Stationary Anchorage with the Edgewise Arch Mechanism

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Stationary anchorage is characterized by such a mechanical adjustment of fixtures upon the tooth or teeth chosen as anchor units as to necessitate such teeth being displaced bodily if they fail to withstand the force brought to bear upon them. It is the most efficient form of anchorage from a mechanical standpoint.

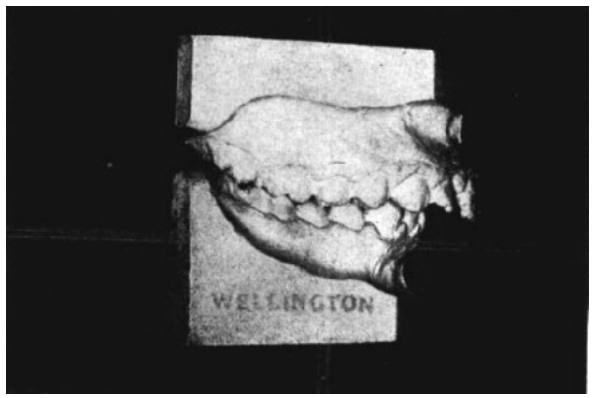

Figure 1

A Class II, Division 1 Case of Malocclusion which shows the faulty mesial axial inclination of the mandibular first molar tooth, the infraocclusion of the mandibular premolar teeth and the supraocclusion of the mandibular incisors. This produces an exaggerated curve of Spee in the mandibular denture.

One of the essential requirements for successful treatment of Class II cases of malocclusion according to Dr. Angle's principles, is the maintaining of stationary anchorage in the mandibular denture. The object of this is to prevent the mandibular teeth from being tipped forward into the faulty axial inclination. Unless this is guarded against and prevented, the functional forces, acting through the readjusted inclined planes of the teeth effected by the distal tipping of the maxillary dental units, will not deliver the correct thrusting power to stimulate the forward growth of the body of the mandible, but rather will cause a blow to be struck that is directed backward

and hence will still tend to retard the mandibluar growth. To obtain the proper functional stress, the mandibular teeth must be placed and held in as nearly a normal axial inclination as possible. The edgewise arch appliance will effect and stabilize this necessary adjustment of the mandibular teeth in a remarkable manner.

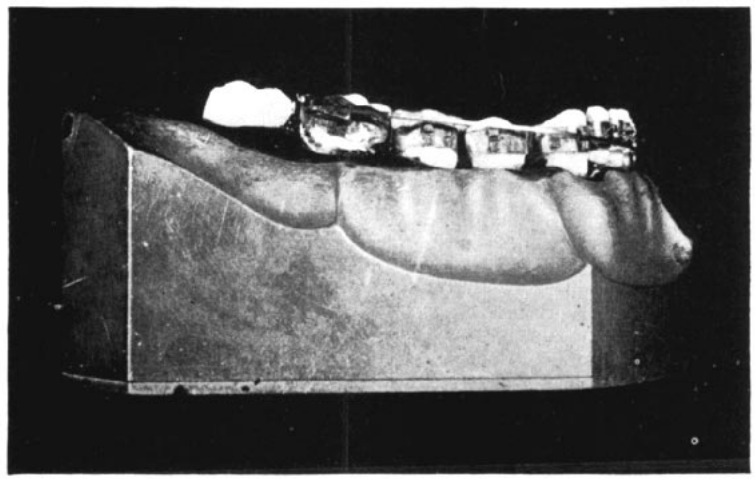

Figure 2

This illustrates the action of the ideal typal archwire in the mandibular denture of a Class II, Division I case, provided the bands have been properly placed upon upon the teeth. When the archwire is inserted in the molar sheaths and sprung into the brackets, a reciprocal action will be started whereby the molars will be tipped upright, the premolar teeth will be elevated and the incisors will be depressed.

If we examine the mandibular denture of a Class II, Division 1 case of malocclusion, Fig. 1, we will note that the first molar teeth are mesially axially inclined, the premolars are in infraocclusion while the incisor teeth are in supraocclusion. The curve of Spee is greatly exaggerated.

