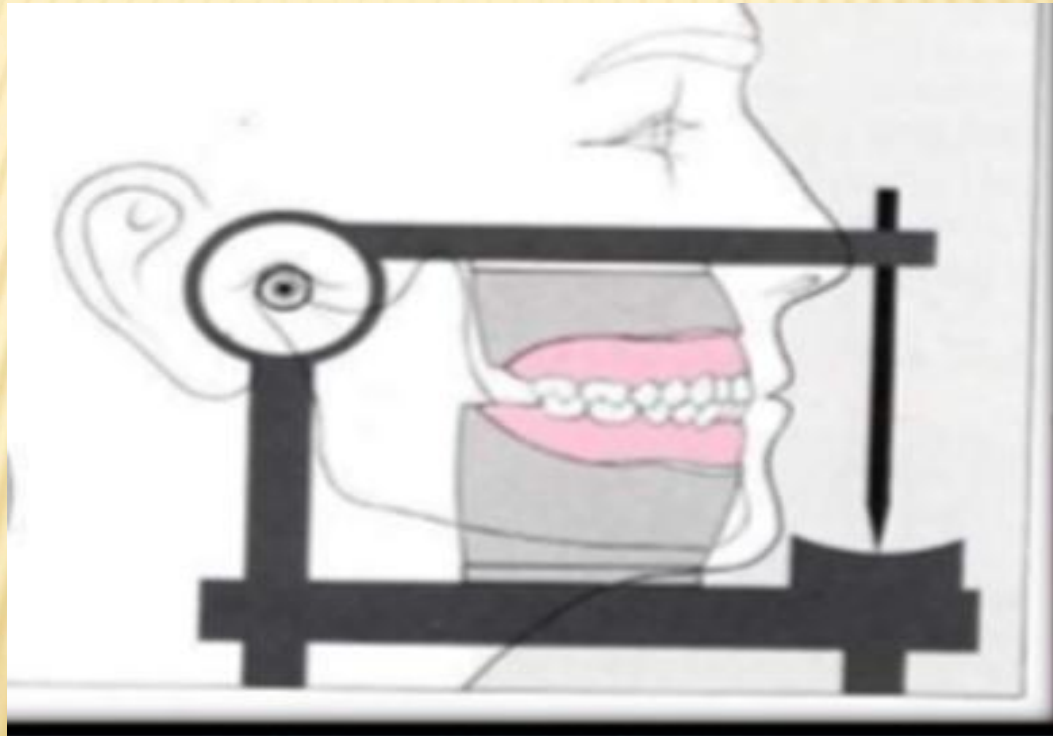


# DENTAL ARTICULATOR

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# DENTAL ARTICULATOR

It is a mechanical device represents the TMJ, maxillary and mandibular arches to which maxillary and mandibular casts attached to simulate some or all mandibular movements.





# FUNCTIONS

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1- It allows most of the prosthetics work to be done in the absence of the patient.

2-Maintain jaw relation record during setting –up of teeth.

3-Denture re mounting after processing for correction of occlusal disharmony.

# TYPES OF ARTICULATOR

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- ✘ Simple hinge articulator (Class I) .
- ✘ Mean value (Class II).
- ✘ Adjustable articulator.
- semi adjustable(Class III).
- fully adjustable(Class IV).
- ✘ Digital computerized articulator.

# CLASS I

## Possible movement

1-Single hinge movement only (opening & closing).

2-No lateral movement.

