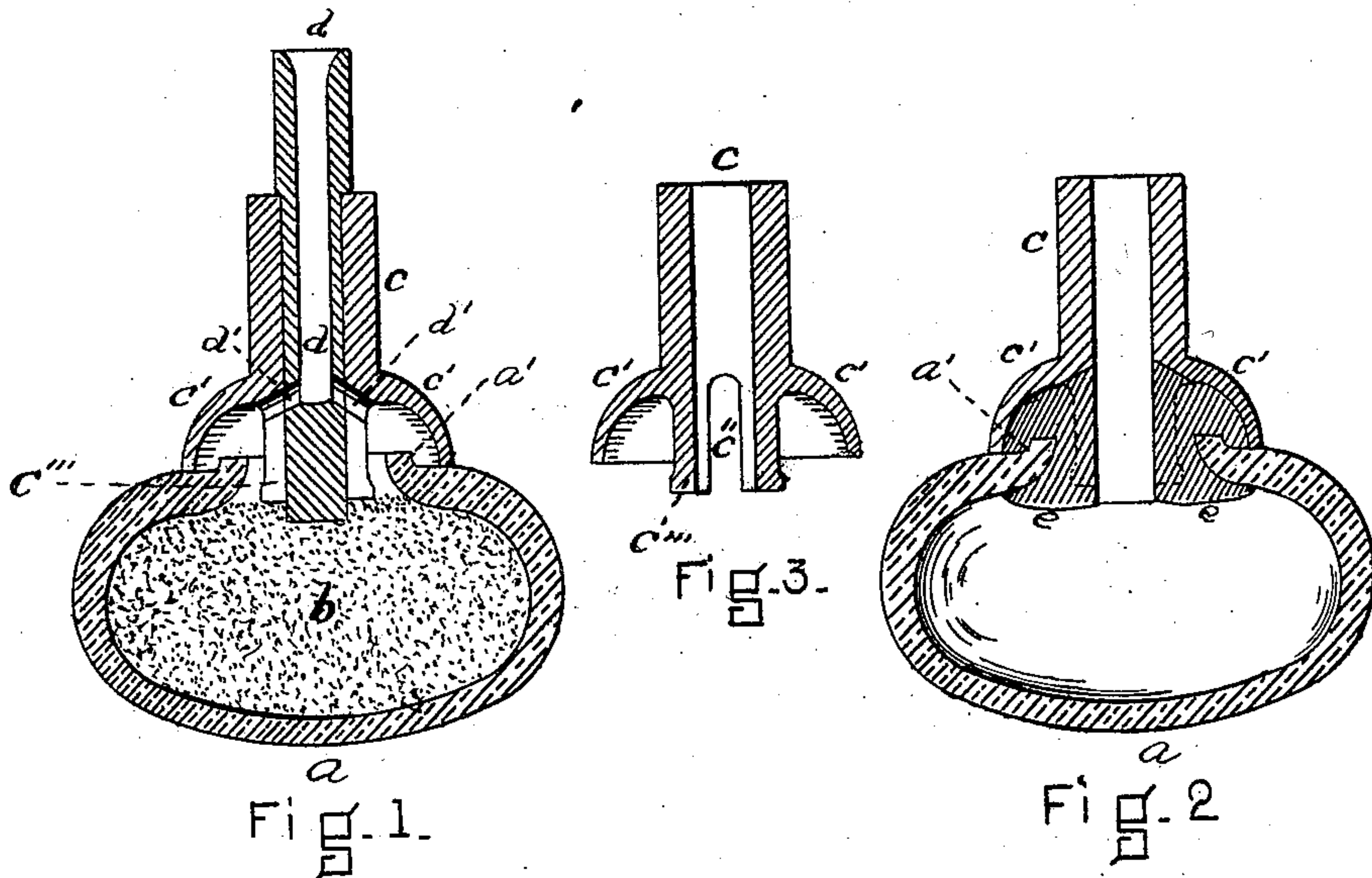


J. W. HAINES.
Attaching Shanks to Door-Knobs.

No. 200,450.

Patented Feb. 19, 1878.



WITNESSES

Q. M. M. M. M. M. *John W. Haines* INVENTOR

By his Attys

John E. Freeman. *Henry W. Williams.*

UNITED STATES PATENT OFFICE.

JOHN W. HAINES, OF CAMBRIDGE, MASSACHUSETTS.

IMPROVEMENT IN ATTACHING SHANKS TO DOOR-KNOBS.

Specification forming part of Letters Patent No. **200,450**, dated February 19, 1878; application filed January 25, 1878.

To all whom it may concern:

Be it known that I, JOHN W. HAINES, of Cambridge, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in the Method of Attaching Shanks to Door-Knobs, of which the following is a specification:

This invention relates to a new method by means of which glass door-knobs are attached to metal sockets.

My method is as follows: I provide a glass knob with little or no neck, and nearly fill it with sand or some other material. I then place the socket in position, and by means of a tube or gate similar to that shown in Letters Patent of the United States No. 196,447, dated October 23, 1877, I pour the molten lead into the knob. The gate rests upon the bed of sand, and the lead pours out of the sides of the gate and flows upon the sand, and forms itself into the shape of a rivet above and below the mouth or neck of the knob. The gate is then removed and the sand poured out through the socket; or, if the bed be composed of some substance which is not removable, it is allowed to remain in the knob.

In the accompanying drawings, in which similar letters of reference indicate like parts, Figure 1 is a sectional view of a door-knob nearly filled with sand, and having its socket in position, and the gate inserted ready for the pouring in of the lead. Fig. 2 is a sectional view of the completed knob after the gate and sand have been removed and the lead has assumed its rivet form. Fig. 3 is a section of the socket, taken at right angles to the section in Fig. 2.

a represents the glass knob, provided with the short neck *a'*. *b* is the sand filling. *c* is the socket, rounded out at *c'* into a chamber, extending down at *c'''* into the knob, and provided with suitable openings or passages, *c''*, in order to allow the lead to pass into the chamber *c'* and into the knob.

d represents a tube or gate, such as is described in the Letters Patent above alluded

to, provided with the usual openings *d'*. *e* shows the lead after the operation is completed.

In practical operation, the sand or other substance *b* is placed within the knob *a*, nearly filling it, as in Fig. 1. The socket *c* is then placed in position, and the tube or gate *d* inserted so as to rest upon the bed of sand *b*, as in the said figure. The lead is then poured in through the gate *d*, passes through the openings *d'* and passages *c''* into the chamber *c'* above the knob, and within the knob as far as the sand *b* will allow, forming a perfect rivet shape, *e*. The sand may be then poured out through the socket *c*, (the gate *d* having been removed,) and the completed knob, socket, and leaden rivet present the appearance shown in Fig. 2.

Any other suitable substance may be used in place of sand, even though it may be some substance which cannot be finally removed, as the removal of the bed is not absolutely necessary.

Any suitable substitute for lead may be used, if desired, for the purpose of attaching the knob to the socket.

Of course, it will be understood that if the molten lead were poured into an unprotected glass knob the glass would be cracked, and the silver lining, if there were one, would be injured.

Having thus fully described my improvement, what I claim, and desire to secure by Letters Patent, is—

The method of attaching knobs to sockets, consisting of first filling, or partially filling, the knob with sand or other suitable substance or material, so as to form a bed, and afterward pouring the lead or other substance upon the said bed, and around the neck or entrance of the knob, for the purpose of casting the same to the socket.

JOHN W. HAINES.

Witnesses:

HENRY W. WILLIAMS,
B. W. WILLIAMS.