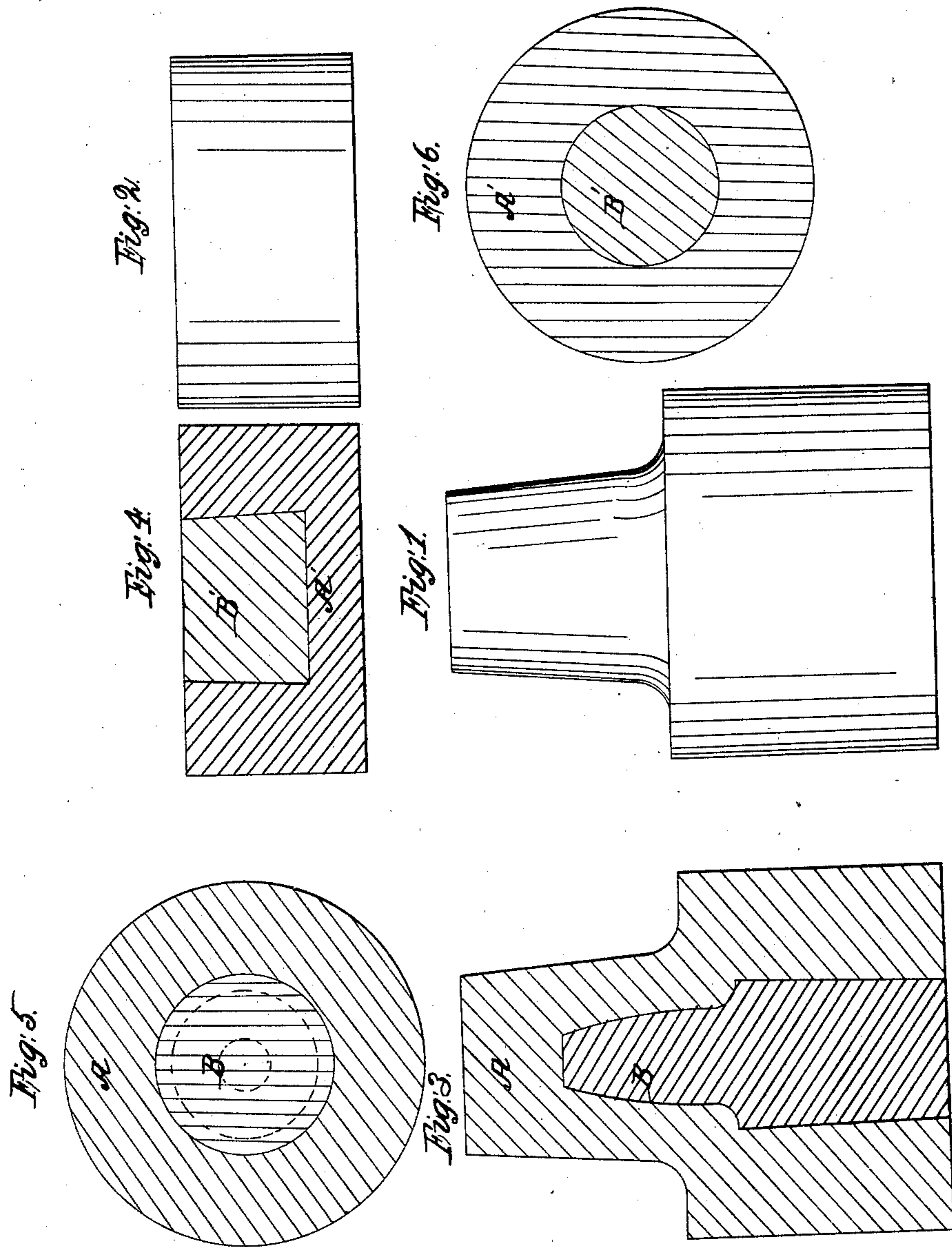


*G. W. Coffee,*  
*Quartz-Crushing Stamp.*

*N<sup>o</sup> 45,318.*

*Patented Dec. 6, 1864.*



*Witnesses.*

*Saml<sup>r</sup> B. Langley*  
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*Inventor.*  
*George W. Coffee,*

# UNITED STATES PATENT OFFICE.

GEORGE W. COFFEE, OF AURORA, NEVADA TERRITORY.

## IMPROVEMENT IN CASTING STAMPS AND DIES FOR CRUSHING QUARTZ.

Specification forming part of Letters Patent No. **45,318**, dated December 6, 1864.

*To all whom it may concern:*

Be it known that I, GEORGE W. COFFEE, of Aurora, Esmeralda county, Nevada Territory, have invented a new and Improved Method of Casting Shoes and Dies for Quartz-Mills; and I do hereby declare that the following is a full and accurate description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, in which--

Figures 1 and 2 represent side views of my improved shoe and die. Figs. 3 and 4 represent, respectively, vertical central sections through the same. Figs. 5 and 6 represent end views of the same.

In casting the dies and shoes of quartz-crushers the difficulty occurs of casting them solid, as defects or cavities in the body of the die will render it useless in a comparatively short time. The object of my invention is to obtain by a simple and cheap method a cast-iron shoe or die for a quartz-crusher in which the defects above mentioned are not liable to occur, and which therefore presents a great improvement on that used heretofore.

My invention consists in casting the shoe or die in two or more pieces—one within the other—and in which the outer part may be cast around the inner or the inner part within the outer, as the shape of the die or shoe may require.

In the drawings, B represents the core or inner part of the die or shoe. It is cast in an iron mold or chill, which makes it very hard and dense. The core B, when cast, is placed in an iron mold or chill, and the metal A, which forms the outer part or shell, is cast around it. By this process the inner as well as the outer part is chilled. The shell A, in contracting, firmly binds the core B, and the two become as solid as one piece. The inner part, B, is made slightly tapering, so as to completely wedge it within the shell A.

By this simple method I obtain a perfectly solid die or shoe, and I overcome all difficulties which exist in casting it in one piece, and it has been proved by actual experiment that dies or shoes made in this manner wear fully thirty-three per cent. longer than those cast in one piece.

I claim—

A stamp for crushing quartz, constructed by casting on a chilled mold an outer case or shell of cast-iron around a mandrel or core of chilled cast-iron, substantially as herein described.

GEORGE W. COFFEE. [L. S.]

Witnesses:

J. H. RICHARDSON,  
S. P. VAN DYKE.