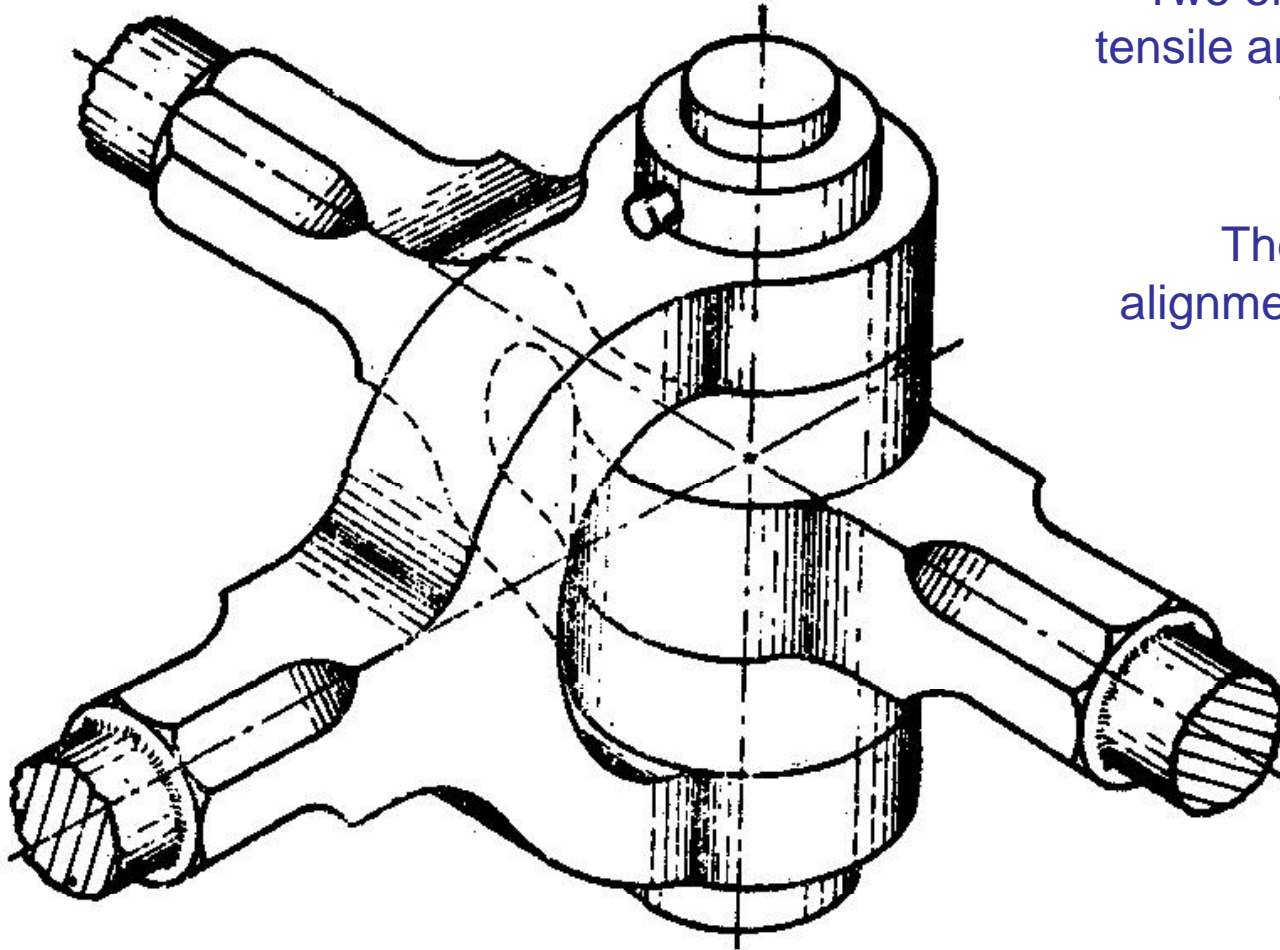


# Knuckle joint



Two or more rods subjected to tensile and compressive forces are fastened together

