Dec. 16, 1947. J. D. KINSLEY 2,432,624

DENTAL ARTICULATOR

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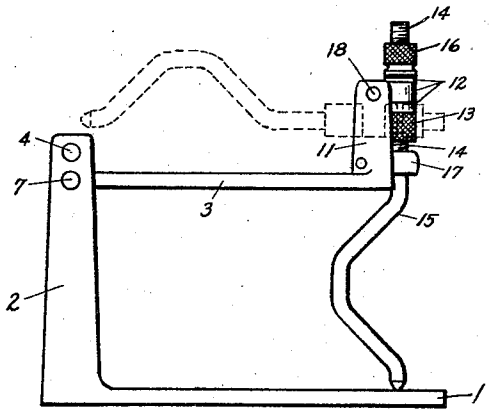



FIG. 1

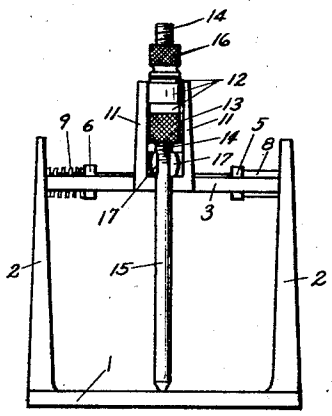



FIG. 2

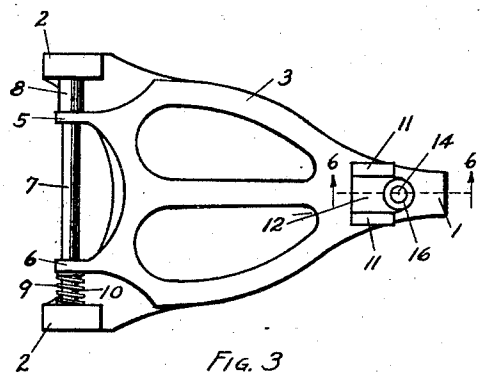



FIG. 3

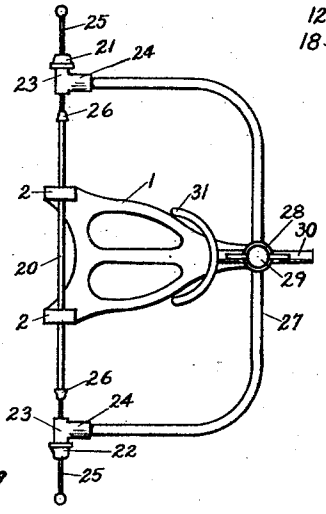






FIG. 7

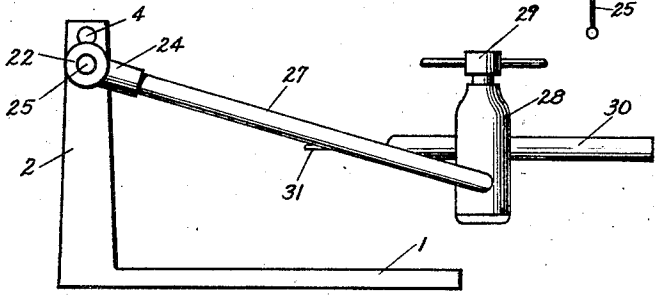



FIG. 5

FIG. 4

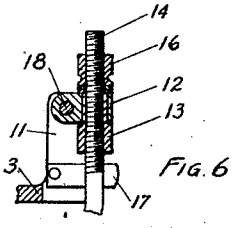



FIG. 6

INVENTOR.

J. D KINSLEY

BY

Merrill M. Blackburn.

Atty.

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## DENTAL ARTICULATOR

Jason D. Kinsley, Cedar Rapids, Iowa

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5 Claims. (Cl. 32—32)

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The present invention relates to apparatus used in the practice of dentistry and more particularly to dental articulators and comprises among its objects the provision of an improved means for assembling and disassembling the maxillary and mandibular members of an articulator; the provision of an articulator which has a wide open throat, allowing free vision of and access to the rear portion of the work for the setting of teeth to proper occlusion; the provision of an improved bite-adjusting and retaining device for a dental articulator; the provision of a means for attachment of a face bow to an articulator, which means will permit the lateral adjustment of a case upon the articulator, when mounting; and such further objects, advantages, and capabilities as will hereafter appear and as are inherent in the construction disclosed herein. My invention further resides in the combination, construction, and arrangement of parts illustrated in the accompanying drawings and, while I have shown therein what is now regarded as the preferred embodiment of this invention, I desire the same to be understood as illustrative only and not to be interpreted in a limiting sense.