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## **Record required**

- Vertical dimension of occlusion.
- Centric relation

## **Disadvantages**

Not represented TMJ

# CLASS II

## Possible movement

- 1-Opening and closing
- 2-Protrusive movement

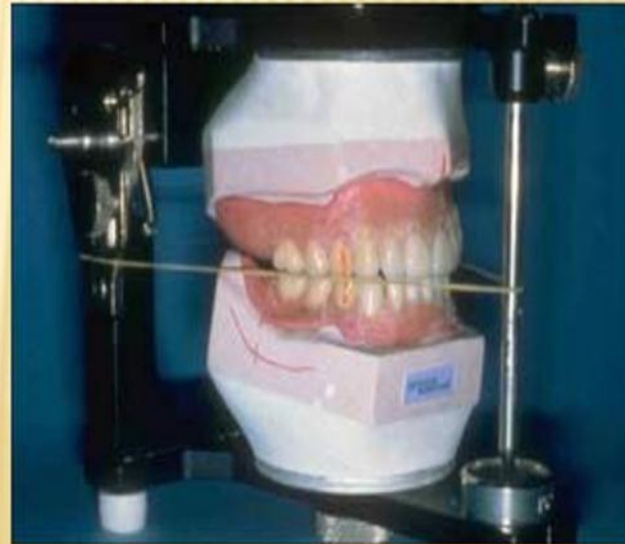
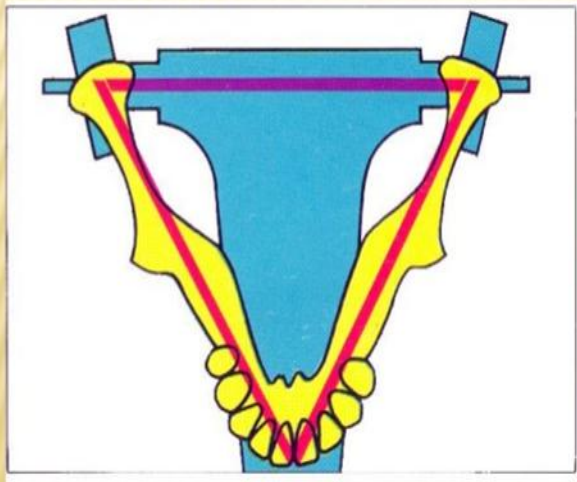
## Record required

- Vertical and centric
- Face bow record





# BONWILL TRIANGLE



# DISADVANTAGES

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- ✘ Most of these articulator not accepted face bow record
- ✘ No lateral movement
- ✘ It is successful in patient whose condyle approximate that of articulator

# CLASS III



# CLASS III

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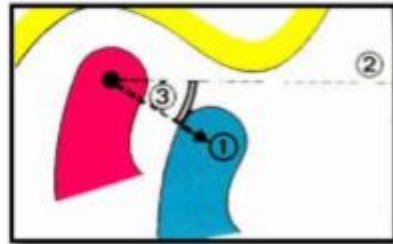
- ✘ The horizontal condylar path adjusted by protrusive movement obtained from the patient
- ✘ lateral condylar path is adjusted according to hanau's formula:
$$L = H / 8 + 12$$

L = lateral    H =horizontal condylar path

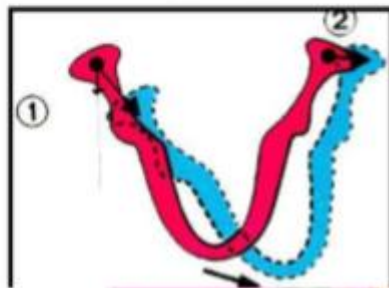
## The inclination of the condylar path

Types :

A- Sagittal ( HORIZONTAL) condylar path angle



B- Lateral condylar path angle



# ARCON

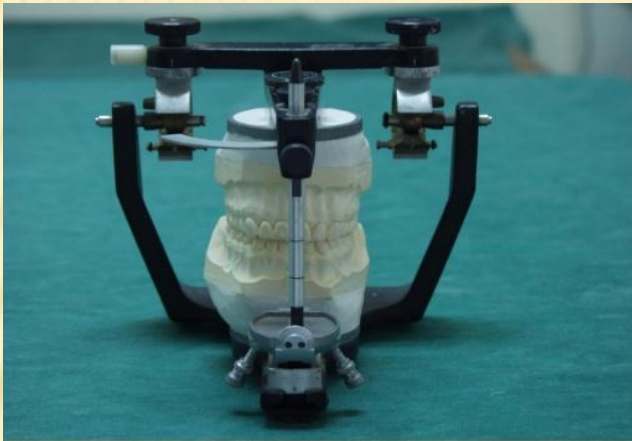
MEAN IT HAS CONDYLES ON THE LOWER MEMBER AND THE CONDYLAR GUIDES ON THE UPPER MEMBER



**Arcon  
articulator**



# NON ARCON



**Non Arcon  
articulator**



# SEMI ADJUSTABLE ARTICULATOR

- **ARCON:** condylar elements are on the lower member of the articulator, mechanical fossae are placed on the upper member of the articulator
- **NON ARCON:** condylar path simulating the glenoid fossae are attached to the lower member, condylar elements are placed on the upper portion of the articulator



