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[54] VACUUM STIRRING DEVICE FOR DENTAL MATERIALS

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[51] **Int. Cl.** **B01f 7/18**

[58] **Field of Search** .....259/8, DIG. 20, DIG. 42, 108, 259/107, 122, 85, DIG. 46; 192/84

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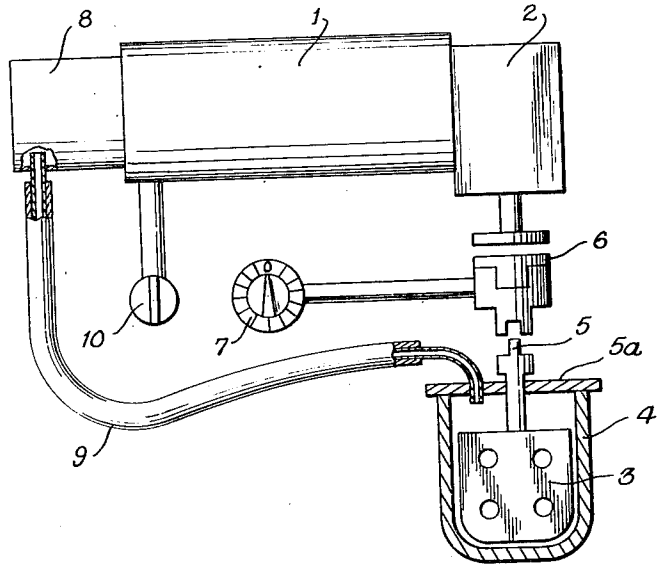
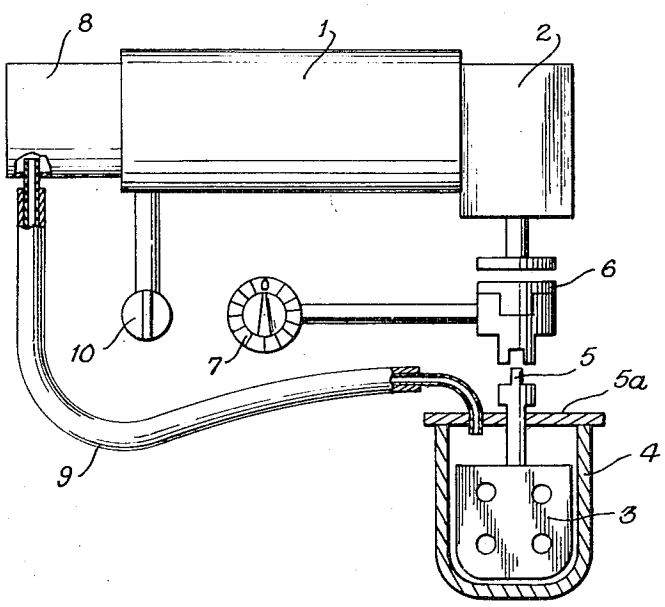
[57] **ABSTRACT**

A mixing machine for materials used in dentistry where the elimination of entrained air, or air bubbles, is necessary in order to assure perfect results upon setting of the material, the machine including a closed mixing container, a rotary stirring device, and a vacuum pump for the rotary stirring device being driven by a motor by means of a magnetic clutch. A time switch is provided so that after a predetermined time of mixing the stirring device is disconnected, the vacuum pump, however, continuing to operate.

1 Claims, 1 Drawing Figure





INVENTOR

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VACUUM STIRRING DEVICE FOR DENTAL MATERIALS

This invention relates to an apparatus for stirring materials in a vacuum to degas the materials and especially for degassing dental materials.

When dental material masses used for making models of teeth are degassed while being stirred under vacuum, a combination apparatus is often used in which both the stirring and degassing is accomplished in the same apparatus.

The most important feature in the preparation of the materials is the mixing of the material mass in a vacuum. Heretofore, this has been accomplished by using a mixing beaker which contains a stirring and mixing mechanism and whose interior is continually kept free of air by drawing off the air in order to prevent the entraining of air into the mass of material which would greatly impair the quality of the model or mold for which the material is to be used and under the reduced pressure any air bubbles which expand can be eliminated.

The object of this invention is to produce an apparatus by means of which the stirring and mixing of the mass while being degassed is simplified.

In this invention, the apparatus is simplified by inserting a magnetic clutch between the driving motor and a mechanical coupling joined to the stirring mechanism, and using a time clock to actuate the effective clutching time of the magnetic clutch. This makes it possible to set the exact time for the mixing and stirring without needing an operator to watch the mixing time. This makes it also possible to continue the removal of air from the beaker when the mechanical coupling is not connected as, for example, in order to seal the cover or closure for the mixing beaker before the mixing or stirring is started. This has the further advantage that the drive for the stirring or mixing mechanism can be incorporated in the stationary mechanical coupling of the drive shaft.

The means by which the objects of this invention are obtained are described more fully with reference to the accompanying schematic drawing which is a front view, partly in section, of the apparatus of this invention.

Motor **1** drives gearing **2** which is used to rotate a mixing or stirring paddle **3** in a mixing beaker or container **4**. Stirrer **3** can be a paddle which is mounted on a spindle **5** that extends through the cover or closure **5***a* for the container **4**. Spindle **5** has a projection engaging a magnetic clutch **6** by means of which the paddle is rotated.

Clutch **6** is controlled by a time switch **7** so that when the clutch is engaged it will rotate paddle **3** for the time set by switch **7**. When this time is up, the paddle **3** stops rotating by disengaging the clutch and the still closed container with its contents may be disconnected from clutch **6** and after opening the container, the now mixed contents can be used.

Motor **1** also drives suction pump **8** that draws air through tube **9** which extends through the closure **5***a* into container **4**. This suction or vacuum pump operates whenever motor **1** is running so that the contents in container **4** may be placed under vacuum immediately after being put in the container and before mixing starts, and will be kept under vacuum after switch **7** has unclutched magnetic clutch **6**. Switch **10** is used to start and stop motor **1**.

Having now described the means by which the objects of this invention are obtained,

I claim:

1. A mixing machine for mixing dental materials in a vacuum including a motor, a vacuum pump and a mixing gear driven by said motor, a mixing container, a closure for said mixing container operatively connected to said vacuum pump for evacuating said mixing container, a mixing paddle mounted on a shaft extending through said closure, a mechanical coupling, a magnetic clutch driven by said mixing gears, and a time switch for determining the duration of time of engagement of said magnetic clutch, said magnetic clutch being operatively interposed between said mixing gear and said mechanical coupling to which said mixing shaft is removably connected.

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