

C. L. KEMERY.
 APPARATUS FOR CASTING DENTAL INLAYS.
 APPLICATION FILED MAR. 27, 1908.

951,614.

Patented Mar. 8, 1910.

FIG. 1

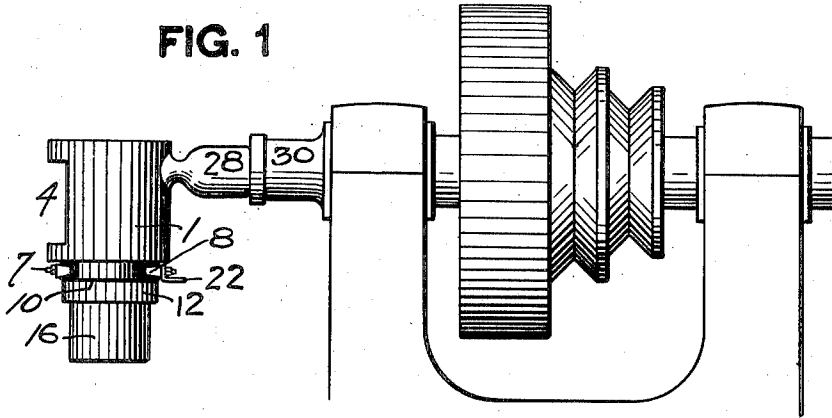


FIG. 2

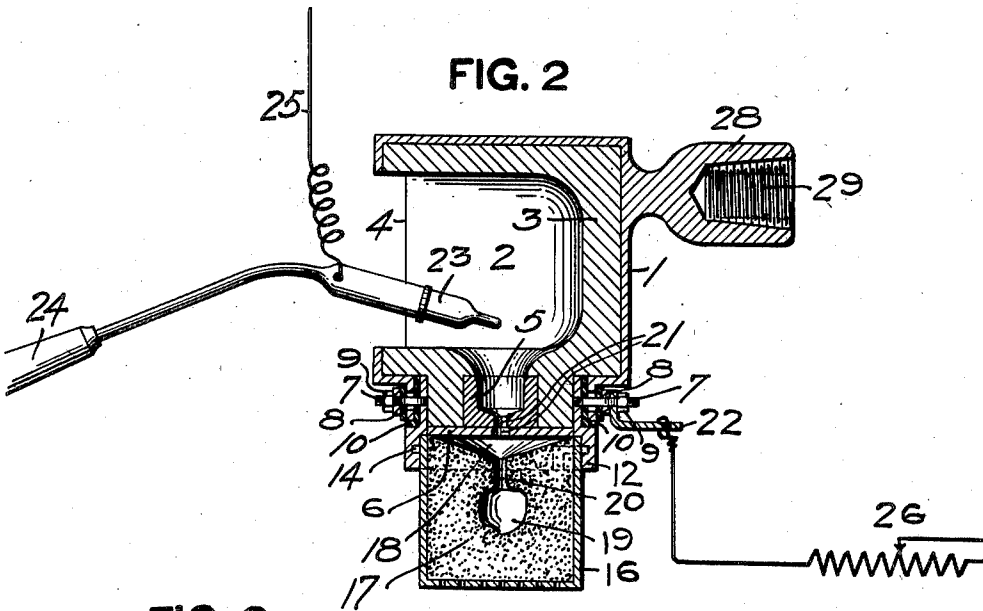


FIG. 3

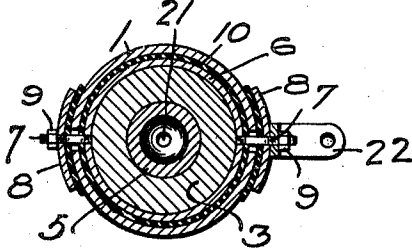
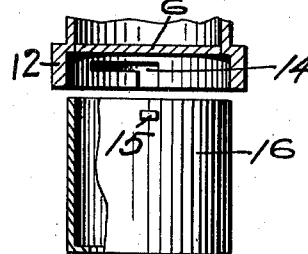


FIG. 4



WITNESSES.

