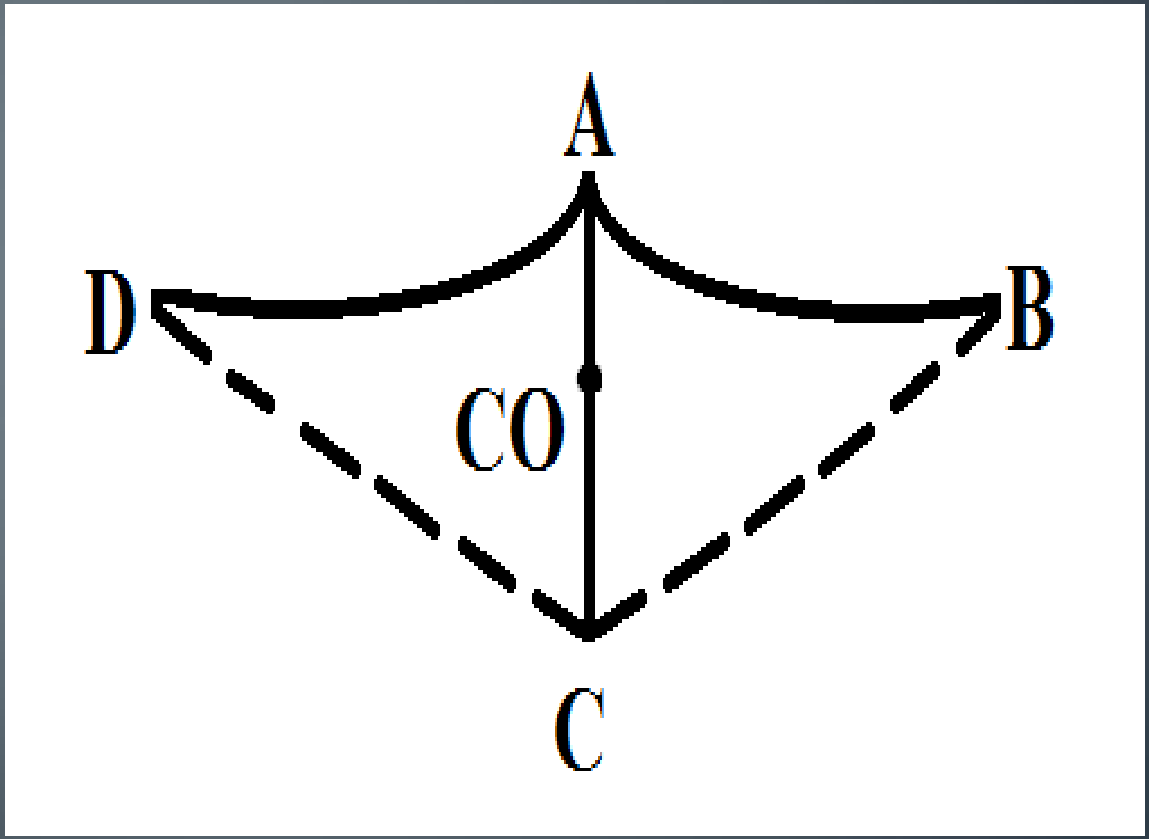

بِسْمِ اللَّهِ الرَّحْمَٰنِ الرَّحِيمِ

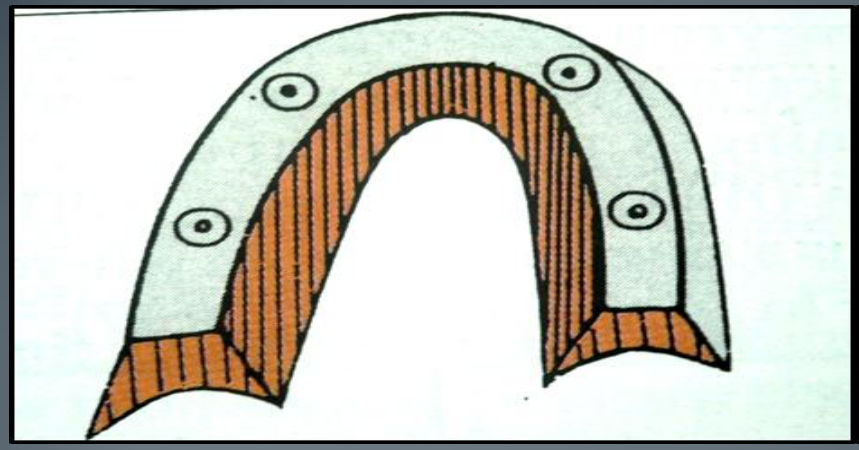
Last lecture

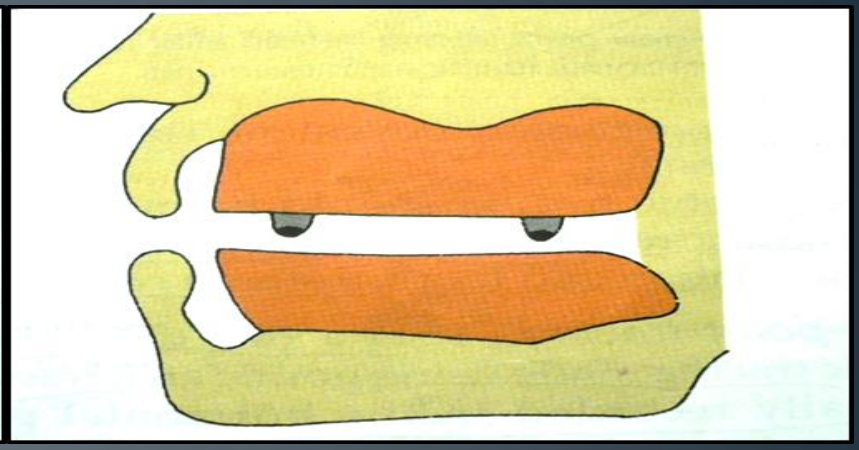
- Jaw relations
- Vertical jaw relations
- Horizontal jaw relations

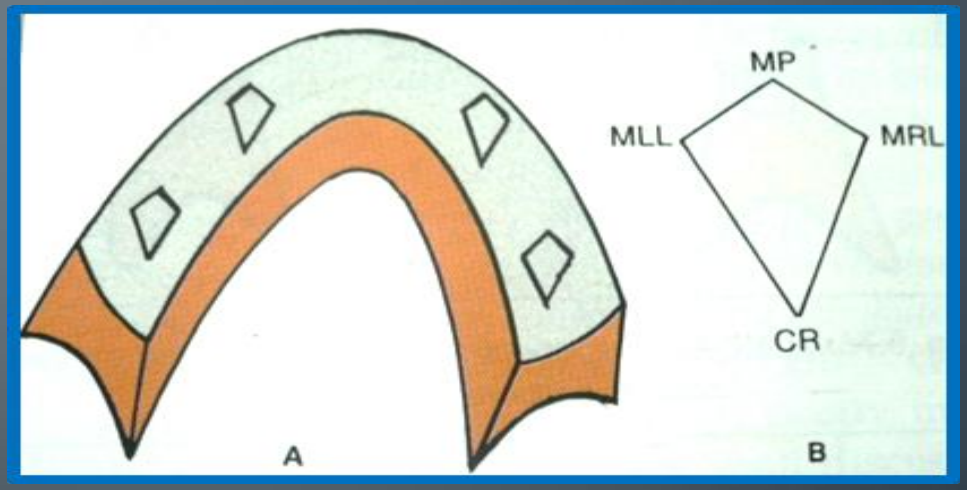
What is name of this arch?

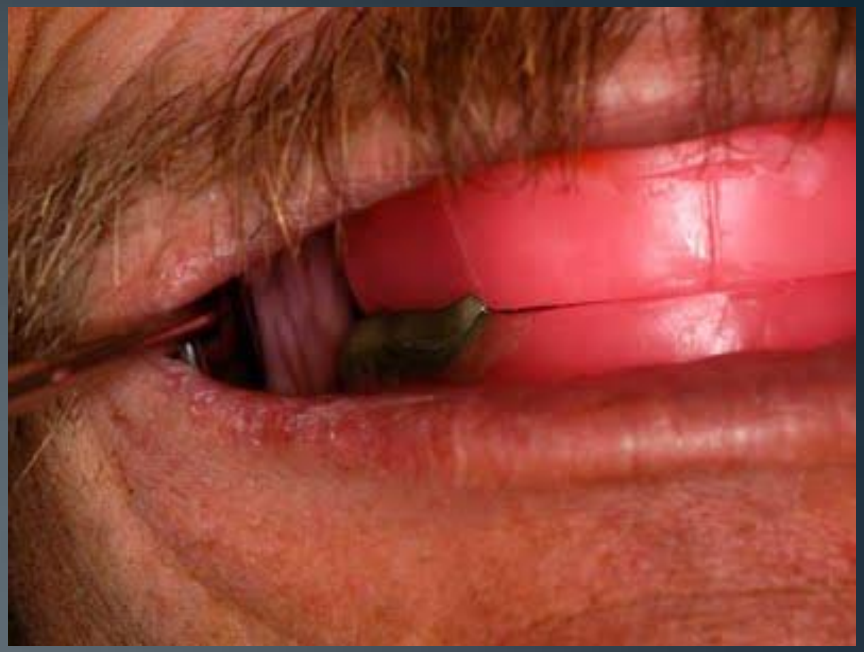


What is name of this technique?