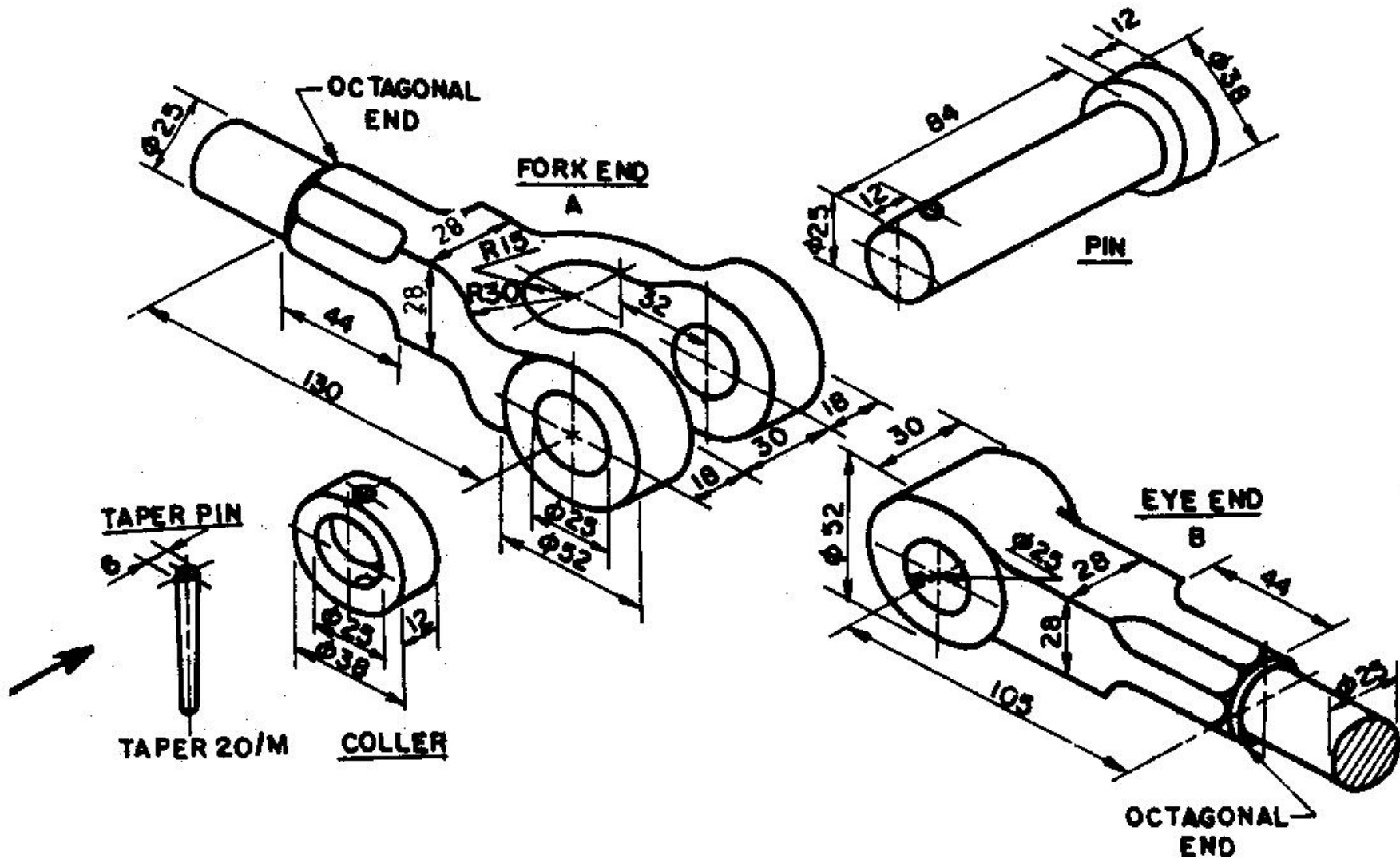
Their axes are not in alignments but meet in a point