In making the primary adjustment of the edgewise arch to such a case, it will be necessary to place an exaggerated curve of Spee in the ideal typal archwire in order to gain bracket engagement, *if* the bands have been correctly placed on the teeth. It may not be possible to effect the seating of the brackets on the archwire until two or three treatments have been made. If this is true, then the intermaxillary elastics should not be applied at first lest this mandibular anchorage be broken down.

After bracket engagement has been effected, then the curve of Spee

should gradually be removed from the typal archwire. This will bring about the most ideal changes in the mandibular denture that can be desired. Fig. 2. The first molar teeth will be tipped upright, their crowns moving

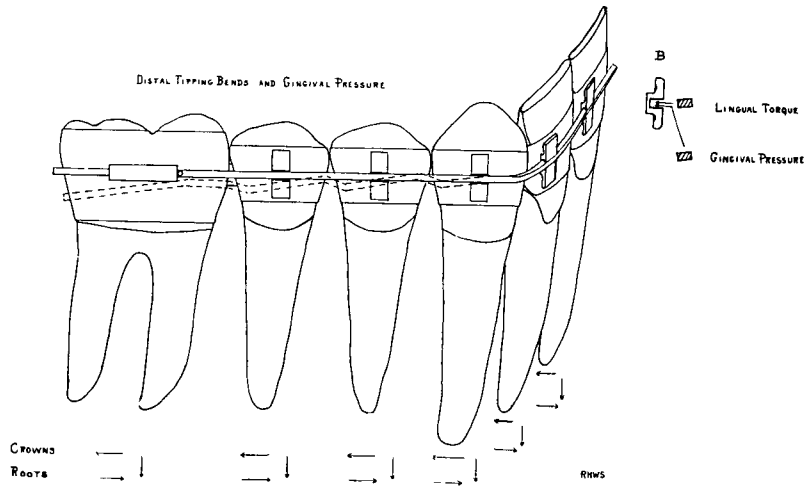

Figure 3

The various archwire modifications used to produce stationary anchorage in the mandibular denture in treating Class II cases of malocclusion according to Dr. Angle's principles. The arrows show the actions of this archwire when seated in the brackets. "B" is a side view of an incisor bracket and illustrates the lingual crown tipping force of the torque power and the depressing thrust of the distally tipping bends that have been placed in the buccal sections of the archwire.

slightly distally; the premolars will be elevated to the line of occlusion; and the incisor testh will be depressed to the line of occlusion. This will automatically 'open the bite'.

With the beginning of this extensive tooth movement it is safe to inaugurate the wearing of the intermaxillary elastics for now stationary anchorage is well established in the mandibular denture. Let us see how this has come about. The tooth movement being effected by the mandibular archwire is causing the molars to move in a manner just opposite to the movements that the elastic force would effect upon them. As the archwire force is the greater, they must furnish an anchorage that will more than resist the elastic power. The elevating of the premolar teeth adds to the molar resistance against forward tipping. The depressing action on the incisors stabilizes them against forward tipping. Hence if any of these teeth are to be displaced by the elastics, they must be dragged bodily forward, a very unlikely catastrophe.

There comes a time, however, when the mandibular archwire has completed its work and its active resistance against the elastic power ceases, as it were. Yet even now it affords a powerful static force against mandibular tooth displacement. Because of the form of the bracket slots, tooth tipping, in all directions, is strongly guarded against and the mandibular denture units are welded together in a very stable anchorage base. This, however, can be strengthened by adding distally tipping bends in the canine, premolar and molar areas of the archwire just as if these teeth were to be moved backward, in a similar manner to the maxillary buccal teeth. These distally tipping bends, however, are of a more delicate form and should only be powerful enough to assure tooth stability against the intermaxillary elastic force.

In order to prevent any forward tipping of the incisor crowns, lingual mass torque is also sometimes place in the entire incisor section of the archwire. This will result in the production of a lingually tipping force on the incisor crowns and a labially tipping force upon their roots.

If the reader will study Fig. 3 carefully, he cannot help but be impressed with the great efficiency of the edgewise arch mechanism for producing stationary anchorage when and where it is needed.

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