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DENTAL DEVICE FOR CONTROLLING THE RELATIVE
POSITION OF DENTURES IN THE MOUTH
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3,314,152

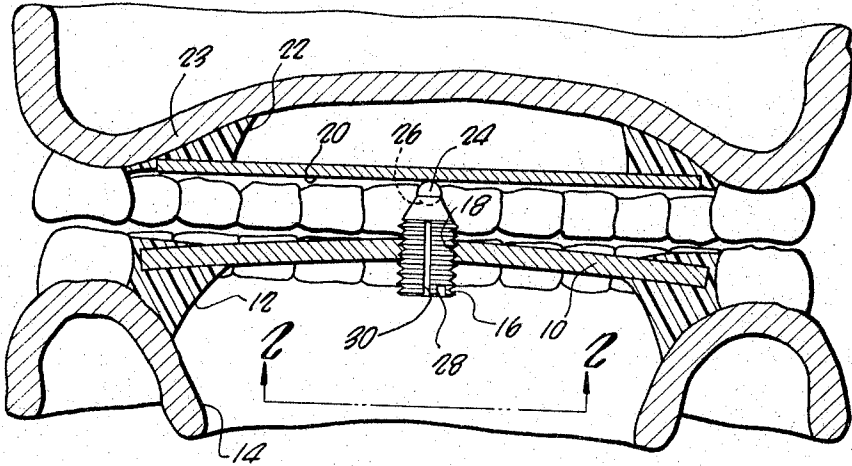


FIG. 1

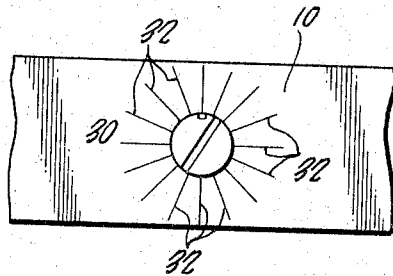


FIG. 2

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DENTAL DEVICE FOR CONTROLLING THE RELATIVE POSITION OF DENTURES IN THE MOUTH

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1 Claim. (Cl. 32-19)

This invention relates to dental devices, and more particularly is an improvement in dental devices such as those described in U.S. Patent 3,068,570, for assisting dentists in controlling the relative position of upper and lower dentures in a patient's mouth.

After dentures are placed in a patient's mouth, the dentist must grind the teeth to equilibrate the dentures for proper occlusal balance.

U.S. Patent 3,068,570 discloses a device in which a contact plate is mounted across the upper denture, and a base member is mounted across the lower denture. A pin or set screw is threaded into an opening in the base member and extends toward the contact plate. The pin is adjusted so that when the lower jaw is moved toward the upper, the pin engages the contact plate just prior to engagement of the teeth. The pin is then adjusted so the jaws can be brought together until the highest spot on the teeth contact. A sheet of carbon paper is placed between the dentures to mark the point or points of contact, and they are then ground off properly. The pin is then further retracted so that the next highest point or points on the teeth contact, and they are then ground off. The process is repeated until proper occlusal balance, or equilibration, is attained.

The patented device works satisfactorily, except that it is sometimes difficult for the dentist to make the small incremental adjustments necessary to achieve the most comfortable fitting of the dentures within a reasonable time.

This invention improves the patented device by providing calibration marks on the base plate around the threaded hole, and an indicator mark on the threaded pin to show the amount of rotation of the pin relative to the base member. Thus, by observing the position of the indicator mark on the pin relative to the calibration marks around the hole in the base member, the dentist can easily make the incremental adjustments which are often required to be only $\frac{1}{16}$ to $\frac{1}{8}$ of a turn of the pin. Preferably, the indicator mark extends longitudinally along the portion of the pin which is threaded into the hole to provide maximum accuracy in adjusting the position of the pin.

In one preferred form, the indicator mark is an elongated longitudinal groove formed in the external threads on the pin. In another form of the invention, the intermediate portion of the base member is displaced relative to its ends toward the contact plate to provide increased room for the patient's tongue during the fitting process.

