F. M. WILLIS.

AMALGAM MIXER.

APPLICATION FILED DEC. 23, 1912.

1,066,691. Patented July 8, 1913.

Fig. 1.

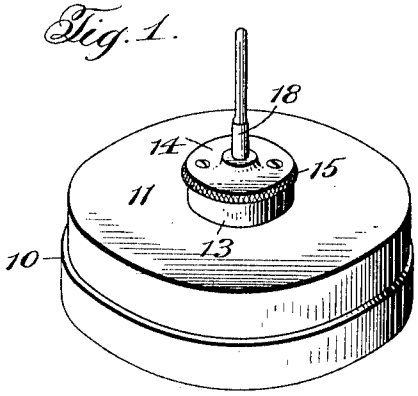


Fig. 2.

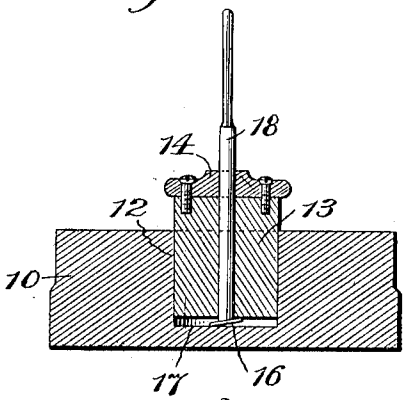


Fig. 4.

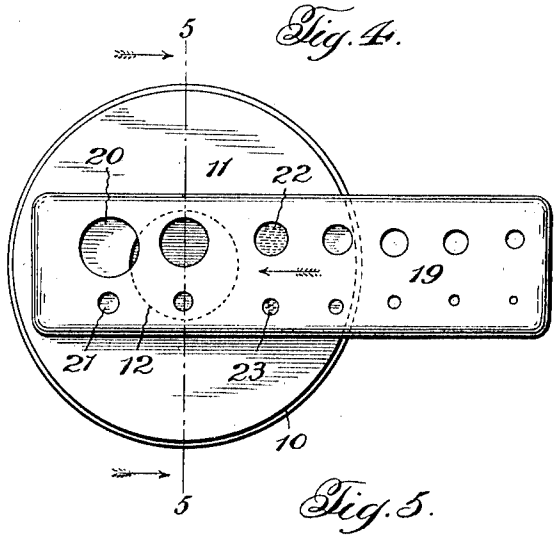


Fig. 3.

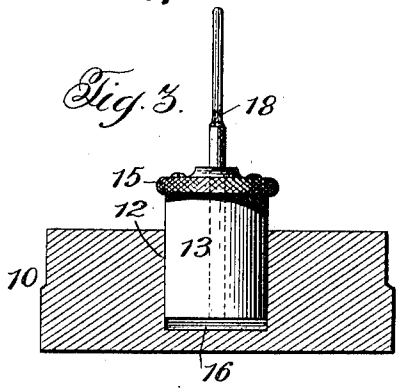
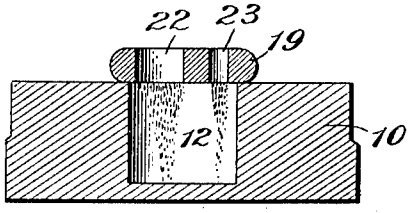


Fig. 5.



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AMALGAM-MIXER.

1,066,691. Specification of Letters Patent. Patented July 8, 1913.

Application filed December 23, 1912. Serial No. 738,368.

To all whom it may concern:

Be it known that I, FRANCIS M. WILLIS, a citizen of the United States, and resident of Ithaca, county of Tompkins, State of New York, have invented certain new and useful Improvements in Amalgam-Mixers, of which the following is a specification.

This invention relates to apparatus for mixing amalgam dental fillings and for other analogous uses and has for its object the provision of a device which is sanitary, does not require the amalgam touched by human hands during the measuring or mixing thereof and which is adapted to expeditiously and thoroughly mix the amalgam.

A further object is to provide apparatus of this class which is adapted to accurately measure the quantities of alloy and mercury required to make a given quantity of amalgam.

Other objects and the features of novelty will be apparent from the following description taken in connection with the accompanying drawing in which,

Figure 1 is a perspective view of the mixing apparatus; Fig. 2 is a transverse section thereof; Fig. 3 is a transverse section in a plane at right angles to the plane of Fig. 2; Fig. 4 is a plan view of the measuring apparatus; and Fig. 5 is a section on the line 5—5 of Fig. 4.