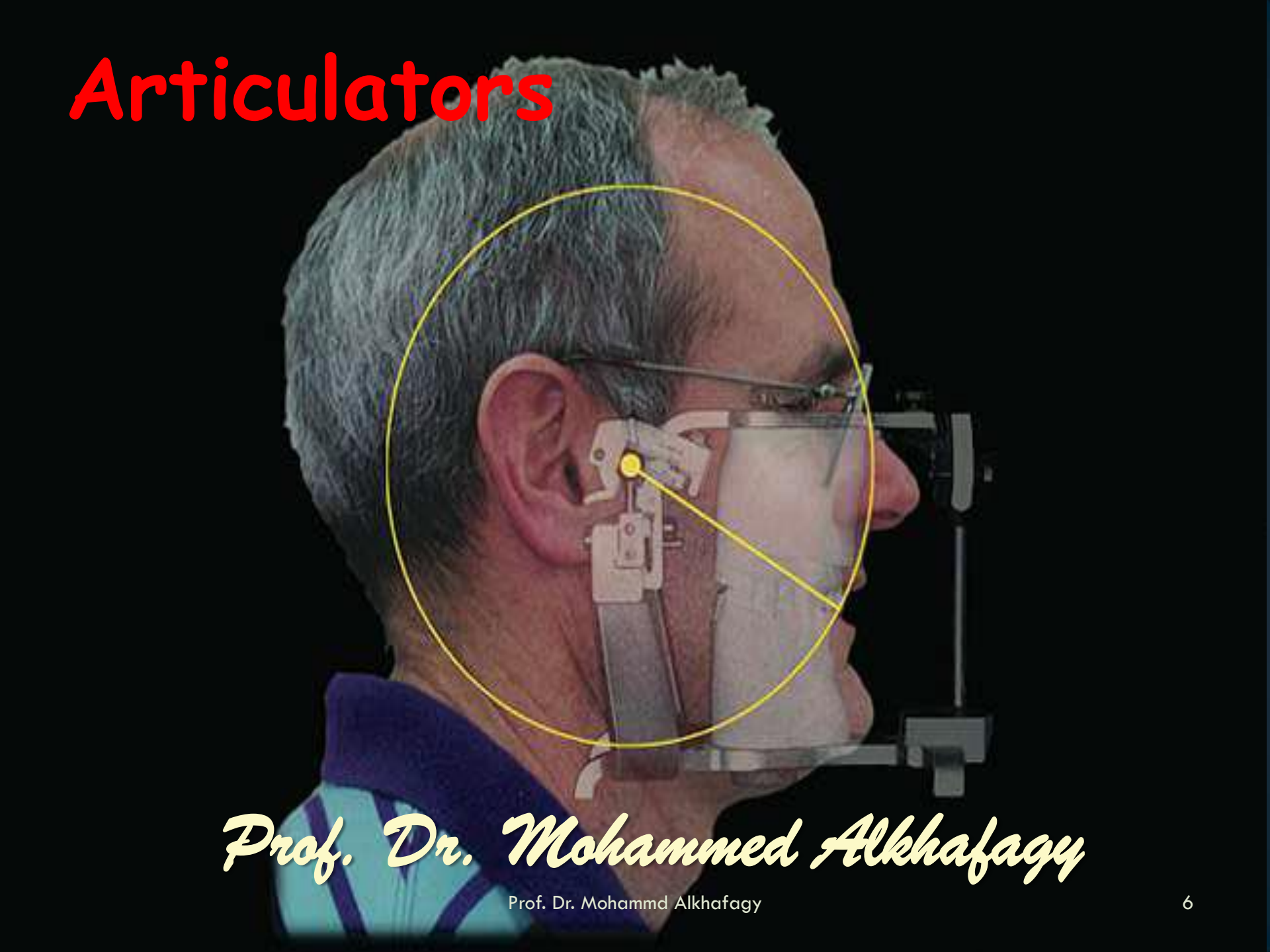








Articulators



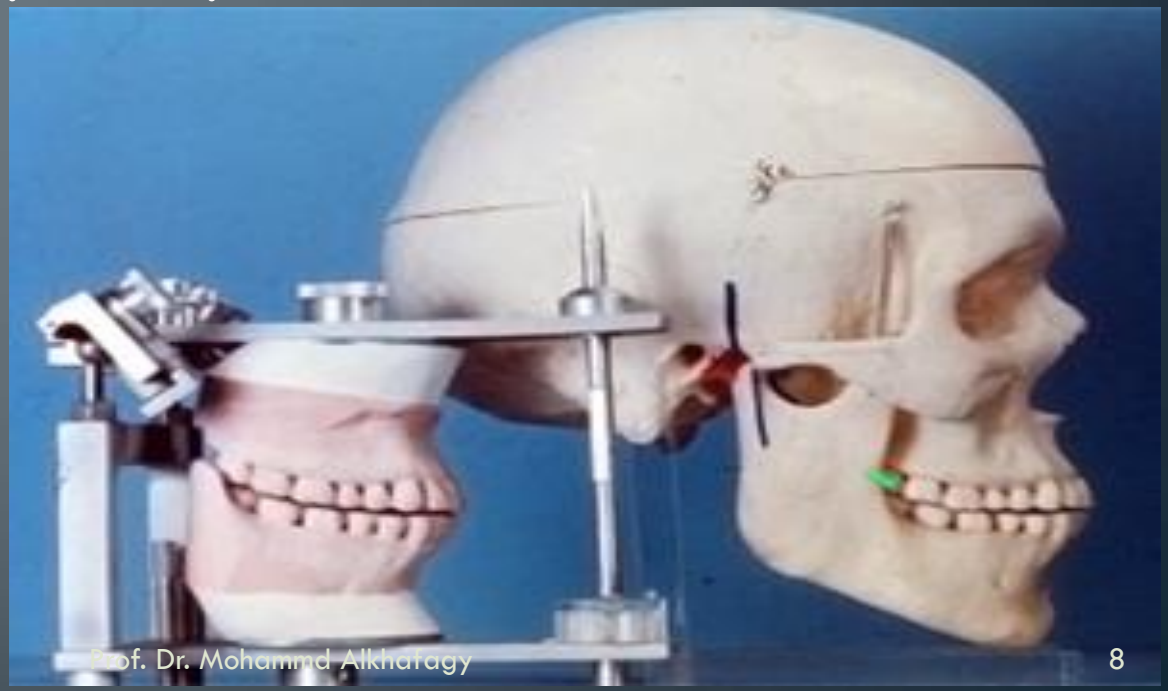
Prof. Dr. Mohammed Alkhafagy

Contains....

- ***Articulators***
- *Definition*
- *Functions*
- *Requirements of an articulator:-*
- *Types of articulators*
- ***Face-bow***
- *Types of face-bow:*
- ***Mounting***
- **Errors occurred during mounting:**

Articulator

It is a mechanical instrument that represents the temporomandibular joints and jaws, to which maxillary and mandibular casts may be attached to simulate some or all mandibular movements



Functions:

1. It allows most of the prosthetic work to be done in the absence of the patient (diagnosis, treatment planning, setting –up of teeth and development of balanced articulation and waxing-up of dentures).
2. To maintain the jaw relation record during arrangement of artificial teeth.
3. Remounting the dentures after processing for correction of occlusal disharmony.

Requirements of an articulator:-

1. It should hold casts in the correct horizontal relationship.
2. It should hold casts in the correct vertical relationship.
3. The casts should be easily removable and re-attachable.
4. It should provide a positive anterior vertical stop (incisal pin).
5. It should accept face-bow transfer record.

Requirements of an articulator:-

6. It should open and close in a hinge movement.
7. It should be made of non-corrosive and rigid materials.
8. It should not be bulky or heavy.
9. There should be adequate space between the upper and lower members.
10. The moving parts should move freely without any friction.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إذا قللت منه نفع
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Types of articulators

what is name of this articulator

Types of articulators

what is name of this articulator?

Types of articulators

1.Non adjustable condylar path articulators

1.Simple hinge articulator(*Class I*) .

2. Mean value or fixed condylar path articulator (*Class II*).

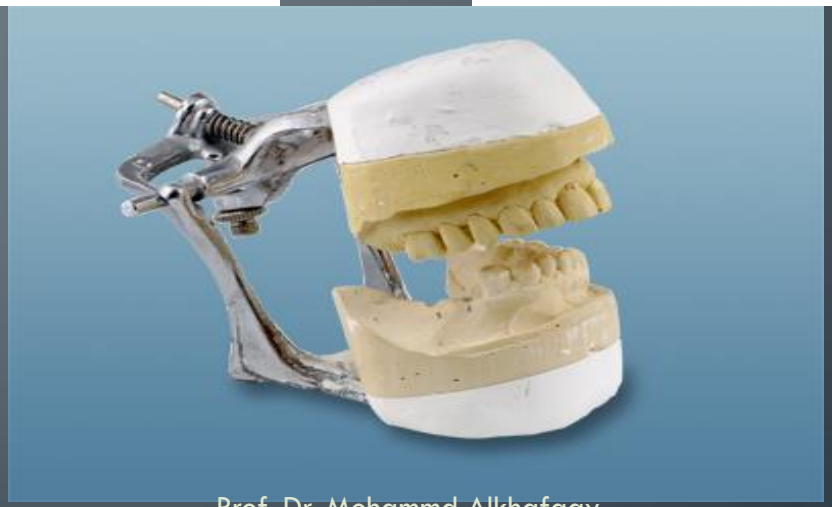
2.Adjustable condylar path articulators

1.Semi-adjustable condylar path articulator(*Class III*).

2. Fully-adjustable condylar path articulator(*Class IV*).

Non adjustable condylar path articulators

a-Simple hinge articulator(Class I)



Possible movement:

This type of articulators gives only hinge opening and closing movement.

Records required:

1)Vertical dimension of occlusion.
2)Centric relation records.

