

No. 865,823.

PATENTED SEPT. 10, 1907.

W. H. TAGGART.
APPARATUS FOR MAKING MOLDS FOR THE CASTING OF DENTAL FILLINGS
AND THE LIKE.

APPLICATION FILED JULY 12, 1907.

Fig. 1.

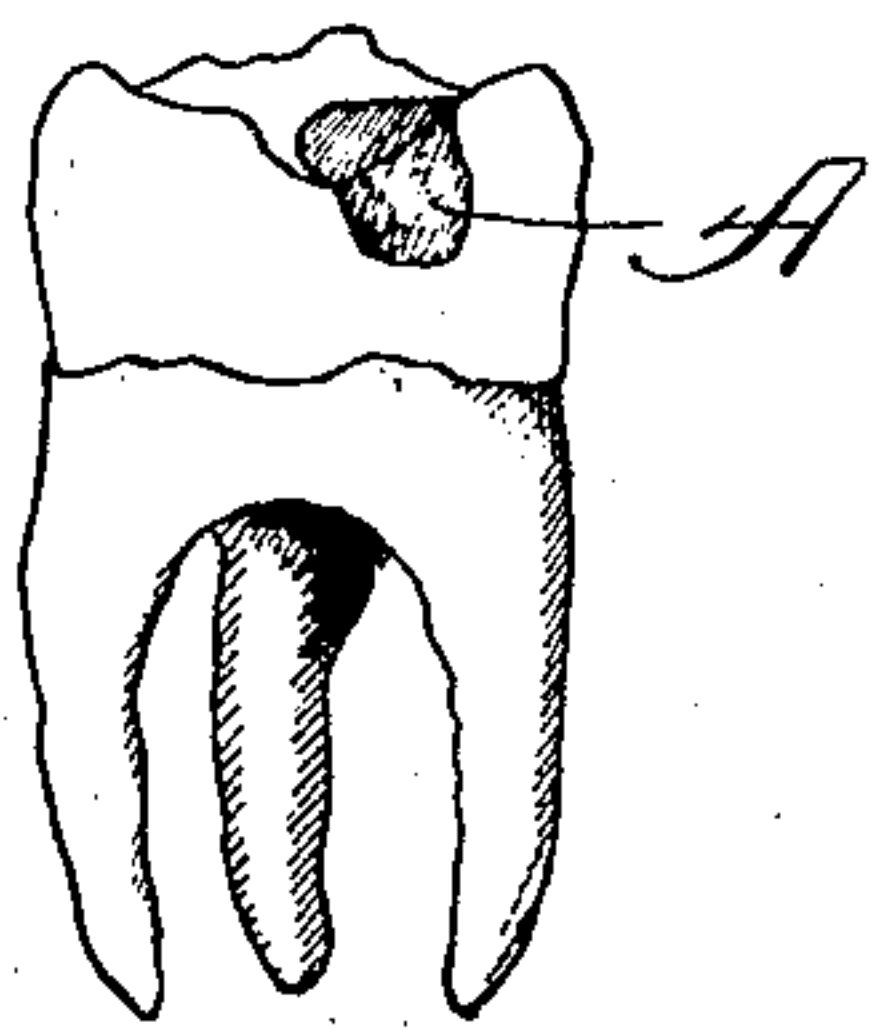


Fig. 2.

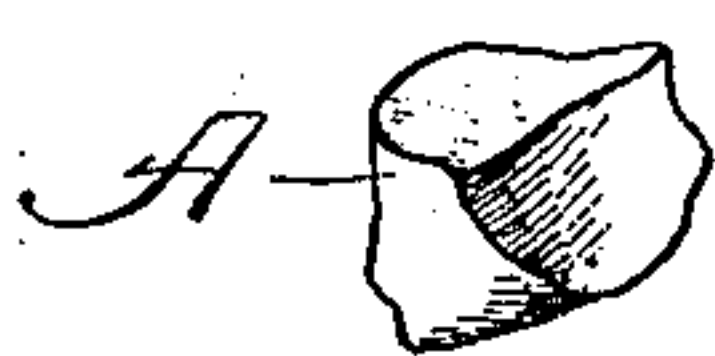


Fig. 3.

