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METHOD FOR MAKING INVESTMENT MOLDS AND CASTINGS

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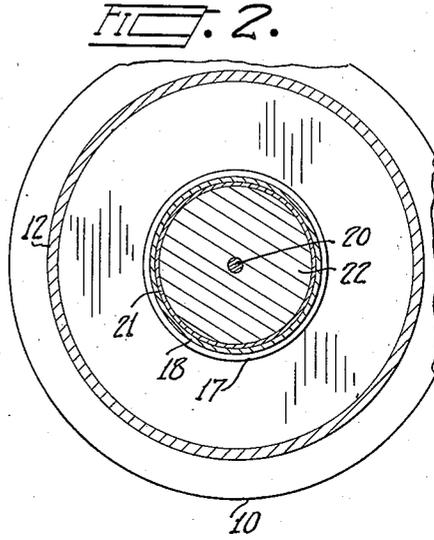
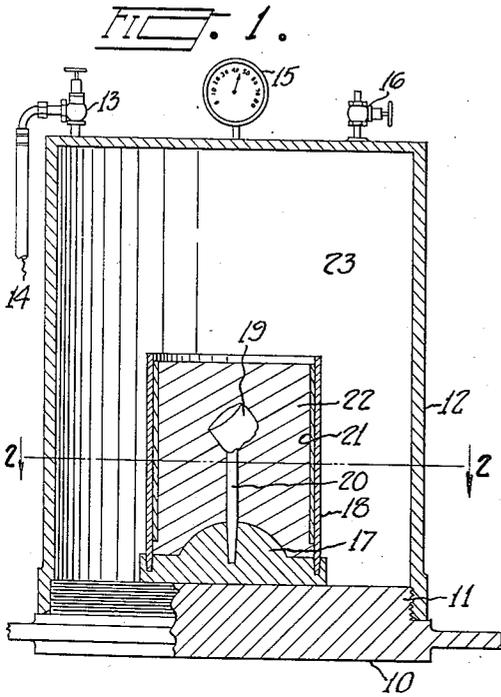


FIG. 3.

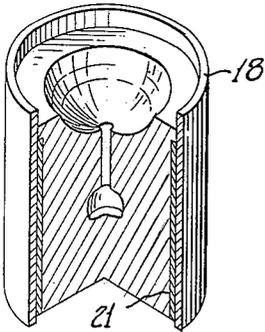
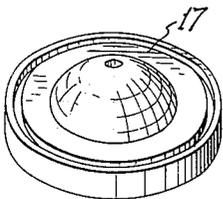


FIG. 4.



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METHOD FOR MAKING INVESTMENT MOLDS AND CASTINGS

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1 Claim. (Cl. 22—200)

This invention relates generally to the art of making castings and particularly to dental castings and includes a method for making investment molds and castings.

The main object of this invention is to devise a method of and apparatus for making accurate castings of maximum density and free from voids or irregularities not present in the original pattern.

The second object is to devise an apparatus which will fit into the ordinary run of dental equipment and one which can utilize air pressures usually available in dental laboratories.

I accomplish these and other objects in the manner set forth in the following specification as illustrated in the accompanying drawing, in which

Fig. 1 is a vertical section through the device.

Fig. 2 is a horizontal section taken along the line 2—2 in Fig. 1.

Fig. 3 is a perspective in section of the mold after wax has been removed by heat.

Fig. 4 is a perspective view of the removable bottom of the mold.

Referring in detail to the drawing, there is shown a base 10 having a threaded top 11 upon which may be mounted a pressure casing 12. The casing 12 is provided with an inlet air valve 13 to which air is supplied through the hose 14 from the laboratory compressor. Either the base 10 or the casing 12 may be stationary and the other element movable. The casing 12 is also provided with a pressure gauge 15 and an exhaust valve 16. Movably placed on the base 10 is a sprue base 17. The sprue base 17 has formed therein a groove in which is seated the investment ring 18.

The wax pattern 19 is normally placed on a sprue 20 made of metal, wax, or plastic and the sprue 20 placed in the sprue base 17. The ring 18, which is lined with asbestos 21, is now placed on the base 17 and freshly mixed casting investment 22 is poured into the ring 18 to completely envelop the pattern 19. The investment 22 is allowed to set and then placed in an oven after the sprue base is removed and the sprue 20, if it be made of metal, is also removed. The oven is brought to 900° F. to 1200°

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F., depending upon the technique, and allowed to remain there until all the wax is removed and a clean, red hot sprue hole is observed. From here on the casting procedure is as is now customary.

In order to overcome voids and irregularities in the casting, as well as mold distortion, I place the investment ring 18, mounted on the sprue base, and with the pattern 19 in place and the ring filled with soft investment, within the chamber 23 formed by the base 10, and a pressure of forty-five pounds gradually applied to the chamber 23. This pressure is maintained until a trial piece of the soft investment is set. The exhaust valve 16 is opened, the chamber 23 opened, and the ring 18 is ready for the firing.

The resulting casting will be found to be an exact duplicate of the original pattern without voids or distortion of any kind. Due to the pressure employed any air pockets entrapped within the material will be compressed to a point where they disappear or are made so small as to be unobjectionable.

I claim:

In the known method of making dental castings wherein a wax pattern is surrounded with a soft investment material, the investment material thereafter permitted to harden, the wax pattern drained from the interior of the hardened investment material by heating and the cavity left by the wax pattern filled with a molten metal to thereby form a metal dental casting, the improvements which comprise: *a.* while the investment material surrounding the wax pattern is still in a soft condition, gradually applying an air pressure of approximately 45 pounds per square inch gage directly upon all exposed surfaces of said soft investment material, *b.* maintaining said air pressure of approximately 45 pounds per square inch gage on said soft investment material while the hardening of the investment material is taking place, *c.* preventing the circulation of air completely through said investment material while it is in the process of hardening, and *d.* decreasing the pressure from approximately 45 pounds per square inch gage to atmospheric pressure after said investment material has hardened.

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