Disadvantage:

These articulators do not represent the temporomandibular joint and the dynamic mandibular movements.

b-Mean value or fixed condylar path articulator (Class II)

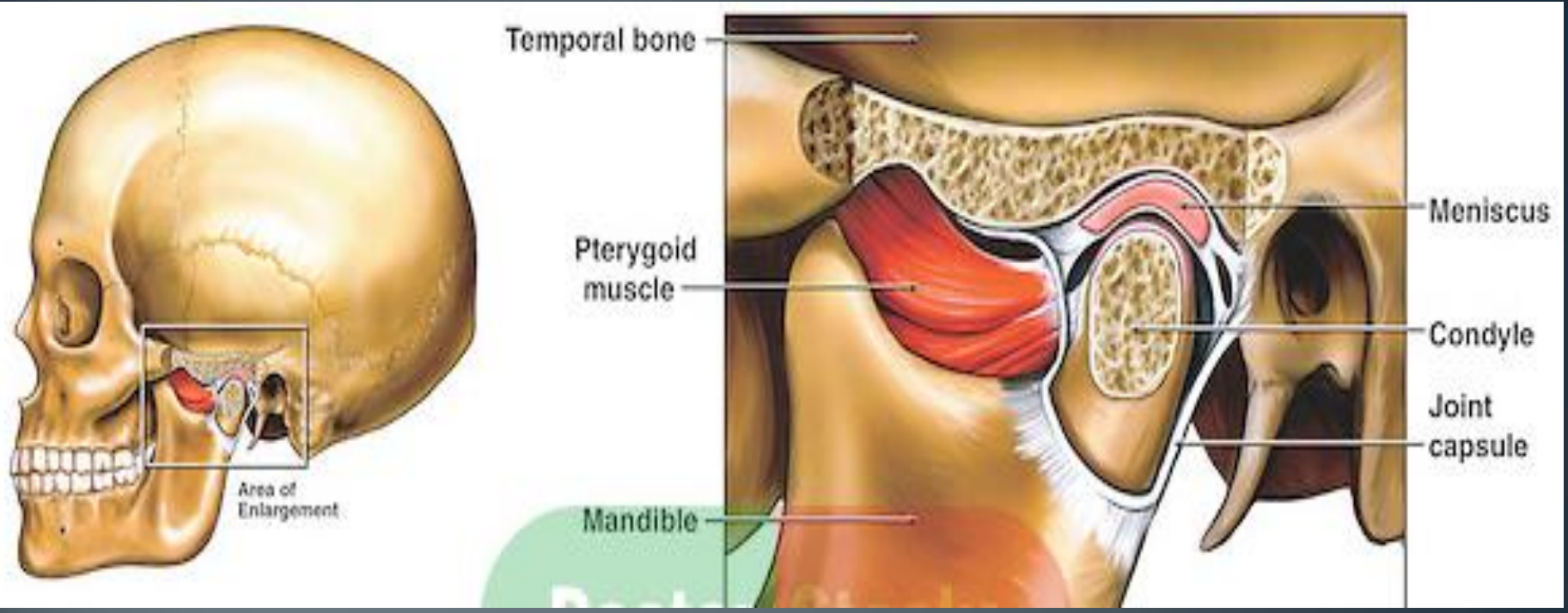
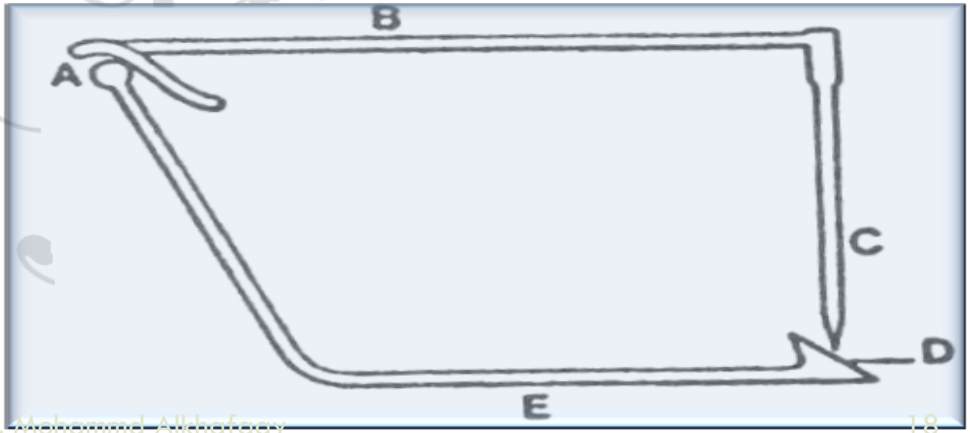


Figure (6-14): Design of mean value.

A. Condylar path (fixed).
B. Upper member.
C. Incisal pin.
D. Incisal table (fixed).
E. Lower member.



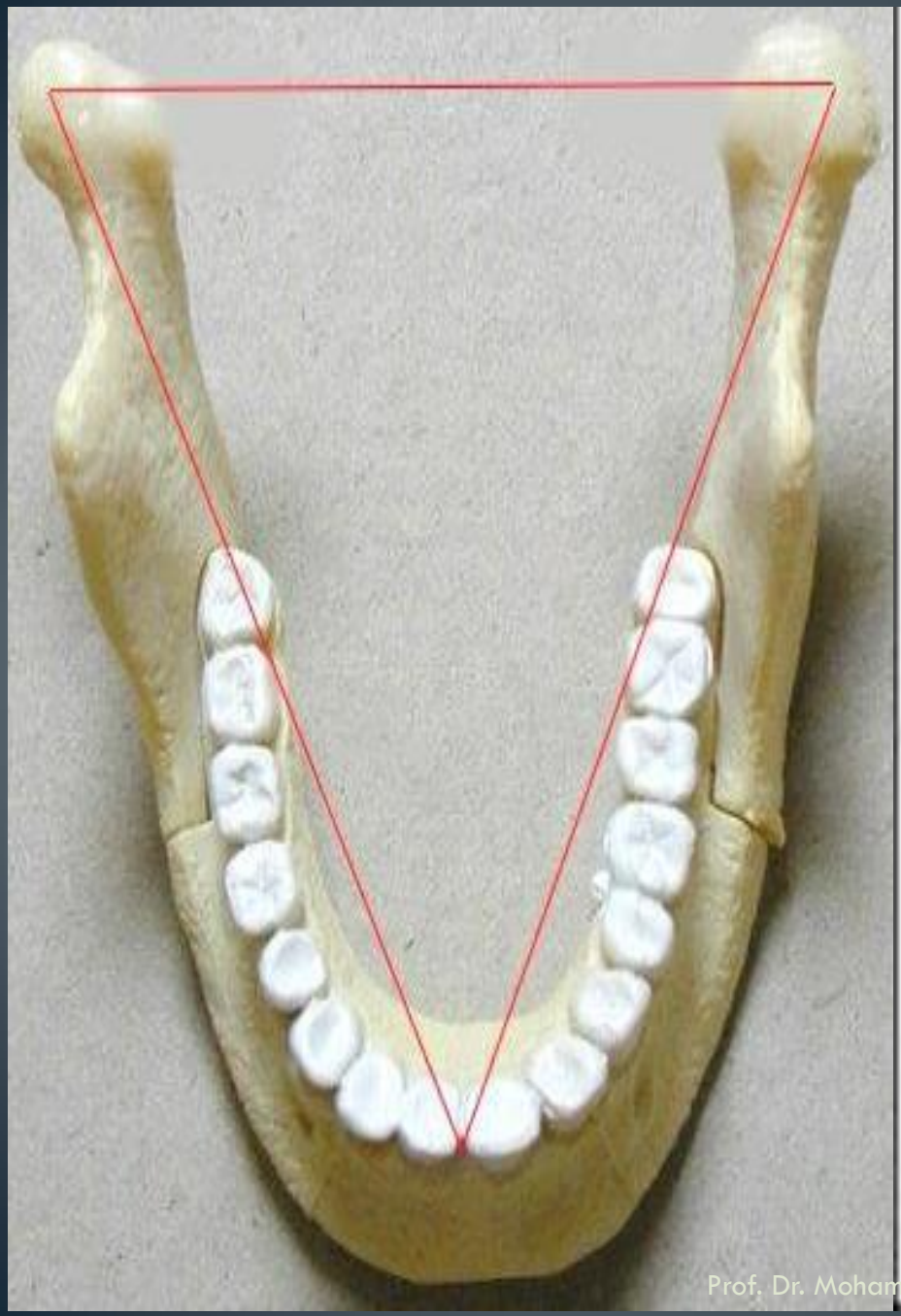
b-Mean value or fixed condylar path articulator (Class II)

