

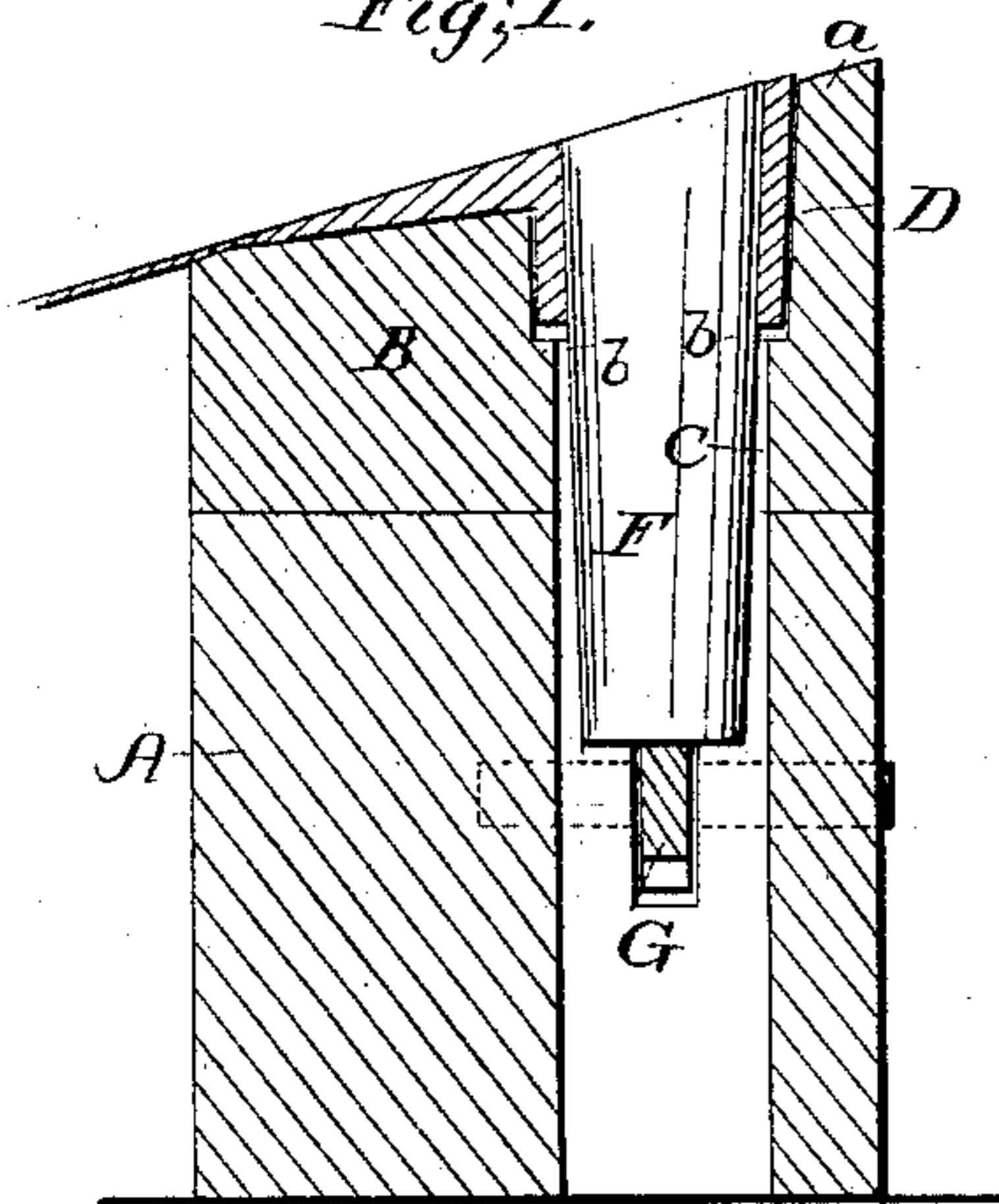
*S. Boyd.*

*Making Hoes.*

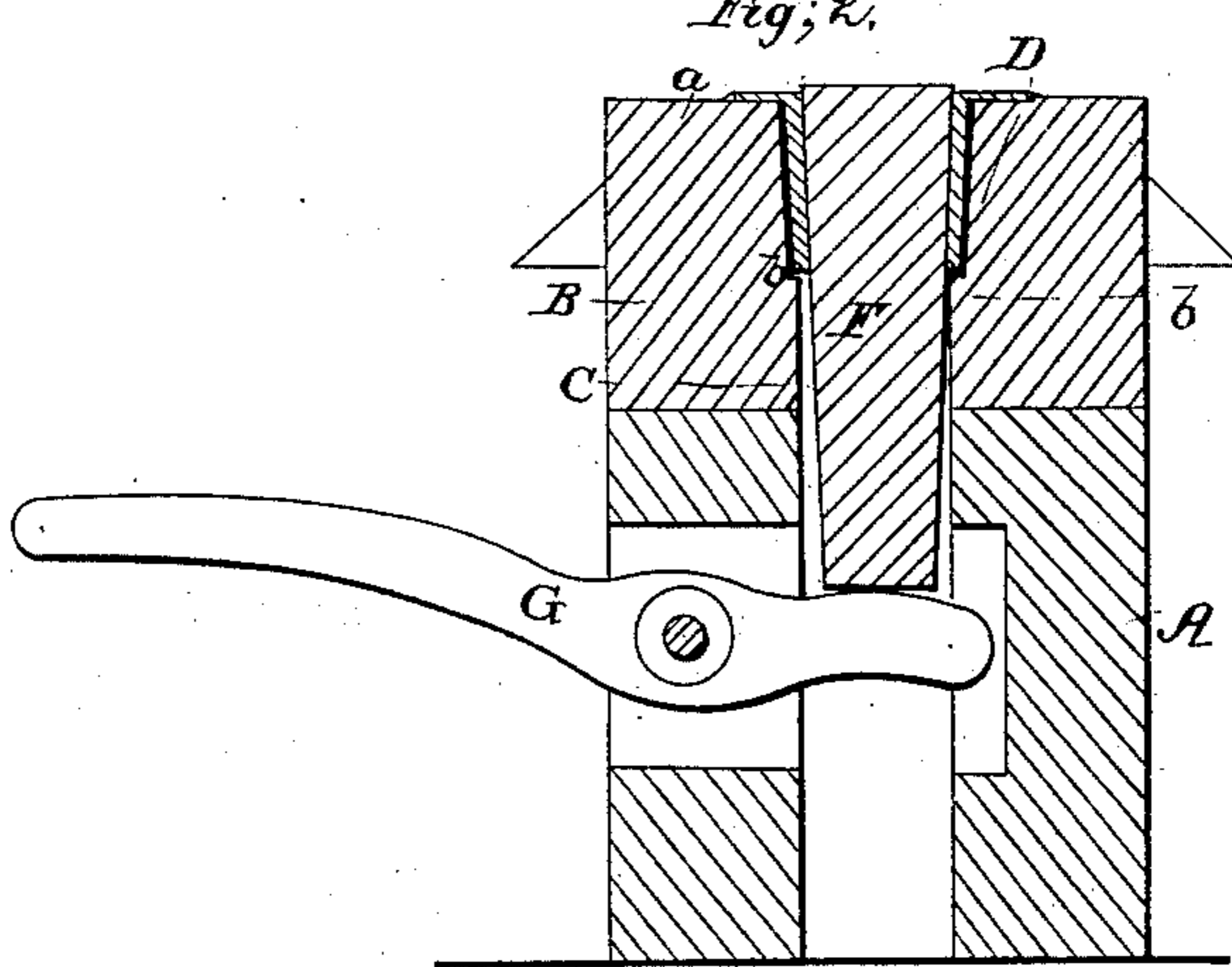
*N<sup>o</sup> 24, 926.*

*Patented Aug. 2, 1859.*

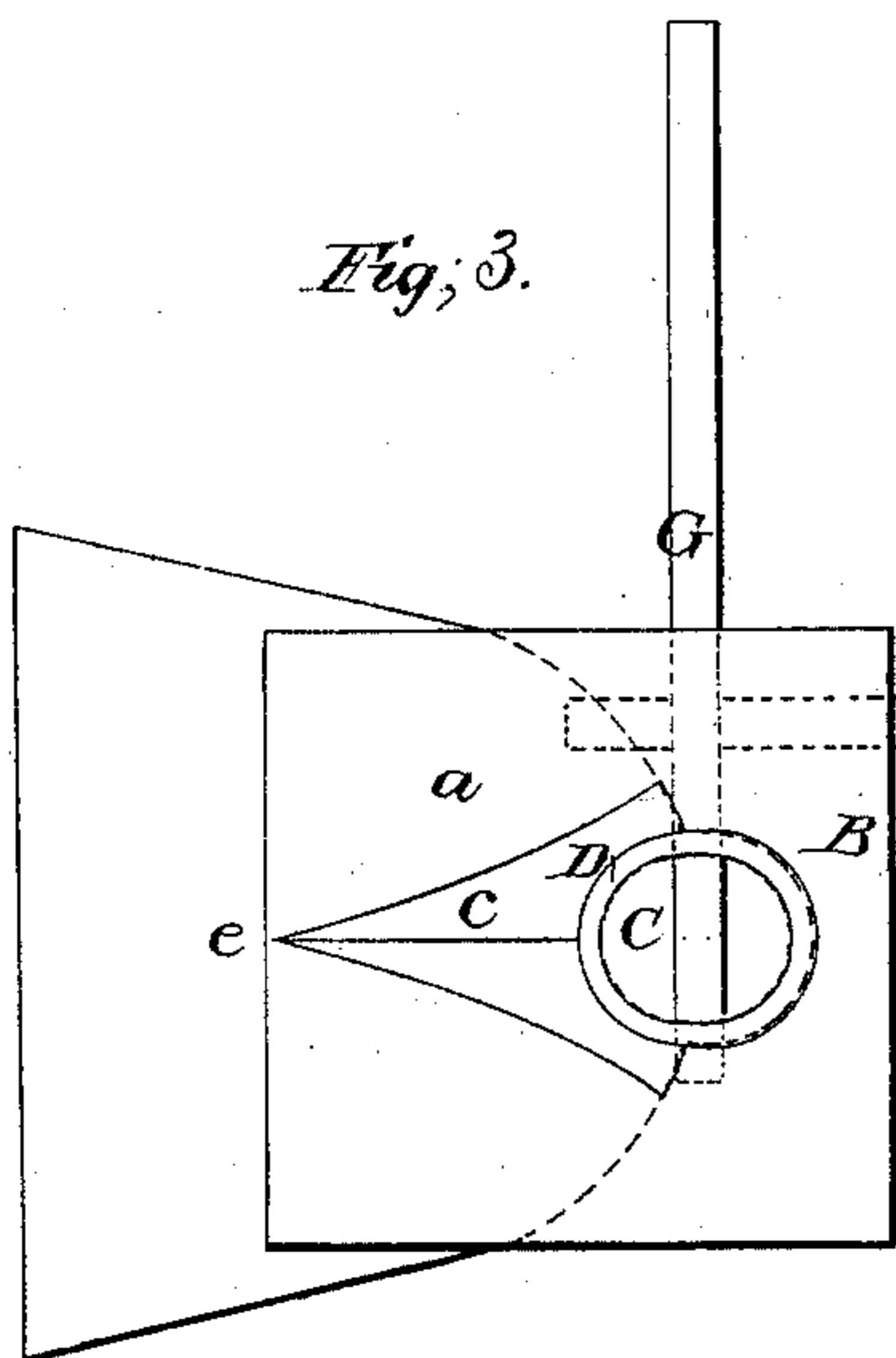
*Fig; 1.*



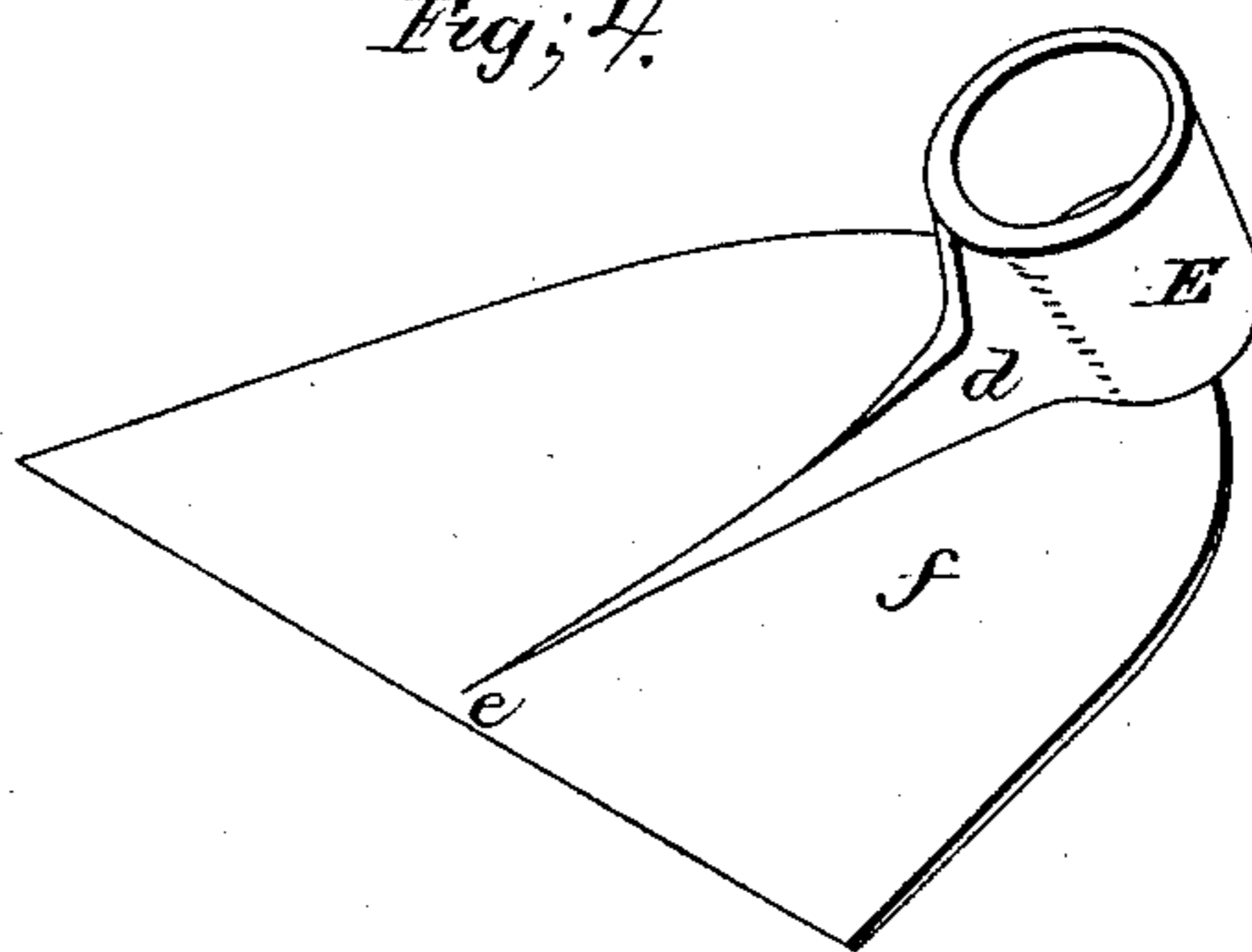
*Fig; 2.*



*Fig; 3.*



*Fig; 4.*



*Witnesses;*  
*Opp. Tusch*  
*W. Hoff.*

*Inventor;*  
*Samuel Boyd*

# UNITED STATES PATENT OFFICE.

SAMUEL BOYD, OF BROOKLYN, NEW YORK.

## HOE.

Specification of Letters Patent No. 24,926, dated August 2, 1859.

*To all whom it may concern:*

Be it known that I, SAMUEL BOYD, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Apparatus or Device to be Used in the Manufacture of Wrought-Metal Hoes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figures 1 and 2, are vertical central sections of my invention, the two planes of section crossing each other at right angles. Fig. 3, is a plan or top view of ditto. Fig. 4, is a perspective view of a hoe constructed or finished by my invention.

This invention relates to an apparatus or device to facilitate and perfect the manufacture of that class of hoes which are provided with eyes for attaching the hoes to the handles.