The joint allows a small angular moment of one rod relative to another

It can be easily connected and disconnected

Applications: Elevator chains, valve rods, etc

# Knuckle joint

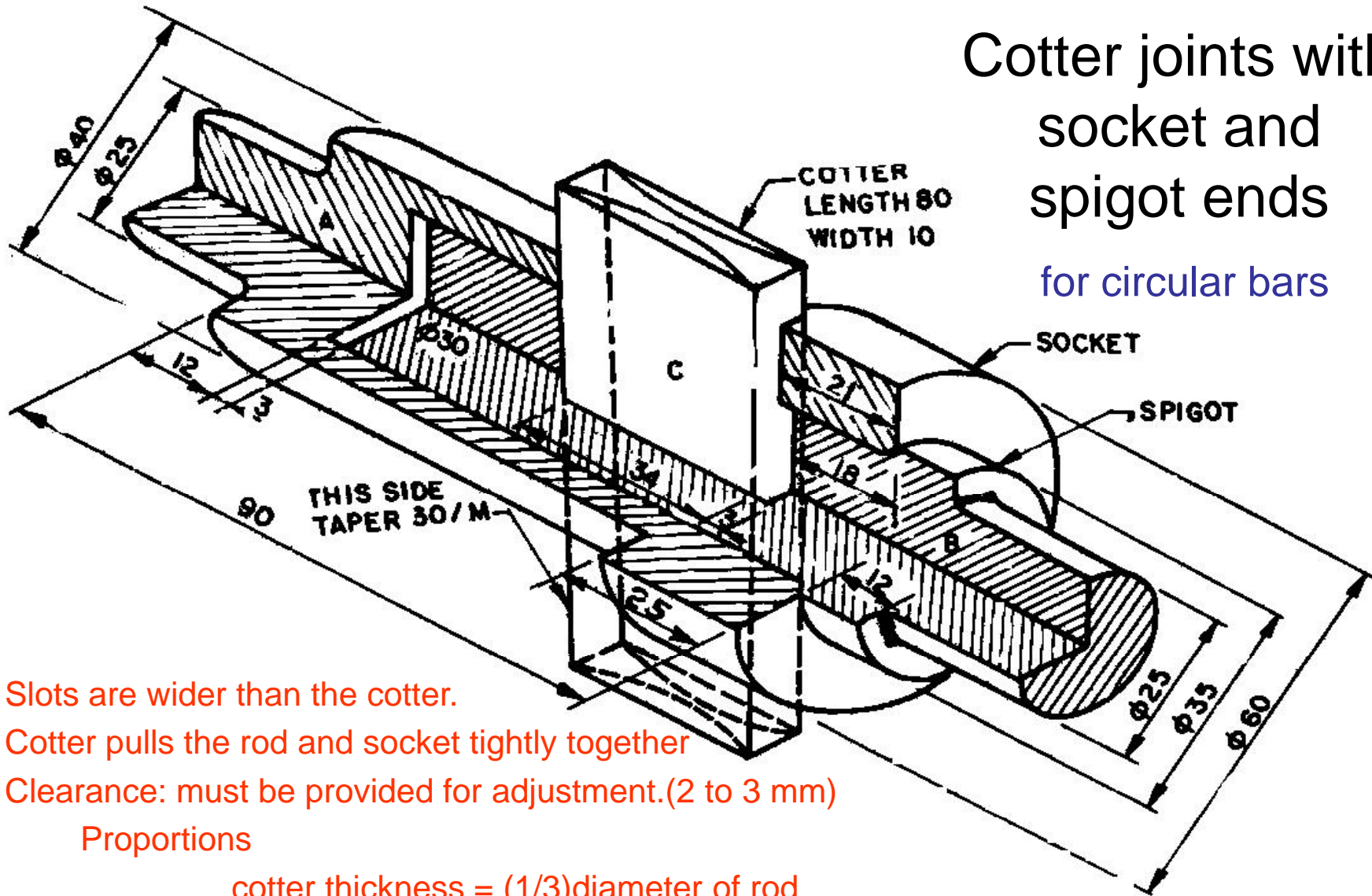




# Cotter joints

- A cotter joint is a flat wedge link piece of steel of rectangular cross section which is inserted through the rods at high angle to their axes. It is uniform in thickness but tapering in width, generally on one side only. Usually the taper is 1 in 30. When a special arrangement like a set-screw is provided for keeping the cotter from slackening, its taper may be as large as 1 in 7. The ends of the cotter are made narrow to facilitate the hammering for fixing and removing.
- Cotter joints are generally used to fasten rigidly two rods which are subjected to tensile or compressive stress along their axes. This joint is used to connect two circular rods.
- This joint is not suitable where the members are subjected to rotation.
- Thus they differ from key joints which are used to fasten shafts and hubs subjected to torsional stress:

# Cotter joint



Cotter joints with socket and spigot ends for circular bars

Slots are wider than the cotter.  
Cotter pulls the rod and socket tightly together  
Clearance: must be provided for adjustment.(2 to 3 mm)

