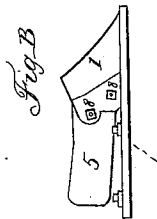
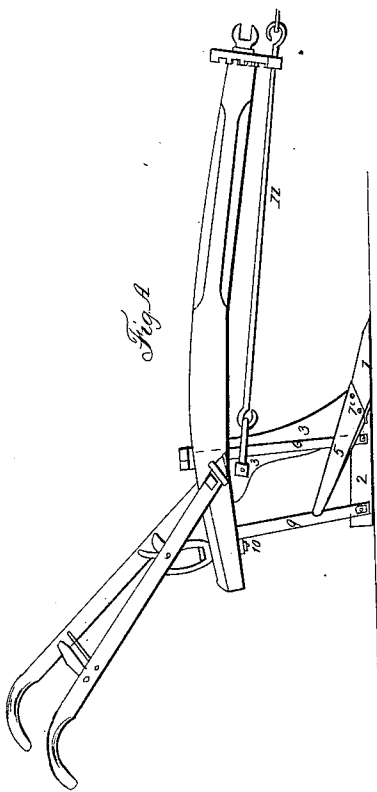
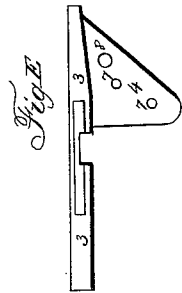
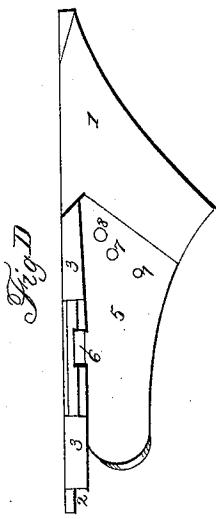
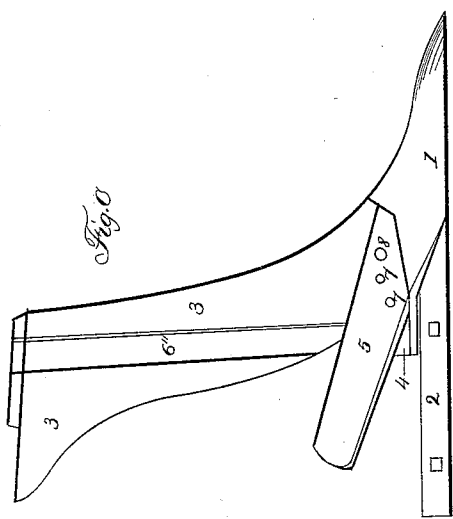


GARRETT & COTTMAN.

Plow.

No. 15,039.

Patented June 3, 1856.



UNITED STATES PATENT OFFICE.

CYRUS GARRETT AND THOMAS COTTMAN, OF CINCINNATI, OHIO.

IMPROVEMENT IN SUBSOIL-PLOWS.

Specification forming part of Letters Patent No. **15,039**, dated June 3, 1856.

To all whom it may concern:

Be it known that we, CYRUS GARRETT and THOMAS COTTMAN, of the city of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in what is denominated "Subsoil-Plows;" and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, similar figures referring to corresponding parts.

The use of subsoil-plows, as is well known, consists in following the ordinary plow used for turning the surface soil and loosening and pulverizing the lower soil to the desired depth without bringing it to the surface. Plows heretofore invented to effect this purpose have been so rude in their structure and made in such a manner that the power required to work them has been more, in proportion to the size, than any other plow in use.

The nature of our improvement consists in the arrangement of its several parts, which will be fully explained in the following specification.

To enable others skilled in the art to make and use our improvement, we will proceed to describe its construction and operation by referring to the accompanying drawings, forming part of this specification.

