Feb. 9, 1943. E. I. MINTZ 2,310,912

THERMO MODEL GUIDE AND FILLER

Filed Nov. 5, 1941

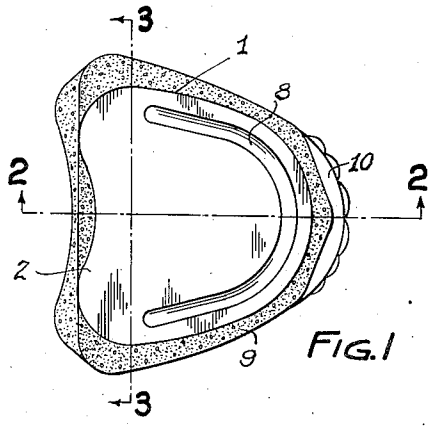


FIG. 1

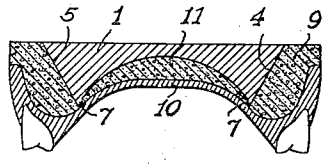


FIG. 3

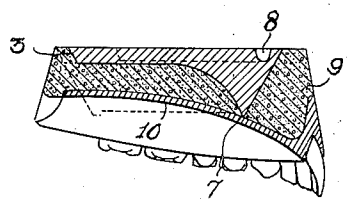


FIG. 2

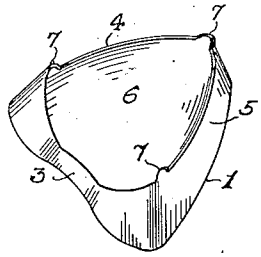


FIG. 4

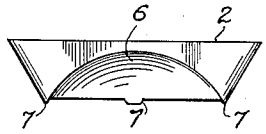


FIG. 5

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THERMO MODEL GUIDE AND FILLER

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Application November 5, 1941, Serial No. 417,934

3 Claims. (Cl. 18—5.7)

My invention is an improvement in the art of making artificial dentures and relates more particularly to an improved thermo model guide and filler for use in making dentures from acrylic which utilizes the boiling water technique.

One of the objects of the invention is to provide a simple and rigid means insertable in the denture model, whereby the denture model may be properly and separably positioned on an articulator support.

Another object of the invention resides in providing a guide and filler member for use in making artificial acrylic dentures which consists of a simple, rigid body or unit having means on one side or face thereof for positioning the unit in the relatively soft material of the model before the latter is allowed to harden, and which may also be provided with means on its opposite face for centering or positioning the model on an articulator support.

Another object of the invention consists in providing a rigid member over which the stone model fits, said member being formed with a concave face on one side, terminating peripherally in a plurality of connected positioning lands or projections whereby to prevent the member from sinking into too intimate contact with the palate portion of the impression, except at said lands or projections.

Another object of the invention is to provide a device of the character described, which is so formed that upon proper fitting of the device within the soft stone model, allowing the model to harden, and then removing the device, the model will be characterized by having a relatively thin palate portion, flanked by internally relieved relatively thin side and front walls.

Another object of the invention is to provide a device of the character described, which is easily applied and removed from the model and which, by its use, increases the ease with which the excess portions of the model may be removed after the denture is completed.

Other objects and advantages of my invention will become more apparent as the following description of several embodiments thereof progresses, reference being made to the accompanying drawing, in which like reference characters are employed to designate like parts throughout the same.

In the drawing:

Figure 1 is a bottom plan view of my invention, shown in position in a stone model of an artificial denture;

Figure 2 is a longitudinal section, taken on the line 2—2 of Figure 1;

Figure 3 is a transverse section, taken on line 3—3 of Figure 1;

Figure 4 is a perspective view of the device, embodying my invention; and

Figure 5 is an end view of the device shown in Figure 4 as viewed from the left hand side of Figure 2.

In the making of artificial dentures, and particularly the upper denture, the model formed from the impression is supported or fixed on an articulator frame by means of a thickness of plaster. Heretofore, the model has been of solid dental stone, which must ultimately be cut or chipped away, or otherwise removed from the denture, but which, because of its hardness, is very difficult to cut.

This removal not only requires great care and skill to avoid damage to the denture, but it is a tedious and uncertain procedure. Furthermore, curing of the denture is not uniform, which, in many cases, produces defective dentures.

My invention, an embodiment of which is shown in the drawing, eliminates these disadvantages and possesses several distinctive advantages of its own.

Referring more particularly to the drawing, the embodiment of the invention illustrated therein includes essentially an insert member of metal, indicated generally at 1. This insert is preferably cast or otherwise formed of any other suitable heat-conducting alloy or metal such as bronze, into substantially the form illustrated, that is, into a body having a flat base 2, and three side walls 3, 4, and 5, converging toward each other in a direction away from the base. The upper edges of the side walls 4 and 5 converge toward each other and toward the front of the unit and lie in a plane, substantially parallel to the plane of the base 2, while the portion 6 of the insert between these walls is concave to approximately the contour of the roof of the average mouth.

