N. H. SMITH.

DENTIST'S CASTING APPLIANCE.

APPLICATION FILED FEB. 20, 1908.

932,508. Patented Aug. 31, 1909.

Fig. 1.

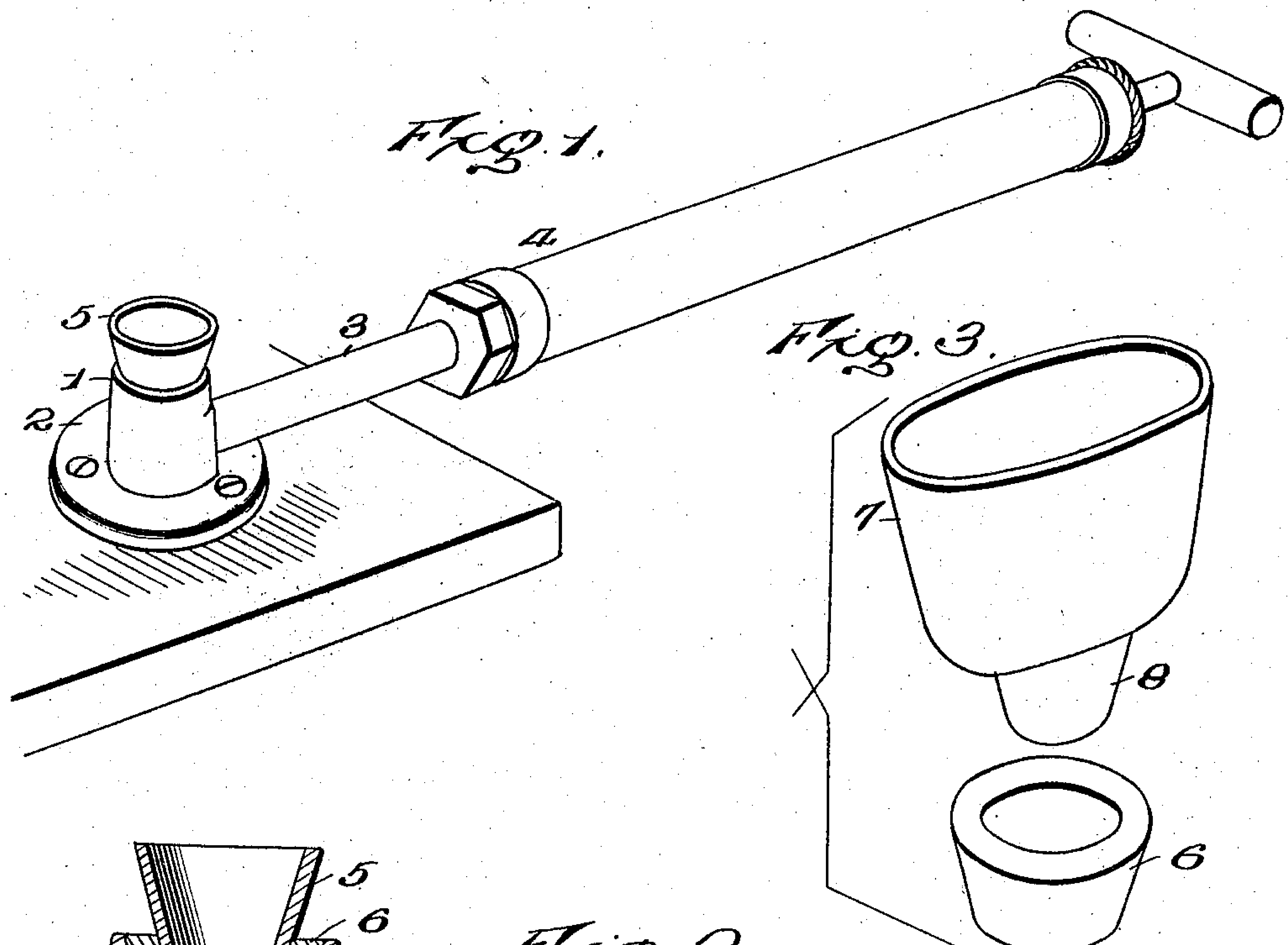


Fig. 3.

Fig. 2.

