T. W. MAVES.

PROCESS OF BURNING OUT INVESTED MODELS

APPLICATION FILED SEPT. 23, 1918.

1,291,588. Patented Jan. 14, 1919.

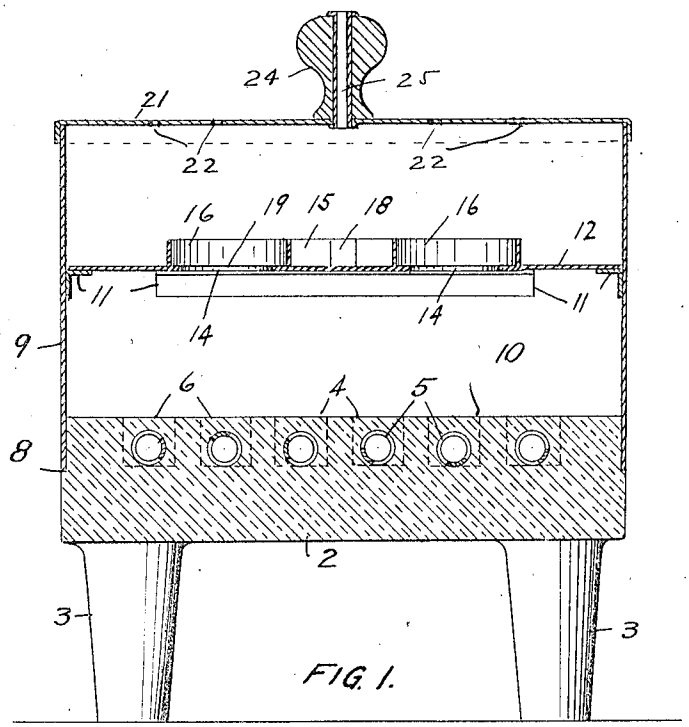


FIG. 1.

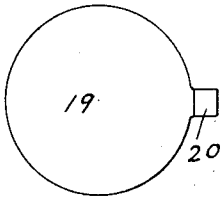


FIG. 4

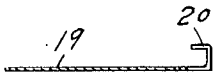


FIG. 5.

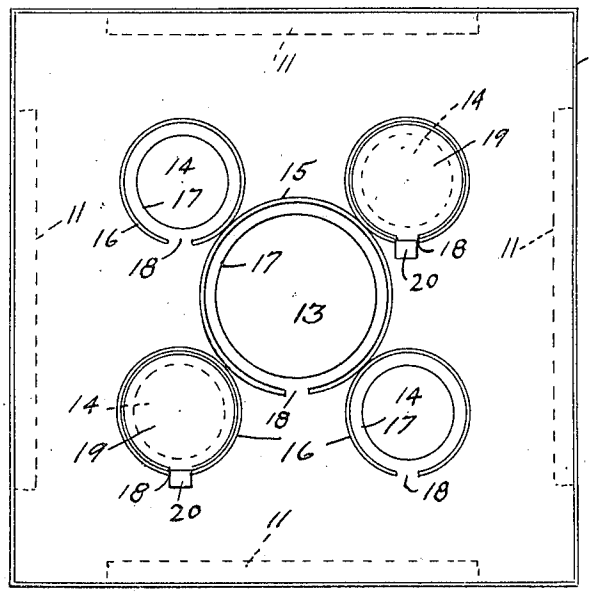


FIG. 2

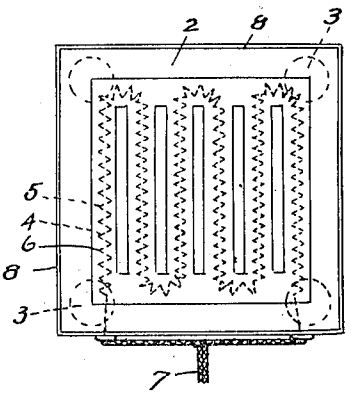


FIG. 3.

WITNESSES

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PROCESS OF BURNING OUT INVESTED MODELS.

1,291,588. Specification of Letters Patent. Patented Jan. 14, 1919.

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To all whom it may concern:

Be it known that I, THEODORE W. MAVES, a citizen of the United States, resident of Minneapolis, county of Hennepin, State of Minnesota, have invented certain new and useful Improvements in Processes of Burning Out Invested Models, of which the following is a specification.

In making dental castings, it has been customary to provide a flask in which a wax model or pattern of the shape of the cavity to be filled or of the form of the desired casting is placed and surrounded by what is known as "investment material," with a sprue rod mounted in the wax model and extending outwardly through the investment material. The wax model is then melted to be absorbed by the surrounding material, and the screw rod having been previously removed, a matrix will be formed into which the molten metal is poured to form the desired casting or inlay.