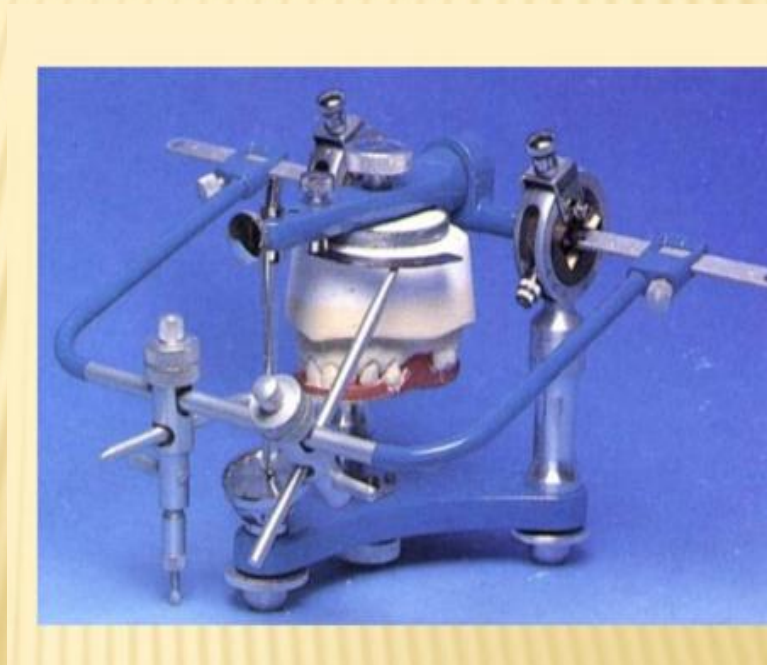


## Possible movement

- Opening and closing
- Protrusive and lateral movement
- Some types have bennett movement

## Record required

- Face bow record to mount the upper cast



- 
- Vertical and centric relation record
  - Protrusive record to adjust the horizontal condylar path inclination of the articulator

## **Disadvantages**

- The lateral condylar path angle is determined from the formula.
- Most of them have no bennett movement

# CLASS IV

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It differ from the semi adjustable articulators in that the lateral condylar pat inclination are adjusted according to records taken from the patient.

## **Possible movements**

-The same movements of the semi adjustable articulators in addition they have Bennett movement.

# Bennett Movement

It is defined as “the bodily lateral movement/ lateral shift of mandible resulting from movements of condyles along lateral inclines of mandibular fossa during lateral jaw movement”

Dr Norman Bennett



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## **Records required:**

-Face bow, vertical, centric and protrusive record. In addition:

-Right lateral record to adjust the left lateral condylar path inclination.

-Left lateral record to adjust the right lateral condylar path inclination.

VERSATILE STANDARD  
ARTICULATOR WITHOUT  
OPTIONS (D-AAA-01)

D-AAD-01  
Transfer Jig (optional)

Provided with adjustable  
parts for a total, partial  
prosthesis, and a crown  
and bridge work.  
Versatile Standard  
Articulator without options

