No. 891,689. PATENTED JUNE 23, 1908.

J. W. GREENE.

MOLD FOR MAKING DENTAL PLATES.

APPLICATION FILED JAN. 21, 1908.

Fig. 1

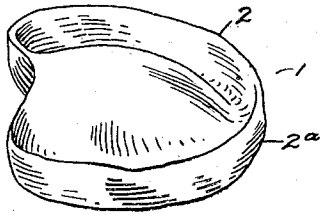


Fig. 2

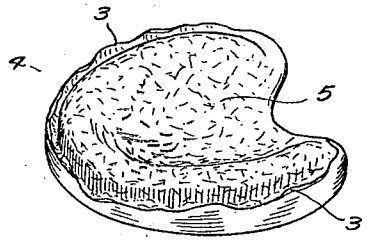


Fig. 3

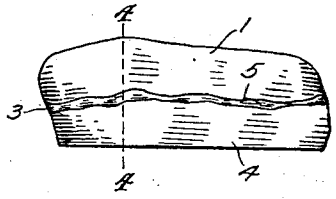


Fig. 4

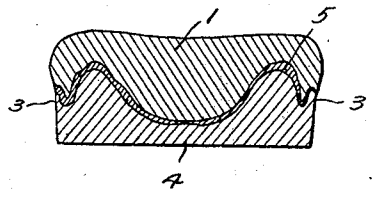
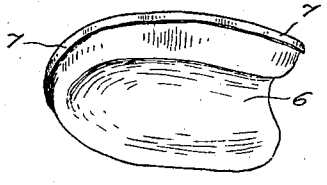


Fig. 5



Witnesses
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MOLD FOR MAKING DENTAL PLATES.

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Application filed January 21, 1908. Serial No. 411,988.

To all whom it may concern:

Be it known that I, JACOB W. GREENE, a citizen of the United States, residing at Chillicothe, in the county of Livingston and State of Missouri, have invented certain new and useful Improvements in Molds for Making Dental Plates; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to molds or models for use in casting, swaging, pressing and vulcanizing plates for artificial teeth.

The common method of making these models, especially of vulcanizing rubber plates, is to pour fresh mixed plaster of compounds thereof into an impression taken of the mouth which impression, owing to the faulty methods of taking it now in use, is not a true copy of the mouth under all conditions as when the plate is to be worn. This ordinary plaster or similar model is apt to expand, contract, warp or otherwise become distorted before use or under the influence of heat, moisture or pressure when in use. It may also disintegrate by change in crystallization and sometimes explodes by chemical action. About one half of the common misfits and failures in dental plates result from these defects in these models. It is the object of my invention to overcome these and other faults in models and produce plates which fit the muscles of the mouth.

I first take an impression of the mouth when it is in the exact position in which it will be when the resultant plate is worn. This impression is taken by a new method which enables me to obtain exactly the proper pressure on the tissues of the mouth and a perfect fit for the muscles and other parts of the mouth. In other words, the plate produced will be an exact duplicate of the contact size and extent and exert the same pressure as the impression. I next construct a model, mold or cast of some non-changeable substance to approximately fit my impression. The space between the impression and the approximate model is then filled with plaster of paris or other soft flowing or plastic substance that will readily set and harden. The approximate model or skeleton may be made of glass, crockery ware, porcelain, cannel coal, charcoal, natural or artificial stone, bone, artificial ivory, burnt or vitrified clay, metal or other solid non-flexible, non-shrinkable substance or material. The facing of the model or the filling between it and the impression is caused to adhere to said model or mold by first covering the contact surface thereof with thin plaster, cement or other ready-setting substance. In lieu of these adhesive substances, the surface of the skeleton model may be roughened, serrated, ridged, grooved or otherwise prepared to receive and retain the plaster fill-in or facing material so that it may not be dislodged or dissolved in handling or in use. If necessary or desirable, a glue, cement or analogous substance may be used in addition to the roughened surface of the model to insure the firm adhesion of the facing material thereto.

