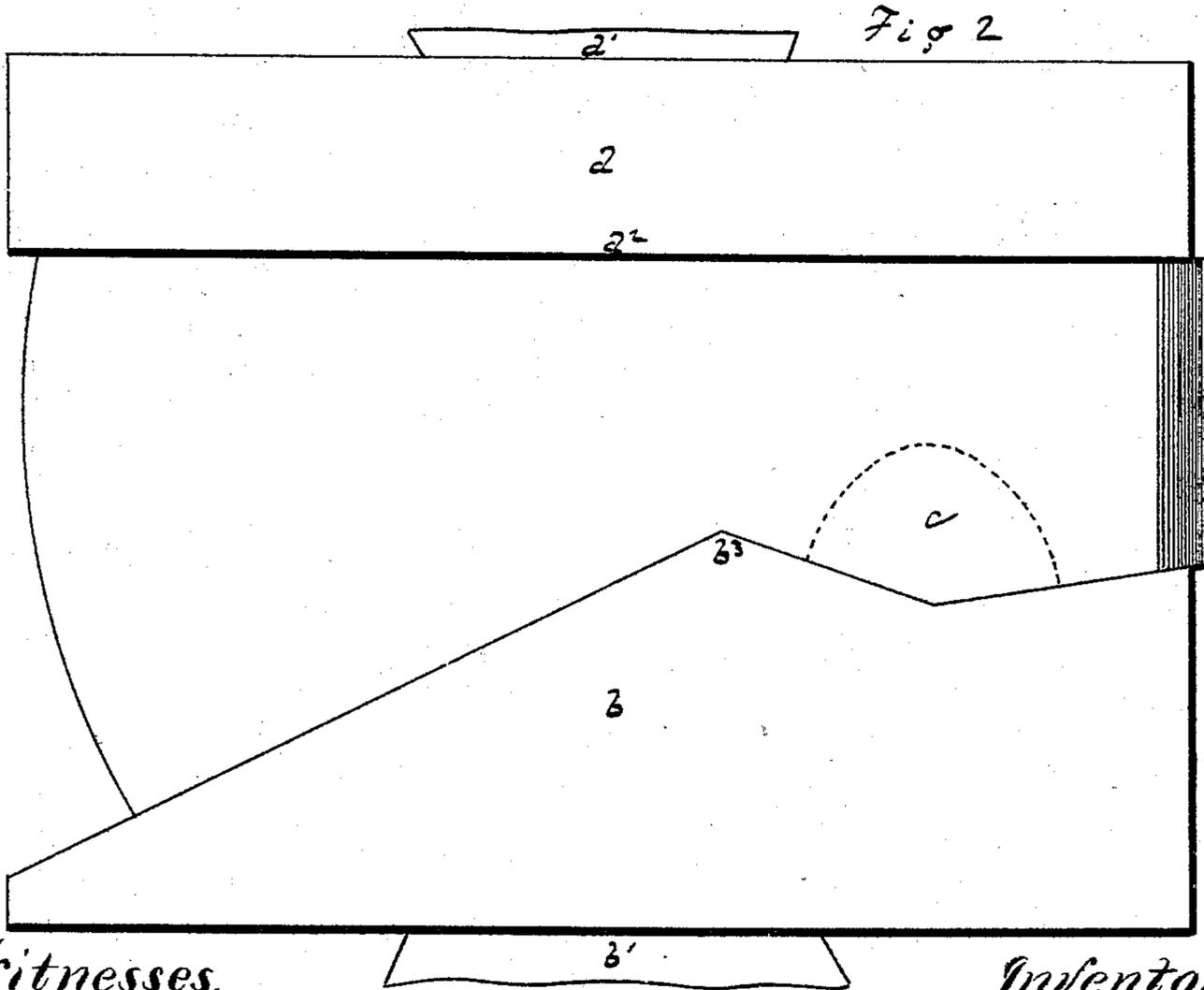
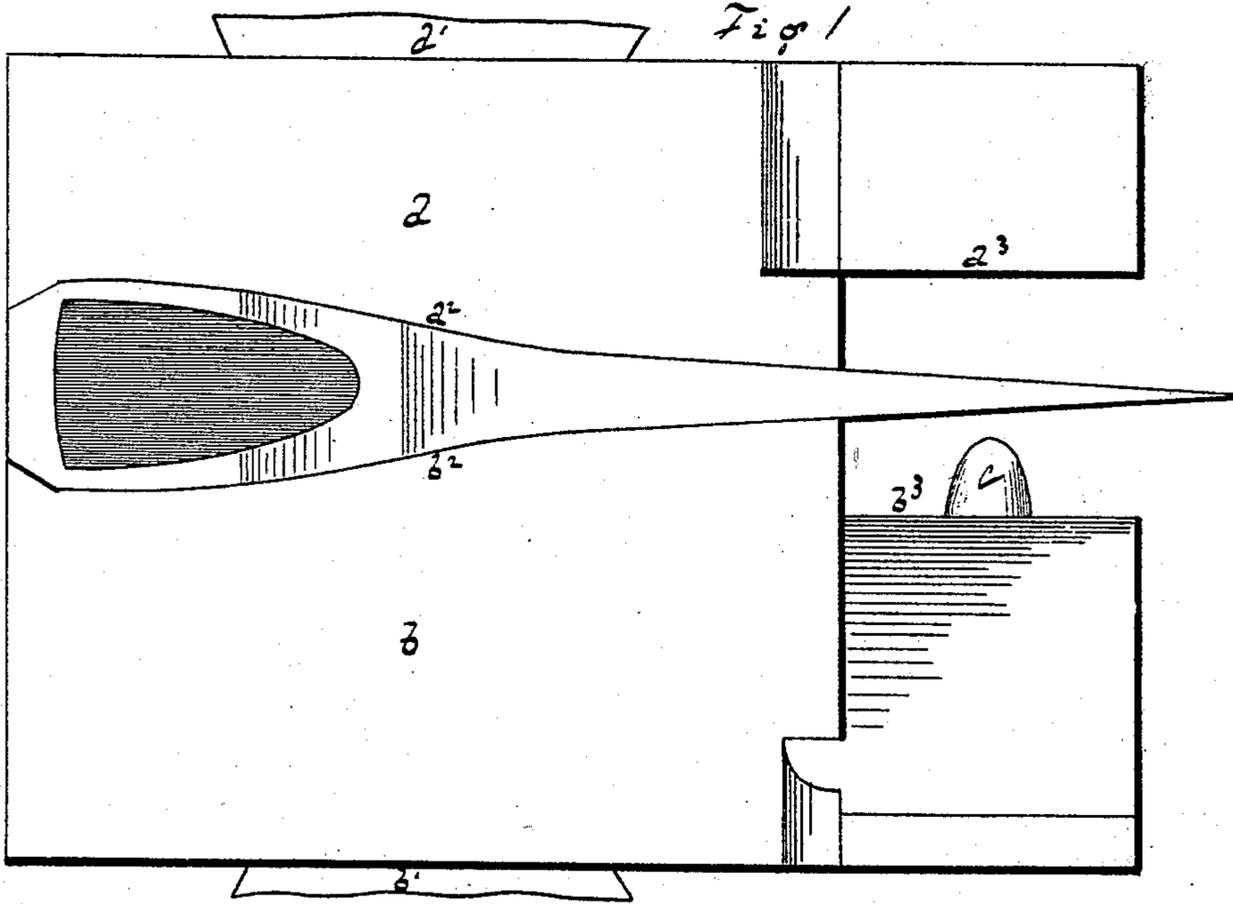