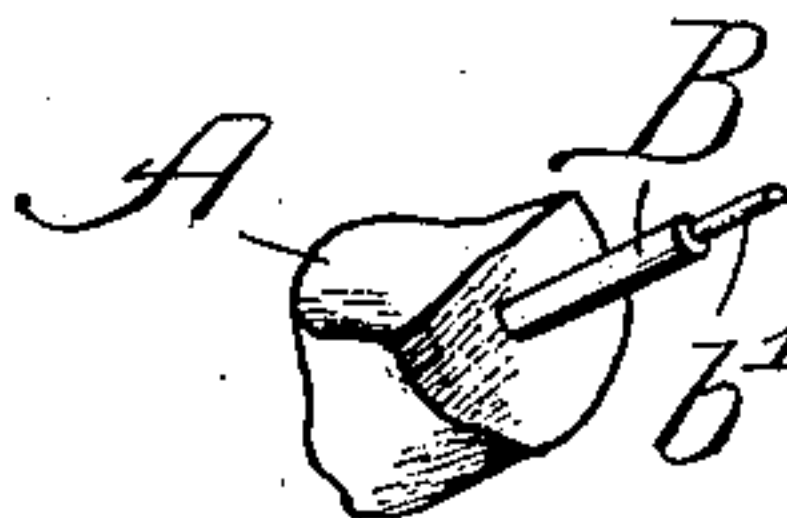


Fig. 4.

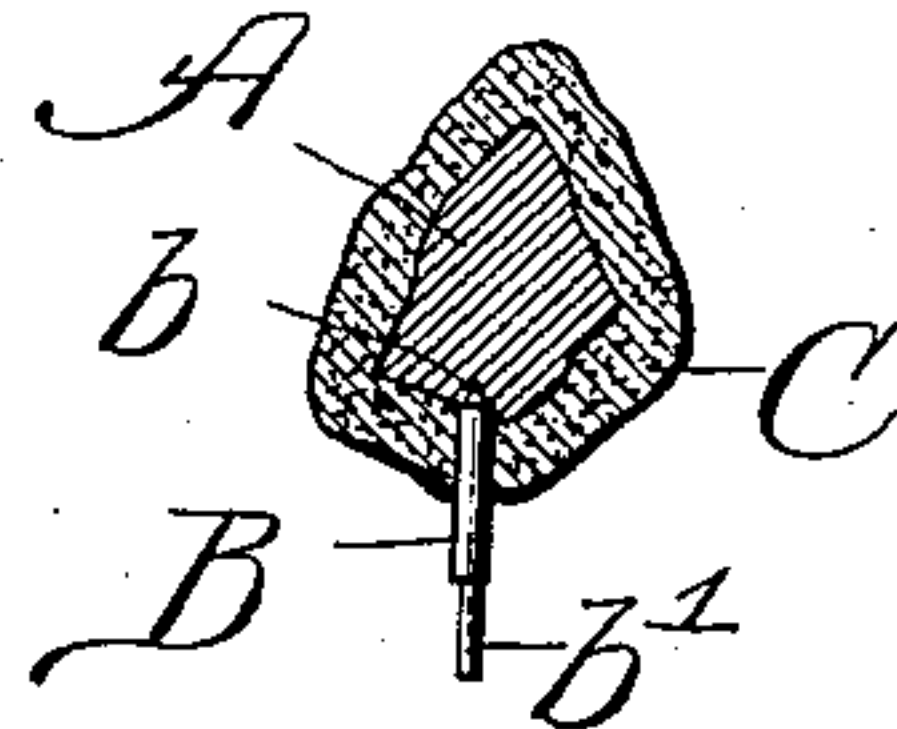


Fig. 5.

