

O. M. JOHNSON
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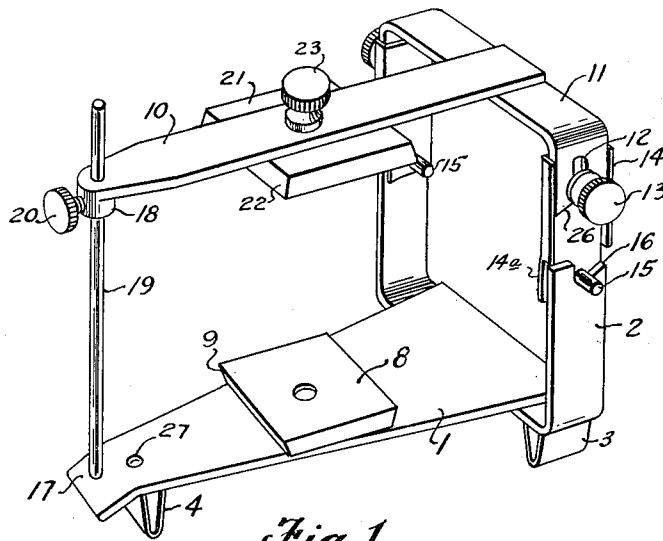


Fig. 1.

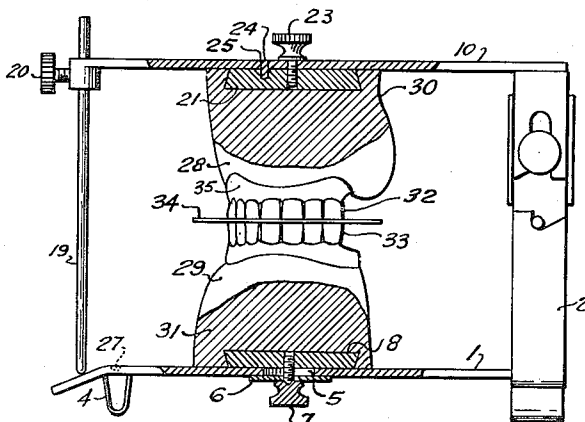


Fig. 2.

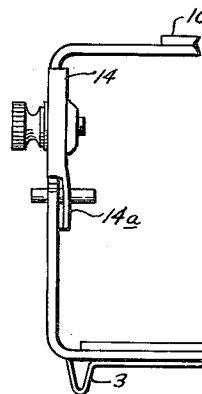


Fig. 3.

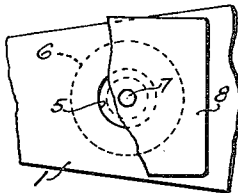


Fig. 4.

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DENTAL ARTICULATOR

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3 Claims. (Cl. 32—32)

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This invention relates to articulators for making dentures.

An object of the invention is to provide an improved articulator whereby adjustments to corrected bite registrations may be made without breaking the cast from either of the luting plates.

Another object of the invention is to provide an articulator wherein the opening axis is within the occlusal plane of the articulator, and whereby the bite may be opened and closed without change in the relationship of the articulated teeth to the mouth relationship.

Another object is to provide an articulator capable of improved milling in of the case.

Another object of the invention is to provide an articulator of the described class wherein the condylar action thereof simulates anatomical condylar action, and whereby the dentures may be tested for such action.

A further object of the invention is to provide for both horizontal and vertical adjustments between upper and lower models whereby bite corrections may be conveniently adjusted in the articulator.

The invention will be more readily understood by reference to the accompanying drawings.

Figure 1 is a perspective view of a dental articulator embodying the features of the present invention.

Figure 2 is a side elevation, shown in broken section, of the articulator illustrated in Figure 1.

Figure 3 is a broken elevation of one end of the articulator.

Figure 4 is a broken plan view of the lower luting bow and luting plate thereon, and showing an arrangement whereby the plate may be moved horizontally relative to the surface of the luting bow.

The form of the invention shown includes a lower luting bow 1 in the form of an elongated substantially triangular plate, and has bent and upwardly directed arms 2 secured to their rearward ends. Feet 3 support the rearward end of the lower luting bow 1, and the forward end of said bow is provided with a similar foot 4 spaced from its outer end. Intermediate the ends of the luting bow there is a relatively large opening 5 having a large washer 6 therebeneath, together with a shouldered thumb screw 7 extending through the washer and the opening, and which screw is threadedly engaged in the center of a luting plate 8. The luting plate 8 is preferably square and is provided with upwardly and outwardly directed bevel edges 9 for purposes hereinafter described.

