

V. R. TAYLOR.  
Blacksmiths' Tuyeres.

No. 161,993.

Patented April 13, 1875.

Fig. 1

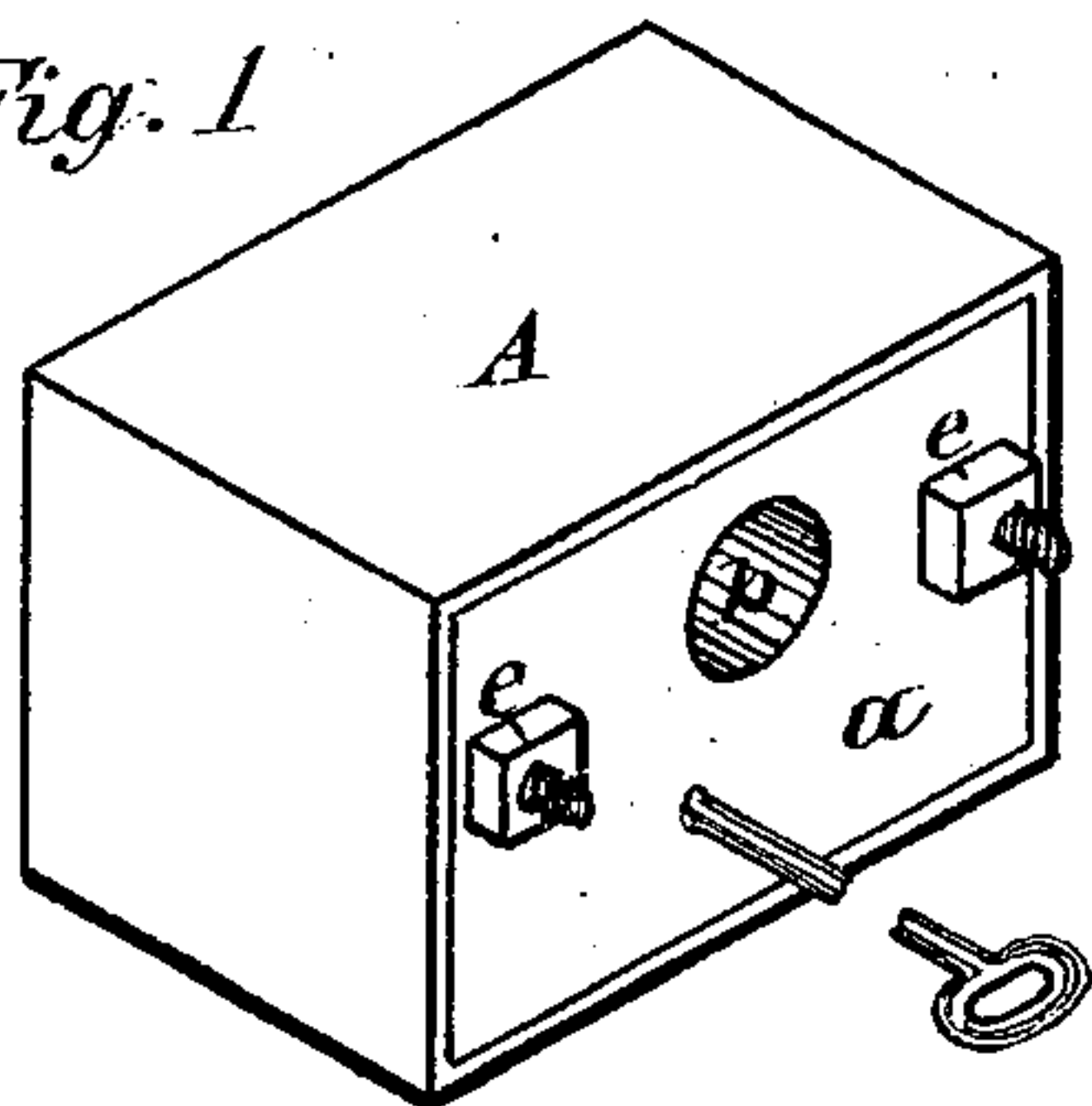