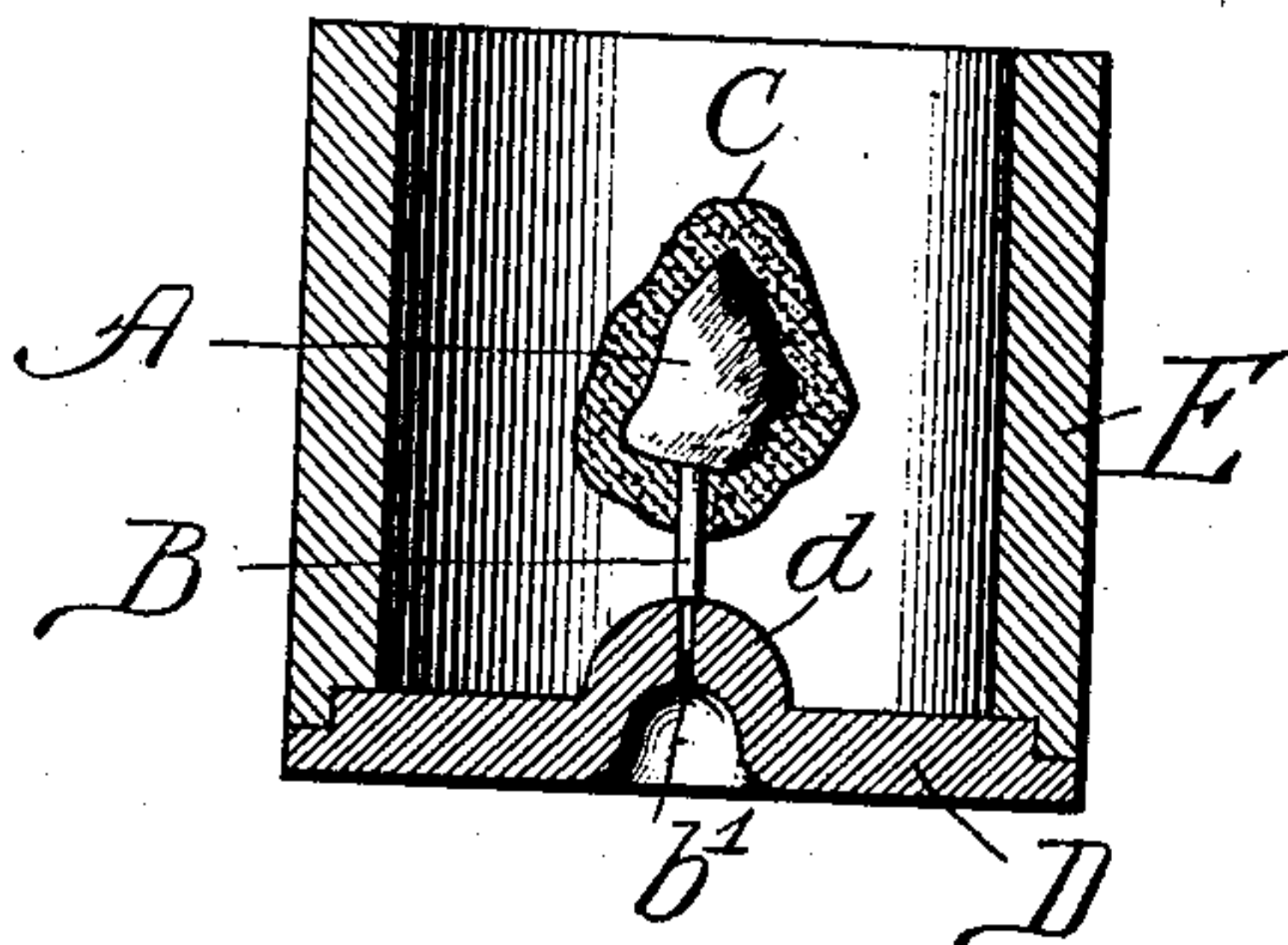


Fig. 6.

