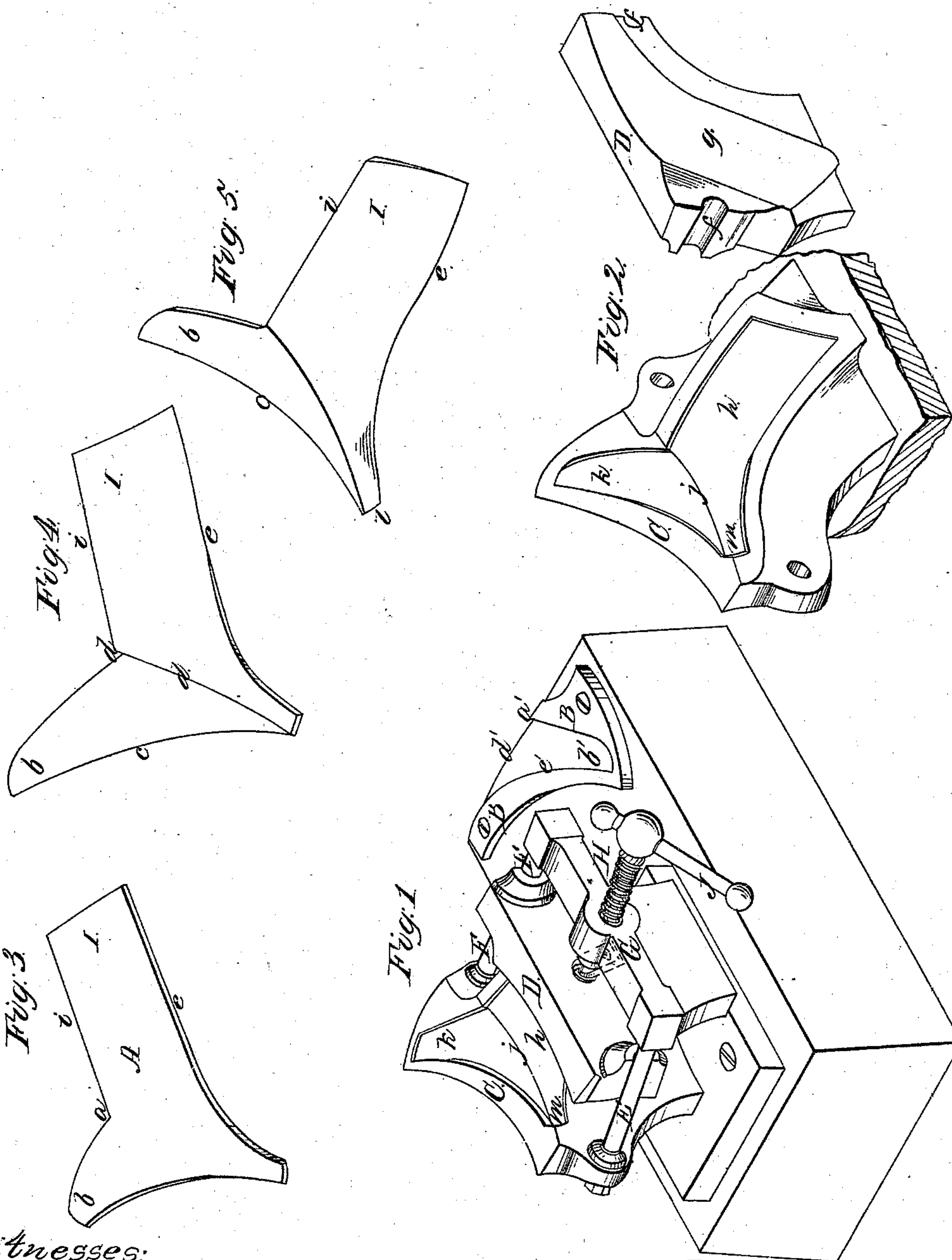


*J. S. Hall,*  
*Making Plow Irons,*  
*N<sup>o</sup> 36,691.* *Patented Oct. 14, 1862.*



*Witnesses:*  
*Harry W. Price*  
*John H. Hays.*

*Inventor;*  
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*By atty A. B. Stoughton.*



# UNITED STATES PATENT OFFICE.

JOHN S. HALL, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN MACHINES FOR FORGING, BENDING, AND SHAPING PLOWSHARES.

