ESSENTIALS OF A TRANSIT THEODOLITE

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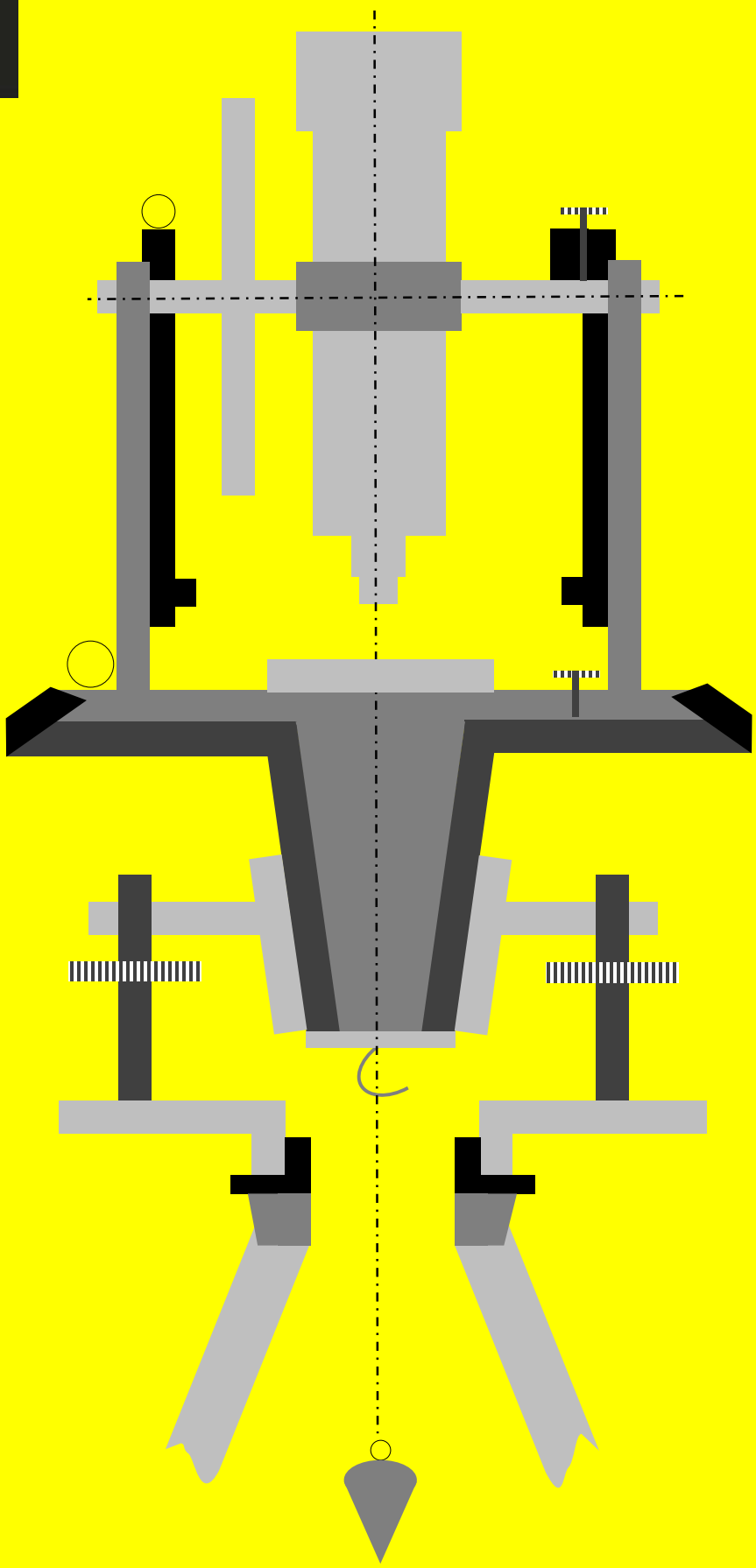
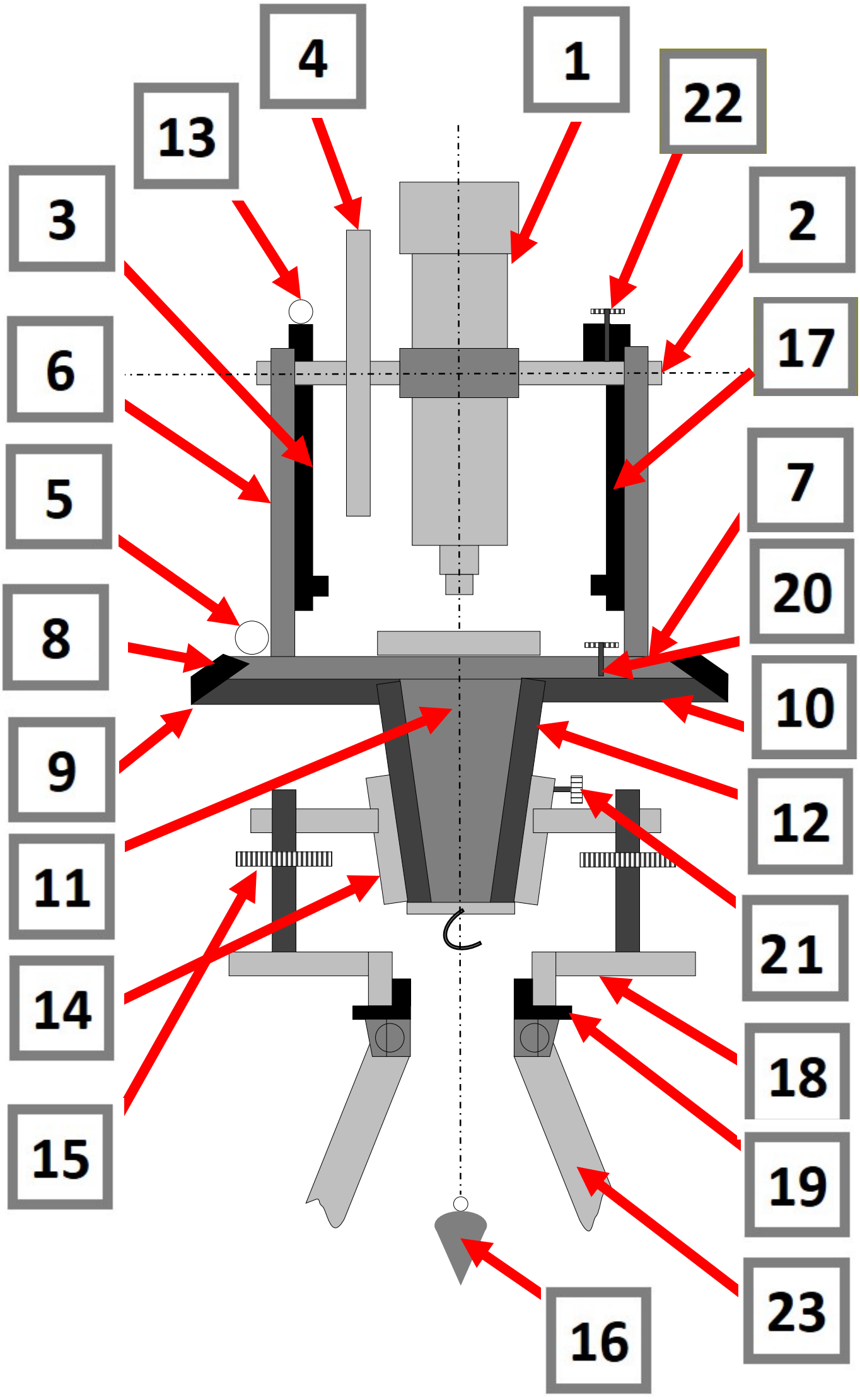
Surveying