Fig. 2

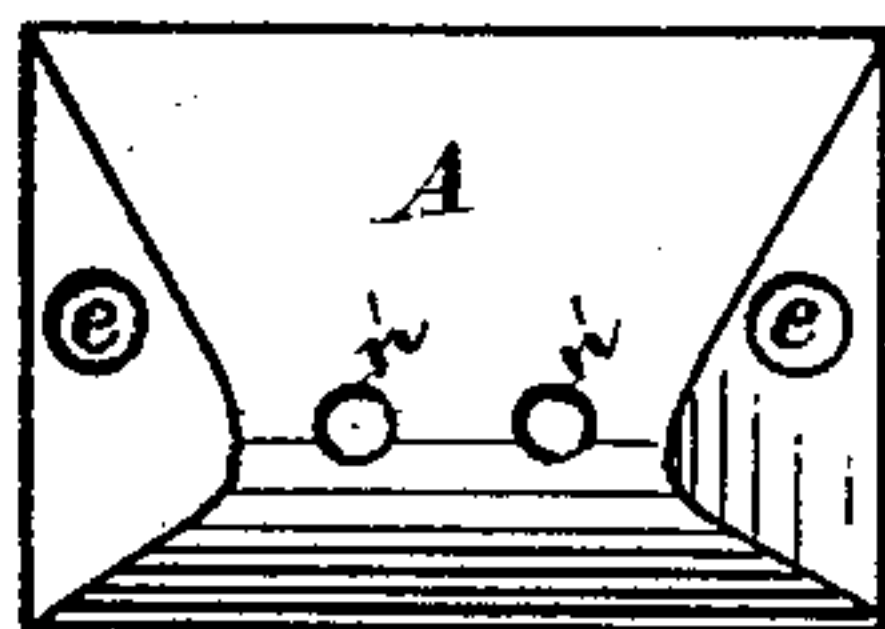


Fig. 3

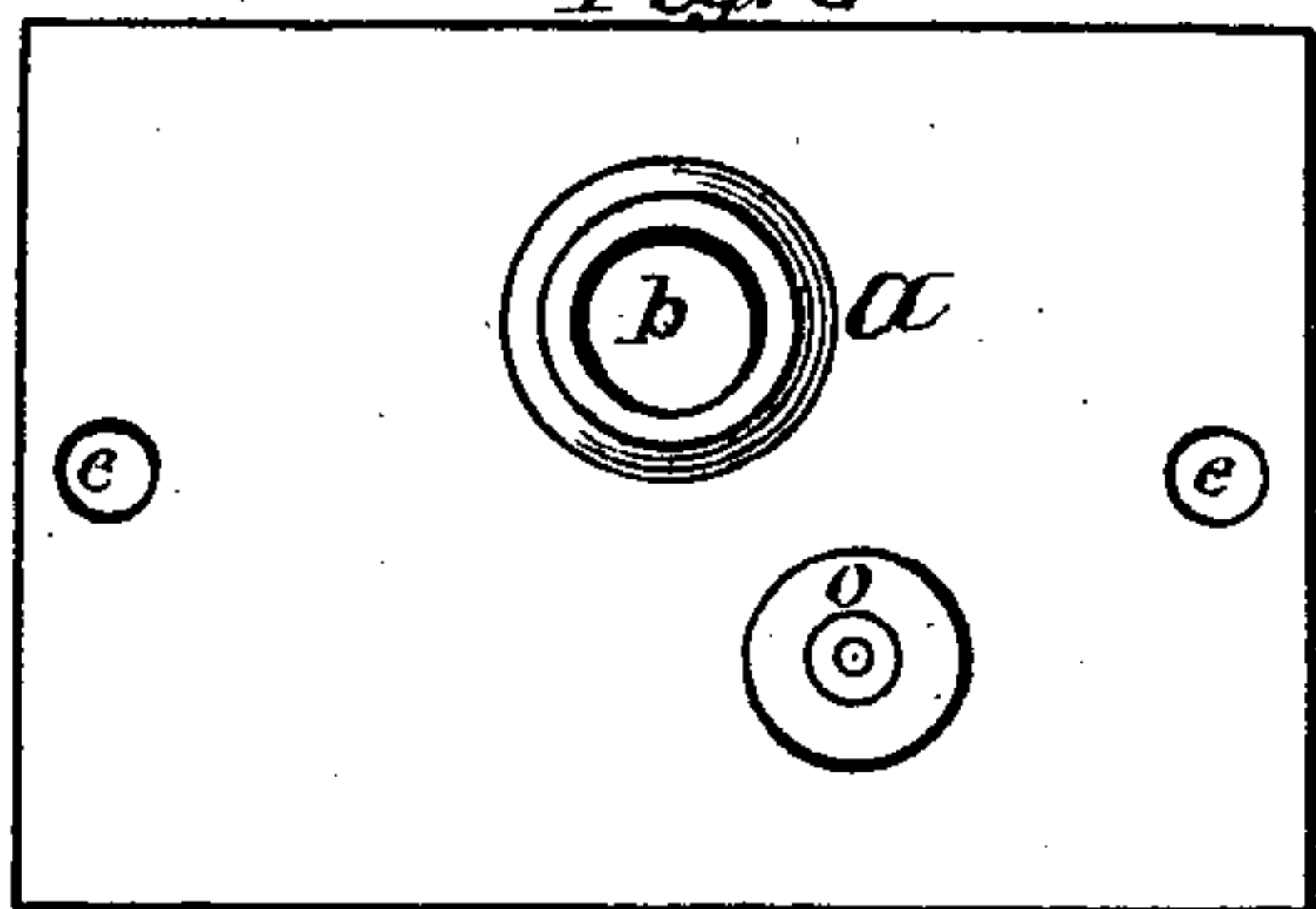


Fig. 4

