Feb. 7, 1956 A. L. CARTER 2,733,508

APPARATUS FOR BOXING-IN IMPRESSIONS

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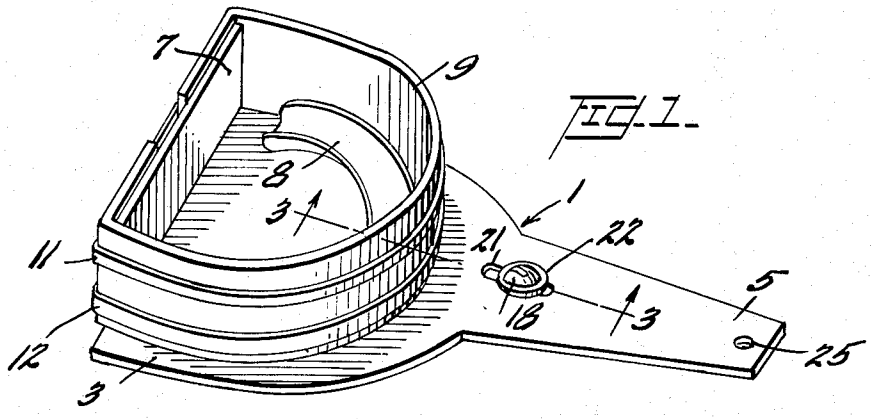


FIG. 1.

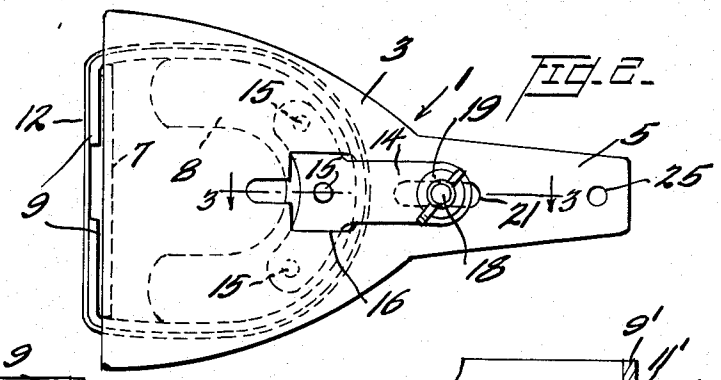


FIG. 2.

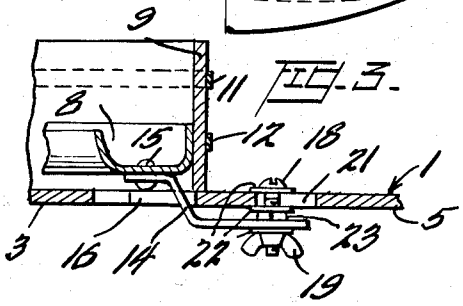


FIG. 3.

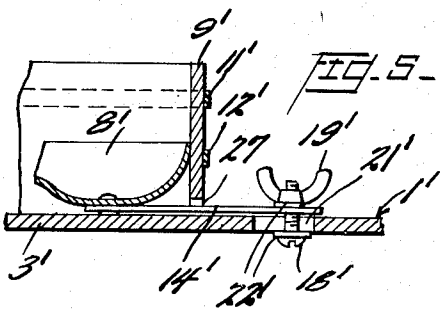


FIG. 5.

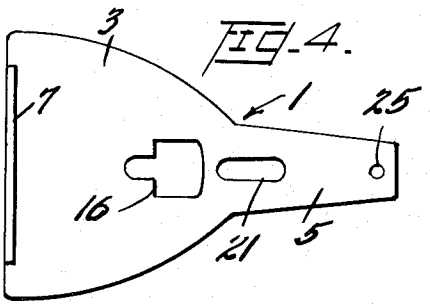


FIG. 4.

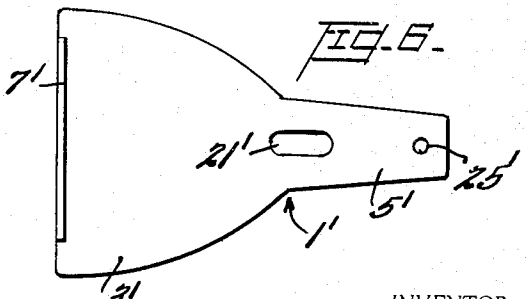


FIG. 6.