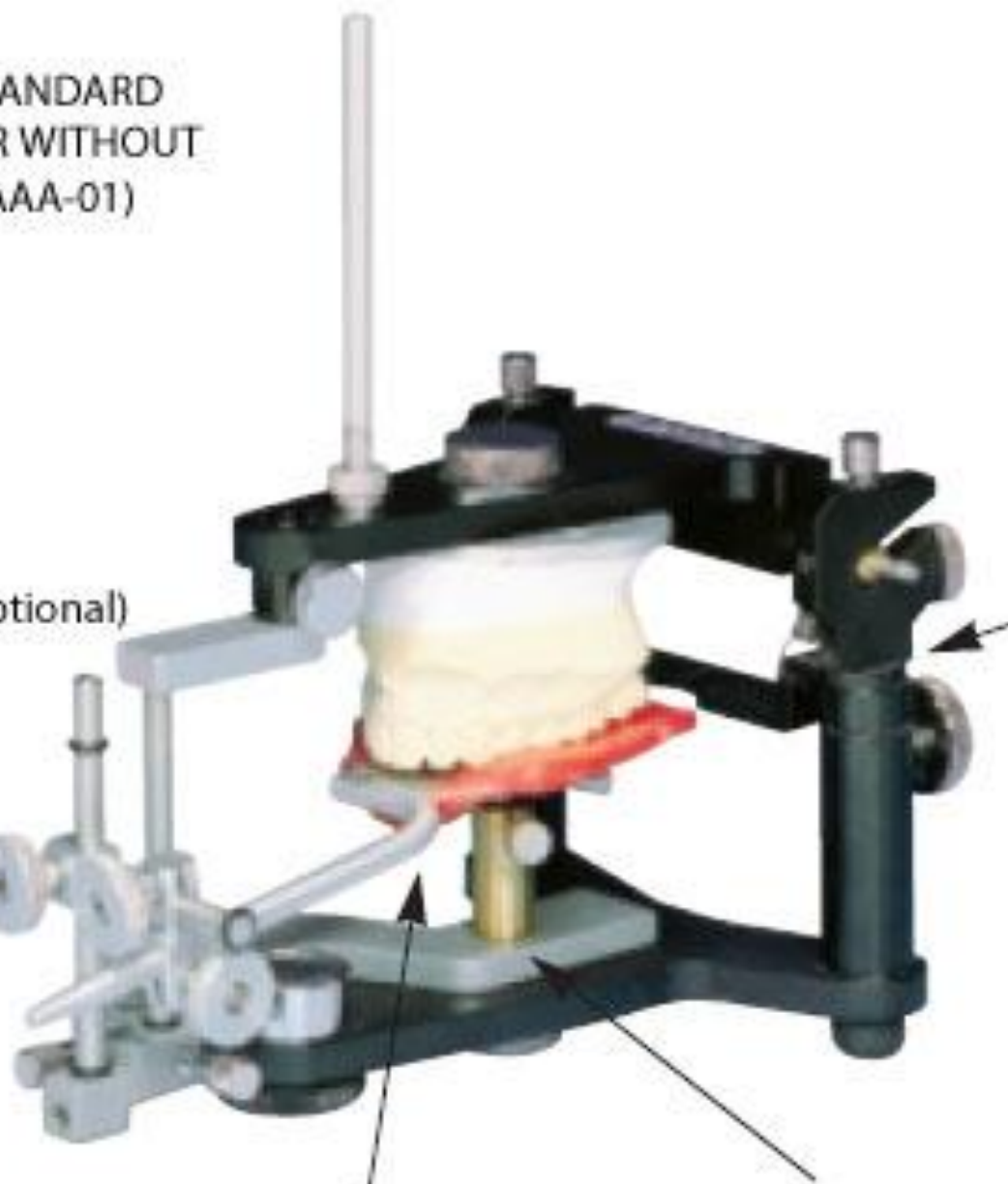
D-AAA-01

D-AAG-01 Bite Fork (optional)

D-AAG-02 Bite Plane (optional)

D-AAC-01

Dual Index (optional item)



## Disadvantages:

-Multi records are required with possibility of errors.

Therefore the semi adjustable  
enough for complete  
denture construction

# DIGITAL COMPUTERIZED ARTICULATOR

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These are able to design prosthesis. They are capable of:

- Simulating human mandibular movements
- Moving digitalized occlusal surfaces against each other according to these movements
- Correcting digitalized occlusal surface to enable free movements



There are two types :

