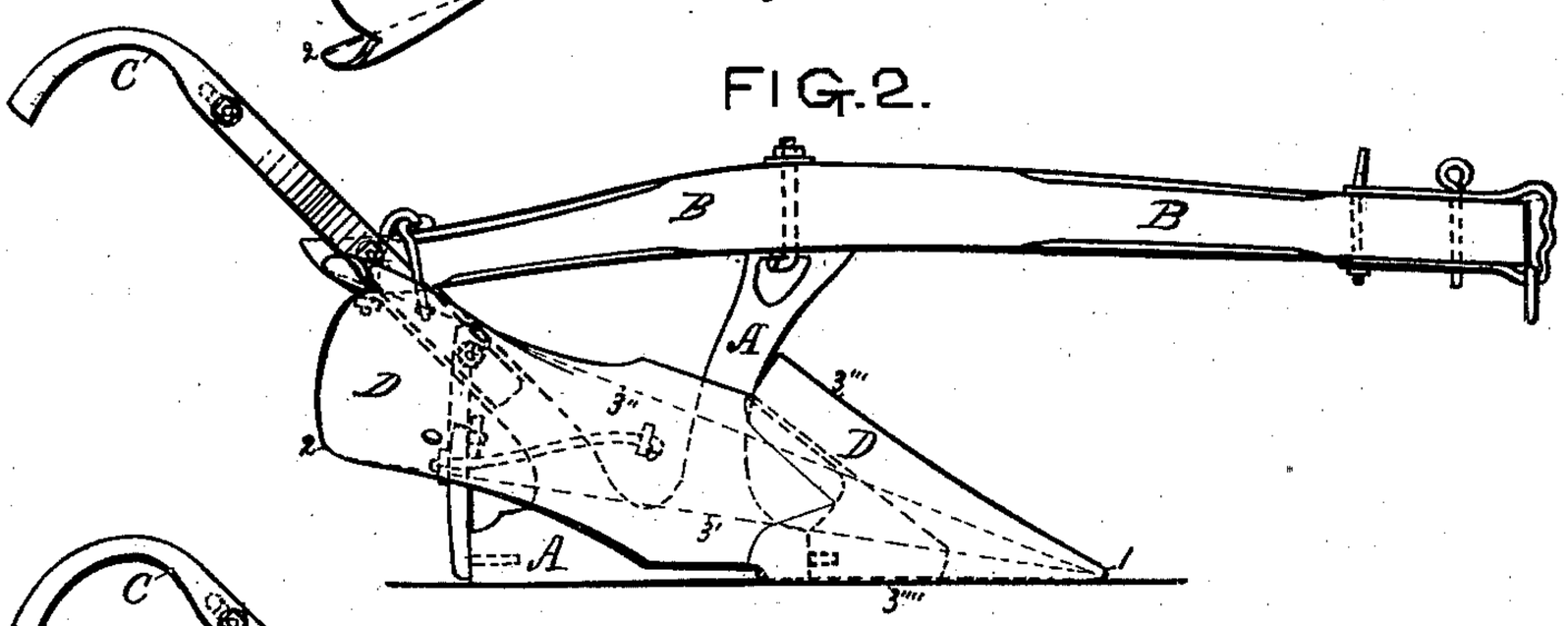


FIG. 3.