L. CHAPMAN.

DIES FOR FORMING SPANISH AXES.

No. 172,251.

Patented Jan. 18, 1876.



Witnesses.  
John Pollitt  
George E. Molau

Inventor  
Luke Chapman  
By W. E. Simonds Atty.

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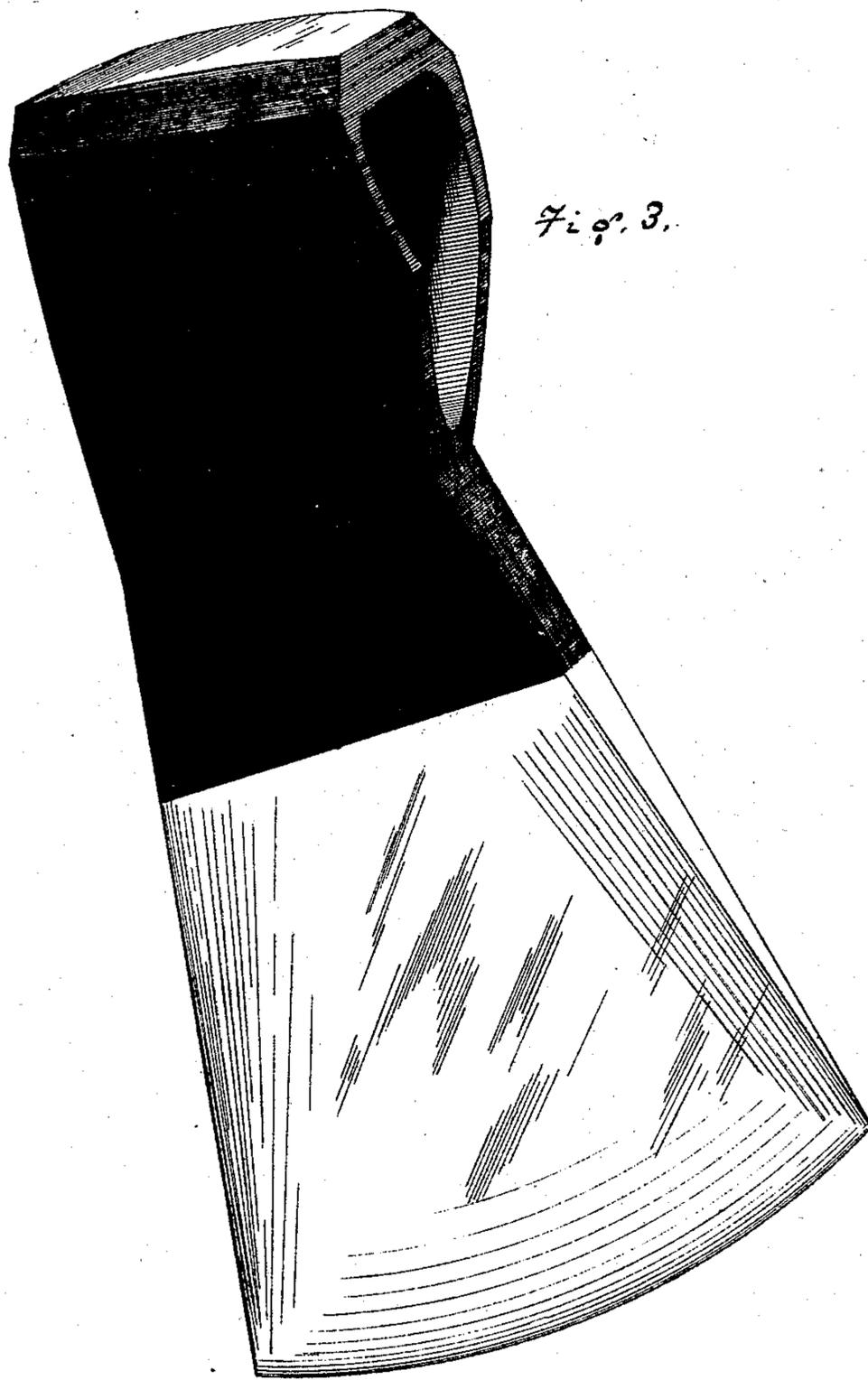