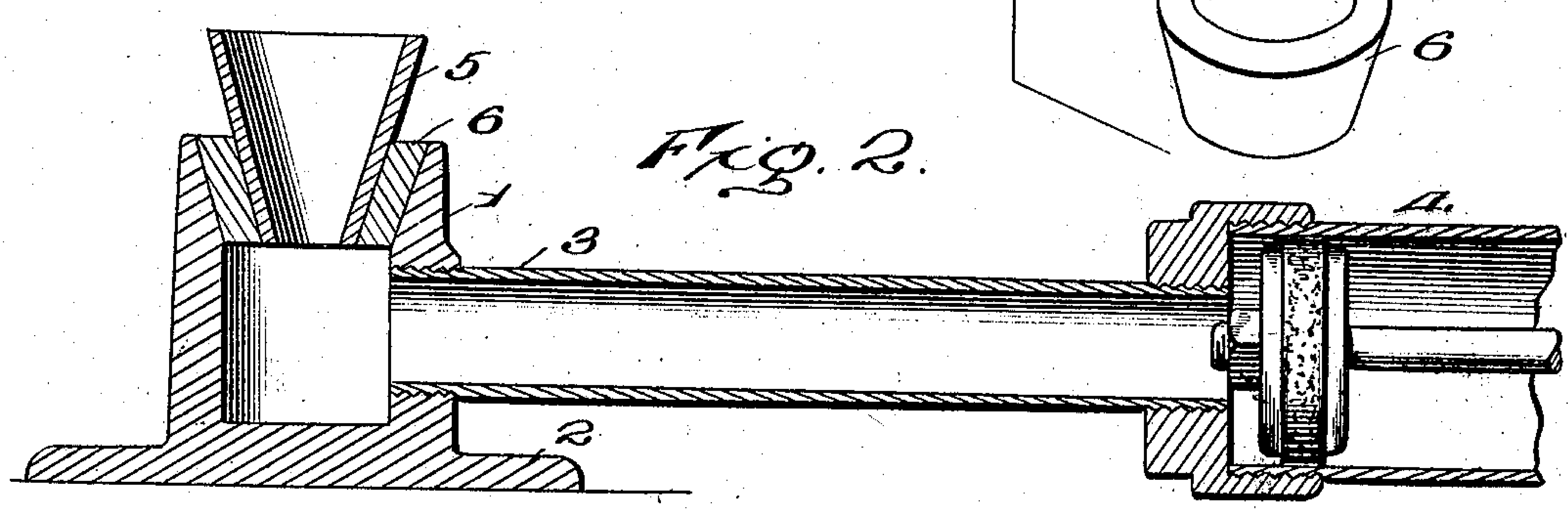
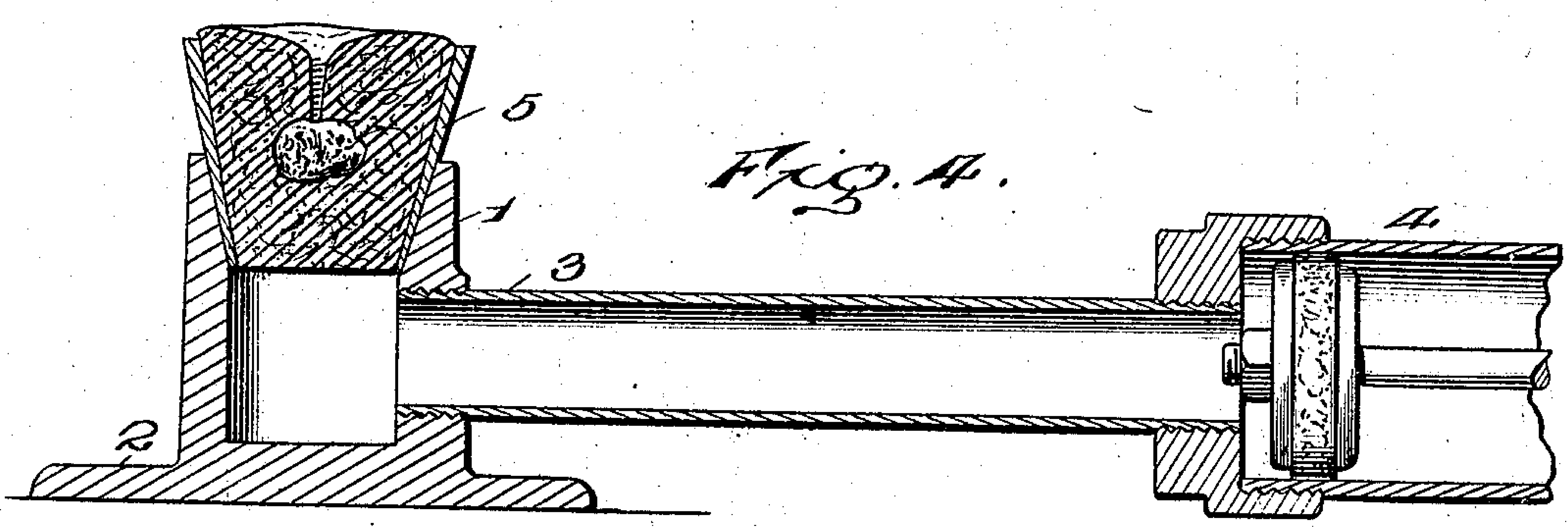


Fig. 4.



