

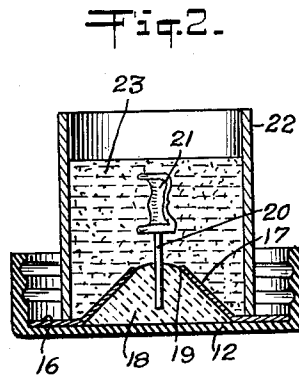
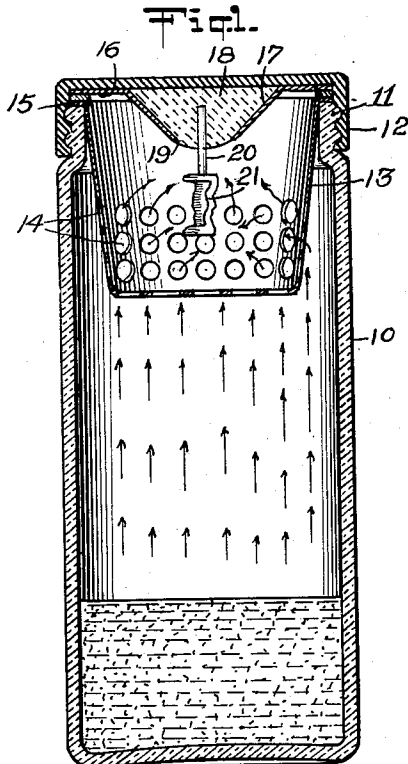
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SPLASH MIXER FOR DENTAL CASTINGS

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## UNITED STATES PATENT OFFICE

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## SPLASH MIXER FOR DENTAL CASTINGS

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## 1 Claim. (Cl. 22—9)

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This invention relates to new and useful improvements in devices for making dental castings.

An object of the invention is to provide a simple means whereby castings can be much more quickly produced than before.

A further object is to provide a simple and efficient device in which the wax pattern for the dental casting may be more easily, effectively and quickly coated before being put in the casting mold.

Further and more specific objects, features, and advantages will more clearly appear from a consideration of the detailed specification hereinafter set forth especially when taken in connection with the accompanying drawings which illustrate a present preferred form which the invention may assume and which form part of the specification.

In the usual now known methods of making wax patterns, the cavity die is generously coated with an oil to prevent the molten wax from sticking to the inner surfaces of the die, so that the pattern may be removed from the die without distortion. This oil must be meticulously removed from the surface of the wax pattern before it is coated with the investment material. This is usually done by carefully washing the surface of the wax pattern with a camel's hair brush which has been dipped in some grease dissolving solution. This operation often causes breaking and chipping of the feather-like edge margins of the pattern, which are the most important part of any dental restoration.

Secondly, the investment of powder and water is mixed and in order to obtain the proper consistency of the mix, the water and the powder are generally weighed. This investment compound is mixed by spatulation, generally in a rubber bowl. Regardless of how well the mix is spatulated, it seldom is possible to fully eliminate the small lumps of powder which always exist in these investments. After this, this investment is applied to the wax pattern with the same camel's hair brush with all the attendant difficulties therewith involved. In applying the investment to the pattern, it must be painted on and be blown off several times with the mouth until the pattern is evenly coated.

After sufficient coating is thus evenly applied, a metal casting ring or shell is placed around the sprue form with the inlay pattern attached to it and the ring is filled with investment. After many years experience with this method, it has been found that at least 5% failures result.

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In this business, this percentage is not good enough, because a miss means delay and time does not permit of possessing another pattern.

In contemplating the difficulties and disadvantages of the usual method above described, I have developed my new procedure and have found after exhaustive experiments and tests, that I have cast over 2,000 inlays without a single failure and in much less time and with greatly less labor and care called for.