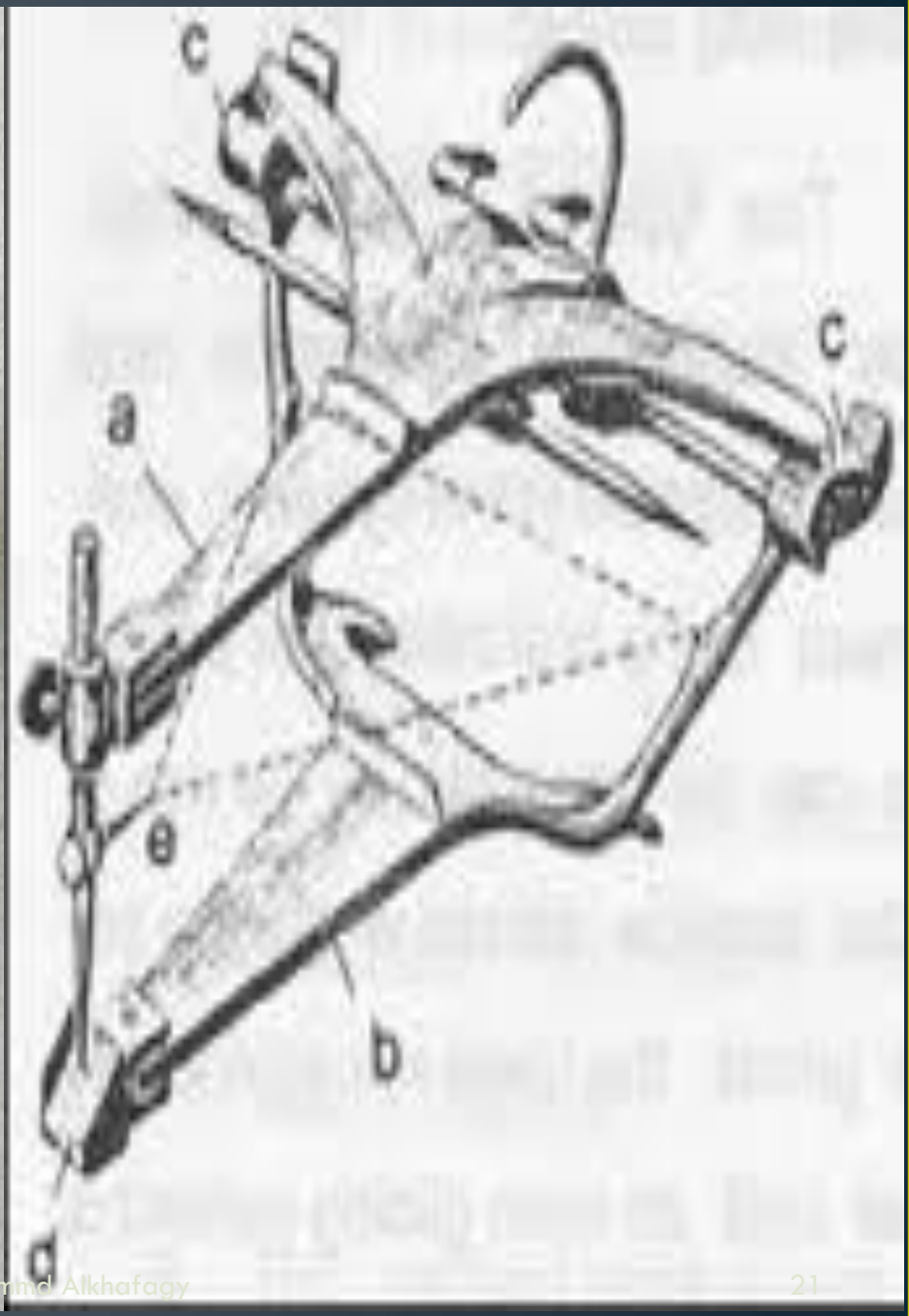
Possible movement:

1. Opening and closing.
2. Protrusive movement at a fixed condylar path angle

Records required:

1. Vertical dimension of occlusion.
2. Centric relation record.
3. Face-bow record: in some designs of these articulators, the upper cast can be mounted by a face-bow transfer. When the articulators do not accept face-bow record, the mounting is made according to **Bonwill triangle.**

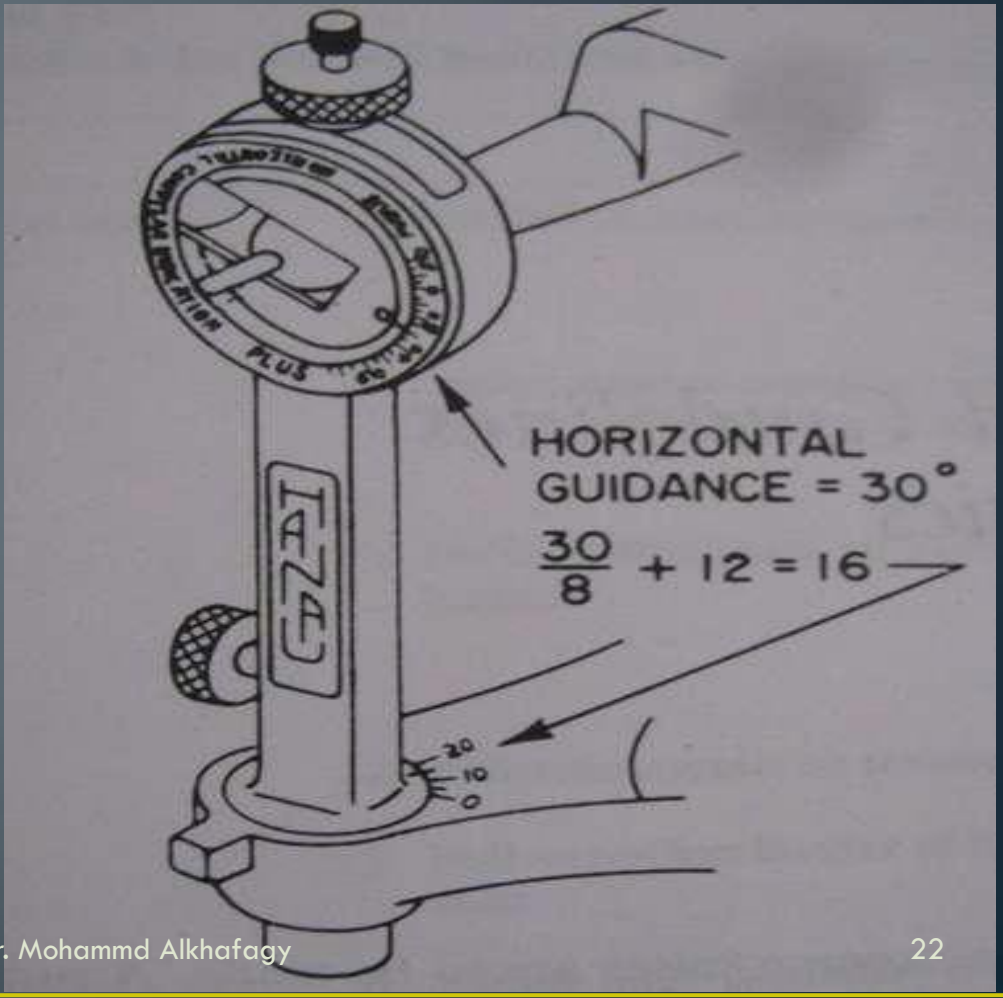


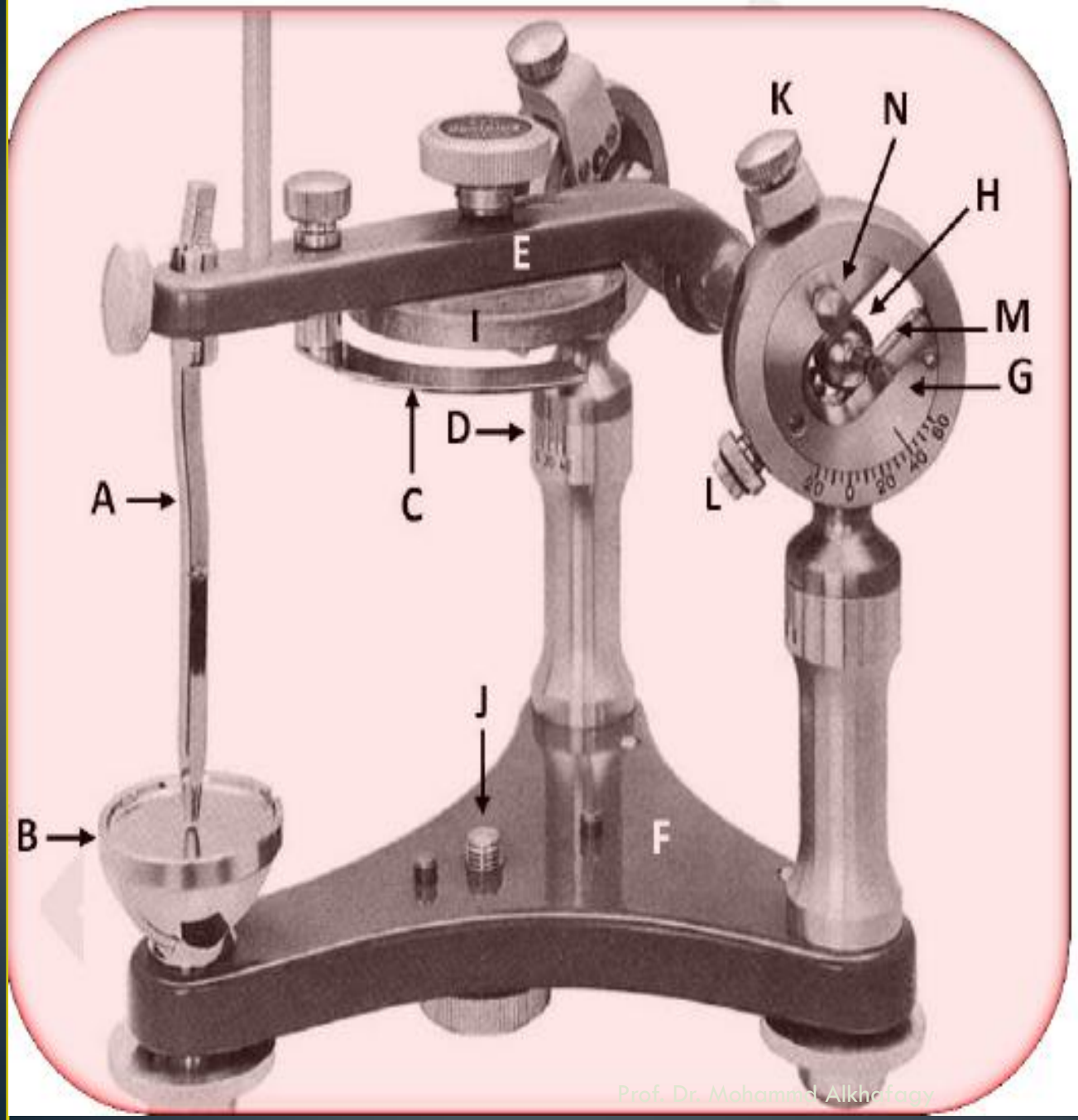

c
c
a
θ
b
d

- Adjustable condylar path articulators (class III and IV)

