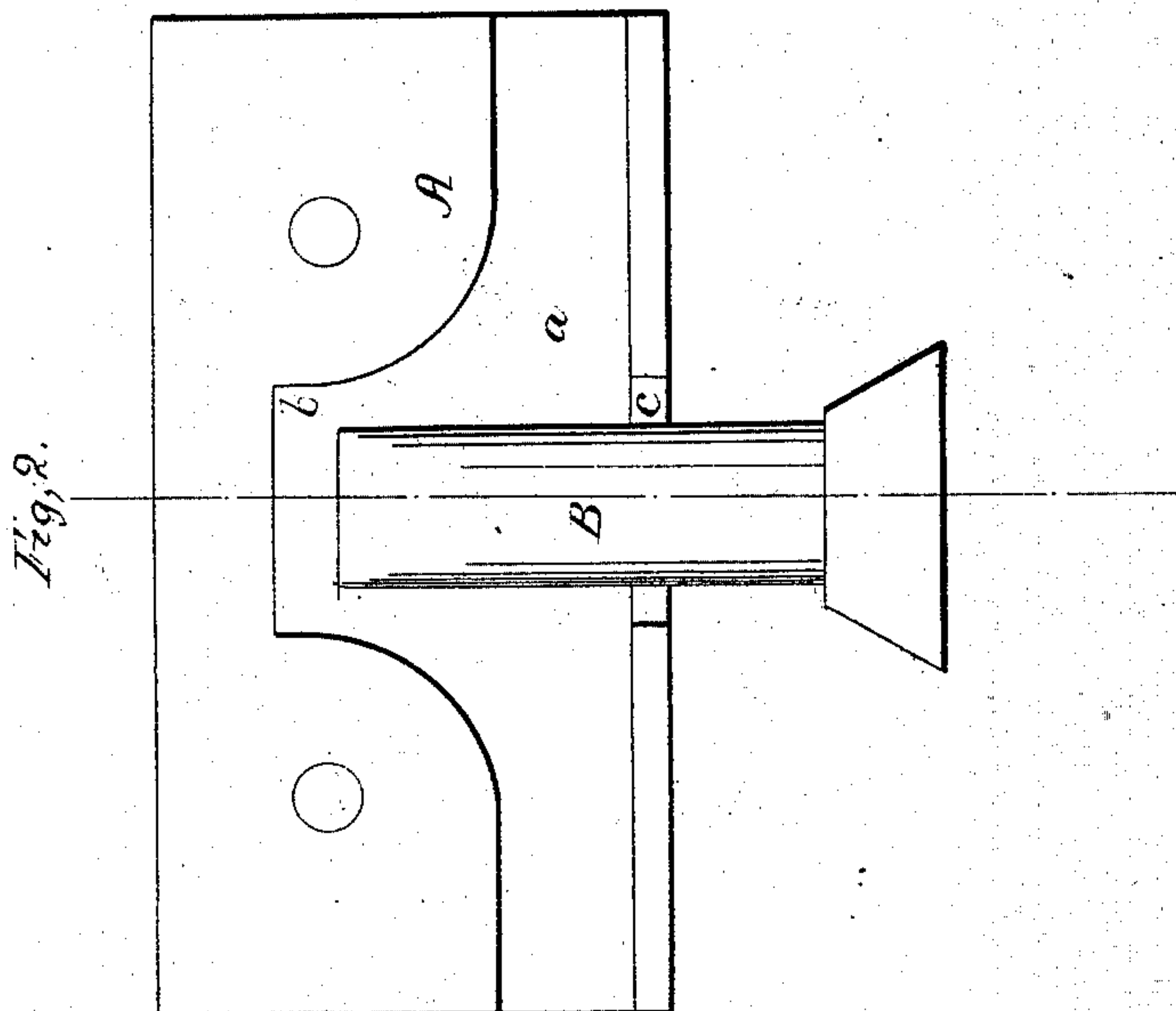
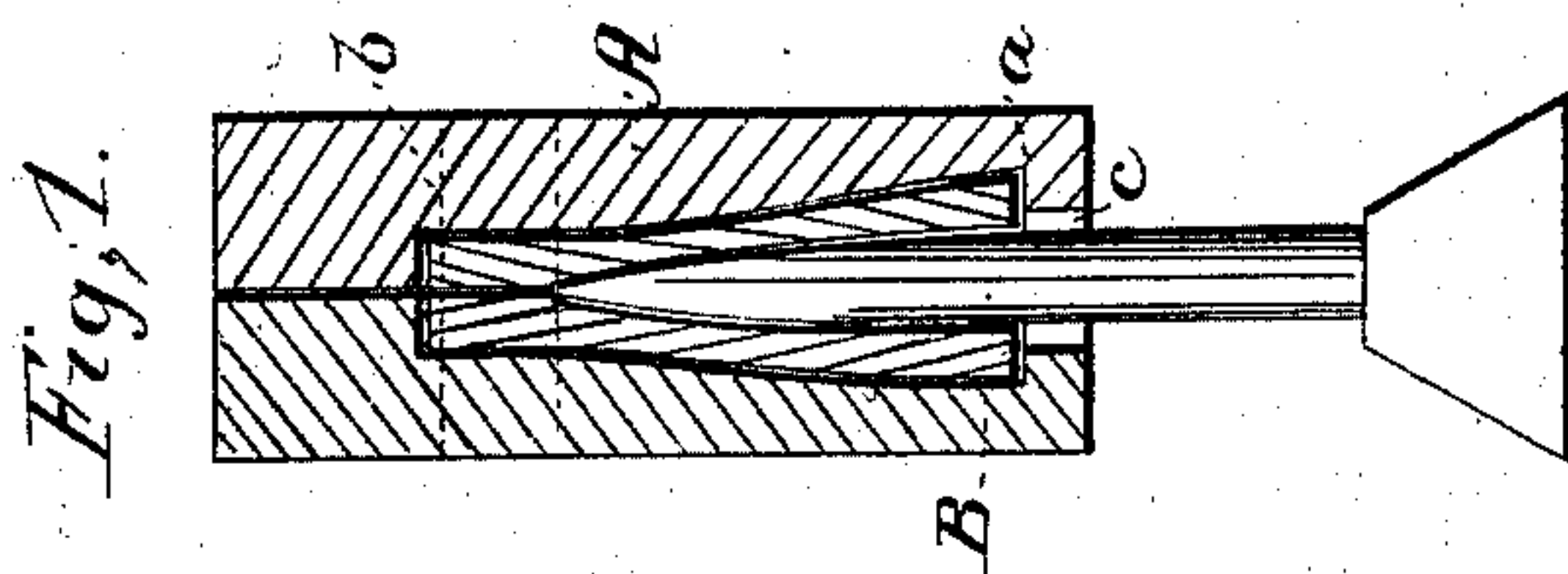


