

## Mandibular Major Connectors

The six types of mandibular major connectors include the following:

1. Lingual bar
2. Linguoplat
3. Sublingual bar
4. Lingual bar with cingulum bar (continuous bar)
5. Cingulum bar (continuous bar)
6. Labial bar

### **Lingual Bar Major Connector ▪**

The basic form of a mandibular major connector is a halfpear shape, located above moving tissue but as far below the gingival tissue as possible (Fig1-A)

**Indications.** The lingual bar should be used for mandibular removable partial dentures when sufficient space exists between the slightly elevated alveolar lingual sulcus and the lingual gingival tissue.

**Contraindications:** (a) Inoperable lingual tori. (b) High lingual frenum attachment. (c) Interferences during functional movements of the floor of the mouth .

### **Characteristics and location**

- greatest bulk at the inferior border, resulting in a contour that has a half-pear shape.
- Superior border tapered to soft tissue.
- Superior border located at least 4mm inferior to gingival margins
- Inferior border located at the ascertained height of the alveolar lingual sulcus when the patients tongue is slightly elevated.
- Lingual Bar At least 8mm of vertical space between the active tissues of the floor of the mouth and the gingival margins of the teeth is required. If less space is present other types of major connectors are preferred.

### **ADVANTAGES**

. Lingual bar connector has minimal tissue coverage and has minimal contact with oral tissues.

It does not contact the teeth, so decalcification of the tooth surface is minimized.

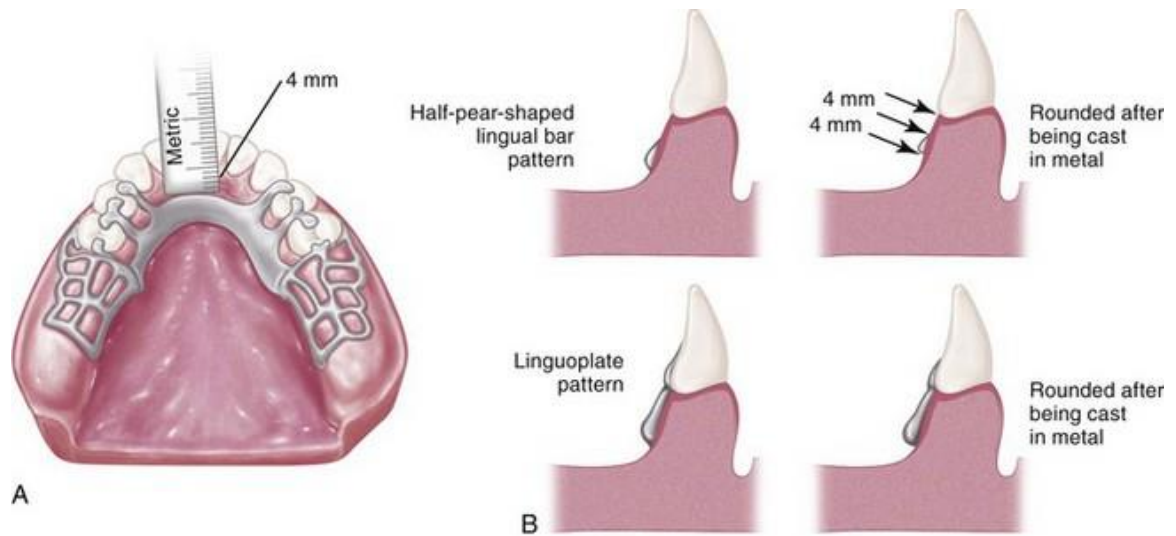


Figure. 1( A) Lingual bar major connector should be located at least 4 mm inferior to gingival margins and farther if possible.(B)lingual plate major connector

## . Linguoplate

### indication

1. When the lingual frenum is high or the space available for a lingual bar is limited.
2. In Class I situations in which the residual ridges have undergone excessive vertical resorption.
3. For stabilizing periodontally weakened teeth, splinting with a linguoplate can be of some value when used with definite rests on sound adjacent teeth.
4. When the future replacement of one or more incisor teeth will be facilitated by the addition of retention loops to an existing linguoplate. Mandibular incisors that are periodontally weak(Fig1-B)



Fig.2 lingual plate

## contraindications:

1. In lingually inclined mandibular anterior teeth.
2. Wide embrassures and diastema

## Characteristics and location

1. Half-pear shaped with bulkiest portion inferiorly located.
2. Thin metal apron extending superiorly to contact cingula of anterior teeth and height of contour of posterior teeth; and interproximally to contact points (Fig2).
3. Scalloped contour of apron as dictated by interproximal blockout.
  4. Inferior border at the ascertained height of the alveolar lingual sulcus when the patient's tongue is slightly elevated.

