S. E. DRAKE.

DIES FOR BENDING CULTIVATOR BEAMS.

No. 178,744. Patented June 13, 1876.

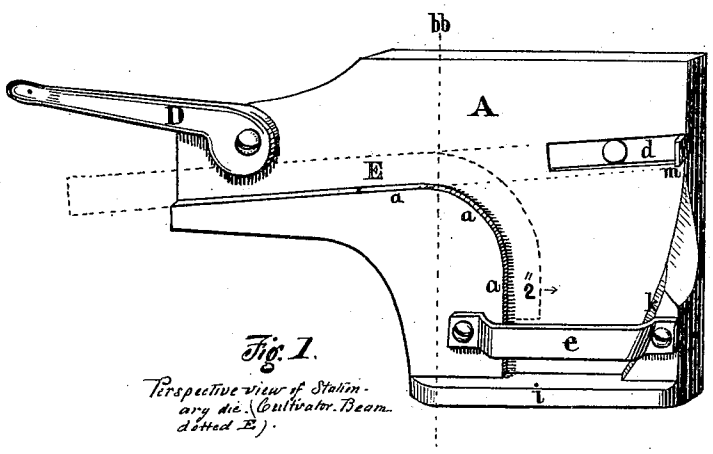

Fig. 1.

Perspective view of Stationary die. (Cultivator Beam dotted E).

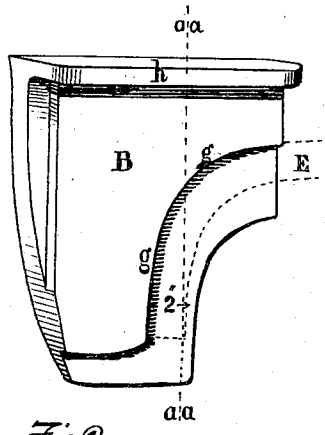

Fig. 2.

Perspective of face of Stamping die

Fig. 5.

(Plan of left Beam)

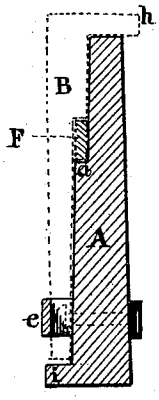

Fig. 4

Vert. sec (seen from left of fig 1.)

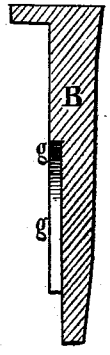

Fig. 3.

Vert. sec. seen from right of fig 2.

Witnesses
William Brayton
John Clarendon

Samuel E. Drake
(by E. Thurston
his atty in fact)

UNITED STATES PATENT OFFICE.

SAMUEL E. DRAKE, OF CANTON, ILLINOIS, ASSIGNOR OF ONE-HALF OF HIS RIGHT TO WILLIAM PARLIN AND WILLIAM J. ORENDORFF, OF SAME PLACE.

IMPROVEMENT IN DIES FOR BENDING CULTIVATOR-BEAMS.

Specification forming part of Letters Patent No. **178,744**, dated June 13, 1876; application filed May 17, 1876.

To all whom it may concern:

Be it known that I, SAMUEL E. DRAKE, of Canton, in the county of Fulton, in the State of Illinois, have invented an Improvement in Dies for Bending Cultivator-Beams; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawings, making a part of this specification, in which like letters of reference refer to like parts, and in which—

Figure 1 represents a perspective view of the main die; Fig. 2, perspective view of the upper die—*i. e.*, the inner face; Fig. 3, vertical section of latter die on line *a a*, Fig. 2; Fig. 4, section of main die on line *b b*, Fig. 1; Fig. 5, plan view of cultivator-beam, showing the lateral twist.

The object of this device is to confer the bend and the necessary twist to the beam of a cultivator at one and the same time, meaning the lateral curvature (twist) necessary to bring the end which receives the plow parallel with its neighbor; and consists, first, of a main die with a detent for holding a straight bar for the bending process; second, a gage for limiting the length of the leg, or that part of the beam which is to receive the shovel, and allowing the same to be inserted only to the proper distance; third, the upper die.

The main die is a vertical block of iron provided with a shoulder conforming to the straight portion of a cultivator-beam for part of its length, diverted into a curve downward, upon which the heated bar is pressed by the upper die. The face of the die is also formed to give the necessary side twist to the bar, above described. To admit into the dies only so much of the bar as will produce the necessary length of the curved end, a gage is attached to the back face of the main die in a line with said straight part of the shoulder, in such wise as not to interfere with the action of the other die. A clamp, cam, lever, or other detent is attached above and near the outer end of said shoulder, to hold the bar during its formation into a beam. The other die has a recess or die-surface conforming to the shoulder of the first-described die, and to the face of the same, and to which it is confined in its action when struck or pressed by a guide on the outside, which bridges the inner end of the recess on the main die, or by any effective device for keeping the dies during pressure in close contact. Of course reverse dies will be necessary to form the corresponding beam. The dies may be operated by an ordinary drop-hammer or by any other effective machine.

In the drawings, which represent one of the forms in which I construct the dies, A represents the main die, having a shoulder or table, *a a*, of slight elevation—*i. e.*, the thickness of the beam—connected with the surface of the die by sides which join the latter (surface of die) at a right angle, and upon which said beam receives its curvature. Opposite the inner or lower end of the curved part of the shoulder *a* is a second shoulder or incline designed to force the upper die B against the bar E, to make the latter conform to *a a a*. Above the straight part of said table *a* is stationed a cam-headed lever, D, having an outer flange beyond the bar E to retain the latter when the force is applied. In a line with the same straight portion of said table *a* is a gage or stop, *d*, having a shoulder, *m*, to limit the undue insertion of the bar or beam within the dies. The main die A has a base, *i*, or widening of its lower side, and near it, spanning the hollow between the table *a* and the incline *k*, is a guide, *e*, to keep the dies in contact under pressure. B is the upper or striking die, which, on its inner surface, conforms exactly to its fellow A, being provided with a similar shoulder or table, but incurved or hollow, so as to be parallel with *a a*, but leaving space between for the substance of the beam E. This die need be of no great thickness, as its depth makes up any deficiency in this direction; but it is widened at its top *h*, and projects above the main die at all times the better to receive force or pressure from the hammer, &c. The face of each die at that part which compresses the lower end of the curve of the beam has a warp or incline, 2″ 2″, or descent of their respective surfaces in a direction away from the respective shoulders *a a g*

g, which give the necessary side twist to the beam E, that the attached shovels may be parallel with each other.

What I claim as my invention is—

1. The main die A and its reverse, provided with the curved table *a a*, a detent for the inserted beam above the table, the gage *d*, the incline *k*, facing the curved part of said table, with guide *e*, and the striking-die B, for the purpose of conferring on a cultivator-beam at once the proper curve, and also the lateral twist, substantially as described.

2. The die A and its reverse, combining the table *a*, gage *d m*, incline *k*, guide *e*, and detent D, in combination with the die B and its table *g*, adapted to pass down the incline *k* behind the guide *e*, substantially as and for the purposes described.

In testimony that I claim the foregoing Dies for Bending Cultivator-Beams I have hereunto set my hand this 5th day of May, A. D. 1876.

SAMUEL E. DRAKE.

Witnesses:

J. L. DRAKE,

W. CROSTHWAIT.