Lands or projections 7 are formed integral with the insert body along the upper edge, as viewed in Figure 4.

These lands 7 are spaced and arranged to provide a stable support for the insert when it is applied to the soft model material 9 before the latter hardens. I also provide a positioning groove 8 which extends partially around the base 2 of the insert and close to the periphery thereof. While I have shown the positioning means in the form of a groove, it is obvious that the said

means may consist of a rib or series of projections or depressions for the same purpose.

Having described the structural characteristics of my invention, I will now proceed to describe the manner in which it is used in the art of making artificial acrylic dentures.

An impression of the upper mouth having been made in the usual manner, the model is then made from the impression by depositing the mass of softened dental stone or plaster within the impression. While the stone is still in a soft or plastic state, the device embodying my invention is firmly pressed into the mass of stone, the concave portion of the insert facing the impression, and the device is centered as accurately as possible, so that as the insert approaches the inner surface of the impression, the lands 7 will contact the said inner surface approximately at the points shown in Figures 2 and 3.

When the insert is in this position, and the model 9 has been allowed to harden, the impression (not shown) is removed from the model and discarded, the upper surface of the model having recorded the exact imprint of the impression which corresponds to the roof of the upper mouth.

At this stage in the procedure, it will be noted that the insert 1 may easily be removed, if desired, from its position within the model, and it may be again replaced in its exact original position in the hardened model.

The combined insert and model are then secured to a body of plaster carried by the support of an articulator by pressing the model and insert base into the soft mass of dental plaster on the articulator. This will cause some of the plaster to enter the groove 8 in the base of the insert to provide a positioning rib in the plaster.

The technician then seals the model in place by working some of the soft plaster over the outer edge of the model. If the model has to be removed, or if the same accidentally becomes separated from the articulator, it can be returned to its exact original position because the groove 8 has formed a counter-part in the mass of plaster in the articulator support which will align the insert and the model to its proper position.

In the drawing, I have illustrated the acrylic denture generally at 10, after it has been formed on the model 9. It should be made clear that the drawing illustrates only the acrylic denture in place on the model, and not the impression which has now been discarded and for which the denture 10 is substituted.

My invention possesses a further advantage in that the metallic insert provides means whereby the curing of the acrylic denture may be accomplished more uniformly by providing more uniform heat distribution throughout the palate section of the denture. Furthermore, it will be seen from the drawing that when the insert 1 is removed from the model 9, the model will be characterized by a relatively thin wall 11 of dental stone over the palate section of the denture and that the model is also supplied with a relatively deep peripheral depression or relieved area, due to the displacement of the dental stone by the side walls 3, 4 and 5 of the insert.

By relieving the sides of the model in this manner, the task of removing the dental stone from the cured acrylic denture is easier and much less hazardous to the denture than has been the case heretofore.

In fact, the removal of the stone may be accomplished much more quickly and with greater ease, without subjecting the denture to any injury whatsoever.

My invention provides a metal insert for use with a stone model in the art of making artificial dentures which is characterized by extreme simplicity of structure, yet which possesses the advantage of greater ease of application and removal from the model without in any way requiring mechanical means for holding the same in place, either on the articulator or within the model itself.

Another advantage of my invention is that by eliminating fastening means and other small parts, it is less expensive to manufacture and install.

Various changes in the details of construction and arrangement of parts may be made without departing from the spirit of my invention or the scope of the appended claims.

I claim:

1. The combination with a dental model, of a rigid member fully inserted in the model material while the latter is in a plastic state to produce a permanent seat or impression thereof, said insert comprising a body having a concave palate section and having converging side walls substantially enclosing the palate section and adapted to form a relieved channel in the model around said palate section to facilitate the removal of the subsequently hardened model material.

2. The combination with a dental model, of a rigid member fully inserted in the model material while the latter is in a plastic state to produce a permanent seat or impression thereof, said insert comprising a body having a concave palate section and having converging side walls substantially enclosing the palate section and adapted to form a relieved channel in the model around said palate section to facilitate the removal of the subsequently hardened model material, and means formed on its side walls for spacing the palate section with respect to the outer surface of the corresponding palate section of the model whereby to produce a relatively thin and easily removed model palate wall.

3. The combination with a dental model, of a rigid member fully inserted in the model material while the latter is in a plastic state to produce a permanent seat or impression thereof, said insert comprising a body having a concave palate section, and means formed on its side walls for spacing the palate section with respect to the outer surface of the corresponding palate section of the model whereby to produce a relatively thin and easily removed model palate wall.

EDWARD I. MINTZ.