Figure A represents a side view of an ordinary plow in its structure, with the exception of the arrangement of the share, standard, and mold-board, the mold-board being made of steel. Fig. B is an under-side view of the share and mold-board. Fig. C is an enlarged side view of the standard, share, and mold-board, showing the manner of combining them together; and Fig. D is a top or bird's-eye view of the part represented in Fig. C. Fig. E is a separate and top view of the standard, showing the flange cast to its bottom, to which is attached the share and mold-board, the share being attached to the flange of the standard by means of bolts, and the mold-board is connected by rivets to flange of the standard, as is shown in Fig. A of the accompanying drawings.

The share and mold-board portions of subsoil-plows heretofore made are composed of cast-iron, which does not possess the advan-

tage that steel and wrought-iron do—namely, of scouring, which renders the power required for drawing the plow much less than when made of cast-iron. Nor is cast-iron capable of receiving so sharp an edge as steel or wrought-iron, and therefore requires more power for cutting through the soil and drawing the plow.

Our improved plow is provided with a steel or wrought-iron mold-board, share, and land-side, all of which readily scour, thereby diminishing the power required for working them compared with those in which cast-iron is used.

We do not wish to be understood as being the first inventors or the first to apply the steel or wrought share and mold-board to ordinary plows; but our improvement is in the manner of combining them to the standard for the purpose of a subsoil-plow.

1 and 2 represent the share and landside. 3 is the standard, provided with a slot, 6", in its side, in which a flat bolt passes up from the landside to the top of the beam, as represented in Fig. A, and numbered 6, for attaching to the beam, the lower part of the bolt being made fast to the landside with a screw-bolt and nut, and the top of the bolt is provided with a nut, which is screwed down on the beam, as represented in Fig. A.

The back end of the landside is provided with a bolt, 9, for holding and steadying it to the beam of the plow, the upper end of which bolt is attached to the under part of the beam, as shown at 10, while the lower end is attached to the landside similar to the bolt 6.

11 is the rod to which the team is attached, and is provided with an apparatus on the end of the beam for regulating the depth of the draft.

5 is the steel mold-board, riveted to the flange 4 by the rivets 7 7, the flange *e* being cast to the lower part of the standard, as represented in Fig. E, and the share is attached to the flange 4, first, by one bolt 8 being attached to the flange 4 and passing through the plate portion of the share, and another bolt 8 is made to pass through the mold-board 5, flange 4, and the plate portion of the share. Each of the bolts 8 is provided with nuts that are screwed on at the bottom of the share, as represented in Fig. B.

The standard 3 is made of cast-iron, and the flange 4 is a part cast to the lower portion of the standard, to which the steel or wrought

share and mold-board are attached by means of bolts and rivets, the share being made of any desired width to suit the work required, and the mold-board 5 is made narrow and the back end raised to an angle of some twelve or fifteen degrees, more or less, so that when the soil is plowed up it will crumble and fall back into the furrow without being brought up to the surface. The share and mold-board readily scour, which renders the working of the plow much easier than when they are made of cast-iron, and performs the work much better, and, should the share ever become dull or otherwise injured, it can readily be repaired, being wrought metal or steel, and can be sharpened and straightened if bent by coming in contact with stationary bodies. One and the same mold-board, by being made of wrought metal or steel, is capable of being placed on the plow at any required angle to suit the nature of the soil by bending it up or down back of where it is at-

tached to the flange. Some soil, being tough, requires a greater elevation of the mold-board to crumble and pulverize it than when the ground is soft and yielding, and if cast-iron was used the change could not be effected without having a mold-board to suit the different kinds of soil, which is much of a disadvantage compared with the wrought or steel mold-boards.

What we claim as our improvement, and desire to secure by Letters Patent, is—

The arrangement of the standard 3, flange 4, share 1, and mold-board 5, and these arranged with the brace-bar 9 and stay-bar 6, for purposes mentioned in the foregoing specification.

CYRUS GARRETT.
THOMAS COTTMAN

Witnesses:

MARTIN BENSON,
L. W. SMITH.