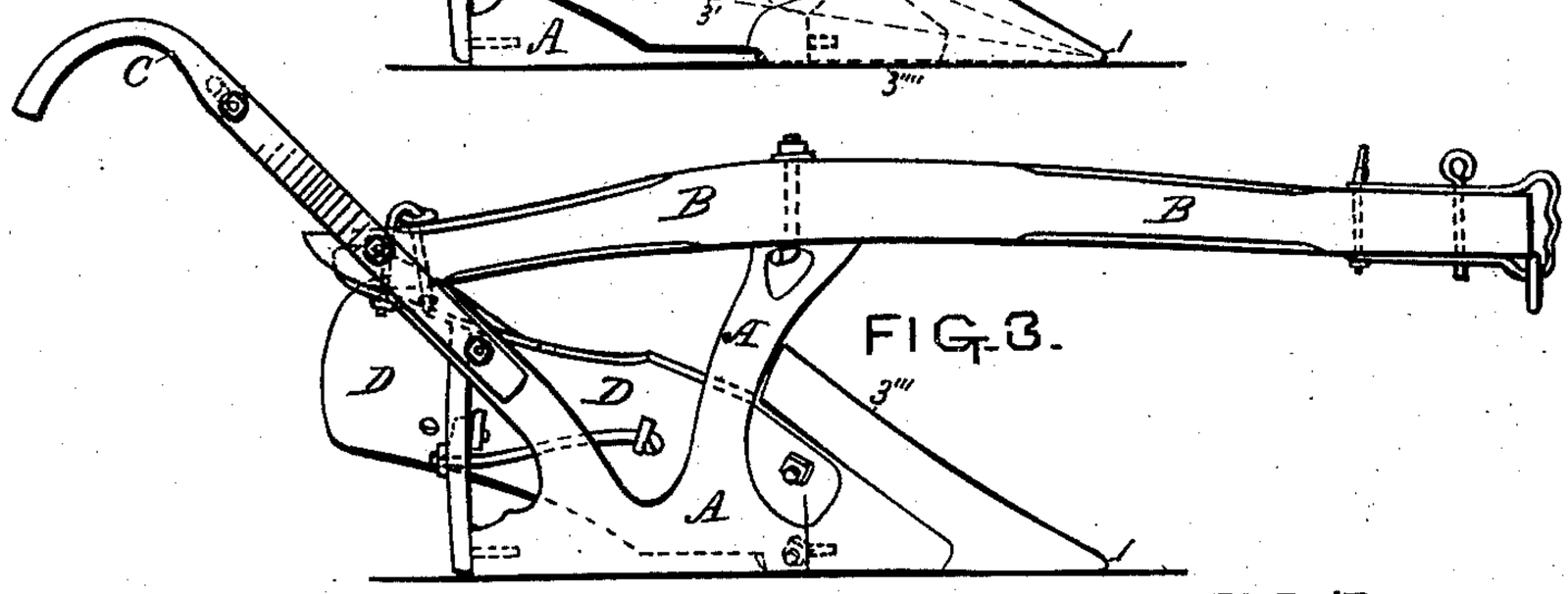


FIG. 4.

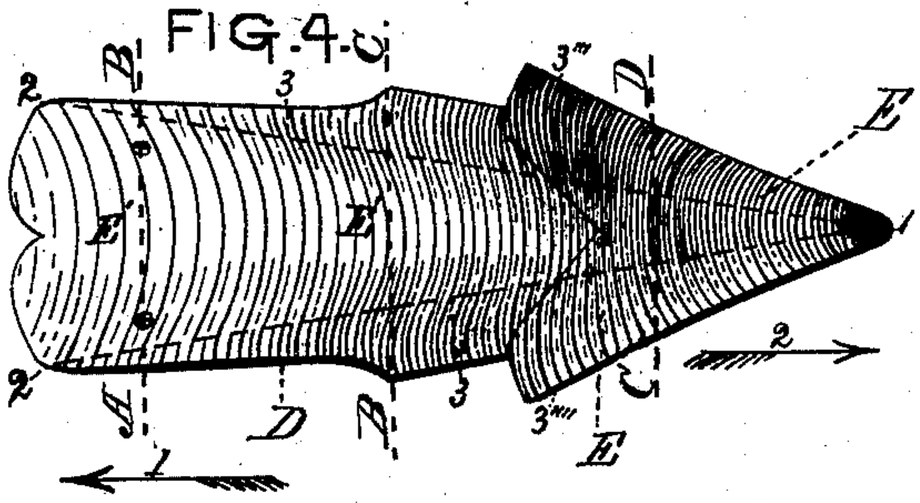


FIG. 5.

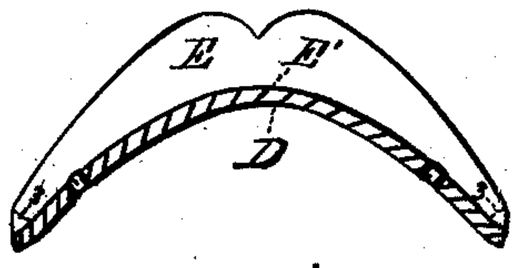


FIG. 6.

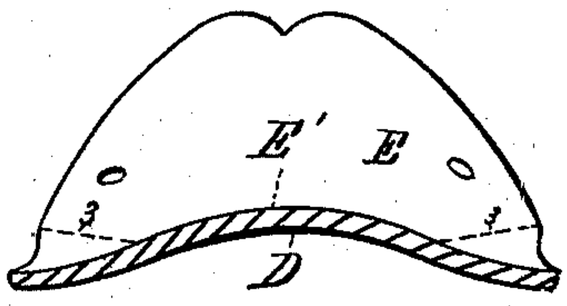
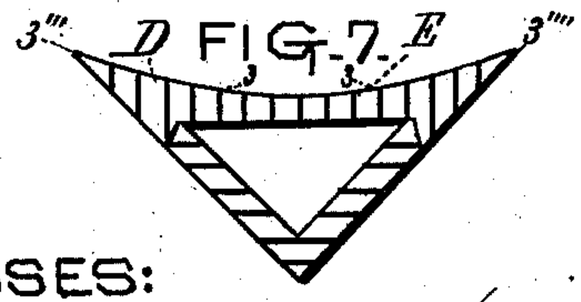


FIG. 7.