The object of my present invention is to provide a process of melting the wax model to the end that the matrix can be neatly and expeditiously formed within the investment material and a perfectly formed casting be subsequently obtained.

The invention consists generally in the process set forth in the claims.

In the accompanying drawings forming part of this specification,

Figure 1 is a vertical sectional view through an apparatus which I prefer to employ in carrying out my process.

Fig. 2 is a plan view, with the cover removed, showing the support for the flasks above the heater,

Fig. 3 is a plan view of the heater,

Figs. 4 and 5 are detail views of the flask hole cover.

In carrying out my process, I prefer to employ the apparatus substantially as shown herein and which I will now describe in detail. In such an apparatus the flask supporting plate or carrier must be a certain predetermined distance from the heater to obtain the best results—not too near or the wax will be burned out or melted too quickly, and not too far away or the wax will be melted too slowly and too unevenly to obtain a finely finished casting. A degree of heat that is too low to uniformly melt the wax will be fatal to the successful operation of the device, for if the melting is not uniformly obtained, the casting will not be smooth and will not be a duplicate of the wax pattern and hence will not fit the tooth. Overheating will cause the investment to crack and produce a defective casting. The best results are obtained by subjecting the walls of the flask to a slow, gradual heat which will melt the wax uniformly and evenly and by so doing I am able to produce a smooth, accurately formed casting which will be an exact duplicate of the wax and a perfect fit for the tooth.

Referring now to the accompanying drawing for the detailed description, 2 represents the base of the heater, which I employ in carrying out my process, having suitable supporting legs 3 and provided in its upper surface with a series of transverse grooves or recesses 4 in which a resistance coil 5 is placed and embedded in a suitable plastic material 6. The ends of the coil are in circuit with an electric conductor 7 through which a current is passed to heat the resistance wire 5 and the space above the heater forming the oven. The resistance coil is so made or formed that when the current is turned on the oven will be heated to a certain temperature, which I have found best suited for uniformly melting the wax.

By equipping the heater with a coil for producing a certain degree of temperature, I am able to determine how long the flask should be in the oven to melt the model. The base or bed of the heater has preferably a recess or shoulder therein at 8 whereon an inclosing casing 9 is seated. This casing is preferably made of metal, rectangular in form, to fit snugly down over the top of the base and form a heating chamber or oven 10 above the base. Ledges 11, preferably of angle bar, are secured to the casing 9, preferably at a point midway between the top and bottom of the casing and form supports for a floor plate 12 that is loosely seated on the ledges 11 and forms the top or roof of the oven chamber 10. This plate 12 is provided with a comparatively large central opening 13 and a series of smaller openings 14 arranged around it, and I preferably provide flanges 15 and 16 encircling these openings and spaced from the edges thereof to form ribs or ledges 17. The flanges 15 and 16 have openings 18 therein and cover plates 19 fit within the flanges and close the openings in the plate 12 and have finger grips 20 which project through the openings 18. These cover plates close the openings until

such time as the operator desires to insert a flask therein, when the plate will be removed and the flask with the wax model therein placed in the opening with its lower portion depending into the oven 10. The lower portion of the flask will be sufficiently near the top of the heater so that the wax will be melted and absorbed by the investment material. By providing openings of different sizes in the plate 12, I adapt the apparatus for flasks of different diameter. The top of the casing is preferably closed by a cover plate 21 having a series of vent holes 22 therein, one above each opening, and a hand grip 24 which has a central vent opening 25. When this cover is removed, access may be had to the plate 12 and the flask therein. This plate, as shown, is preferably supported about midway between the top and bottom of the casing so there will be ample room above the supporting plate for the top of the flasks and for the sprue rods.

By means of this process I am able to expose the walls of the flask or flasks to a uniform gradual heat, the duration of which may be regulated according to the character of the work and the size of the model to be melted. The wax absorbed by the investment material through this process will leave a smooth matrix from which an accurate, perfectly formed casting can be made.

I claim as my invention:

1. A process of burning out or melting invested models which consists in placing a flask containing the invested model within an oven and exposing the walls of the flask to a suitable degree of heat for a predetermined period to melt the model.

2. A process of burning out or melting invested models which consists in suspending the flask containing the invested model within an oven and subjecting the walls of the flask to a dry heat for a predetermined period.

3. A process of burning out invested models which consists in placing the flask containing the invested model within a closed oven and subjecting the walls of the flask to a dry heat.

In witness whereof, I have hereunto set my hand this 20th day of September, 1918.

THEODORE WILLIAM MAVES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."