Specification forming part of Letters Patent No. 36,691, dated October 14, 1862.

*To all whom it may concern:*

Be it known that I, JOHN S. HALL, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Machines for Forging, Bending, and Shaping Plowshares; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a perspective view of the machine. Fig. 2 represents the pressing-dies as disconnected to show the form of each. Figs. 3, 4, and 5 are simply to illustrate the operation of the drawing or forging and the bending and shaping of the plowshare, it being shown in its several stages, from the plate or blank to its finished state.

The plowshare which I propose to make is composed of a single piece of steel or iron, which avoids welding. It has two parts, when finished, which stand at right angles to each other, or nearly so—viz., a vertical or inclined cutter and a horizontal blade, and both the cutter and blade are beveled or tapered from their back to their front or cutting edges; and to make these shares of uniform shape and size to fit or be easily fitted to the mold-board of the plow, and to make them strong and cheap, is the purpose and object of my invention.

To enable those skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

A piece of steel or iron, A, of the shape or form of that shown in Fig. 3, having been first cut or punched out, is first heated, and then laid with its shoulder *a* at the shoulder *a'* of the die-block B, and the portion *b* is drawn down until it fills the die *b'*. The edge *c'* of the die *b'* is very shallow, so that the edge *c* of the plate or blank is drawn out quite thin to form a cutting-edge. In drawing down the part *b* a shoulder, *d*, is formed on the blank by the edge *d'* of the die. This shoulder is quite important in the after operation, as it admits of a short bend there, and forms a sharp corner or edge to the share, and besides this it prevents the blank from being drawn from the clamping and shaping dies. The blank A having been wrought as above described, and the edge *e* having been also drawn down to an edge, which may be done in any of the ordinary known ways, the blank

will have assumed the form of that shown in Fig. 4, when it is prepared to go into the pressing-dies.

The pressing-dies are made in two parts, C D, the part C being stationary, and the part D being movable. To the stationary part C of the pressing-dies is connected, by rods E F, a brace, G, through which a screw-rod, H, passes, and which screw-rod runs up or back the movable die D, said die being guided on the rods E F by bearings *f f*, as seen in Fig. 2. The face *g* of the movable die D is only slightly concave, while that *h* of the other die is convex and sunken, so as to give shape and form to the part I of the finished share, which is curved slightly from its cutting-edge *e* to its rear side, *i*. The portion I of the blank or partially-formed share having been set into die *h* with the shoulder *d* opposite the edge *j*, the movable die is run up by the lever J and screw-rod H, which not only clamps, but gives form to, the portion I, the portion *b* projecting up above the dies. This portion is then bent over and hammered or pressed into the die *k*, which completes the plowshare. Of course it will be understood that when the blank is to be drawn down or bent it must be first heated.

By this machine I make plowshares out of a single piece of steel or iron, which have a vertical and horizontal cutting-edge with a sharp corner where they meet, and a strong connection at the bend, much more so than if welded. The point *m* of the dies forms the point *l* of the share, so that there is a guiding mark or line all the way through to indicate where and how the blank is to be laid in the dies.

Having thus fully described the nature and object of my invention, what I claim therein as new, and desire to secure by Letters Patent, is—

1. The die B, for drawing down, beveling, and shouldering the blank, substantially as and for the purpose herein described.

2. In combination, the dies C D, for gripping, bending, and forming the plowshare, when constructed and operating substantially as herein described.

JOHN S. HALL.

Witnesses:

DANIEL IKIRT,  
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