A-Semi adjustable condylar path articulators (class III)

$$L = \frac{H}{8} + 12$$





A- *Incisal pin.*
B- *Incisal table.*
C- *Orbital plane guide.*
D- *Lateral condylar path inclination.*
E- *Upper member.*
F- *Lower member.*
G- *Condylar guidance.*
H- *Condyle (attached to upper member).*
I- *Upper mounting plate.*
J- *Attachment screw of lower mounting plate.*
K- *Screw for horizontal condylar guidance inclination.*
L- *Anterior stop screw for condyle.*
M- *Condylar track.*
N- *Centric lock.*

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 uper portion of the articulator

Possible movements:

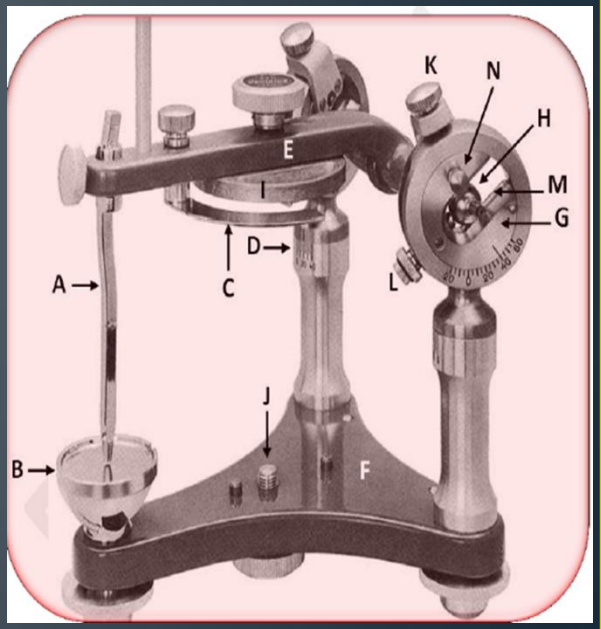
1-Opening and closing

2-Protrusive movement according to the horizontal condylar path angle determined from the patient.

3-Lateral movement to the angle estimated from the Hanau formula.

4-Some types have Bennett movement (immediate side shift).

(lateral movement of the mandible toward the working side as the non-working condyle moves forward).

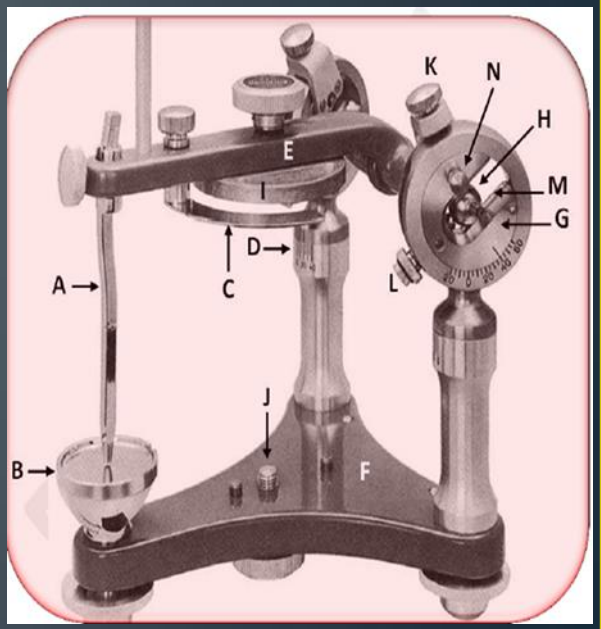


Records required:

1-A maxillary face bow record to mount the upper cast.

2-centric occluding relation record (vertical dimension and centric relation) to mount the lower cast.

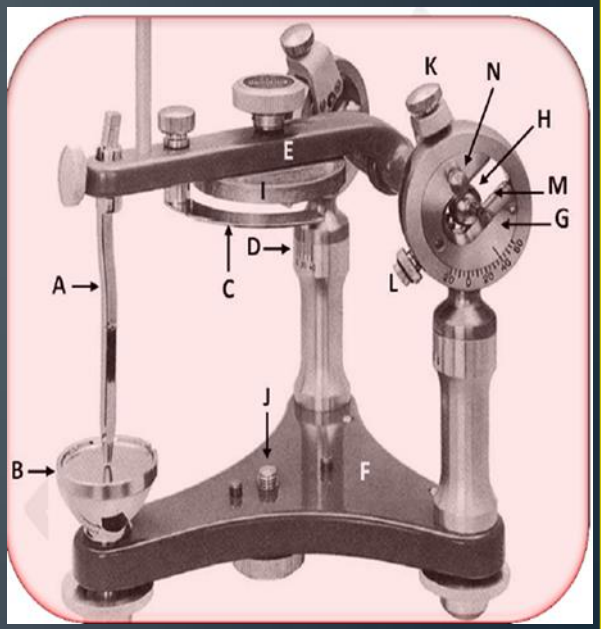
3-protrusive record to adjust the horizontal condylar path inclination of the articulator.



Disadvantages:

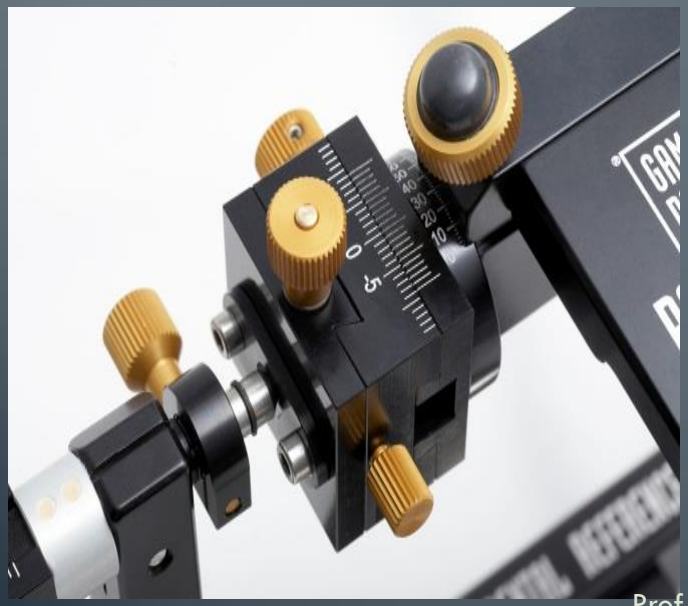
1-the lateral condylar path angle is determined from the formula.

2-most of these articulators have no Bennett movement.



B. Fully adjustable articulators (Class IV)

- **Possible movements:**
- Opening and closing.
- Protrusive movement according to the horizontal condylar path angle determined from the patient.
- Lateral movement according to the lateral condylar path inclination determined from the patient.
- Bennett movement.



Records required:

1-A maxillary face bow record to mount the upper cast

2-Centric occluding relation record to mount the lower cast.

3-Protrusive record to adjust the horizontal condylar path inclination.

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

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

Disadvantages:

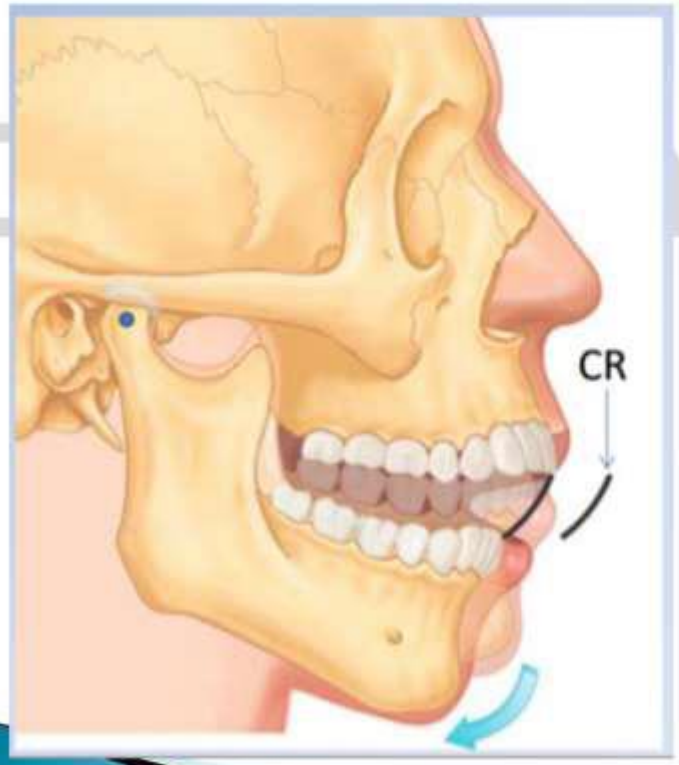
Multiple records are required with the possibility of errors.