The impression of the mouth, when properly taken, has an irregular or uneven edge which accommodates itself to fit the muscles and tissues of the individual mouth. Said edge or rim is often built out or thicker at some places than at others. The model is provided with an abrupt irregular or uneven ledge or bench at its edge to approximately fit the edge of the impression. The facing substance fills up and rectifies any imperfections in this ledge as well as those in the arch and other parts of the model when said facing substance is pressed between said model and impression.

In practice, an assortment of ready made skeleton models should be kept on hand. From among them one may be selected which most nearly or approximately fits the impression, it being understood that the ledges of the various models are differently shaped as well as the other parts of said models to correspond with different types of mouths. The selected model may be more closely fitted to the impression by cutting, filing, grinding, scraping or etching at its few touching points which may be indicated by placing a piece of carbon paper or other marking material between the impression and model. The thickness of the ledge of the selected model is also made to conform to the thickness of the rim of the impression.

A model, mold or cast constructed as described is entirely practical and practically unchangeable because the film or facing of plaster or other substance is so thin that its change, if any, amounts to practically nothing. While I can use metal or other materials singly or in combination, for equalizing or facing the model, I prefer plaster either alone

or in combination with other substances. Anything will do that will readily flow, perfectly fill the space between the impression and skeleton model, adhere to the model permanently and become hard and remain so under the action of pressure, heat and moisture. When a plate is molded, vulcanized, stamped or pressed on the completed model or die, an absolute duplicate of the impression, including the shape of its edge, is produced. The ledge or bench on the model provides an abrupt obstruction against which the edge of the plate is molded or swaged to the proper irregular contour or shape, not only giving the height of the rim but also the thickness thereof at its top edge. When the impression is properly taken and tested as to its fit to the mouth and the movements of the muscles, the plate which is the result of the operations described will also be an exact fit and will not require any of the alterations which are generally necessary and made by guess when a plate is made in the usual manner and which often result, when the edge of the plate has to be cut down by guess to leave room for a moving muscle or tissue, in making a leak.

In the accompanying drawing, illustrating the preferred embodiment of my invention: Figure 1 is a perspective view of the impression. Fig. 2 is a perspective view of the skeleton or approximate model. Fig. 3 is an edge view of the impression and mold together with the facing of plaster between them. Fig. 4 is a section thereof, and Fig. 5 is a perspective view of a plate which has been swaged upon the model.

Referring more particularly to the drawing, 1 designates the impression, the edge or rim 2 of which is uneven or irregular to conform to the mouth and is thicker or built out at 2^a. It will be noted that the abrupt ledge or bench 3 of the skeleton model 4 is also irregular and of varied width to approximately conform to the edge or rim of the impression. The inner face of said model including the ledge, is serrated or roughened as illustrated clearly in Fig. 2 to cause the facing or layer 5 of plaster or other material to adhere thereto. In Figs. 3 and 4 it is illustrated how said facing equalizes or rectifies the skeleton model and fills it out to the proper shape, said facing layer being thicker in some places on the ledge and elsewhere than in others.

It will be observed that the plate 6 has its edge turned at 7. This gives a desirable surface to which the vulcanite rubber or other plate material for holding the teeth and building out said plate, may be secured. If the edge of the plate has to be cut down, as is often the case in the old way of making said plates, this turned flange will be cut away and mar the appearance of the complete set of teeth and render it more or less imperfect and less durable. If desired, the skeleton model may be made with a series of interchangeable and detachable arch pieces so that the same model may be used for several different shapes or forms of palates. This is not necessary, however, as a little of the material of which said model is made may be easily added to bring the arch to the proper shape.

I claim:

1. A mold for forming dental plates comprising an approximate model made of rigid non-changeable material and having an abrupt ledge at its edge, and a thin layer of plastic material secured to the inner surface and ledge of said model and serving to correct the shape of said approximate model so that the mold will fit the inner surface and edge of an impression.

2. A mold for forming dental plates comprising an approximate model made of rigid non-changeable material and having an abrupt ledge of irregular height and thickness at its edge, and a thin layer of plastic material secured to the inner surface and ledge of said model and serving to correct the shape of said approximate model so that the mold will fit the inner surface and edge of an impression.

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

JACOB W. GREENE.

Witnesses:
GEO. A. HUTCHINSON,
HENRY E. COOPER.