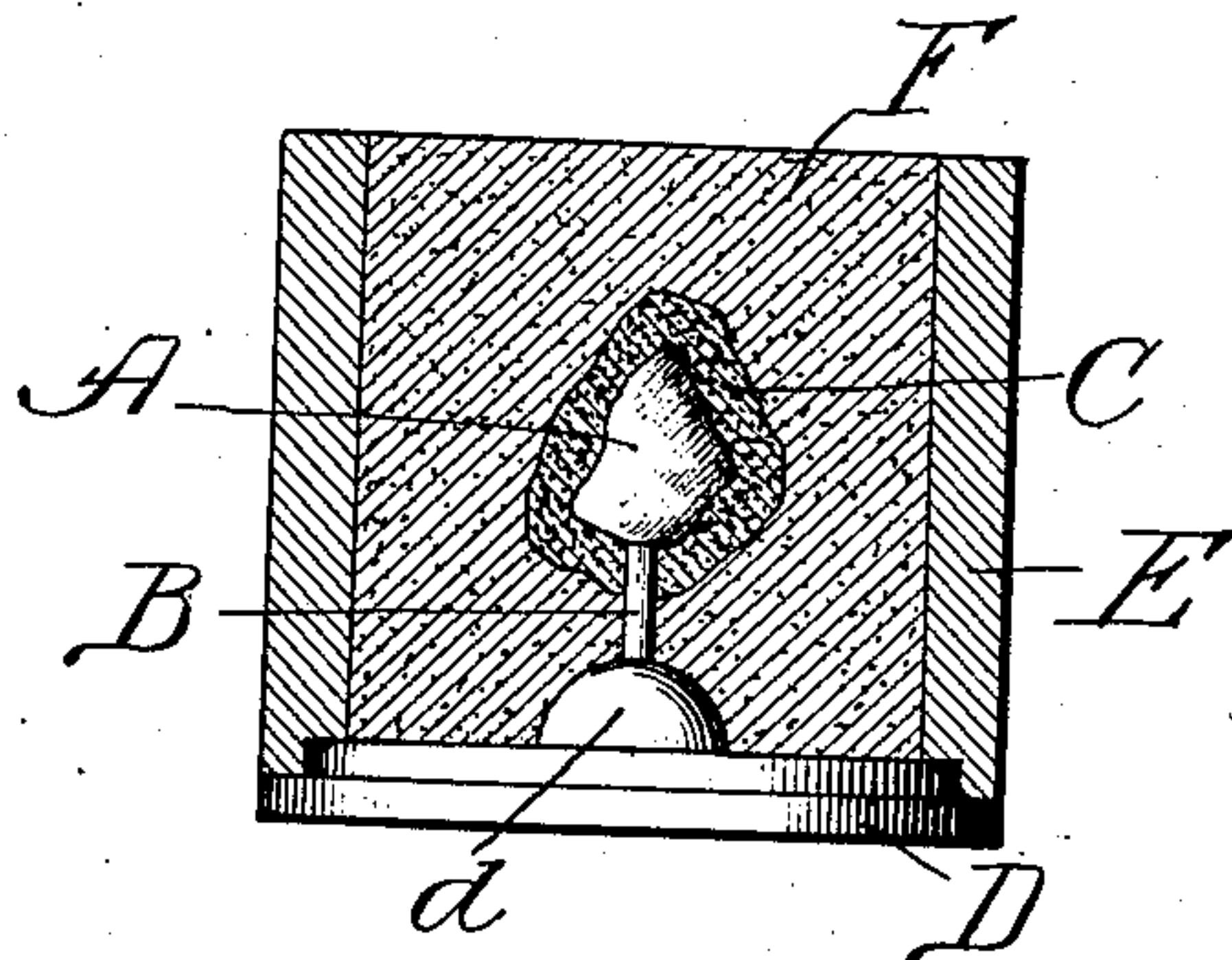


Fig. 7.