In brief and general terms, there is first determined the amount of liquid and investment powder to be used by measurement and then these are poured into a container such as a glass jar with a screw-threaded cap, from which depends a wire stem on the lower end of which is supported the wax pattern formed in the usual manner. Beneath the cap and surrounding the pattern on the side and the bottom, is a perforated basket interposed between the pattern and the creamy liquid formed by the mixture of the water and the investment powder. I then shake the container for a matter of about a half minute, and find that the investment cream has been thoroughly mixed and in a manner homogenized, and that the pattern has been coated properly and evenly with a very finely divided material. After this brief shaking has effected sufficient coating of the pattern, the cap of the container is taken off and inverted with a casting shell around the pattern and with the ring filled with the remainder of the investment which is then allowed to set. This whole operation takes about a minute whereas the former method, required from 3 to 5 minutes and was not at all certain.

The present preferred form which the invention may assume is illustrated in the drawings, of which:

Fig. 1 is a vertical cross sectional view of my improved splash mixer; and,

Fig. 2 shows the pattern after being treated in the splash mixer and now disposed in the casting mold.

Referring now to the particular form of the invention shown in the drawings, it is seen that there is provided a container preferably in the form of a cup of glass or similar material 10, having a top edge threaded as at 11 to receive a similarly threaded flanged cap 12, which may be made of metal but preferably is made of composition such as rubber.

Disposed within the top of the container 10 is a metal basket 13 provided with a plurality of holes 14 therein in the sides as well as in the

bottom. This basket has at its top edge, a horizontal flange 15 resting on the top edge of the container 10. The inner surface of the cap 12 is lined with a metal lining 16 suitably connected thereto in any desired manner and having a central depressed portion 17 to form a cavity to be filled with material such as wax 18. The depressed cup-shaped portion at its center, is broken away as at 19 to permit a stem or wire 20 to be inserted into the wax. On the lower end of this stem 20 is mounted the pattern 21. This stem 20 extends down far enough so as to suspend the pattern 21 in the middle of the basket 13 just above the bottom thereof. This depressed portion 19 represents the sprue form so as to result in the sprue in the mold later to be made and described hereinafter.

In the operation of this splash mixer, I place in the container 10 a suitable quantity of investment powder and water with an oil solvent to make a creamy solution and with this in the container 10 and the wax pattern in place, as shown in Figure 1, I shake the device for a matter of about thirty seconds. During this shaking, the liquid, as it violently contacts the basket, is thoroughly agitated to break up the powder into the finest possible consistency so that in a sense, it is thoroughly homogenized and simultaneously the oil, which is generally found on the wax patterns, is removed and a coating is formed on the pattern in such a finely divided shape as to be unusually effective and which eliminates the usual washing and painting with a brush which is the usual procedure.

After this operation, the cap is removed with the sprue form and the coated wax pattern and placed on a surface upside down, as shown in Figure 2. In this position, a thin cylindrical shell-like mold element 22 is placed around the sprue form to inclose the wax pattern 21 and the remainder of the creamy liquid in the container 10, is then poured into the mold element 22 to form the casting 23. After this casting is set, it is treated and handled in the usual manner.

While the invention has been described in detail and with respect to the preferred form shown in the drawings, it is not to be limited to such details and forms since many changes and modifications may be made in the invention without departing from the spirit and scope of the invention in its broadest aspects. Hence, it is intended to cover any and all forms and modifications of the invention which may come within the language or scope of the appended claim.

What I claim as my invention, is:

A splash mixer for producing investment molds for dental castings which comprises a container having a threaded upper end, a cap flanged and threaded to be engaged with the upper end of the container, a metal lining on the cap with a dependent central apertured portion constituting a sprue form, said sprue form being adapted to be filled with a composition, a wire stem extending into said sprue form, a wax pattern on the lower end of the wire, a basket having an upper flange resting on the upper edge of the container and being perforated along its bottom and sides and disposed around the sides and below the bottom of the pattern, a gasket of ring-shape form resting on said flange to be gripped between the flange and the cap, said container being adapted to receive an investment slurry of water and powder, said pattern being adapted to be coated by said investment material when said container is agitated.

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