To enable those skilled in the art to fully understand and construct my invention I will proceed to describe it.

A, represents a wooden block or support on which an anvil B, is placed. This anvil is a rectangular block of metal having an inclined upper surface or face *a*, of steel. Into the anvil B, a vertical hole or opening C, is made. This opening may also extend through the support A, as shown clearly in Figs. 1 and 2. The upper part D, of the opening C, in the B, is of conical or taper form and also oval. Corresponding to the external form of the eye E, of the base as shown more particularly in Fig. 4. The part D, of the opening C, may be termed a socket and its lower part terminates in a shoulder *b*, as shown clearly in Figs. 1 and 2.

In the face *a*, of the anvil B, a taper groove or recess *c*, is made, said groove or recess corresponding inversely with the ridge or prominence *d*, which extends from the eye E, toward the center of the cutting edge *e*, of the blade *f*, of the hoe. This groove or recess *c*, is shown clearly in Fig. 3, and the ridge or prominence *d*, is shown in Fig. 4. The face *a*, of the anvil is inclined relatively with the socket D, to a degree corresponding with the relative position of the blade *f*, and eye E.

F, is a mandrel which is of metal, of conical form and slightly oval in a transverse direction, corresponding to the form of the

eye E. The mandrel is smaller in diameter than the socket D, sufficiently so to allow when the mandrel is in the socket, a space between the mandrel and socket corresponding to the desired thickness of the eye E.

In the block A, a lever G, is placed, the inner end of which extends across the hole or opening C, and serves as a bearing for the mandrel F, when the latter is fully driven within the hole or opening C.

The above described apparatus or device is used as follows:—The hoe is forged as usual with the eye E, attached and is taken in a rough state from the hands of the forger properly heated and placed on the anvil B, the eye E, being fitted in the socket D, and the inner side of the blade *f*, on the inclined face *a*, of the anvil as shown in red figures 1 and 2. The operator then drives the mandrel F, through the eye E, of the hoe and by that means gives a perfect form to the eye, both externally and internally and the outer side of the blade *f*, is then hammered snugly down on the face *a*, and the ridge or prominence *d*, thereby perfectly formed and the blade *f*, made to assume a proper relative position with the socket D. The outer surface of the blade *f*, encompassing the socket is also made perfectly smooth and even, or level by the action of the hammer. The outer end of the lever G, is then depressed, the inner end being consequently thrown upward and the mandrel F, raised and removed, the finished hoe taken from the anvil another roughly forged one placed on it and the operation repeated.

By this invention it will be seen that the hoes will be finished uniformly and the blades *f*, will always be "set" properly with the eyes E, that is to say, have a proper degree of inclination. The eyes also will be perfectly formed.

Hoes of the within described construction have been hitherto formed by forging alone, and consequently many imperfect ones are produced, it being impossible even with first class workmen, to have perfect uniformity exist. The eyes will vary in dimensions, some will be thicker than others having an unnecessary weight of metal in them, while others will be too light and liable to fracture when handles are driven in them. Besides in finishing the eyes by forging only the metal is not materially compressed and consequently is not so strong as those finished

by my invention for in the latter case the mandrel F, "upsets" the metal or renders its fibers more compact. A better finish is also given the hoes than can be done by an  
5 exclusive manual operation, and the manufacture is greatly expedited.

I do not claim, broadly, the employment of anvils having molds or recesses to give shape to particular articles; nor do I claim  
10 any part or feature of W. Keller's device, rejected 1849; nor of E. S. Hulbert's, withdrawn, 1857, nor of J. Van Bocklin's, withdrawn, 1857, nor of S. Hall's, 1850. But

Having thus described my invention, I

claim the employment as new and desire to 15 secure by Letters Patent—

The employment of an anvil having an inclined face (a) groove or recess (c) and socket D, in combination with a mandrel F, as herein shown and described, whereby the  
20 bevel or "set" or the blade and eye, and the form, thickness and bevel of the interior of the socket or eye, will be uniformly and simultaneously produced as set forth.

SAMUEL BOYD.

Witnesses:

W. TUSCH,

W. HAUFF.