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CHARLES L. KEMERY, OF PITTSBURG, PENNSYLVANIA.

APPARATUS FOR CASTING DENTAL INLAYS.

951,614.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES L. KEMERY, a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have
5 invented a new and useful Improvement in Apparatus for Casting Dental Inlays; and I do hereby declare the following to be a full, clear, and exact description thereof.

This invention relates to apparatus for
10 casting dental inlays, crowns, bridges and plates.

The purpose of the invention is to provide a device of this character which is neat and compact, which can be readily and easily
15 used, which can be adapted to the usual apparatus and equipment of a dentist's office, and which will cause the metal to fill out in all of the sharp angles and crevices of the mold.

20 The invention comprises a rotatable furnace of the character hereinafter described and claimed.

In the accompanying drawings Figure 1 is a side view of a dental lathe showing my
25 furnace applied thereto; Fig. 2 is a vertical section through the furnace on an enlarged scale; Fig. 3 is a transverse section through the lower part of the furnace; and Fig. 4 is a view showing the means for connecting
30 the flask to the furnace proper.

My improved furnace comprises a suitable casing 1 inclosing a chamber 2 which is lined with some suitable fire resisting material 3. The furnace chamber has an
35 opening 4 on one side. In the bottom of the chamber is a crucible 5 of carbon, plumbago, or other material which is a conductor of electricity. This crucible rests upon the metallic bottom 6 which is connected to the
40 casing 1 by studs 7 and bearing or clamping plates 8, nuts 9 being used to fasten the parts together. The metallic bottom 6 is suitably insulated from the casing 1, such as by sheets 10 of mica, or other suitable
45 insulating material.

Projecting downwardly from the bottom 6 is a ring 12, which on two diametrically opposite points is provided with bayonet slots 14 for receiving pins 15 on the cup
50 shaped flask 16. This provides a connection between the flask and the furnace by means of which the flask can be readily disconnected. The flask 16 will have formed therein a mold 17 of any suitable investment
55 material, by means of a wax or other pattern, as is now the practice. The top of the

mold is preferably formed concave, as shown at 18, and communicates with the mold cavity 19 through an opening or gate 20. The crucible 5 and bottom 6 are provided with
60 openings 21 in line with the gate 20 of the mold.

The metal to form the inlay, such as gold, is placed in the crucible 5 and is melted therein, preferably by an electric current.
65 To this end one terminal of the circuit is connected to the crucible, such as by connecting a binding post 22 to one of the studs 7. This connection will be made in any
70 suitable manner so as to become readily disconnected when the furnace starts to revolve. The other terminal is formed by an electrode 23 carried on a handle 24 and having
75 preferably the negative wire 25 connected thereto. In the circuit is placed a suitable adjustable resistance 26 so that the current can be regulated at will. When the
80 circuit is closed an arc is formed between the crucible and the electrode 23, which arc quickly melts the metal contained in the crucible. The molten metal lies in a globule
85 over the opening 21 in the bottom of the crucible ready to be thrown by centrifugal force as soon as the furnace is started to revolve.

Gold and other metals generally used for dental purposes have a tendency to form into beads or take a globular form so that they do not fill well out into the sharp
90 angles of the mold cavity. In order that the metal may fill all the recesses of the mold cavity, my furnace is designed to force the metal into the mold by centrifugal force. To that end the furnace casing 1 has
95 connected thereto an arm 28 provided with a tapped socket 29 for attachment to the spindle 30 of an ordinary dentist's lathe, or other rotating mechanism. In use, as soon
100 as the gold is melted by the arc, the operator starts the lathe, which usually is controlled by the foot, or electric switch, setting the spindle 30 into rotation and thereby rotating the furnace on a horizontal axis.
105 Since the axis of rotation is near the top of the furnace, this causes the crucible and mold to traverse an orbital path around the axis and the centrifugal force acting on the molten metal positively throws the same
110 through the openings 21 and 20 and into the mold cavity, causing the metal to flow out in all of the crevices and sharp angles of the cavity and forming an inlay which ac-

curately conforms to the pattern and to the cavity in which it is to be placed.