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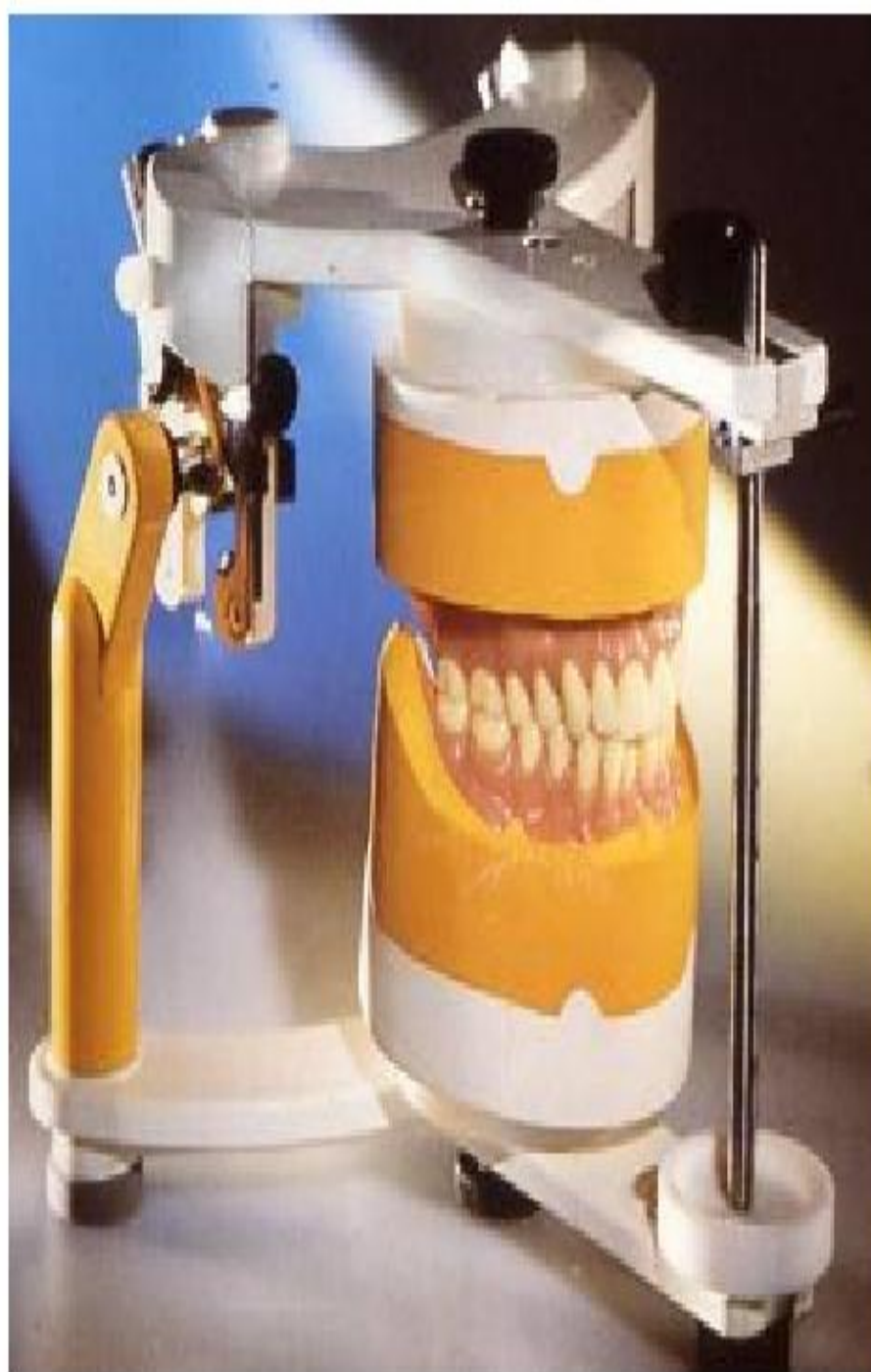
- **Completely adjustable articulators**

It records exact movement paths of mandible using electronic jaw registration system called (JMA).

- **Mathematically simulated articulator**

It is a fully adjustable 3D virtual articulator capable of reproducing the movements of a mechanical articulator