Proportions

cotter thickness =  $(1/3)$ diameter of rod  
cotter width = rod diameter



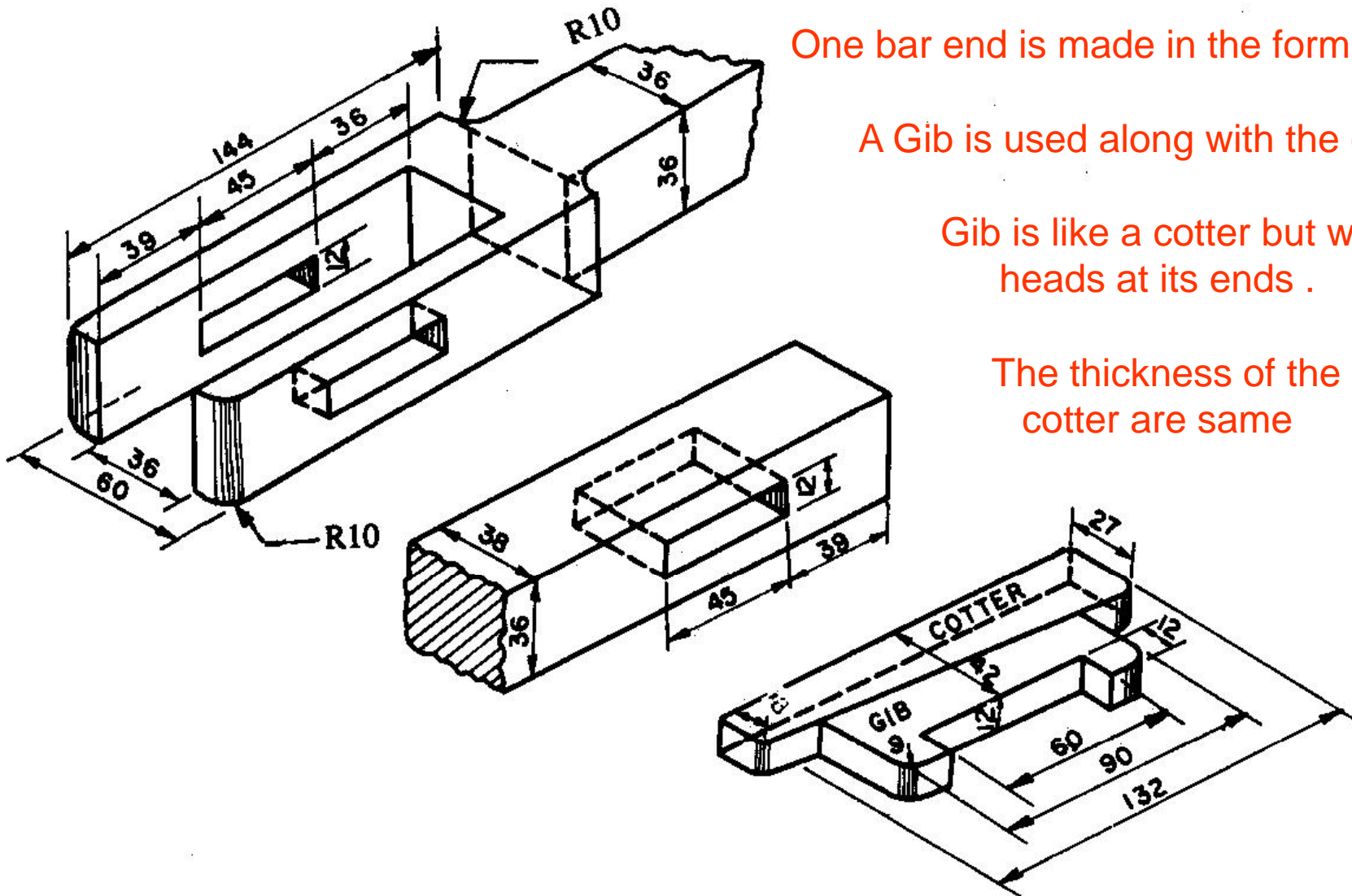


# Cotter joint with a gib

- Gib and cotter joints are used for rods of square or rectangular cross section .the end of one rod fits the end of the other rod which is made in the form of a strap. A gib is used along with the cotter to make this joint. Gib is likely a cotter but with two gib heads at its ends . The thickness of the gib and cotter are same.



# Gib and cotter joint for rectangular rods



One bar end is made in the form of a strap

A Gib is used along with the cotter.

Gib is like a cotter but with two gib heads at its ends .

The thickness of the gib and cotter are same