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An upper luting bow 10 of a long flat piece of material is positioned above the lower luting bow 1, and has bent and downwardly directed arms 11 which are above the first described arms 2. The ends of the downwardly directed arms 11 and the lower frame members 2 are directed toward each other. The lower ends of the downwardly directed arms 11 are vertically slotted, as at 12, to receive thumb screws 13 which are threadedly secured in the upper center portion of a channel extension bracket 14 which extends downwardly and is positioned inwardly of the upright ends of the arms 2. The lower ends of the extension bracket 14 are bowed, as at 14a, so as to retain the upper and lower arms 11 and 2 in their relative positions during the simulated condylar action, to be described. Pins 15 project outwardly from the lower center portions of the bracket extensions 14 where they are pivotally supported in condylar indication notches 16 in the upper ends of the upwardly directed arms 2. As particularly shown in Figures 1 and 2, the condylar indication notch 16 is upwardly and rearwardly directed with respect to the surface of the lower luting bow 1. The outer forward end 17 of the luting bow is angularly and downwardly formed and is parallel with the angles last referred to. The forward end of the upper luting bow 10 is provided with an integral boss 18 for guiding a vertical spacer pin 19 which is slidably positioned therethrough. A thumb screw 20 is provided in the boss 18 for engaging and adjusting the height of the pin 19.

An upper luting plate 21 having bevel edges 22 is detachably secured to the upper luting bow 10 by means of another thumb screw 23. The upper surface of the upper luting plate 22 may be provided with an upwardly directed pin 24 which is received within an opening 25 in said luting bow to prevent rotation of said upper plate.

The operation of the present articulator includes the mounting of the upper and lower models 26 and 29, respectively, in upper and lower plaster casts 30 and 31, which are secured to the upper and lower luting plates 21 and 8. The occlusal plane is horizontal and is aligned with the pins 15. The process for making teeth using the present articulator is generally conventional, but by reason of the described construction it is possible to articulate the upper model 28 to simulate the anatomical action of the teeth. By hingedly raising the upper luting bow 10, the relative action between the upper and lower dentures 32 and 33 may be studied and errors corrected, and by moving the lower end of the verti-

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cal pin 19 laterally on the inclined outer end 17 of the lower luting bow, the side condylar action of the dentures 32 and 33 may be determined. During the last referred to operation, one or the other of the trunions 15 slides upwardly and outwardly on the angular surface of the inclined part of the condylar notch 16 in one of the lower sides of the lower frame 2. If the dentist finds that the bite of the new dentures 32 and 33 is not suitable for the patient, the bite correction is indicated on a wax wafer or bite check 34 and returned to the laboratory along with the dentures. The bite correction may then be made by adjusting the extensions 14 and the spacer pin 19 without removing either of the models 28 or 29 from the casts 30 or 31. When necessary to reposition the upper and lower models 28 and 29 relative to each other in a horizontal plane, such adjustment may be carried out by loosening the lower thumb screw 7 and shifting the lower plate 8 accordingly.

The present invention is not limited to the construction herein shown and described, but may be made in many ways within the scope of the appended claims.

What is claimed is:

1. In an articulator for making dentures, means for simulating anatomical condylar action, comprising: a lower horizontal luting bow, a pair of arms projecting upwardly from the rearward end of said lower luting bow, an upper luting bow adapted to be positioned above and substantially parallel with said lower luting bow, a pair of arms projecting downwardly from the rearward end of said upper luting bow, an angular notch in the upper end of each of said upwardly directed arms, the angles of which are upwardly and rearwardly directed with respect to the surface of said lower luting bow, pins laterally projecting from said downwardly directed arms and received within said notches, an inclined surface projecting downwardly and outwardly from the forward end of said lower luting bow, and a downwardly directed spacer secured to the forward end of said upper luting bow and arranged to contact said inclined surface.

2. In an articulator as described in claim 1, vertically adjustable extensions connected with each downwardly projecting arm and supporting

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said laterally projecting pins near the lower ends thereof for engagement in the described notches in the upwardly projecting arms, and wherein said downwardly directed spacer is vertically adjustable and whereby said articulator is capable of accommodating cases of various thicknesses.

3. In an articulator for making dentures, means for simulating anatomical condylar action and providing for correcting bite registrations, comprising: a lower horizontal luting bow, a pair of arms projecting upwardly from the rearward end of said luting bow, an upper luting bow adapted to be positioned above and substantially parallel with said lower luting bow, a pair of arms projecting downwardly from the rearward end of said upper luting bow, an angular notch in the upper end of each said upwardly directed arm, the angles of which are upwardly and rearwardly directed with respect to the surface of said lower luting bow, vertically adjustable extensions connected with the lower ends of said downwardly directed arms, laterally projecting pins secured to the lower ends of said extensions and adapted to be engaged in said notches, an inclined surface projecting downwardly and outwardly from the forward end of said lower luting bow, a vertically adjustable spacer pin secured to the forward end of said upper luting bow and adapted to contact said inclined surface, a luting plate secured to the inner surface of said upper luting bow, an inwardly directed shouldered thumb screw positioned through a relatively large opening in said lower luting bow and opposite said secured luting plate, and a second luting plate threadedly engaged on the inner end of said thumb screw.

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