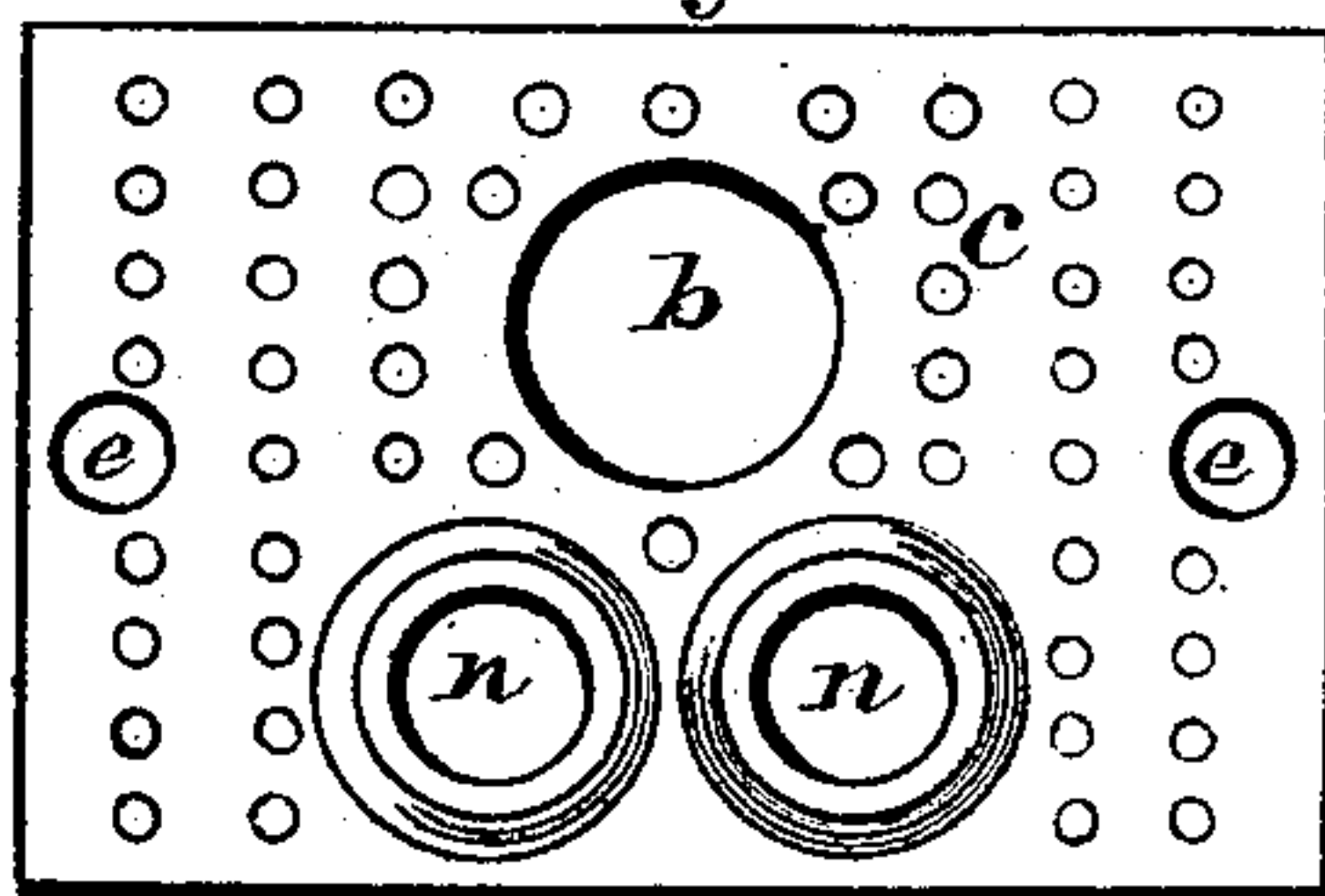
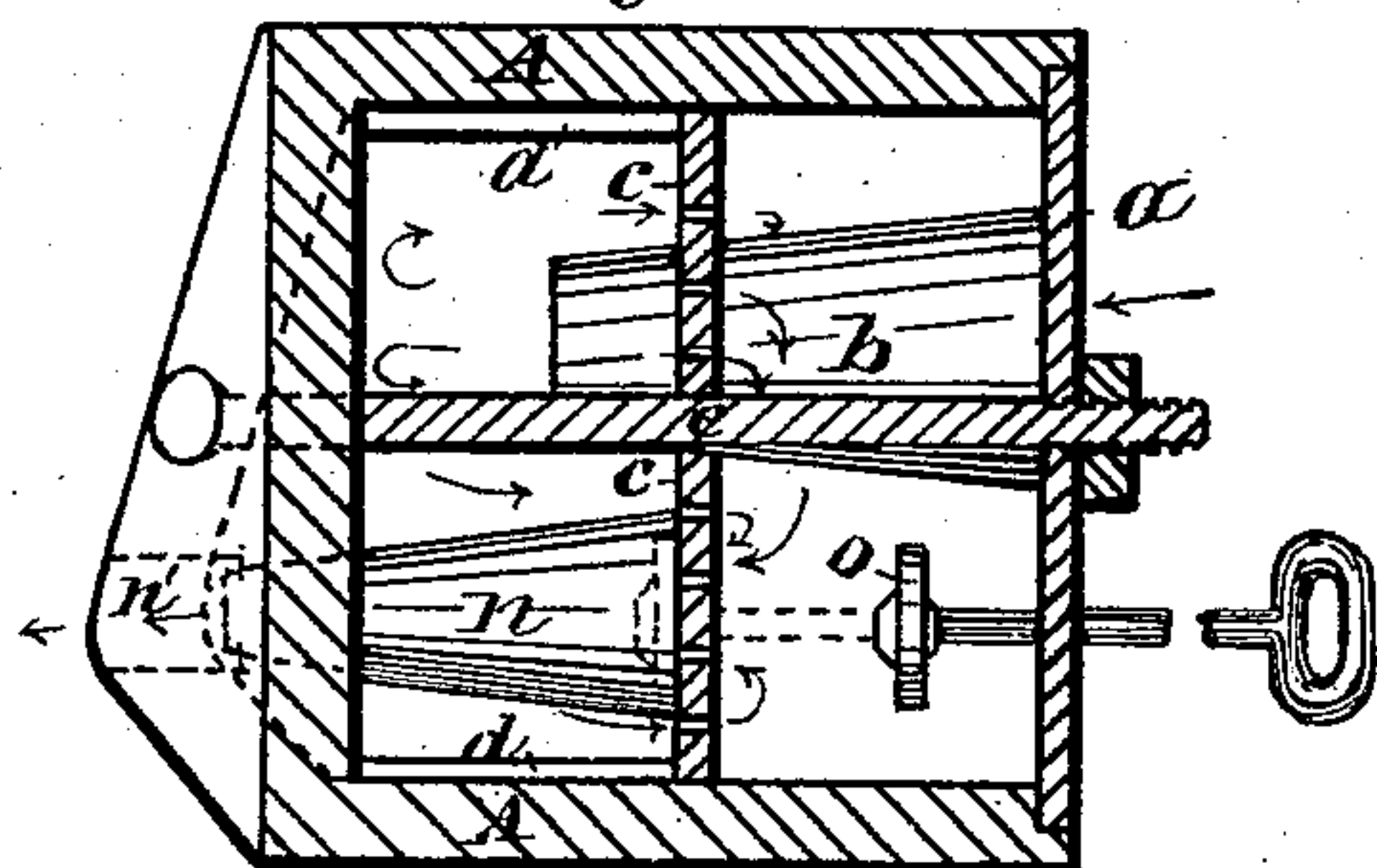


Fig. 5



Witnesses:

Chris Holmstrup  
Wm Woods

Inventor:

Vernersselaer, R. Taylor  
per E. Laass Atty

# UNITED STATES PATENT OFFICE.

VENRENSSELAER R. TAYLOR, OF SYRACUSE, NEW YORK.