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APPARATUS FOR BOXING-IN IMPRESSIONS

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4 Claims. (Cl. 32—17)

This invention relates to apparatus for making dentures and the like, and more particularly to apparatus for boxing-in impressions to facilitate the making of models therefrom.

In the process of making dentures the first step is to take an impression of the patient's mouth with impression material, such as a wax compound, held in an impression tray. The next step is to form from said impression a model or reproduction of the mouth. The last steps involve making a finished denture based upon the shape of said model, as will be readily understood by those skilled in the art.

The present invention is concerned primarily with the step of making a model from the impression. In this step, model material such as plaster is poured into the impression and, in addition, is poured up over the top of the impression in order to reproduce the contour of the top of the impression and to provide a substantial base which is necessary in working with the model during the later steps in the denture making process. Naturally, it is necessary to provide some sort of matrix or flange around the impression to retain and shape the plaster which is poured up over the top of the impression. The usual practice in the formation of such matrix is to build by hand out of clay or wax a flange around the sides of the impression tray. It is easy to understand that such an uncontrolled hand operation is time-consuming and usually results in an imperfect model which must be discarded or extensively trimmed. Once the matrix has been formed, the usual practice is to hold the boxed impression on a vibrator while the model material is poured.

It is an object of the present invention to provide apparatus for boxing-in impressions for dentures and the like which will facilitate the making of accurate models from such impressions and will take all impression trays.

Another object of this invention is to provide boxing apparatus having means for quickly and accurately forming a matrix around an impression to provide for the making of more accurate models in less time and with less training than can be accomplished with the usual practice. Similarly, the present invention will reduce the amount of plaster required for the models by avoiding the waste of plaster resulting from the necessary discarding or extensive trimming of models made by the usual practice.

A further object of the invention is to provide boxing apparatus which may be conveniently held on a vibrator during pouring of the model material, and having means for securely attaching an impression tray to the apparatus so that the motion imparted by the vibrator will be fully transmitted through the apparatus to the tray.

Other and further objects, features, and advantages will be apparent from the description which follows read in connection with the accompanying drawings in which:

Figure 1 is a perspective view of one embodiment of the boxing apparatus as assembled for use with an impression tray;

Figure 2 is a bottom plan view of the apparatus shown in Figure 1;

Figure 3 is a sectional view taken on the line 3—3 of Figure 1;

Figure 4 is a top plan view of the apparatus shown in Figure 1, with parts removed;

Figure 5 is a sectional view similar to Figure 3 but showing a modified form of the invention; and

Figure 6 is a top plan view similar to Figure 4 but showing the modification of Figure 5.

Referring to Figure 1 the boxing apparatus comprises a plate or base member indicated generally at **1**, which plate is formed with a relatively wide tray receiving portion **3** and a narrower handle portion **5**. Plate **1** also has a flange portion **7** extending upwardly from the forward end thereof and preferably normal thereto. In Figure 1 the boxing apparatus is shown assembled for use with an impression tray **8** for a lower denture. Tray **8** is seated on the tray receiving portion **3** and is adjustably secured to plate **1** in a manner which will be hereinafter described in detail. The boxing apparatus includes a strip **9** of deformable material, such as solid rubber or rubberized fabric, which is seated on plate **1** and curved about tray **8** to form a matrix around the outside edge of the tray. The ends of strip **9** extend around the front of flange **7** and the entire strip is held in place by the rubber bands **11** and **12**.

Any particular impression from which it is desired to make a model would normally be contained in the channel formed by tray **8**. The impression is not shown in the tray because its position is readily understandable and because it is not a part of the boxing apparatus. In this connection it should be understood that the boxing apparatus of this invention is not limited to boxing-in dental impressions but may be use for boxing other impressions having a shape which can be received on plate **1** and surrounded by strip **9**.

As previously stated, tray **8** is designed to make impressions of the lower gum and teeth, and to facilitate such use is fitted with an offset handle **14** as shown best in Figure 3, the handle and tray being connected by rivets **15**. In order to accommodate such offset handle construction, an opening **16** is provided in plate **1** so that the bottom of tray **8** may be seated on the tray receiving portion **3** of plate **1** with handle **14** extending below the plate. Tray **8** is securely held in position on plate **1** by means of screw **18** and wing nut **19**. An elongated slot **21** is provided in plate **1** for the reception of screw **18** in a manner which allows adjustment of tray **8** longitudinally of the plate. Washers **22** are used in the conventional manner, and spacer **23** is used to lower the bottom extremity of tray **8** to a position substantially flush with the top of plate **1**. A small hole **25** is provided in handle portion **5** for the purpose of hanging up the plate when not in use.

