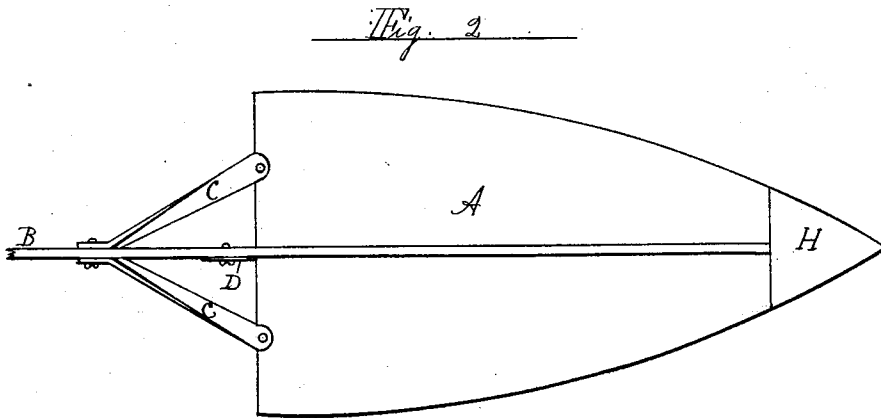
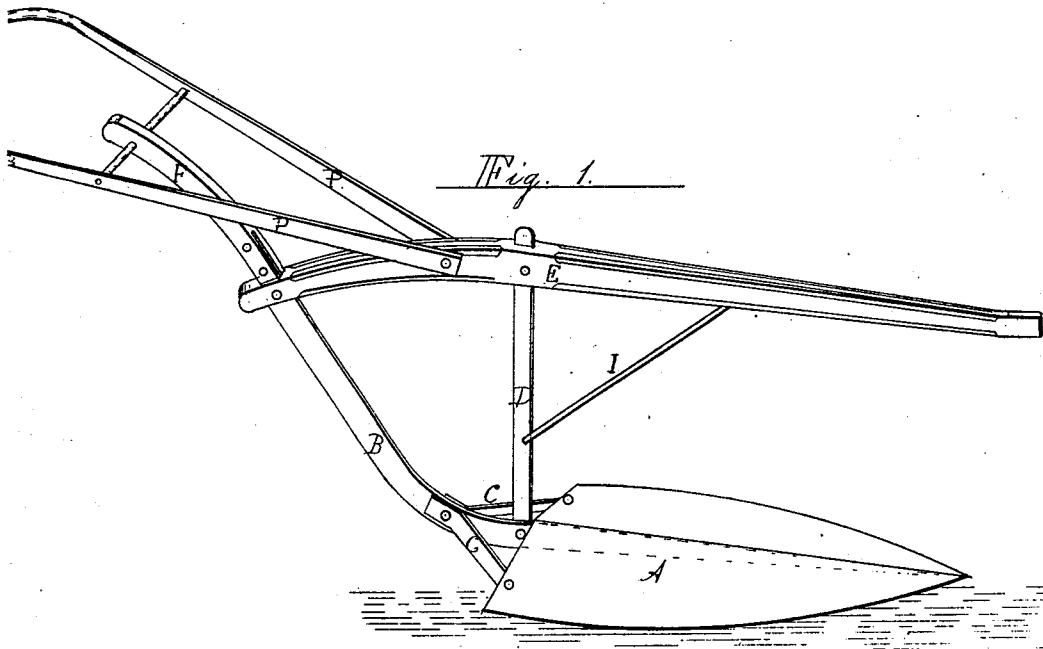


W. WATKINS.

Cultivator.

No. 99,377.

Patented Feb. 1, 1870.



Witnesses

Thos H Hutchins
H. Lowe

Inventor

William Watkins

UNITED STATES PATENT OFFICE.

WILLIAM WATKINS, OF JOLIET, ILLINOIS.

IMPROVEMENT IN SUBSOIL-PLOWS.

Specification forming part of Letters Patent No. 99,377, dated February 1, 1870.

To all whom it may concern:

Be it known that I, WILLIAM WATKINS, of the town of Joliet, in Will county, and State of Illinois, have invented a new and useful Improvement in Subsoil-Plows; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of the same, in which—

Figure 1 is a perspective view of the plow, and Fig. 2 a plan view on the bottom of the share.

My invention consists in the employment of a new kind of share for subsoil-plows, and its arrangement, by means of which the subsoil is loosened up in the bottom of the furrow, and not thrown up on top of the surface soil or mold, as is ordinarily the case with subsoil-plows.

The share or plow proper is shown at A, Figs. 1 and 2, and is nearly in the shape of an arrow-head, the point being foremost and elevated from the joint to the heel in the center, as shown in Fig. 1, to break the earth and raise it up to let it fall in the rear as the plow passes along. The share A is attached to the lower end of the crooked bar B, which passes under its entire length, to strengthen it, as is shown particularly in Fig. 2, the end running under the steel point H. The share A is intended to run flat on the bottom of its furrow, as shown in Fig. 1.

C C are two braces running from the rear

end of the share A to the crooked bar B, to assist in strengthening and to pulverize the soil as it falls over onto them. The crooked bar passes up through the rear end of the beam E, to which it is fastened, and is attached to the block F, to support the handles P P, as shown in Fig. 1.

D is a standard or shim running from the crooked bar B, near the share A, to the beam E, which it supports; and I is a brace to give the plow strength when in operation.

The plow may be all constructed of metal, or may be partially wood and partially metal, as desired, and is intended to follow behind in the furrow of the ordinary plow to loosen up the bottom, as before stated. The crooked bar B forms a complete brace from the joint of the share A to the rear end of the beam E, and supports the share A along its entire center, so it will not flatten down by the pressure of the earth.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is as follows:

The combination and arrangement of the share A, braces C C, crooked bar B, shim D, brace I, beam E, block F, and handles P P, as and for the purposes set forth.

WILLIAM WATKINS.

Witnesses:

THOS. H. HUTCHINS,
D. A. REES.