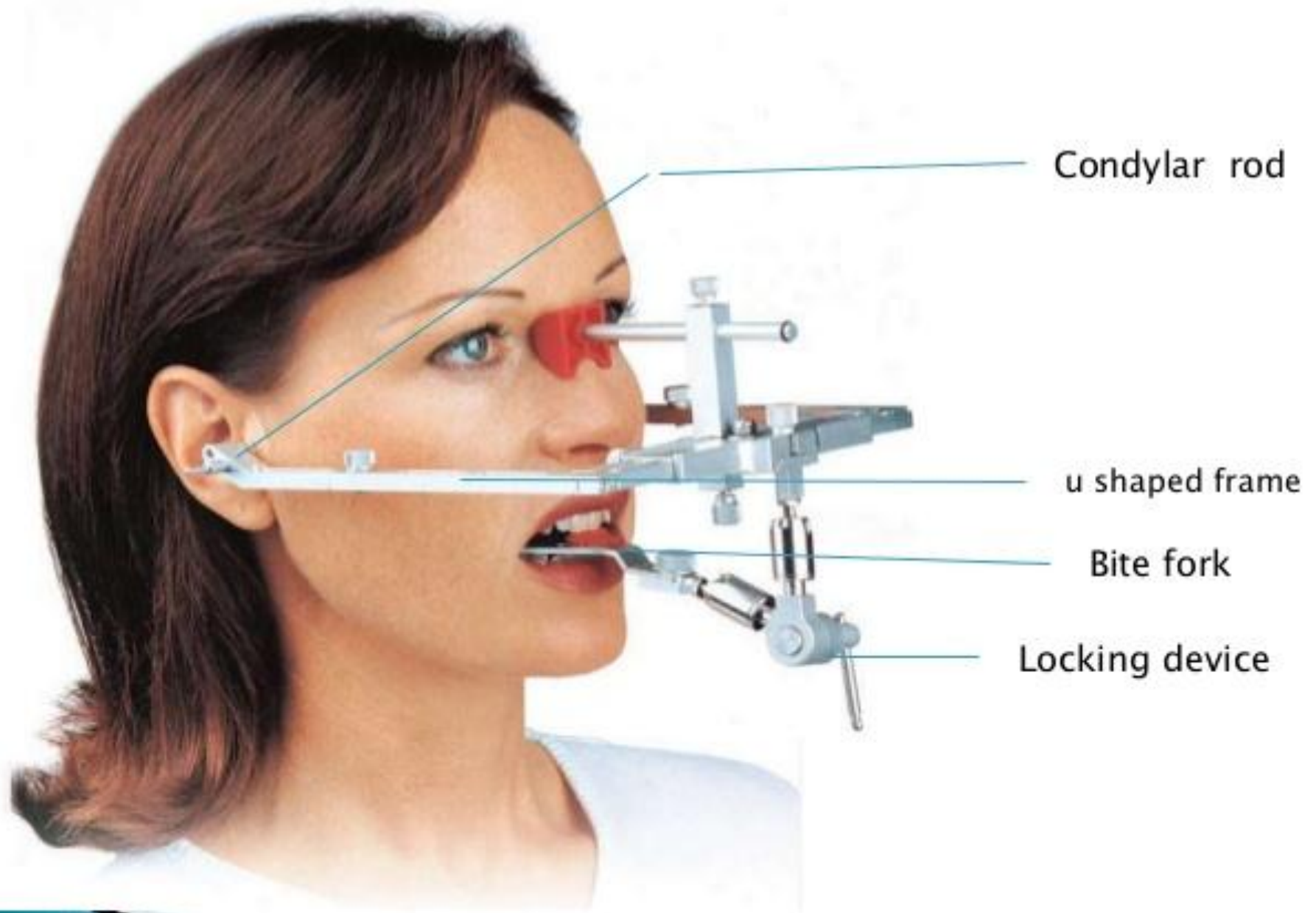
# FACE BOW

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Caliper like device that is used to record the relationship of maxilla to the TMJ or the opening axis of the jaw and to orient the cast in the same relationship to the opening axis of articulator.

It consist of :

- U-shaped frame.
- The condyle rods.
- The fork.