Referring to the drawings, 10 indicates a block of metal which is provided with a flat upper surface 11 in which there is formed a cylindrical recess 12. Arranged in the recess 12 and closely fitting the same is a plug 13 which preferably has secured to its top a circular member or plate 14 having a milled or knurled edge 15. The bottom of the recess 12 and the inner end of the plug 13 are preferably flat, as shown in the drawings, and a mixing bar 16 is arranged in the space 17 between the inner end of the plug and the bottom of the recess. The bar 16 may be of any desired shape but in the preferred embodiment of the invention I employ a flat bar which is secured on the end of a shaft or spindle 18, this shaft projecting above the upper end of the plug and being adapted to be secured to the usual chuck of a dental engine or other power. As shown in Fig. 2, the bar 16 is arranged in beveled or inclined relation to the axis of the shaft 18 so that one of the longitudinal edges of the bar engages the inner end of the plug 13 and the other longitudinal edge engages the bottom of the recess 12 for the purpose of scraping these parts and preventing the amalgam from adhering thereto.

The operation of the mixing is as follows: The alloy and mercury being placed in the recess 12 and the plug 13 inserted, as shown in Fig. 2, the shaft 18 is rotated and the bar 16 accomplishes the thorough mixing of the materials into a homogeneous mass. The plug 13 is by preference comparatively heavy so that it presses down on the materials and holds them in place. While I prefer to use a comparatively heavy plug 13 because of the simplicity of this arrangement, it will be understood that I do not limit myself to this particular construction for the purpose of holding the plug in its proper position to secure the most effective results.

Referring to Figs. 4 and 5, it will be seen that I have provided in combination with the mixing apparatus means whereby the alloy and the mercury may be accurately and expeditiously measured to make a desired quantity of amalgan. The measuring means consists of a flat bar 19 having two series of openings 20 and 21 therein. The openings of these series are arranged in pairs, as shown in Fig. 4 and the size of each pair of openings is such that by placing the alloy in one of the openings 20 and the mercury in the adjoining openings 21, the materials will be accurately proportioned to produce the amalgan. It will be observed that the openings are of graduated sizes so that any desired amount of amalgan may be made.

In Fig. 4 I have shown at 22 and 23 respectively openings filled with materials and it will be observed that these openings are arranged at one side of the recess 12. After the openings are filled the bar 19 is moved so that the openings 22 and 23 are over the recess 12, when the materials will drop into the recess, as shown in Fig. 5.

It will be observed that each pair of openings are so arranged in the bar 19 that when they are placed over the recess 12 they are within the bounds of the recess and all of the material will fall from the openings into the recess. After the materials have been placed in the recess the plug 13 with the shaft 18 in position therein may be placed in the recess and the mixing accomplished. In using the apparatus I have

found that after the shaft 18 has been revolved for a few seconds, the addition of a small quantity of a volatile liquid like alcohol greatly facilitates amalgamation of the ingredients.

Having described my invention what I claim and desire to secure by Letters-Patent is,

1. In apparatus of the class described, the combination of a member having a chamber therein open at one side, a member closing the open side of said chamber, a rotatable mixer arranged in said chamber, and a shaft connected with said mixer and extending through and projecting outwardly from said closed member for the purpose set forth.

2. In apparatus of the class described, the combination of a member having a chamber therein open at one side, a plug arranged in said chamber closing the open side thereof, and a rotatable mixer in said chamber adapted to scrape the inner end of said plug and the opposing wall of the chamber.

3. In apparatus of the class described, the combination of a member having a chamber therein open at one side, a plug in said chamber closing the open side thereof and arranged to be normally pressed toward the inner wall of the chamber, and a rotatable mixer in said chamber adapted to scrape the inner end of said plug and the opposing wall of the chamber, and having a surface inclined to the plane of rotation for the purpose described.

4. In apparatus of the class described, the combination of a member having a cylindrical recess therein, a plug rotatably fitted in said recess and normally pressed toward the bottom of the recess, a shaft arranged on the axis of the recess and having a bar secured thereto and arranged in the space between the inner end of said plug and bottom of the recess, said bar being in beveled relation to said shaft whereby its longitudinal edges are adapted to respectively engage the inner end of the plug and the bottom of the recess, for the purpose described.

5. In apparatus of the class described, the combination of a member having a cylindrical recess therein, a plug rotatably fitted in said recess and normally pressed toward the bottom of the recess by gravity, a shaft extending through said plug and projecting outwardly therefrom and having secured thereto a bar arranged in said recess and having surfaces, in beveled relation to the shaft, and with its longitudinal edges adapted to scrape the inner end of said plug and the bottom of said recess, and said shaft having an extension beyond the outer end of said plug adapted to be engaged by rotating means.

In testimony whereof I affix my signature in presence of two witnesses.

FRANCIS M. WILLIS.

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