*When anterior teeth are quite spaced and the patient objects to metal showing through the spaces. The linguoplate can then be constructed so that the metal will not appreciably show through the spaced anterior teeth (**interrupted lingual plate**)  
The rigidity of the major connector is not greatly altered. However, such a design may be as much of a food trap (Fig3).*

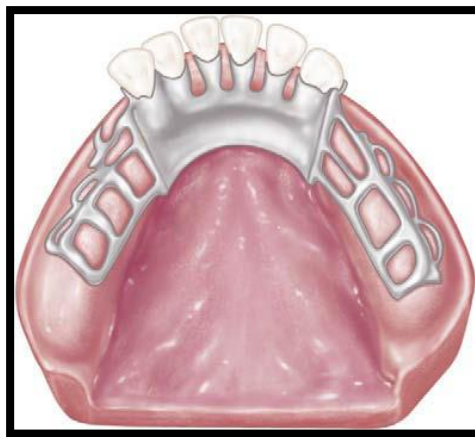
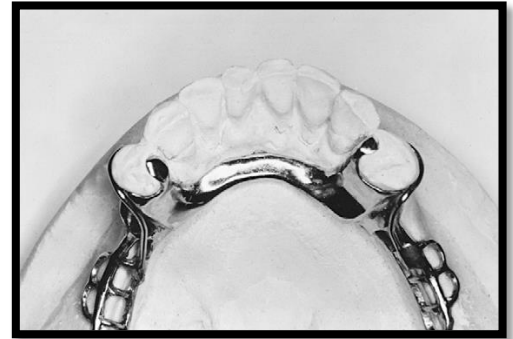


Fig.3

## Sublingual Bar

**Indications for Use:** The sublingual bar should be used for

mandibular removable partial dentures when the height of the floor of the mouth in relation to the free gingival margins will be less than 6 mm. It also may be indicated whenever it is desirable to keep the free gingival margins of the remaining anterior teeth exposed and depth of the floor of the mouth is inadequate to place a lingual bar.



**Sub lingual bar**

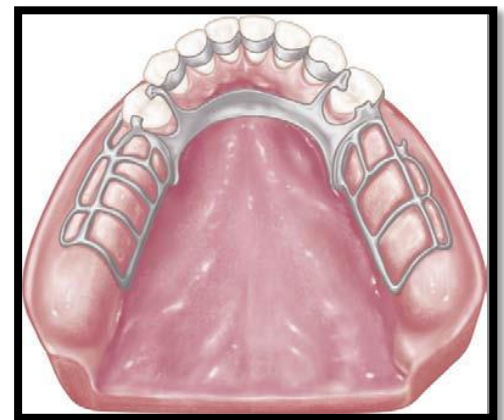
### **Contraindication**

1. interfering lingual tori.
2. high attachment of a lingual frenum.
3. interference with elevation of the floor of the mouth during functional movements.

### **Lingual bar with cingulum bar (continuous bar)**

#### **Indications for Use:**

- (1) When a linguoplate is otherwise indicated but the axial alignment of anterior teeth is such that excessive blockout of interproximal undercuts would be required
- (2) When wide diastemata exist between mandibular anterior teeth and a linguoplate would objectionably display metal in a frontal view.



**fig. 5 Lingual bar with cingulum bar**

**Characteristics and Location:**

- (1) Conventionally shaped and located same as lingual bar major connector component when possible.
- (2) Thin, narrow (3 mm) metal strap located on cingula of anterior teeth, scalloped to follow interproximal embrasures with inferior and superior borders tapered to tooth surfaces as shown in ( Fig.5)
- (3) Originates bilaterally from incisal, lingual, or occlusal rests of adjacent principal abutments.

**Cingulum Bar (Continuous Bar)****Indications for Use:**

When a lingual plate or sublingual bar is otherwise indicated but the axial alignment of the anterior teeth is such that excessive blockout of interproximal undercuts would be required.