The manner of using the previously described boxing apparatus will now be described with reference to Figures 1 through 4. With strip **9** and bands **11**, **12** removed, tray **8** containing a wax impression (not shown) is seated on plate **1** by inserting handle **14** through opening **16**. Then screw **18**, washers **22**, spacer **23** and wing nut **19** are assembled as shown in Figure 3. Wing nut **19** is not tightened until tray **8** is adjusted relative to flange **7** so that the space between them will provide the desired margin at the flat end of the model. The space bounded by the inside edge of tray **8** is then filled in with modeling clay or with a preformed lingual block, and, if it is desirable for the model to have a margin around the outside edge of the impression, modeling clay or similar material, equal in width to the desired margin, is placed around tray **8**. Deformable strip **9** is then seated on plate **1** with its central portion around tray **8** and its ends across the front of flange **7**, substantially as shown in Figure 1. Finally rubber bands **11** and **12** are stretched

around strip 9 to secure it in place and to assure complete contact between the strip and tray 8 or any margin material placed around the tray. If desired, a small roll of modeling clay may be pressed down around the outside of strip 9 where it joins plate 1 to help insure proper seating of the strip and to seal the joint between the strip and plate. The boxing apparatus is then grasped by portion 5 and held on a conventional vibrator while the plaster is poured into the impression and to the desired height thereabove.

Figures 5 and 6 show a modified form of the invention which is used in the same manner as previously explained for the embodiment shown in Figures 1–4. The modified form includes a plate 1' which is exactly the same as plate 1 in so far as handle portion 5', flange 7', elongated slot 21' and hole 25' are concerned. As will be readily apparent from a comparison of Figures 4 and 6, the only difference between plate 1 and plate 1' is that the tray receiving portion 3' of plate 1' does not include opening 16. Plate 1' is particularly designed for use with impression trays having straight handles, one such tray 8' with a straight handle 14' being shown in Figure 5. Tray 8' is of the type which is used for taking impressions of the upper gum, teeth and roof of the mouth, and for this purpose does not require an offset handle.

Since handle 14' is straight, its entire length lies along the top of plate 1' as shown in Figure 5, thus removing the necessity for opening 16. The location of handle 14' would, however, interfere with the proper seating of strip 9, and to overcome this objection the embodiment of Figure 5 contemplates a strip 9' having a recess 27 shaped to accommodate handle 14'. Tray 8' is adjustably secured on plate 1' by means of screw 18' and wing nut 19', washers 22' being utilized as in the embodiment of Figures 1–4 and spacer 23 being unnecessary. Rubber bands 11' and 12' hold strip 9' in position around tray 8' in the same manner as bands 11 and 12 are employed in Figure 1. Except as otherwise noted, the modified form of the boxing apparatus, as shown in Figures 5 and 6, is exactly the same in construction and use as the apparatus of Figures 1–4.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. Apparatus for boxing-in impressions, comprising a boxing plate having a flange toward the front end thereof and substantially normal thereto, said plate having impression securing means remote from said flange, said plate also having an opening therethrough between said flange and said securing means, a deformable member, and means for holding said member seated on said boxing plate and in contact with the front of said flange.

2. Apparatus for boxing-in impressions, as claimed in claim 1 in which said deformable member is recessed along a portion of one edge.

3. A boxing plate for an impression tray having a straight handle, comprising a base member having tray receiving portion and a flange adjacent said portion, said base member having an elongated slot remote from said flange and being imperforate between said slot and said flange, and securing means receivable in said slot for adjustably securing said tray to said base member.

4. A boxing plate for an impression tray having an offset handle, comprising a base member having a tray receiving portion and a flange adjacent said portion, said base member having an elongated slot remote from said flange, said base member also having an opening therethrough between said flange and said slot whereby said impression tray may be seated on said tray receiving portion with the offset handle of the tray extending through said opening, and means receivable in said slot for adjustably securing the impression tray to said base member.

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