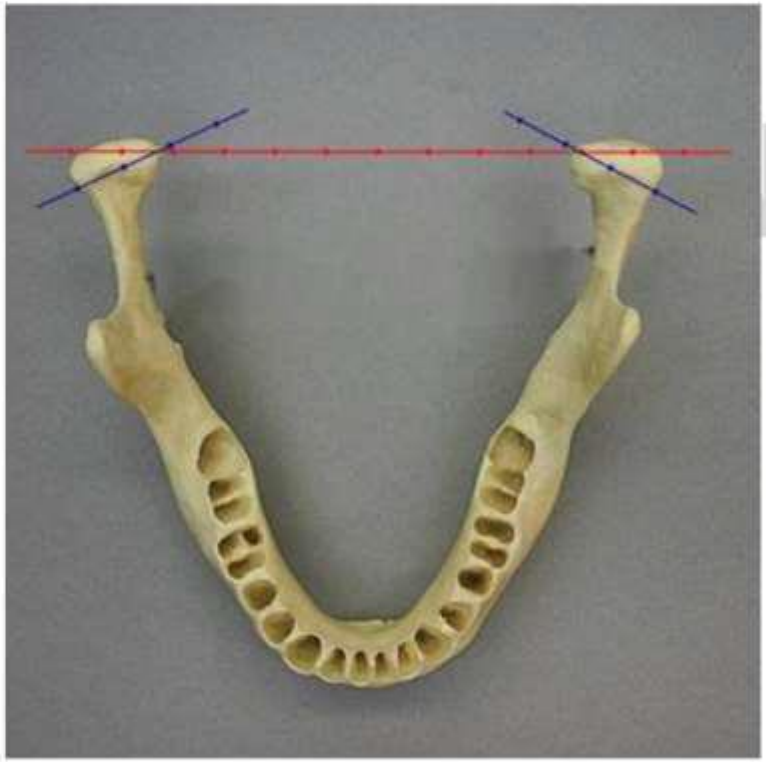
Take a rest for 10 min. ….. only

Terminal Hinge axis

Transverse horizontal axis

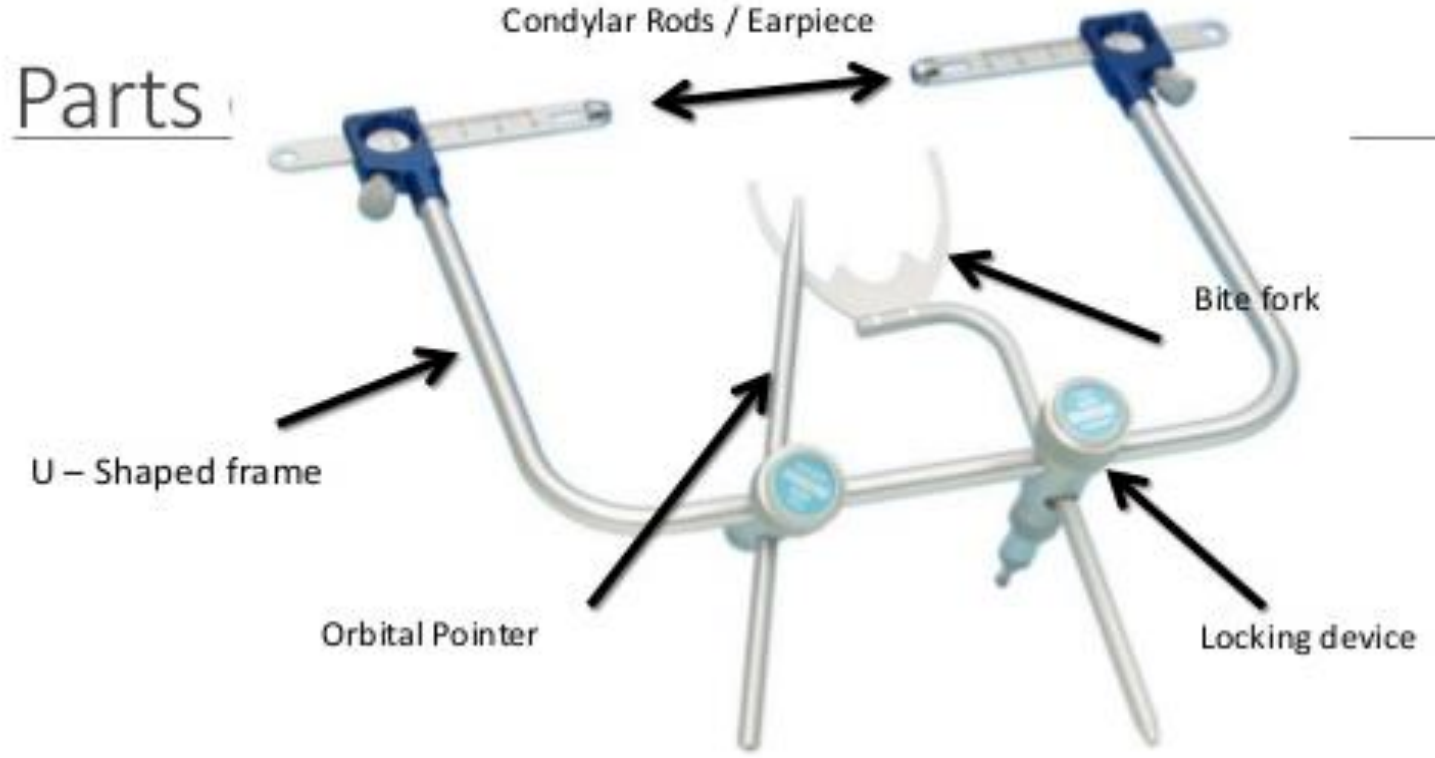
An imaginary line around which the mandible may rotate within the sagittal plane





Face-bow:

It is a caliper-like device used to record the relationship of the maxillary arch to the temporomandibular joints or the opening axis of the jaws, and then transfer this relationship to the opening axis of the articulator.



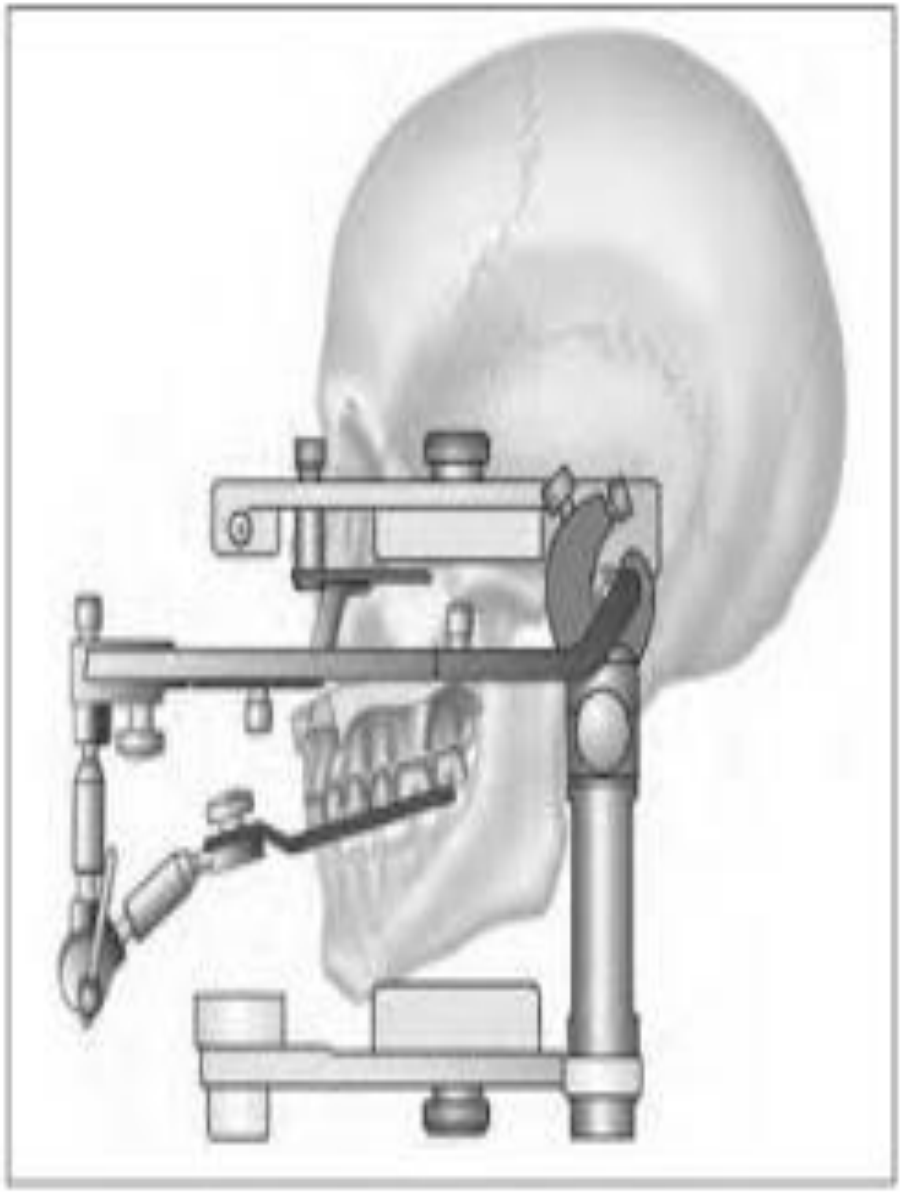
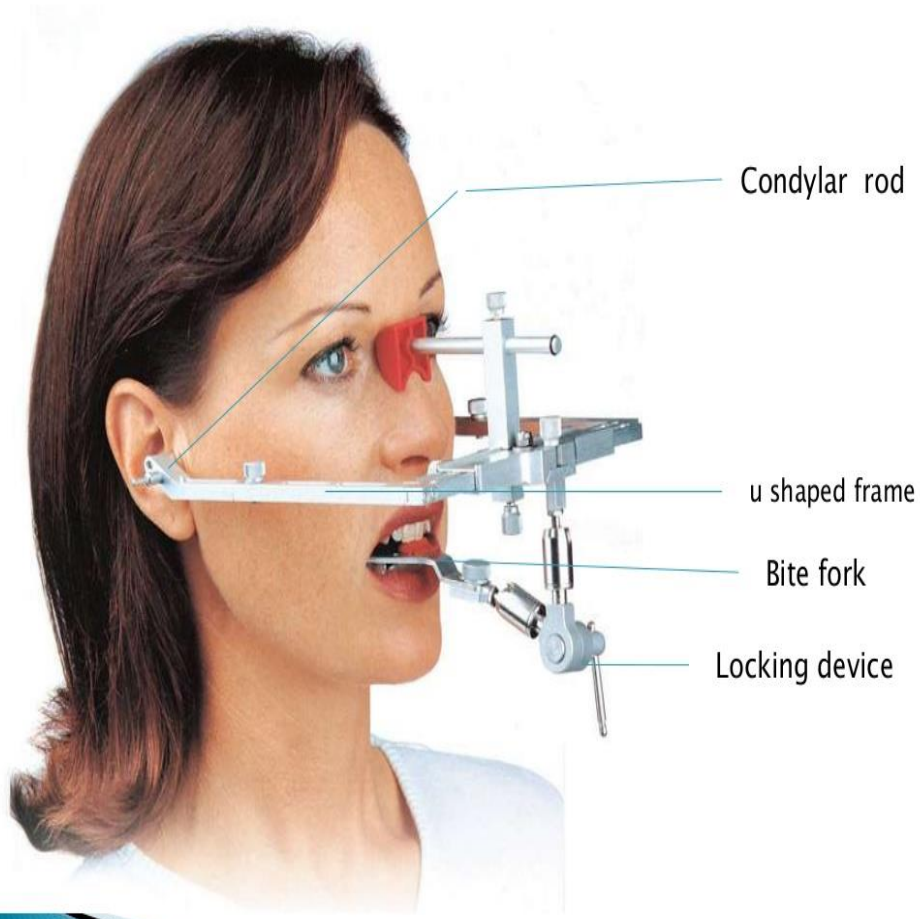
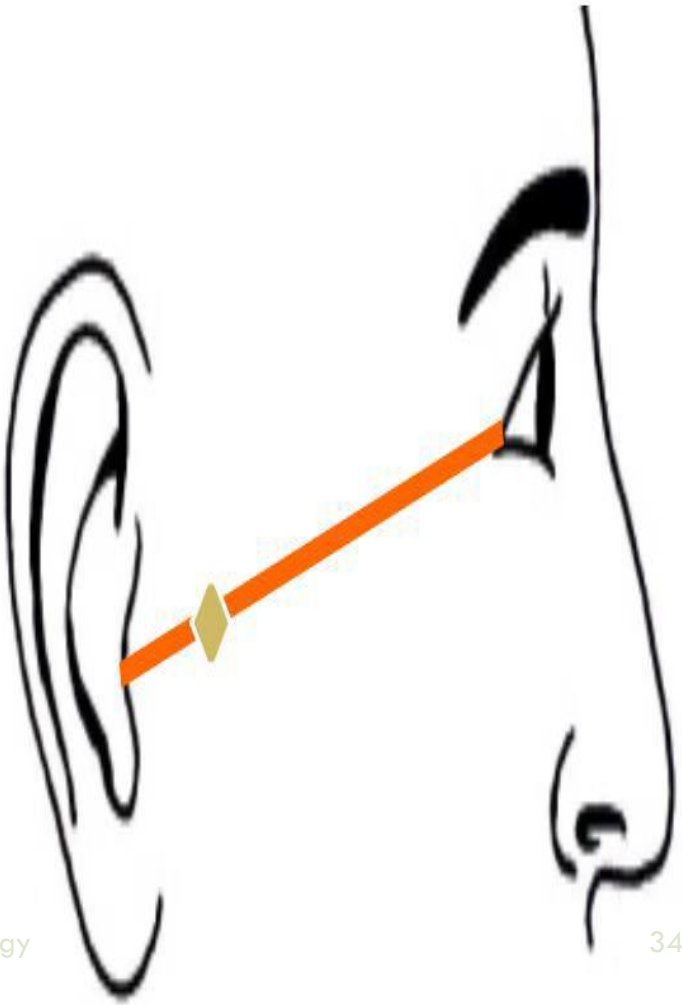