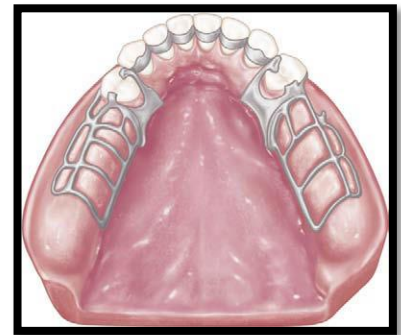


Fig.6 cingulum bar

**Contraindications for Use:**

- (1) Anterior teeth severely tilted to the lingual.
- (2) When wide diastemata that exist between the mandibular anterior teeth and the cingulum bar would objectionably display metal in a frontal view.

**Characteristics and Location:**

- (1) Thin, narrow (3 mm) metal strap located on cingula of anterior teeth, scalloped to follow interproximal embrasures with inferior and superior borders tapered to tooth surfaces.
- (2) Originates bilaterally from incisal, lingual, or occlusal rests of adjacent principal abutments.

### labial Bar

Fortunately, in only a few situations does extreme lingual inclination of the remaining lower premolar and incisor teeth prevent the use of a lingual bar major connector.

With the use of conservative mouth preparations in the form of recontouring and blockout, a lingual major connector can almost be used.

### Indication:

1. Lingually inclined teeth.
2. mandibular torus interferes with placement of a lingual bar.



labial bar (fig.7)

### Contraindication:

- 1- Lingual major connectors can be used.
- 2- Facial tori or exostoses.
- 3- Facial alveolar ridge undercuts.
- 4- High facial muscle attachments which would result in less than 3 mm of space between the superior edge of the labial bar and the marginal gingiva of the teeth.

A modification to the linguoplate is the hinged continuous labial bar. This concept is incorporated in the

**Swing-Lock\*** design, which consists of a labial or buccal bar that is connected to the major connector by a hinge at one end and a latch at the other end .

Support is provided by multiple rests on the remaining

natural teeth. Stabilization and reciprocation are provided by a linguo-plate that contacts the remaining teeth and are supplemented by the labial bar with its retentive struts. ( Fig.8)

## Indication:

1. Missing key *abutments*
2. Unfavorable tooth contours
3. Unfavorable soft tissue contours
4. Teeth with questionable prognoses.



Fig.8 swing-lock PD

## Contraindications:

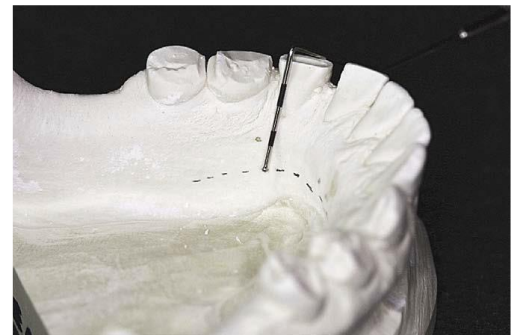
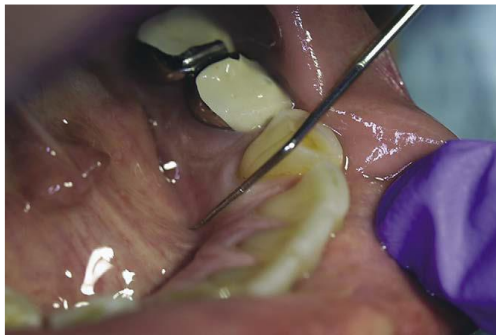
1. Poor oral hygiene or lack of motivation for plaque control by the patient.
2. Presence of a shallow buccal or labial vestibule.
3. high frenal attachment.

## ***Methods for measuring height of the floor of the mouth***

two clinically acceptable methods may be used to determine the relative height of the floor of the mouth and locate the inferior border of a lingual mandibular major connector.

The first method is to measure the height of the floor of the mouth in relation to the lingual gingival margins of adjacent teeth with a periodontal probe (Figure 9). When these measurements are taken, the tip of the patient's tongue should just lightly touch the vermilion border of the upper lip. Recording of these measurements permits their transfer to both diagnostic and master casts.

. The second method is to use an individualized impression tray for which lingual borders are 3 mm short of the elevated floor of the mouth, and then to use an impression material that will permit the impression to be accurately molded as the patient licks the lips. The inferior border of the planned major connector can then be located at the height of the lingual sulcus of the cast resulting from such an impression (Fig. 10).



(Fig. 9) Height of floor of the mouth (tongue elevated) in relation to lingual gingival sulci measured with a periodontal probe. Recorded measurements are transferred to a diagnostic cast and then to a master cast after mouth preparations are completed. The line connecting marks indicates the location of the inferior border of the major connector.



(Fig. 10) Impression made with functional movement of the tongue to demonstrate maximum shortening of the floor of the mouth.