These and other aspects of the invention will be more fully understood by the following detailed description and the accompanying drawings, in which:

FIG. 1 is an elevation, partly broken away, showing the presently preferred embodiment of the invention mounted on upper and lower dentures; and

FIG. 2 is a fragmentary view taken on line 2-2 of FIG. 1.

Referring to the drawing, an elongated base member 10 is rigidly but removably secured at its ends by plastic dental wax 12 to the lingual surface of a lower denture 14. As shown best in FIG. 1, the intermediate portion of the base member is convex upwardly so that its central portion is elevated above the ends. An elongated externally threaded set screw of pin 16 is threaded through

a threaded hole 18 in the center of the base member and extends upwardly toward a horizontal contact plate 20 secured at its sides by dental wax 22 to the lingual side of an upper denture 23. A rotatable ball 24 is mounted in a recess 26 in the upper end of the pin to form a ball joint in which the ball bears against the lower surface of the contact plate. The lower end of the pin projects below the base member and includes a transverse slot 28 to facilitate turning of the pin in the threaded hole.

An elongated longitudinal groove 30 is formed in the external threads on the pin to serve as an indicator mark. A plurality of radially extending calibration marks 32 are formed on the lower surface of the base member around the threaded hole. For illustration, sixteen calibration marks are shown equally spaced around the hole. Of course, any desired number can be used. With the example shown in FIG. 2, it is a simple matter to turn the pin exactly $\frac{1}{16}$ of a turn by moving the screw until the indicator mark travels from one calibration mark to an adjacent calibration mark. This permits the pin to be adjusted longitudinally only a few thousandths of an inch by the dentist to insure proper fitting of the dentures.

The device is used as follows. The contact plate is rigidly but removably secured by the dental wax to the upper denture 23 as shown in FIG. 1. The base member and pin are rigidly but removably secured by dental wax to the lower denture. The ball bearing end of the pin projects upwardly toward the lower face of the contact plate. The dentures are then placed in the patient's mouth, and the pin is adjusted so that when the patient closes and moves the lower jaw in all directions, the dentures just do not touch. The threaded pin is then retracted in increments of $\frac{1}{16}$ of a turn at a time until a high spot or spots on the teeth contact. A sheet of carbon paper is placed between the dentures to mark the point or points of contact, and they are then ground off properly to establish a proper balance or equilibration in alateral movement. The threaded pin is then retracted another $\frac{1}{16}$ or $\frac{1}{8}$ of a turn. The thread on the pin is relatively fine, say, 32 turns to an inch, so that the pin is retracted only a few thousands of an inch when rotated $\frac{1}{16}$ to $\frac{1}{8}$ of a turn. The retraction of the pin is not made until the carbon paper no longer marks high points or contact points between the teeth upon movement of the lower jaw of the patient in all directions. After this condition is obtained, the pin is retracted in increments as described until the next higher spot or contact point is encountered. It, or they are again marked with carbon paper and jaw movement by the patient. This process is repeated until all high points or contact points have been removed by grinding so that the teeth are in contact only where necessary for proper occlusal balance.

With many dentures, perfect equilibration is accomplished with as little as $\frac{3}{8}$ of total turn of the threaded pin. This emphasizes how important it is that the turns be made in small accurate increments to insure proper grinding and fitting of the dentures.

I claim:

Apparatus for controlling the relative position of upper and lower dentures in a patient's mouth, the apparatus comprising upper and lower dentures, an elongated base member having end portions rigidly and removably secured to the lower denture, a contact plate having a portion rigidly and removably secured to the upper denture so as to be spaced from the base member, the base member having a threaded hole opening toward the contact plate, a threaded pin screwed into the hole and extending away from the base member toward the contact plate, calibration marks on the base member around the threaded hole, and a longitudinal groove on the pin to serve as an indicator mark which shows the amount of rotation of the pin relative to the base member, the

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groove extending from the end of the pin remote from
the contact plate to the base member.

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