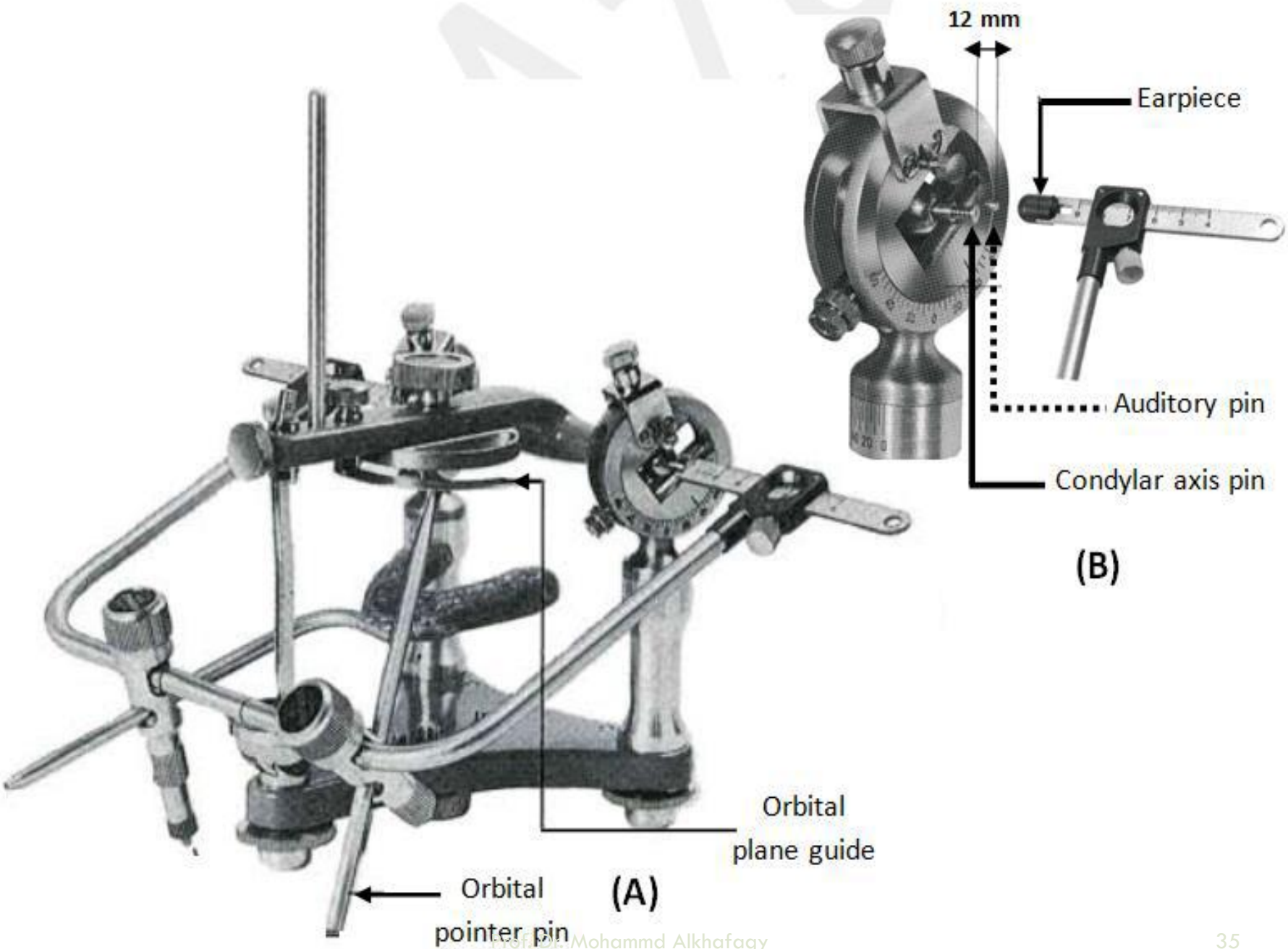
Fig 8-37 To align the models, the facebow is set to the joint axis in the articulator and aligned with the third fixed point (orbitale). This establishes the precise position of the occlusal field relative to the joints. The maxillary model is placed into the bite fork and plastered in place on the maxillary model holder of the articulator. The second stage is to mount the mandibular model in the device.

Types of face-bow:

1-Arbitrary face-bow:

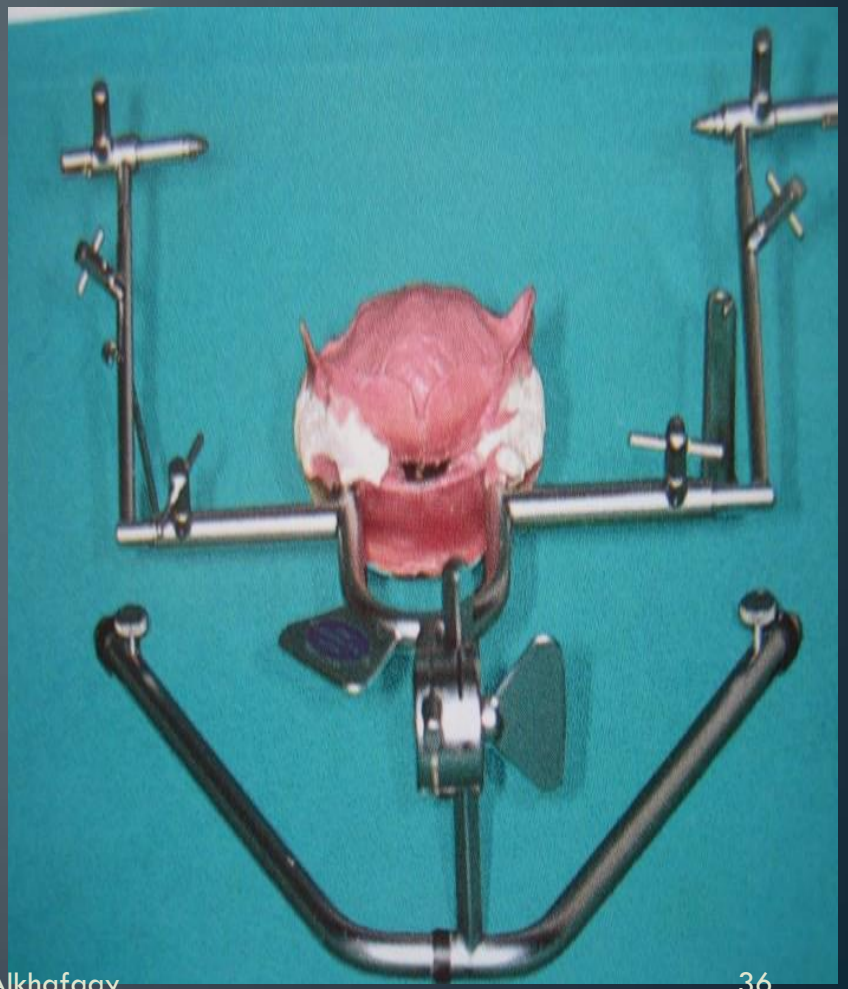





12 mm
Earpiece
Auditory pin
Condylar axis pin
(B)
Orbital
plane guide
Orbital
pointer pin
(A)