Condylar rod

u shaped frame

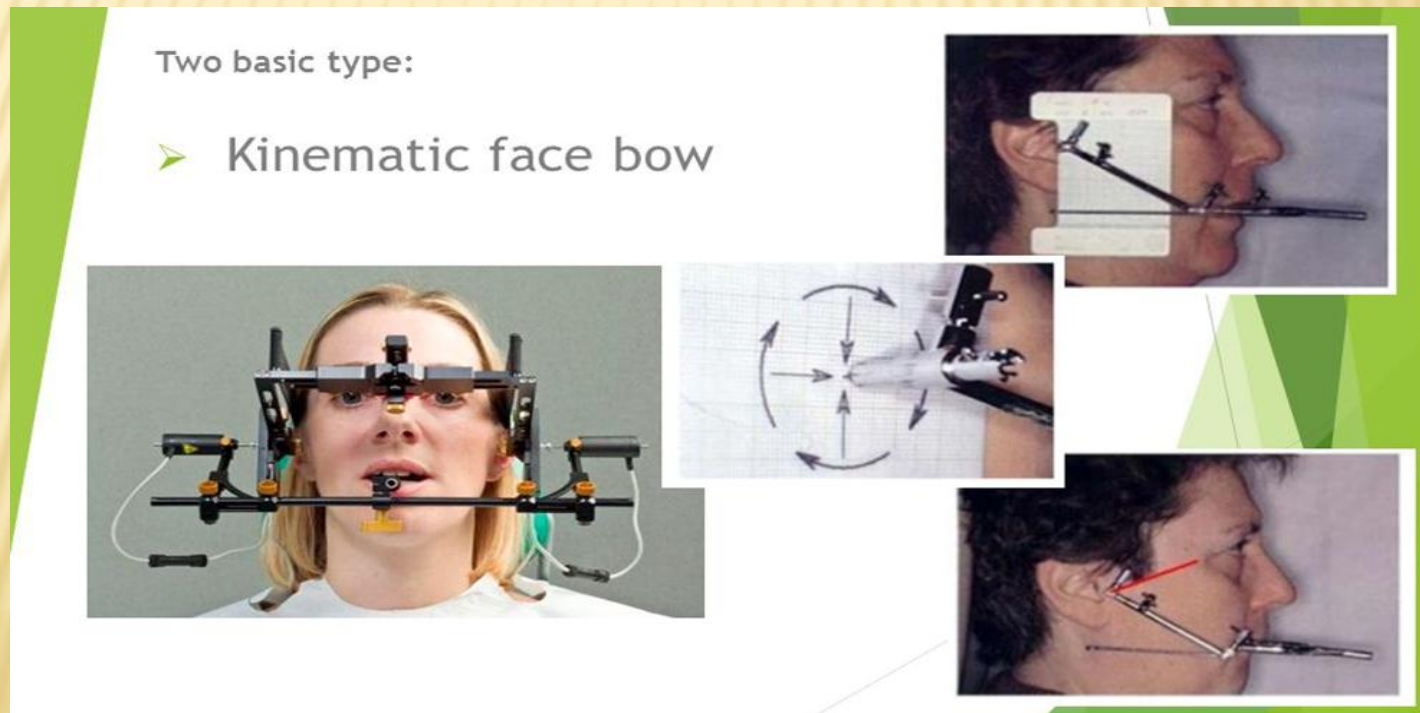
Bite fork

Locking device

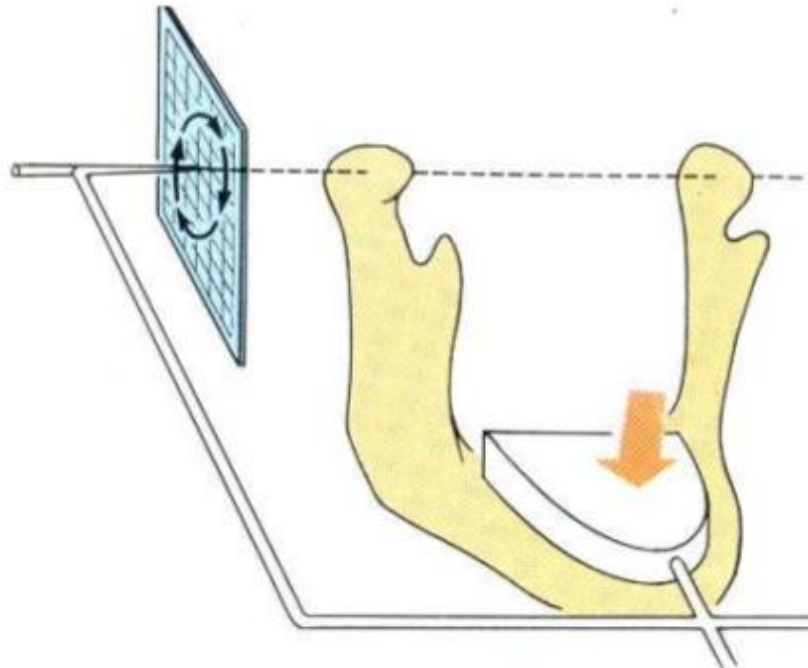
# TYPES OF FACE - BOW

## The kinetic face-bow

It is used to locate the kinematic transverse hinge which is an imaginary line in which the mandible rotates during opening and closing.