Inventor

Nathan H. Smith

Witnesses

By Attorneys

UNITED STATES PATENT OFFICE.

NATHAN H. SMITH, OF SEATTLE, WASHINGTON.

DENTIST'S CASTING APPLIANCE.

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Application filed February 20, 1908. Serial No. 416,891.

To all whom it may concern:

Be it known that I, NATHAN H. SMITH, citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Dentists' Casting Appliances, of which the following is a specification.

The present invention provides an appliance which admits of a form being positively and accurately reproduced in metal, hence of especial advantage in casting gold inlays or gold dummies for bridge work or other forms met with in dental work.

The appliance consists of a suction chamber, means for creating a vacuum therein and a flask adapted to be fitted to the suction chamber and containing the mold of the form to be reproduced in metal.

For a full understanding of the invention and the merits thereof and also to acquire a knowledge of the details of construction and the means for effecting the result, reference is to be had to the following description and accompanying drawings.

While the invention may be adapted to different forms and conditions by changes in the structure and minor details without departing from the spirit or essential features thereof, still the preferred embodiment is shown in the accompanying drawings, in which:

Figure 1 is a perspective view of an appliance embodying the invention. Fig. 2 is a vertical central section of the suction chamber having a smaller flask and a reducer. Fig. 3 is a detail perspective view showing an oblong flask. Fig. 4 is a sectional view showing the operation of the invention.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The suction chamber 1 is provided with a base 2 apertured to receive fastenings for securing the suction chamber to a bench, table or like support. The upper portion of the suction chamber is slightly flared to admit of flasks of different sizes and shapes being fitted thereto according to the work or form to be reproduced in metal. A tube 3 connects with a side of the suction chamber and opens therein and has connection at its outer end with a pump 4 or analogous appliance for producing a vacuum or suction within the chamber 1. The pump 4, illustrated is adapted to operate by hand. The flasks are of flared form and are adapted to make an air tight joint with the suction chamber.

As shown in Figs. 1 and 2, the flasks 5 are of conical form. The flask illustrated in Fig. 1 is of a size to fit directly within the suction chamber, whereas the flask shown in Fig. 2 is of smaller size and necessitates the provision of a reducer 6, which latter is of conical form and fits the suction chamber in a manner to provide an air tight joint, the flask fitting within the reducer in a similar manner.

In the construction shown in Fig. 3, the flask 7 is of oblong form and upwardly flared, being designed most especially for bridge work. The lower end of the flask is provided with a collar 8 which snugly fits the reducer 6.

In the practical operation of this invention, the form to be reproduced in gold or other metal is invested in a composition formed of two-thirds finely powdered silex and one-third plaster of paris, mixed in water. The form or pattern is obtained in wax. This wax is especially prepared for this purpose and burns out of the investment entirely when heated. The investment of the form or model to produce the mold is effected in one of the flasks selected according to the shape and size of the wax mold and is accomplished by pushing the wax pattern down onto the investment while it is soft. A small wire is connected to the wax pattern and extends upward through the investment. After the wax pattern has been invested, the case is set aside to allow the investment to harden. A depression is then made in the investment around the sprue wire. The case is then heated and the sprue wire is removed, thus leaving a hole in the investment material connecting at its inner end with the mold cavity and at its upper end with the depression in the upper side of the investment material. The mold being formed in the manner stated is set aside to harden and dry, after which it is heated to burn out the wax form so as to produce the cavity for the reception of the molten metal. After the investment has been dried up and heated it becomes porous enough to allow enough air to pass through it to suck the molten metal into its position in the mold cavity.

While the flask is still hot, it is placed into the machine and the metal to be used is placed in the depression over the sprue hole and melted (usually with the blow pipe). After the metal has been heated to a molten condition, a vacuum is created in the suction chamber by means of the pump or like device, thereby exhausting the air from the mold cavity and causing the metal to be forced therein by atmospheric pressure so as to fill every part of the mold and insure an accurate reproduction of the required form.

After the casting has been effected the flask is allowed to cool and the investment is easily taken out and broken to admit of the casting being obtained. The same can be finished in any well known manner.

Having thus described the invention, what is claimed as new is:

The herein described dental appliance, consisting of a chamber having a base apertured to receive fastenings and having its upper portion flared and provided at a side with a tube to which a suction device is fitted, a tapered flask, and a tapered reducer fitted to the lower end of said flask and adapted to fit within the flared end of said chamber.

In testimony whereof I affix my signature in presence of two witnesses.

NATHAN H. SMITH. [L. S.]

Witnesses:

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