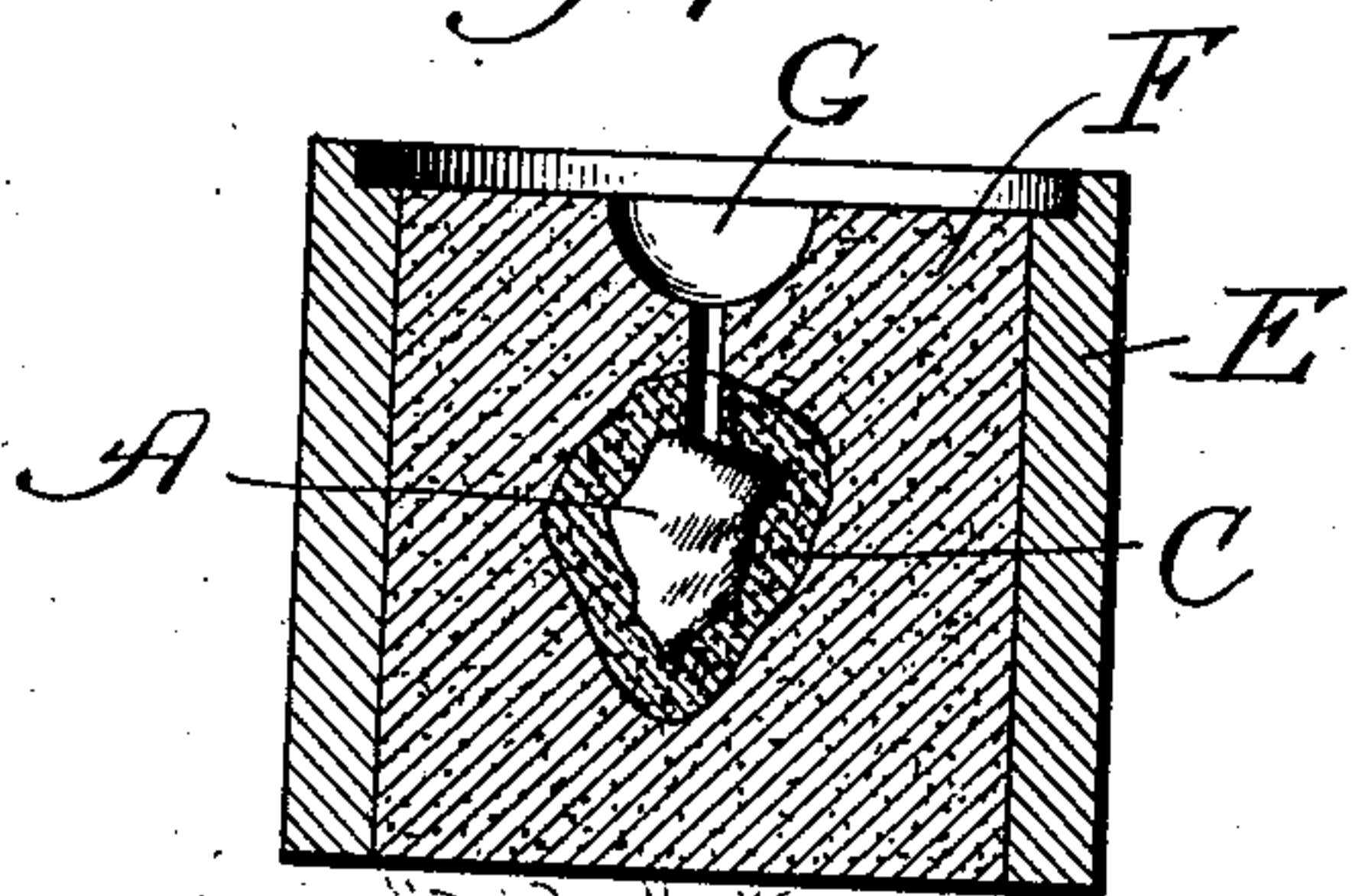
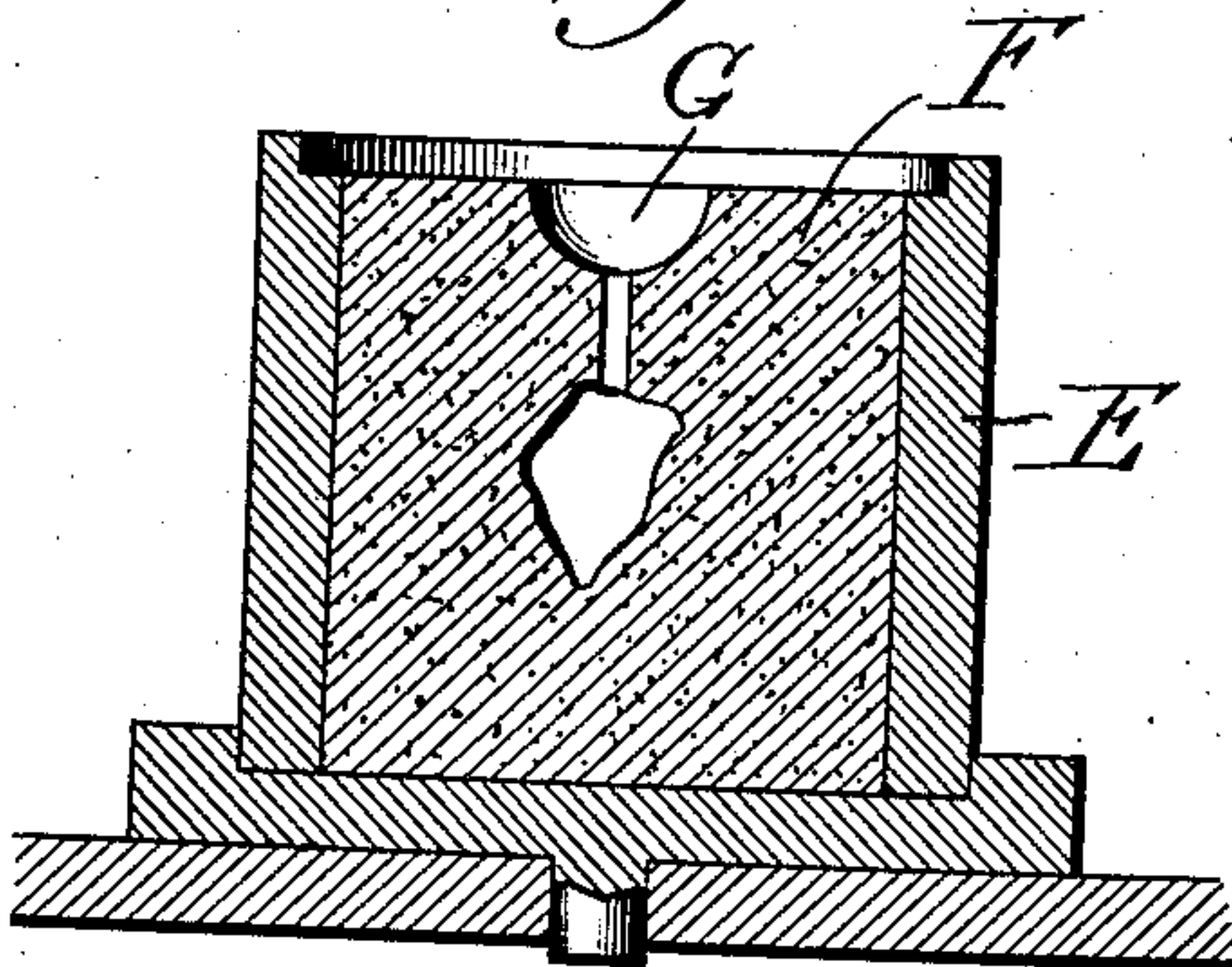