H. I. Lowman.

Forming the Eyes of Pick-Axes.

N^o 60,022.

Patented Nov. 27, 1866.



Witnesses,

*Wm. F. McManis
Wm. Freese*

Inventor,

H. I. Lowman

United States Patent Office.

IMPROVEMENT IN DIES FOR FORMING THE EYES OF PICK-AXES.

H. L. LOWMAN, OF NEW YORK.

Letters Patent No. 60,022, dated November 27, 1866.

SPECIFICATION.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, HARVEY L. LOWMAN, of the city, county, and State of New York, have invented a new and useful improvement in the manufacture of Pick-Axes, Hammers, etc.; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a transverse, vertical section of this invention.

Figure 2 is an inside view of one half of the die.

Similar letters of reference indicate like parts.

This invention consists in producing and shaping the eye of a pick-axe, hammer, axe, or other similar article, by placing a suitable blank in a solid die, that is to say, in a die which is closed all round the cavity in which the eye is formed, and after the blank is firmly clamped in said die, it is forced down on the punch, or the punch may be made to act on the blank, in such a manner that, by the action of said punch, the metal is caused to spread and to fill the cavity intended for the eye, and an eye of the proper shape is produced without loss of stock, which is inevitable in the ordinary method of punching out the eyes.

A represents the die which I use in shaping my pick-axes, hammers, axes, or other similar articles. This die is made in two parts, each part being provided with a cavity, *a*, to receive the blank, and with a cavity, *b*, in which the eye of the pick-axe, or other article, is to be shaped. When the two parts or jaws of the die are brought together, an opening, *c*, is left to admit the punch B. In practice, the two jaws of the die are so arranged that they open by the action of a spring, or other equivalent device, to receive the blank. The blank, which may consist of a plain bar of iron, is heated and placed between the two jaws, which close up and clamp the same firmly. The die holding the blank is then forced against the punch B, which is stationary, and as said punch enters the same the metal spreads and fills the cavity *b*. By these means the eye is partially punched, and at the same time it is brought in such a shape that it can be readily finished by a subsequent operation. The jaws of the die must be so constructed that the same, when brought together, will close tight, and form what may be properly termed a solid die; and by the use of this solid die, in combination with a suitable punch, the required shape is given to the article to be punched, and at the same time the punch penetrates nearly through that portion of said article which is to form the eye. The end of the punch is sharp and wedge-shaped, so that it is capable to enter the metal and spread the same in every direction, and the eye is punched without driving out any portion of the stock. By these means the cost of a pick-axe, or other similar article, is materially reduced, and their eyes are all of uniform shape and size.

Having thus described my invention, I claim as new, and desire to secure by Letters Patent—

The combination of a die A, and punch B, constructed substantially as described, for simultaneously punching and giving proper form, both externally and internally, to the elongated eye of a pick-axe, or other tool with similar elongated eye, the whole operating substantially as set forth.

H. L. LOWMAN.

Witnesses:

WM. F. McNAMARA,
OCTAVIUS KNIGHT.