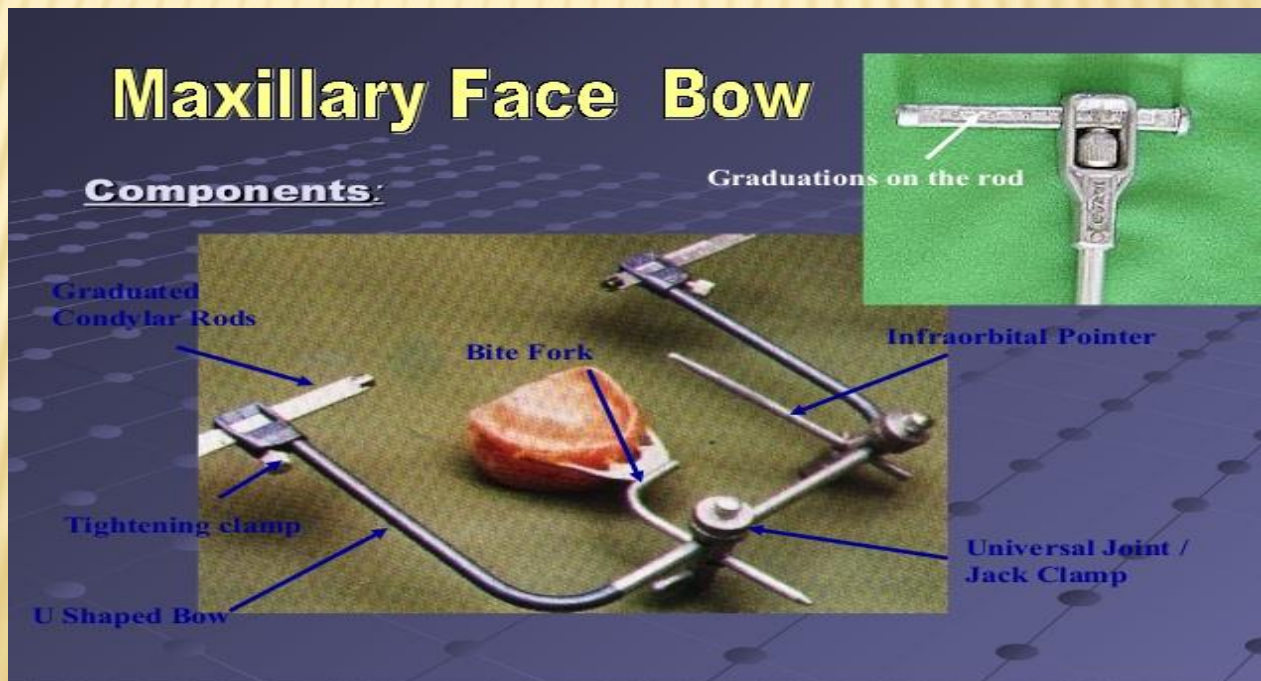


Use of kinematic bow for edentulous patients

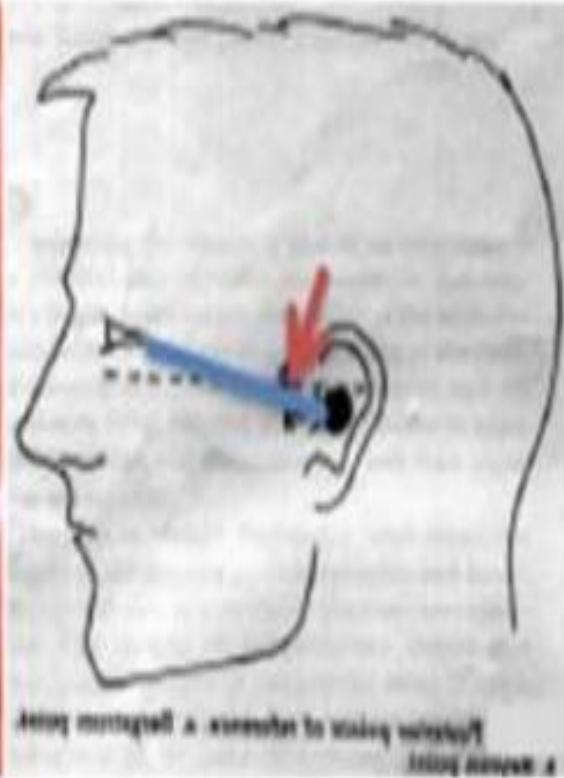


# The maxillary face-bow

It is used to record the position of the upper jaw in relation to the arbitrary hinge axis which is positioned on a line extending from the outer canthus of the eye to the middle of the tragus of the ear and approximately 13 mm in front of the external auditory meatus







# IMPORTANCE OF THE FACE BOW

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- ✘ An arbitrary mounting of the maxillary cast without a face bow transfer can introduce errors in the occlusion of the finished denture.
- ✘ It allows minor changes in the occlusal vertical dimension.
- ✘ It is helpful in supporting maxillary cast while it is being mounted on the articulator

Thank  
you