Fig. 8.



Witnesses:
Ed. Chaylors.
John Anders.

Inventor:
William H. Taggart,
By Dymenforth, Lee, Chritton & Wiles,
Attys.

UNITED STATES PATENT OFFICE.

WILLIAM H. TAGGART, OF CHICAGO, ILLINOIS.

APPARATUS FOR MAKING MOLDS FOR THE CASTING OF DENTAL FILLINGS AND THE LIKE.

No. 865,823.

Specification of Letters Patent.

Patented Sept. 10, 1907.

Original application filed January 12, 1907, Serial No. 351,918. Divided and this application filed July 12, 1907. Serial No. 383,481.

To all whom it may concern:

Be it known that I, WILLIAM H. TAGGART, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Apparatus for Making Molds for the Casting of Dental Fillings and the Like, of which the following is a specification.

My invention relates to certain new and useful improvements in apparatus for making molds for the casting of dental fillings and the like, and is fully described and explained in the specification and shown in the accompanying drawing, in which:

Figure 1 is a perspective view of a tooth showing the manner in which the pattern I use with my apparatus is constructed; Fig. 2 is a similar view of the pattern removed from place; Fig. 3 is a similar view of the pattern showing the sprue former attached thereto; Fig. 4 is a sectional view showing the pattern, sprue former and primary coat of mold material; Fig. 5 is a section through the flask and its cover, showing the pattern and primary coat of mold-forming material mounted in position; Fig. 6 is a similar view showing the secondary body of mold-forming material introduced into the flask, with the cover and sprue former removed; and Fig. 7 is a view showing the flask inverted and the method by which the pattern is dissipated; and Fig. 8 is a sectional view showing the flask in position for casting.

This application is a division of an application filed on January 12, 1907, and allotted Serial No. 351,918, and it is particularly directed to those portions of the apparatus shown in such application which are used in making the mold, as distinguished from those portions of the apparatus which are used after the mold is completed in the making of the casting.

As the first step in the practice of my method, I form a pattern A of a fine grade of wax which is plastic at the temperature of the body, and which is purified, preferably, so as to be capable of complete volatilization under the action of heat. This pattern is made in the tooth cavity itself and in contact with the surfaces thereof, so that its lower surfaces conform perfectly to the cavity walls and are identical with the surfaces desired in the filling. The top surfaces of the pattern are obtained by causing the patient to bring his jaws together, so that perfect articulation of the pattern with the opposite teeth is assured. It will be understood, of course, that the cavity is made without overhangs, as is the common practice in preparing cavities for inlay fillings either of porcelain or metal, so that after the pattern is completed it can readily be removed, when it will appear as shown in Fig. 2.