In the drawings annexed hereto and forming a part hereof,

Fig. 1 represents a side elevation,

Fig. 2 represents a front elevation, and

Fig. 3 represents a plan view of an articulator according to my invention;

Fig. 4 represents a plan view of the mandibular member of this articulator with the maxillary replaced by a face bow when setting up the desired bite arrangement;

Fig. 5 represents a side view of the structure shown in Fig. 4;

Fig. 6 represents a vertical section substantially along the plane indicated by the line 6—6, Fig. 3; and

Fig. 7 represents a vertical section in a plane corresponding to the line 6—6, Fig. 3, but showing a modified form of construction.

Reference will now be made in greater detail to the annexed drawings for a more complete description of this invention. First, reference will be made to Figs. 1, 2, and 3 from which it will be seen that a mandibular portion 1 has a pair of posts 2 rising from its rear end and serving to support the maxillary portion 3. The posts 2 are provided with one or more openings 4, of which I have shown only two in each post but of which there will probably be at least three in number when this article is put into general production.

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However, some units may be fabricated with a single pair of opposed openings 4.

The maxillary portion 3 has a pair of rearwardly extending arms 5 and 6 which are provided with openings for the reception of the shaft 7, about one end of which is a bushing 8 which is rigidly fastened to the arm 5 and the shaft 7. The bushing 8 is to limit the lateral movement of the maxillary member 3 under the influence of the spring 9. At one end this spring abuts against the arm 6 to which it is secured, for example, by being passed through an opening in the arm to which it may be soldered. The other end of the spring is free to move along the end portion 10 of the shaft 7 when it is desired to connect the maxillary member to the post 2 or to disconnect it therefrom. This is done by inserting the end 10 of the shaft 7 in the opening 4 of post 2 and then moving the maxillary member 3 laterally to compress the spring. The other end of the shaft 7 may then be inserted in the corresponding opening 4 of the other post 2. Then when lateral pressure on the maxillary member 3 is relieved, the spring 9 will force the bushing 8 against the adjacent post 2 and hold it there, with member 3 centered with relation to the mandibular member 1. The process of removing the maxillary member is the reverse of that just described.

The maxillary member 3 has a pair of posts 11 rising from the forward end thereof and between these posts 11 is pivotally mounted a block 12, provided in the portion remote from its pivots 18 with an unthreaded opening through which extends a sleeve having a milled head portion 13 by means of which it may be turned relatively to the threaded end portion 14 of the support 15 with which it has threaded engagement. When it is desired to adjust the relative elevation of the rear portion of the maxillary member with relation to the mandibular member, the spring 9 is compressed, thus rendering easy the removal of the shaft 7 from the openings 4 in the posts 2. The shaft 7 is then inserted in another pair of openings 4 to get the desired spacing between members 1 and 3. In order to get the desired spacing between the forward ends of the members 1 and 3, the nut 16 is loosened and the sleeve, of which the milled head 13 forms a part, is turned about the threaded end 14 of the support 15 until the desired adjustment is secured when the nut 16 is again tightened against the end of the sleeve. When the nut 16 is tightened up completely, it should not bear tightly against the block 12 since the sleeve and the support must be free to turn within the block.

In order to provide for this, the sleeve is made slightly longer than the thickness of the block 12. In order that the support 15 may be positively held in the position shown by solid lines in Figs. 1 and 2, it is forced between a pair of laterally yielding springs 17 which serve as a clamp to hold it in position. The springs 17 may be secured in place by means of rivets, as shown, or may be otherwise fastened to the posts 11. The support 15 may, however, be turned about its longitudinal axis to re-position the crank portion thereof, if this should be in the way of the operator.

From what has been said it will be seen that the bite opening can be adjusted to the desired spacing and then the adjustment can be held by tightening up the nut 16. However, this does not prevent the turning of the support 15 which is securely held in place with relation to the nut 16 and the sleeve having the milled head 13. Hence it is clear that the bite opening can be adjusted to the desired size and then definitely held to that size while working at the placing of the teeth in constructing dentures. It is clear that the support 15 will definitely maintain the spacing between the anterior ends of the members 1 and 3 and that, when it is desirable to get the support 15 out of the way, it can be turned about its pivots 18 into the broken line position shown in Fig. 1.

When it is desired to substitute a face bow for the maxillary element, the latter is removed, as described above, and a rod 20 is put through the holes 4 in the posts 2. With one of the nuts 21 and 22 screwed out slightly from the end 23 of a connector 24, the corresponding rod 25 can be slid through its connector 24 to back the cup 26 away far enough so that the ends of the rod 20 can be inserted in the cups 26, when the loose rod 25 will be pushed in and the nut 21 or 22 screwed up on the chuck 23 to hold the parts in assembled relation.