The apparatus described is compact and neat in appearance, can be applied to the ordinary appliances found in a dentist's office, can be readily operated, and insures the formation of inlays, crowns, and bridges having sharp contours conforming to the mold.

It will be observed that in the use of the device the gold or other metal is placed in the furnace when the same is in an upright position, so that the metal is held by gravity in the crucible and tends, when melted, to flow down through the hole in the bottom of the crucible, but the hole in the crucible is of such a size that the molten metal will not pass through without the aid of centrifugal force. By having the furnace mounted to rotate on a horizontal axis the molten metal cannot spill or become wasted.

What I claim is:

1. Apparatus for casting dental inlays, crowns and bridges, comprising a furnace constructed for rotation on a horizontal axis, an electric terminal connected to the furnace hearth, an electrode forming the other terminal of the circuit, and a mold carrier connected to the furnace and having a communication with the furnace hearth radial to the axis of rotation, whereby the centrifugal action due to the rotation of the furnace forces the molten metal into the mold.

2. Apparatus for casting dental inlays, crowns and bridges, comprising a furnace constructed for rotation on a horizontal axis, a crucible resting in the bottom of the furnace and provided with a hole through its bottom, a terminal connected to said crucible, an electrode forming the other terminal of the circuit, and a mold carrier connected to the furnace and arranged to have the mold gate in line with the hole in the bottom of the crucible and radial to the axis of rotation, whereby the centrifugal action forces the molten metal into the mold.

3. Apparatus for casting dental inlays, crowns and bridges, comprising a furnace constructed for rotation on a horizontal axis, a crucible in the bottom of said furnace and provided with a hole through its bottom of such a size that the molten metal will not pass through until acted upon by the centrifugal force caused by the rotation of the furnace, an electric terminal connected to said crucible, an electrode forming the other terminal of the circuit, a flask connected to the bottom of the furnace and extending radially with reference to the axis

of rotation and arranged to have the mold gate in line with the hole in the crucible, and mechanism for rotating said furnace, whereby the centrifugal action forces the molten metal into the mold.

4. Apparatus for casting dental inlays, crowns, and bridges comprising a furnace constructed for rotation on a horizontal axis and having an opening through its bottom, a terminal connected to the furnace bottom, an electrode forming the other terminal of the circuit, and a flask detachably connected to the bottom of said furnace and arranged to have the mold gate in radial relation to the opening in the bottom of the furnace.

5. Apparatus for casting dental inlays, crowns and bridges, comprising a furnace constructed for rotation on a horizontal axis, a crucible in the bottom of said furnace and insulated therefrom and provided with a hole through its bottom, a terminal connected to said crucible, an electrode forming the other terminal of the circuit, and a mold carrier connected to the bottom of the furnace and presenting the mold gate in radial relation to the hole in said crucible, so that the centrifugal force created by the revolving furnace causes the molten metal in the bottom of the crucible to be forced radially out into the mold and form a perfect cast.

6. Apparatus for casting dental inlays, crowns and bridges, comprising a furnace constructed for rotation on a horizontal axis and having an opening through its bottom, an electric terminal connected to said furnace bottom, an electrode forming the other terminal of the circuit, and a flask connected to the bottom of the furnace by a bayonet joint connection and presenting the mold gate in radial relation to the hole in the bottom of the furnace.

7. Apparatus for casting dental inlays, crowns and bridges, comprising a furnace provided above its bottom with means for attachment to a horizontal shaft, a hole through the bottom of said furnace, and a flask connected to the bottom of the furnace and extending radially with reference to the axis of rotation and arranged to have the mold gate in line with the hole in the bottom of said furnace.

In testimony whereof, I, the said CHARLES L. KEMERY, have hereunto set my hand.

CHARLES L. KEMERY.

Witnesses:

M. D. VOGEL,

ROBT. D. TOTTEN.