WITNESSES:

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UNITED STATES PATENT OFFICE.

SAMUEL A. KNOX, OF WORCESTER, MASSACHUSETTS.

IMPROVEMENT IN PLOWS.

Specification forming part of Letters Patent No. **198,028,** dated December 11, 1877; application filed May 3, 1877.

To all whom it may concern:

Be it known that I, SAMUEL A. KNOX, of the city and county of Worcester, and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Swivel or Side-Hill Plows; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 represents a top or plan view of a swivel or side-hill plow having my improvements applied thereto. Fig. 2 represents a side view of the same looking in the direction of arrow 1, Fig. 1. Fig. 3 represents also a side view of the plow shown in Fig. 1, looking in the direction of arrow 2, Fig. 1. Fig. 4 represents, upon an enlarged scale, a plan view of the working-surface of the mold-board, detached and turned a quarter-way over, and the point elevated, while the rear of the mold-board is depressed, for the purpose of illustrating more fully and clearly the peculiar construction of said mold-board, as indicated in Figs. 5, 6, and 7, which represent transverse sections through my said improved mold-board, taken on lines A B, B C, and C D, respectively, Figs. 5 and 6, looking in the direction indicated by arrow 1, Fig. 7, and in the direction of arrow 2, Fig. 4.

To enable those skilled in the art to which my invention belongs to make and use the same, I will proceed to describe it more in detail.

In the drawings, the part marked A represents the plow-standard; B, the plow-beam; C, the handles, and D my improved mold-board.

As will be seen from Figs. 4, 5, 6, and 7 of the drawings, the working-surface E of mold-board D consists of the peculiar combination and arrangement of concave and convex surfaces, and which are so relatively arranged and combined with each other that two direct inclined planes are obtained through the entire length of the mold-board (one upon each side) upon the lines 3 3, indicated by dotted lines, Figs. 1, 2, and 4 of the drawings, both lines starting from a central point, 1, in the point of the plow, and terminating at the points 2 2 at the rear end of the mold-board, as fully indicated in Fig. 4 of the drawings, which, as before explained, represents a top or plan view of the entire working-surface of the mold-board when the latter is detached and turned a quarter-way over, and the point elevated, while the rear of the mold-board is depressed, for the purpose of illustrating more fully and clearly the peculiar construction of said mold-board.

As before indicated, the mold-board D is made with two inclined planes, which planes act in combination, in gradually raising the sod upon the principal of the wedge—that is to say, when the plow is in operation (the parts occupying the relative positions shown in Fig. 1) the point 1 enters the ground and runs under the sod, which is gradually raised by the lower inclined plane 3′, while the upper inclined plane 3″ acts upon the sod as soon as it is elevated to that height to gradually turn the sod over, while the wing or cutting-edge 3‴ also comes into action to support and assist in turning the sod as fast as it is elevated above the upper inclined plane 3″, and, by the combined action of said two inclined planes, the wing or cutting-edge 3‴ and the central concave and convex portions E′ of the central part of the mold-board gradually raise and turn over the sod in such a manner that the power required for such operation is reduced to the minimum, while, at the same time, the action on the earth upon the under side of the sod is such as to disintegrate such earth, whereby, when the sod is turned over, both the earth and the sod are left in a comparatively loose or pulverized state or condition, instead of in a comparatively hard and solid mass.

It will be understood that the mold-board D is swiveled to the base of the plow-standards in the usual manner, and, consequently, as the mold-board is made up of two parts which are just alike, the action will be the same as that just above described, when the mold-board is swung to the opposite side of the plow-beam to cut the reverse furrow.

It will be further understood that, when the mold-board is reversed and swung to the other side of the plow-beam, as just stated, both the position and action of the inclined planes are reversed—that is to say, inclined plane 3′ becomes the upper and the in-

clined plane 3″ becomes the lower, while the cutting-edge or wing 3‴ is elevated and the cutting-edge 3‴ is depressed, and runs upon the ground in the bottom of the furrow.

By the peculiar combination of the convex and concave surfaces and wings or cutting edges 3‴ and 3‴, the sod and the earth being elevated with it are so acted upon between the lines C D and B C that the earth and sod are not only rolled, broken, or disintegrated, but are so forced off from portions of the working-surface of the mold-board as to admit the air freely between the earth and the mold-board, thereby preventing that heavy drag or draft due to the adhesion or suction of the furrow-slice.

Having described my improvements in swivel or side-hill plows, what I claim therein as new and of my invention, and desire to secure by Letters Patent, is—

A mold-board, D, for swivel-plows, the working-surface E of which consists of combined concave and convex surfaces, arranged in relation to each other, as shown and described, to produce or form two direct inclined planes, diverging from the point 1 to the points 2 2, substantially as and for the purposes set forth.

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