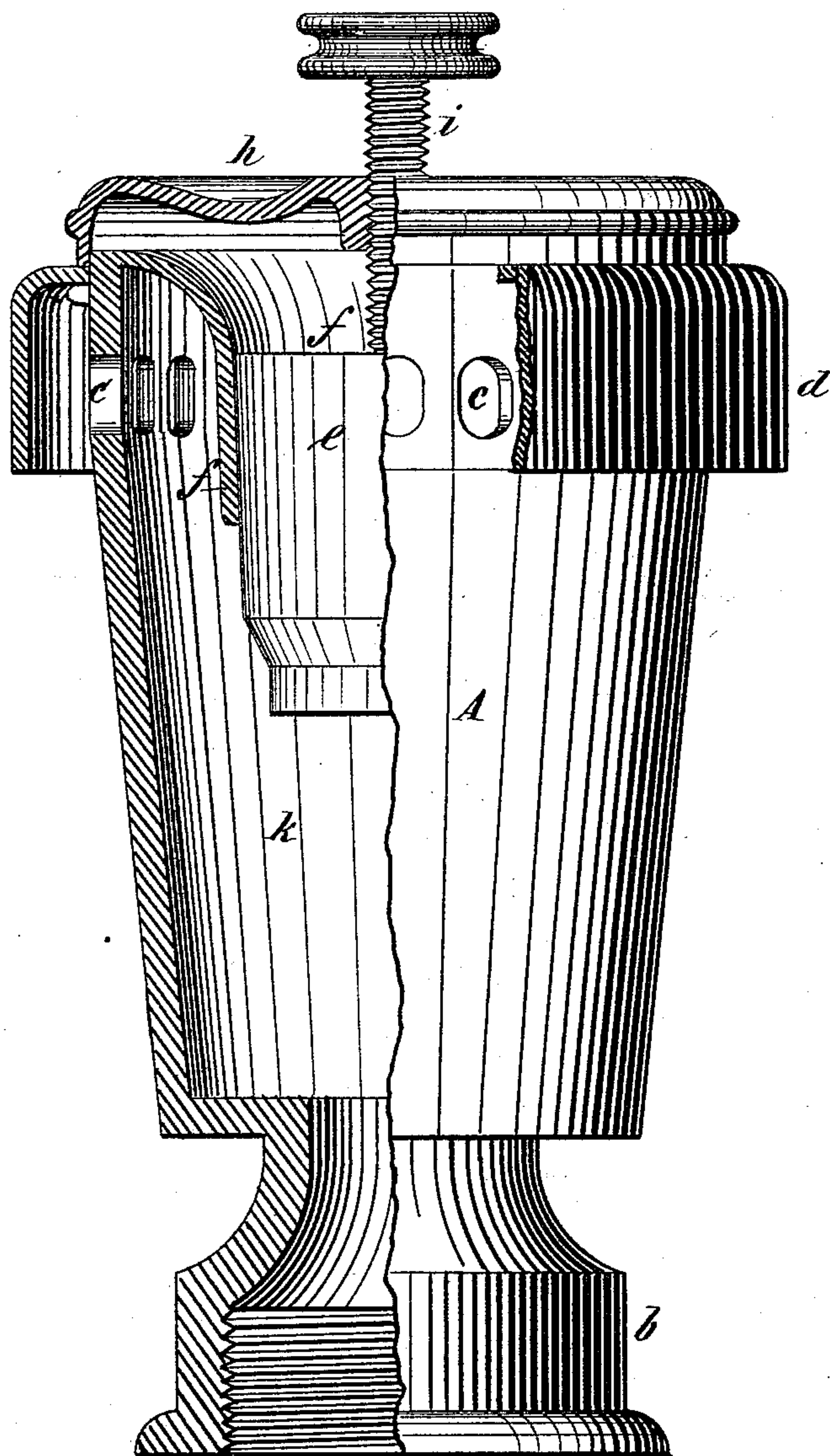


J. B. HARMSTEAD.  
Nozzle for Hardening Dies.

No. 213,194.

Patented Mar. 11, 1879.



WITNESSES:

*Achilles Schehl.*  
*C. Sedgwick.*

INVENTOR:

*J. B. Harmstead*  
BY *Munn & Co.*  
ATTORNEYS.

# UNITED STATES PATENT OFFICE.

JOSEPH B. HARMSTEAD, OF SAN FRANCISCO, CALIFORNIA.

## IMPROVEMENT IN NOZZLES FOR HARDENING DIES.

Specification forming part of Letters Patent No. **213,194**, dated March 11, 1879; application filed November 12, 1878.

*To all whom it may concern:*

Be it known that I, JOSEPH B. HARMSTEAD, of San Francisco and State of California, have invented a new and Improved Nozzle for Hardening Dies, of which the following is a specification:

In the process of hardening dies that are used for stamping coins and medals, the dies are subjected to the action of water, and as the whole outer surface of the die is exposed to the water, that portion cools rapidly and before the central portions. The result of this unequal cooling is, that the dies crack and scale, especially at the sharp corners of the butt of the die.

The object of my invention is to prevent cracking and scaling of the dies by cooling the die equally in every part during the hardening process.

My invention consists in a nozzle of peculiar construction for holding dies, which nozzle prevents direct contact of the water with the butt of the die, and the hardening process is thereby rendered complete and equal from the face to the butt. The device is particularly designed for use in mints where money is coined.

In the accompanying drawing my improved nozzle is shown by an elevation and partially-sectional view.

Similar letters of reference indicate corresponding parts.

A represents the main body of the nozzle, that is made of brass or other metal. The lower end, *b*, is made smaller than the main portion, and is provided with an interior thread, as shown, for attachment of the nozzle to a water-pipe. The body A is hollow, and the water which enters through the end *b* is discharged by the openings *c* around the upper part.

*d* is a rim or flange for turning the water downward as it is discharged.

The die (represented at *e*) is held centrally at the upper part of the nozzle A by the tapering inner ring, *f*, that is formed in one piece with the body A, or as a separate piece

and inserted. The upper end of the ring *f* is flaring, and closes the upper end of the nozzle around the edge. The inner surface of ring *f* conforms to the shape and size of the die *e*, so that the die, when inserted, will be held, as shown, with its butt-end covered by the sides of ring *f*, and its face and adjacent surfaces in a position where they will be exposed to direct contact with the water passing through the chamber *h* of the nozzle.

*h* is a cover or cap upon the top or nozzle A, over the ring *f*, and it is held in place by lugs or a screw-thread in its rim, that engages with a thread on the body.

*i* is a screw-pin in a threaded hole at the center of cover *h*, which pin *i* may be screwed down so that its lower end will rest upon the die *e* and prevent it from rising.

In using the described device the water will cool the face of the die first, and the upper part or butt, being protected from direct contact, will retain the heat and cause a gradual cooling from the face to the butt. Thereby the surface and edges will not crack or chip by unequal contraction of the steel.

I do not limit myself to the details of construction set forth, as the protection of the butt of the die from contact with the water may be obtained by a nozzle of different shape.

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

1. A nozzle receiving water at the bottom, discharging it at holes *c* near the top, and provided with a central upwardly-flaring die-holder, *f*, extending below said holes *c*, as shown and described.

2. The combination, with a centrally-flaring die-holder, *f*, in the nozzle A, of a cover, *h*, having central nut, and a screw, *i*, that works through said nut, as and for the purpose specified.

JOSEPH BRECK HARMSTEAD.

Witnesses:

GEORGE R. DOBBS,  
R. W. BOLLEN.