2-Kinematic face-bow:

A face-bow attached to the mandible with caliper ends (condyle rods) that can be adjusted to permit the accurate location of the true axis of rotation of the mandible.



Importance of the face-bow:

1. The mounting of maxillary cast without face-bow transfer can produce errors in the occlusion of the finished denture.
2. A face-bow transfer allows minor changes in the occlusal vertical dimension on the articulator without having to make new maxillomandibular records.
3. It is helpful in supporting maxillary cast while it is being mounted on the articulator.


Dentist in China
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MOUNTING

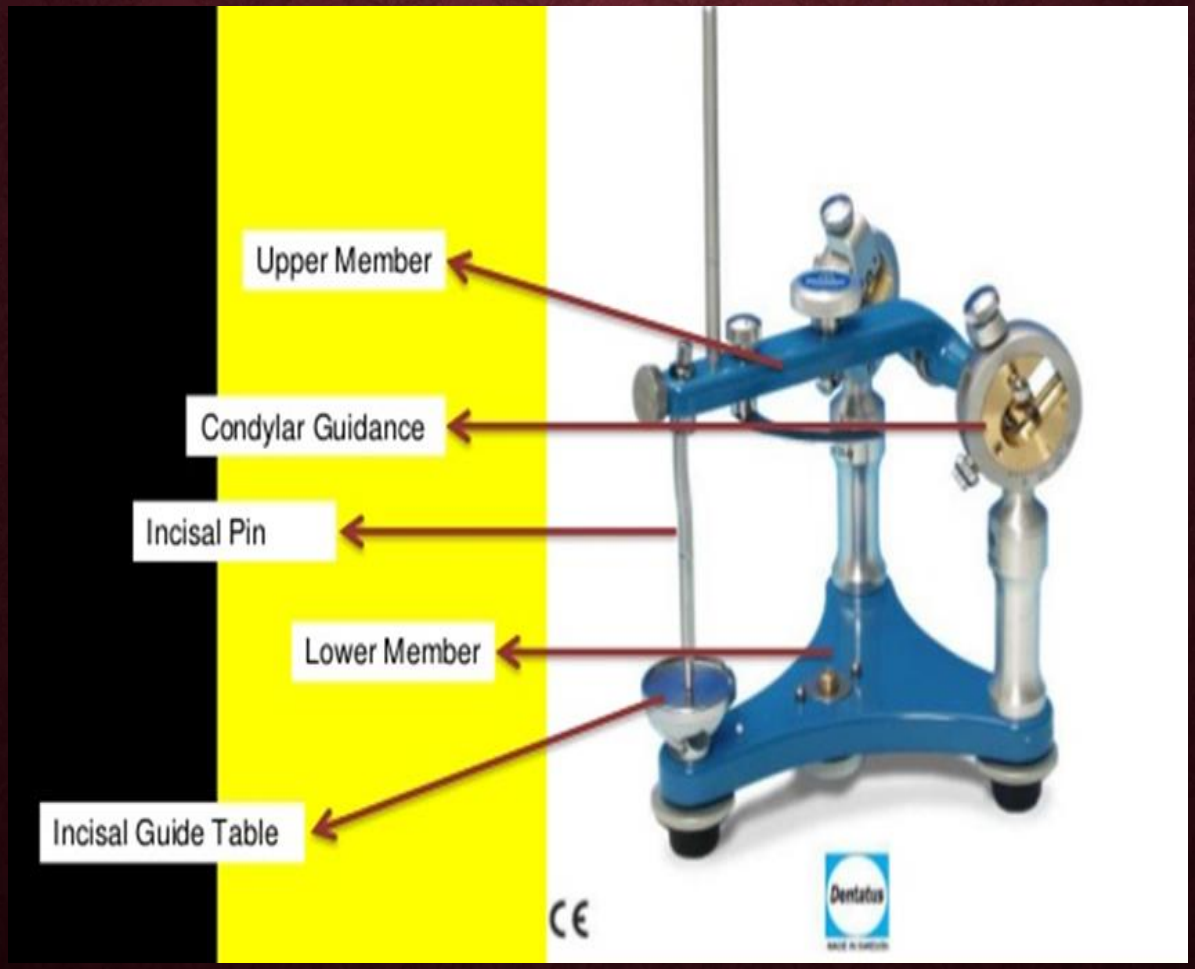
Mounting:

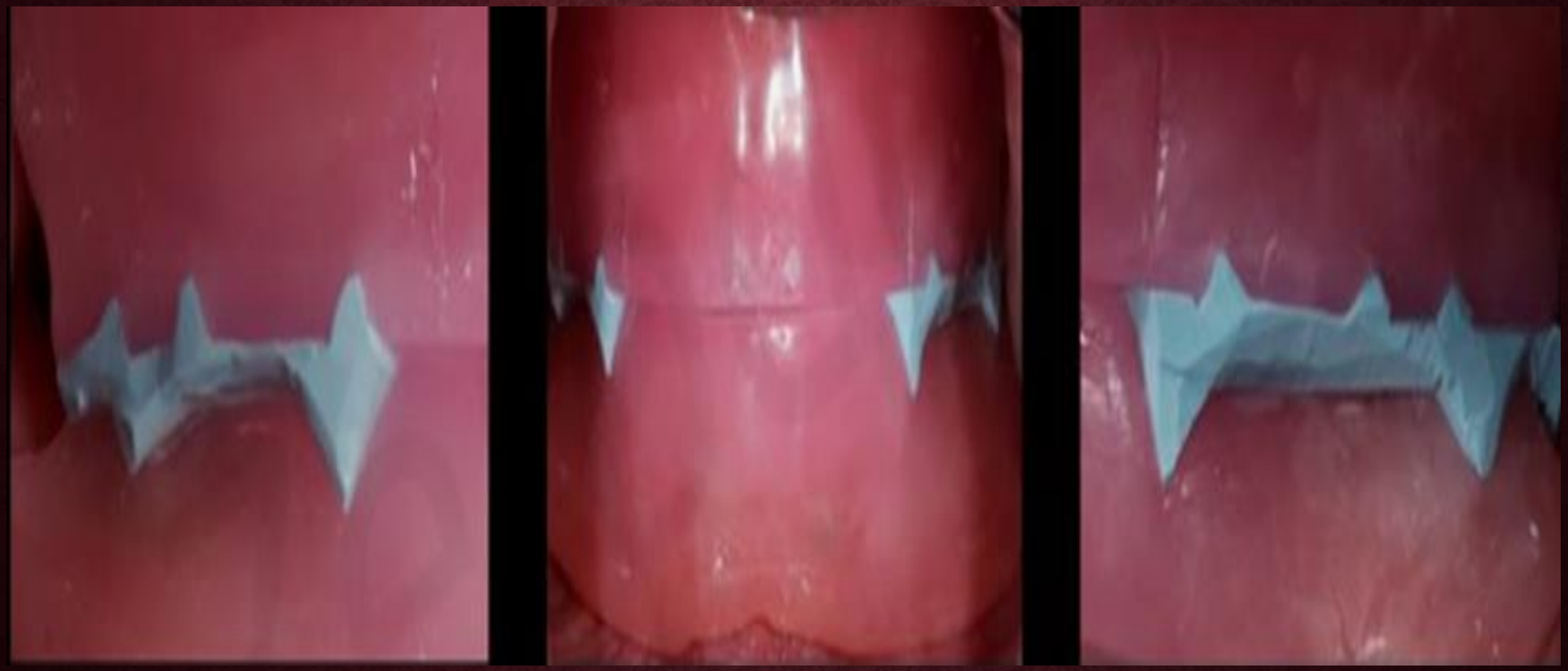
The laboratory procedure of attaching a cast to an articulator

Preparation of articulator:

1- In mean value type with fixed condylar path and incisal incline (class II) articulator:

2- For Dentatus or Hanau articulator (semi adjustable or class III articulator)





Errors occurred during mounting:

1- The record base is not properly secured to the cast.

2- Interference of the cast posteriorly.

3- The incisal pin is not properly screwed.

4- The incisal pin is not touching the incisal table.

5- Movement of the cast during the mounting.

6- Upper and lower occlusal rims are not properly fixed for orientation.

7- Dimensional changes in the plaster.

8- Face bow record defected.

9- Wrong transference of the midline of the articulator with that of the casts (shifting in the midline).

Thank you