## IMPROVEMENT IN BLACKSMITHS' TUYERES.

Specification forming part of Letters Patent No. **161,993**, dated April 13, 1875; application filed March 3, 1875.

*To all whom it may concern:*

Be it known that I, VENRENSSELAER R. TAYLOR, of Syracuse, State of New York, have invented Improvements in Blacksmiths' Forge-Backs, of which the following is a specification:

My invention has for its object the durability of the forge-back, a better combustion and saving of fuel, increase of heat, ability of regulating the fire, prevention of explosions of gas in the bellows, and of clogging the mouth or outlet.

The construction of this improved forge-back and the functions of its parts are plainly seen in the drawing, wherein Figure 1 is an isometric view of the forge-back complete; Fig. 2, a front view of same; Fig. 3, a plan view of the inner face of the cover or outer plate; Fig. 4, a plan view of the inner face of the intermediate perforated plate; Fig. 5, a cross-section immediately back of the end plate, showing the combination and functions of its parts.

A is a chamber, having its front or forge-back proper projecting outward, as shown in Fig. 2, and its rear closed by plate *a*, to which is attached the inlet-tube *b*, projecting inward and through the perforated plate *c*, placed about midway in the chamber A, where it rests on shoulders *d d*, cast on the inside of the chamber, and is held there by the taper of the inlet-tube *b*. *e e* are bolts by which the cover *a* is fastened to the chamber. To the intermediate perforated plate *c*, near the bottom, are attached two or more outlet-tubes, *n n*, the ends of which fit into corresponding openings *n' n'* in the front of the chamber A. *O* is a valve or movable cover, fitting the outlet-tube *n*, arranged to be operated from the outside of the chamber by any suitable device, and according to the position or construction of the forge. The bellows or blast is connected with the inlet-tube *b*, and the air, as it is forced through this tube, strikes the solid front plate of the chamber, the outside of which is exposed to the fire. It thence passes through the perforated plate *c* into the outlet-tubes *n n*. In its circuit, as indicated by arrows in the drawing, it cools

the front plate or forge-back proper, and takes up the heat; or, in other words, is heated by the contact with the front plate, upon which it is spread by the retardation from the perforated plate *c*, and by the time it reaches the outlets it is converted into a hot-blast, causing a better combustion of the fuel and creating a hotter fire than a cold-blast. The cooling of the forge-back by the blast, as described, prevents it from burning out. The fire can be regulated according to the heat required by opening or closing one or more of the outlet-tubes *n* with the valve or cover *o*.

Explosions of gas in the bellows, which so often occur through ordinary forge-backs, are rendered an utter impossibility by the use of my invention, as, by the intermediate plate *c*, the gas is prevented from entering the bellows; and since it is a side blast or a forge-back applied at the side of the forge it keeps always clear and never clogs up, as is frequently the case with what is termed a "hen's-nest fire-back," and some others which are applied to the forge from underneath the fire.

I find that the bellows work much easier with my improved forge-back than any other I ever used, caused, principally, by the rarefaction of the air between the front and intermediate plate *c*.

Having thus fully described my invention, I claim—

The improved blacksmiths' forge-back herein described, consisting of the chamber A, having a beveled projecting front, the cover *a*, having attached thereto the inward-projecting inlet-tube *b*, the intermediate perforated plate *c*, having attached thereto the outlets *n n*, the valve *o*, and bolts *e e*, constructed and operating substantially as described, for the purpose specified.

In testimony whereof I have signed my name and affixed my seal in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, and State of New York, this 24th day of February, 1875.

VENRENSSELAER R. TAYLOR. [L. s.]

Witnesses:

CHRIS. HOLMSTRUP,  
CHAS. H. HEY.