The face bow 27 has a post 28 mounted thereon, as shown clearly in Fig. 5, and this post 28 has a screw-threaded holding member 29 extending longitudinally through one end thereof to hold the parts 27, 28, and 30 against relative movement. As is well understood in the art, the rod 30 has a bow 31 secured to its posterior end, and this bow is embedded in a set of bite plates adjusted centrally in a patient's mouth and with the face bow adjusted with the terminals located at the respective mandibular axes. The case is then removed from the mouth and is adjusted to an articulator to be used for mounting a set of models thereto in anatomical relation.

In the modified form of construction, shown in Fig. 7, the sleeve, together with its head, indicated by the numeral 13, is eliminated, the post 15 having threaded engagement directly with a threaded opening in the block 12.

It will of course be understood that the specific description of structure set forth above may be departed from without departing from the spirit of this invention as disclosed herein and as defined in the appended claims.

Having now described my invention, I claim:

1. In a dental articulator structure having a mandibular member with posts rising from its posterior corners, each of the posts being provided in its upper portion with a plurality of transverse openings for the reception of a shaft, corresponding openings in the posts being aligned; a shaft located in a pair of aligned openings, a maxillary member mounted on said shaft and secured thereto, said shaft being pivotally received in said openings whereby to allow pivotal motion of the maxillary member, a pair of posts rising from the anterior end of the maxillary member, a block pivotally mounted between the second mentioned posts, and a support for the anterior end of the maxillary member connected to said block and adapted to be turned to occupy a position above the maxillary member.



2. In a dental articulator structure having a mandibular member with posts rising from its posterior corners, each of the posts being provided in its upper portion with a plurality of transverse openings for the reception of a shaft, corresponding openings in the posts being aligned; a shaft located in a pair of aligned openings, a maxillary member mounted on said shaft and secured thereto, said shaft being pivotally received in said openings whereby to allow pivotal motion of the maxillary member, a pair of posts rising from the anterior end of the maxillary member, a block pivotally mounted between the second mentioned posts, and a support for the anterior end of the maxillary member connected to said block and adapted to be turned to occupy a position above the maxillary member, said support being mounted sufficiently loosely in the block to be readily rotated about its longitudinal axis.

3. In a dental articulator structure having a mandibular member with posts rising from its posterior corners, each of the posts being provided in its upper portion with a plurality of transverse openings for the reception of a shaft, corresponding openings in the posts being aligned; a shaft located in a pair of aligned openings, a maxillary member mounted on said shaft and secured thereto, said shaft being pivotally received in said openings whereby to allow pivotal motion of the maxillary member, a pair of posts rising from the anterior end of the maxillary member, a block pivotally mounted between the second mentioned posts, a support for the anterior end of the maxillary member connected to said block and adapted to be turned to occupy a position above the maxillary member, said block having a smooth bore therethrough, a sleeve rotatable in said bore, the opening through said sleeve being threaded to receive the like threaded end of said support, and a lock nut having threaded connection with said support whereby the support may be held in adjusted position with relation to the sleeve when tightened against it.

4. In a dental articulator structure having a mandibular member with posts rising from its posterior corners, each of the posts being provided in its upper portion with at least one transverse opening for the reception of a pivot member, corresponding openings in the posts being aligned; a pivot member located in a pair of aligned openings, a maxillary member mounted on said pivot member and secured thereto, said pivot member being pivotally received in said openings whereby to allow pivotal motion of the maxillary member, a pair of posts rising from the anterior end of the maxillary member, a block pivotally mounted between the second mentioned posts, and a support for the anterior end of the maxillary member movably connected to said block and adapted to be turned to occupy a position above the maxillary member, said support being mounted sufficiently loosely in the block to be readily rotated about its longitudinal axis.

5. In a dental articulator structure having a mandibular member with posts rising from its posterior corners, each of the posts being provided

in its upper portion with a plurality of transverse openings for the reception of a shaft, corresponding openings in the posts being aligned, a shaft located in a pair of aligned openings, a maxillary member mounted on said shaft and secured thereto, said shaft being pivotally received in said openings whereby to allow pivotal motion of the maxillary member, a pair of posts rising from the anterior end of the maxillary member, a block pivotally mounted between the second mentioned posts, and a support for the anterior end of the maxillary member connected to said block and adapted to be turned to occupy a position above the maxillary member, said support being adjusted and fixed in perpendicular position by means of a lock nut engaged with the threaded end of the support and tightened against the relative end of the sleeve which is loosely held in said hole so as to be readily rotated therein on the longitudinal axis of said support, said sleeve being held in position in the block by means of a knurled



head at the lower extremity and by the lock nut at the upper extremity.

JASON D. KINSLEY.


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