Fig. 3.

Witnesses

John Pollitt  
George E. Nolan

Inventor

Luke Chapman  
By W. E. Simonds  
*Atty.*

# UNITED STATES PATENT OFFICE.

LUKE CHAPMAN, OF COLLINSVILLE, CONNECTICUT, ASSIGNOR TO THE  
COLLINS COMPANY, OF SAME PLACE.

## IMPROVEMENT IN DIES FOR FORMING SPANISH AXES.

Specification forming part of Letters Patent No. **172,251**, dated January 18, 1876; application filed  
April 9, 1875.

### CASE C'.

*To all whom it may concern:*

Be it known that I, LUKE CHAPMAN, of Collinsville, in the county of Hartford and State of Connecticut, have invented certain new and useful Dies for Forming Spanish Axes having parti-oval eyes and bevel-cornered flat heads, of which the following is a specification, reference being had to the accompanying drawings, where—

Figure 1 is what I will term a front view of the dies closed upon the sides of an ax. Fig. 2 is what I will term a side view of the dies closed upon the edges of an ax. Fig. 3 is a view of the finished ax.

These dies can be used in rolls, or presses or drops, and for the primary or finishing parts of the forging process; but I prefer to use them for finish-forging the axes, having the upper die carried on the lower end of a vertically-reciprocating hammer-stock to be operated by suitable mechanism and power, the die being held to its seat by the dovetail tenon  $a^1$ , and the lower die  $b$  stationary on the top of an anvil-block, being held to its seat by the dovetail tenon  $b^1$ . These dies have faces  $a^2$  and  $b^2$  corresponding in shape and contour to the shapes and contours of the faces or sides of the body of the ax shown in Fig. 3. These I term the "surfacing-faces." They also have edging-faces  $a^3$  and  $b^3$ , corresponding in shapes and contours to the shapes and contours of the edges of the ax shown in Fig. 3.

The ax, after being properly heated, is subjected alternately to the action of the surfac-

ing and edging dies till the desired form is attained, giving axes which are accurately shaped and smoothly finished, and thereby insuring uniformity in the style, design, or pattern of the axes produced, and avoiding the multiplicity of small hammer-marks, which are found upon axes forged or finished by hand, and which are difficult and expensive to entirely obliterate in the subsequent process of grinding and polishing; and with the further great advantage of producing better axes much more cheaply than by hand-forging.

These dies are, by preference, of cast-iron. While the workman is side-surfacing the ax he usually has an eye-pin in the eye of the ax. It is obvious that these dies are applicable, by changes in size, to the manufacture of different-sized axes of the same design or pattern, and that the bit or blade of the ax can have more or less breadth, or angular divergence toward the edge, without altering the dies in substance.

The teat  $c$  prevents the sides of their eyes from crushing or bending inward in the edging process.

I claim as my invention—

The dies  $a$  and  $b$ , herein described, having faces for side surfacing and edging axes, of substantially the shape shown and described.

LUKE CHAPMAN.

Witnesses:

WM. E. SIMONDS,  
GEORGE E. NOLAN.