A pointed end *b* of a sprue former B is then thrust

into one of the surfaces of the pattern, preferably into one of the upper surfaces, where a slight inaccuracy caused by the presence of the sprue will be of no consequence. The sprue former B is cylindrical in form, having at one end the point *b* referred to, for insertion into the plastic material of the pattern, and having at the other end a reduced portion *b'*, the purpose of which will hereafter be explained.

After the pattern is secured to the sprue former as aforesaid, the sprue former is used as a handle and the pattern is given a primary coat C of investing material such as is commonly used by dentists. These investing materials consist of mixtures in various proportions of plaster of paris, silica and other substances, and various qualities with reference to their liability to crack and the amount which they shrink when exposed to heat. To secure the best results as good a grade as possible of investing material should be used, but while the use of a bad quality of investing material may interfere with the perfect success of my process, the quality of the investing material has no bearing on whether or not my invention is present.

After the primary body of investing material is placed upon the pattern, the reduced end *b'* of the sprue former is inserted in a central perforation in a projection *d* of a cover D adapted to fit a flask E. By this means the pattern and primary body of mold material are supported centrally within the flask, out of contact with the walls thereof and in position to be completely surrounded by a secondary body of mold material F, also of dental investment material, which is subsequently poured in. By forming the mold thus in two steps, it is possible to get perfect contact between the pattern and the mold material, and any air bubbles which will be formed as the mold material is poured into the flask will be formed outside of the primary body, where they will not affect the casting to be produced.

After the material has set the cover is drawn off and the sprue former extracted, leaving the pattern in position in the mold and leaving the mold with a hemispherical depression G in its upper surface, which depression is adapted to serve as a crucible for the melting of the metal, all as set forth in my application above identified. The flask and mold are then heated by means of a burner and the wax pattern is completely dissipated, the vapors arising therefrom passing out of the sprue hole so that the mold is left in the condition shown in Fig. 8 with a hollow to receive the metal, which hollow is a substantially exact duplicate of the cavity surfaces combined with the surfaces formed by the upper faces of the filling or pattern, with a sprue hole running from said hollow upward and terminating

centrally and at the lower portion of the depression, which can serve as a crucible, so that when the metal is melted therein it can be forced downward, all as provided in my application above identified, into the hollow of the mold, where, when it sets, it will perfectly reproduce the filling desired.

I realize that considerable variation is possible in the details of construction without departing from the spirit of my invention, and I do not intend, therefore, to limit myself to the specific form herein shown and described.

I claim as new and desire to secure by Letters Patent:

1. In a device of the class described, the combination with a flask and a cover therefor, of a sprue former mounted on the cover and adapted to support a pattern.
2. In a device of the class described, the combination with a flask and a cover therefor, of a sprue former removably mounted on the cover and adapted to support a pattern.
3. In a device of the class described, the combination with a flask and a cover therefor having a projection adapted to form a depression in the mold to serve as a crucible for melting the metal, and a sprue former mounted on the projection and adapted to support a pattern.
4. In a device of the class described, the combination with a flask and a cover therefor having a projection adapted to form a depression in the mold to serve as a crucible for melting the metal, and a sprue former removably mounted on the cover on the projection and adapted to support a pattern.
5. In a device of the class described, a sprue former

provided with means for securing it removably to a pattern to support the same.

6. In a device of the class described, a sprue former having a pointed tip adapted to be inserted in a plastic pattern to support the same.

7. In a device of the class described, the combination with a sprue former adapted to be attached at one end to a pattern, of a flask and a cover for said flask, said cover having a portion arranged to receive the opposite end of the sprue former to support the pattern.

8. In a device of the class described, the combination with a sprue former adapted to be attached at one end to a pattern, of a flask and a cover for said flask, said cover having an opening arranged to receive a reduced end upon said sprue former to support the pattern.

9. In a device of the class described, the combination with a flask of a cover therefor having a projection adapted to form a depression in the mold to serve as a crucible for melting the metal, and a sprue former adapted to be attached at one end to the pattern and at the other end to be inserted in a suitable perforation in the projection of said cover.

10. In a device of the class described, the combination with a flask of a cover therefor having a projection adapted to form a depression in the mold to serve as a crucible for melting the metal, and a sprue former having a reduced end adapted to be attached at one end to the pattern and to have its reduced end inserted in a perforation in the center of the projection of said cover.

WILLIAM H. TAGGART.

In presence of—

A. U. THORIEN,
R. A. SCHAEFER.