Click Here To Explore The Components of Transit Theodolite

Click on the number tag pointing the component of theodolite to know more about it. You can come back to this page by clicking "Go To Main Diagram" button given on every page.

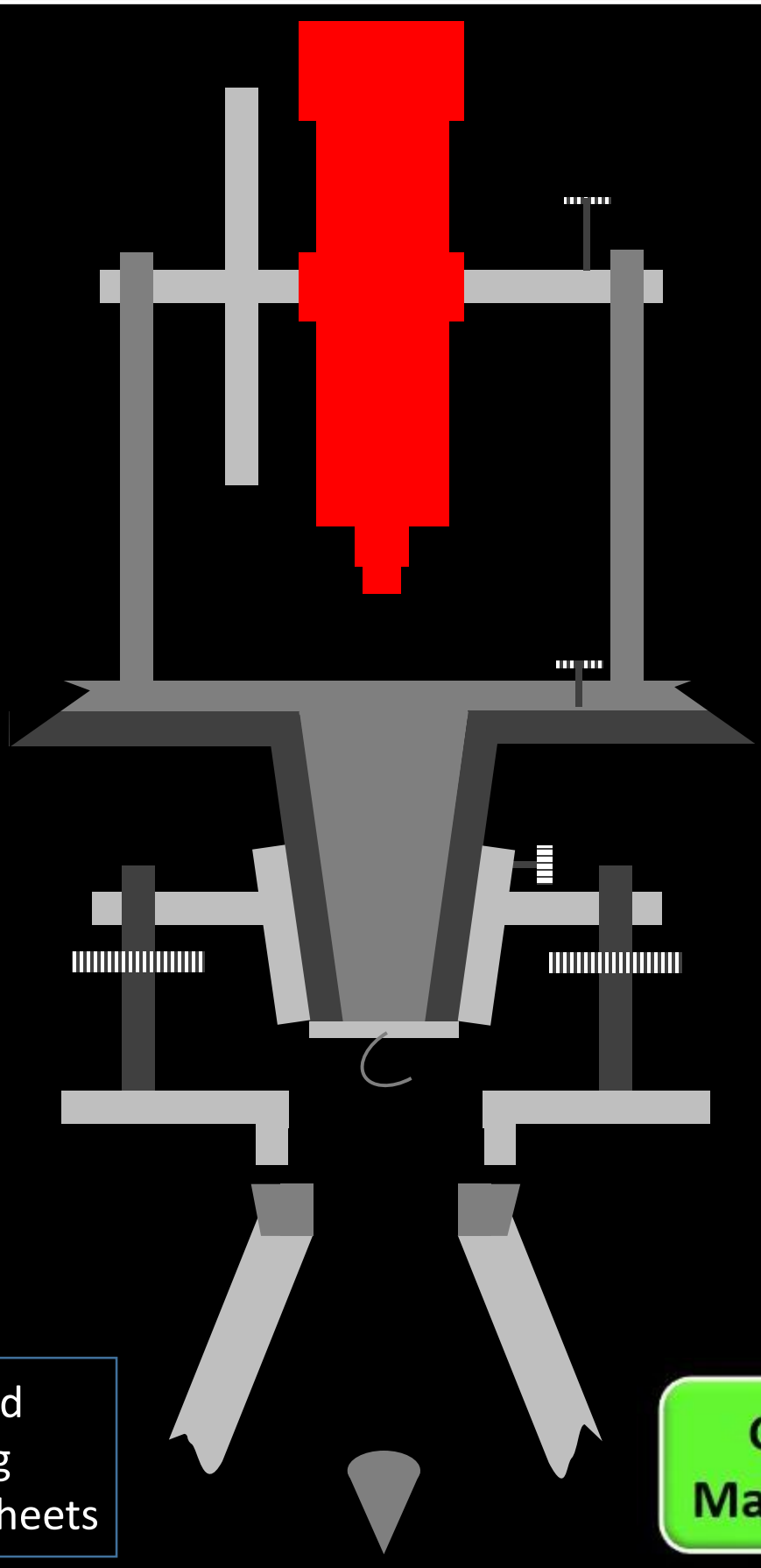


Telescope:

Makes up the main component of theodolite

It is mounted on spindle called horizontal axis or trunnion axis

Telescope may be internally or externally focussing



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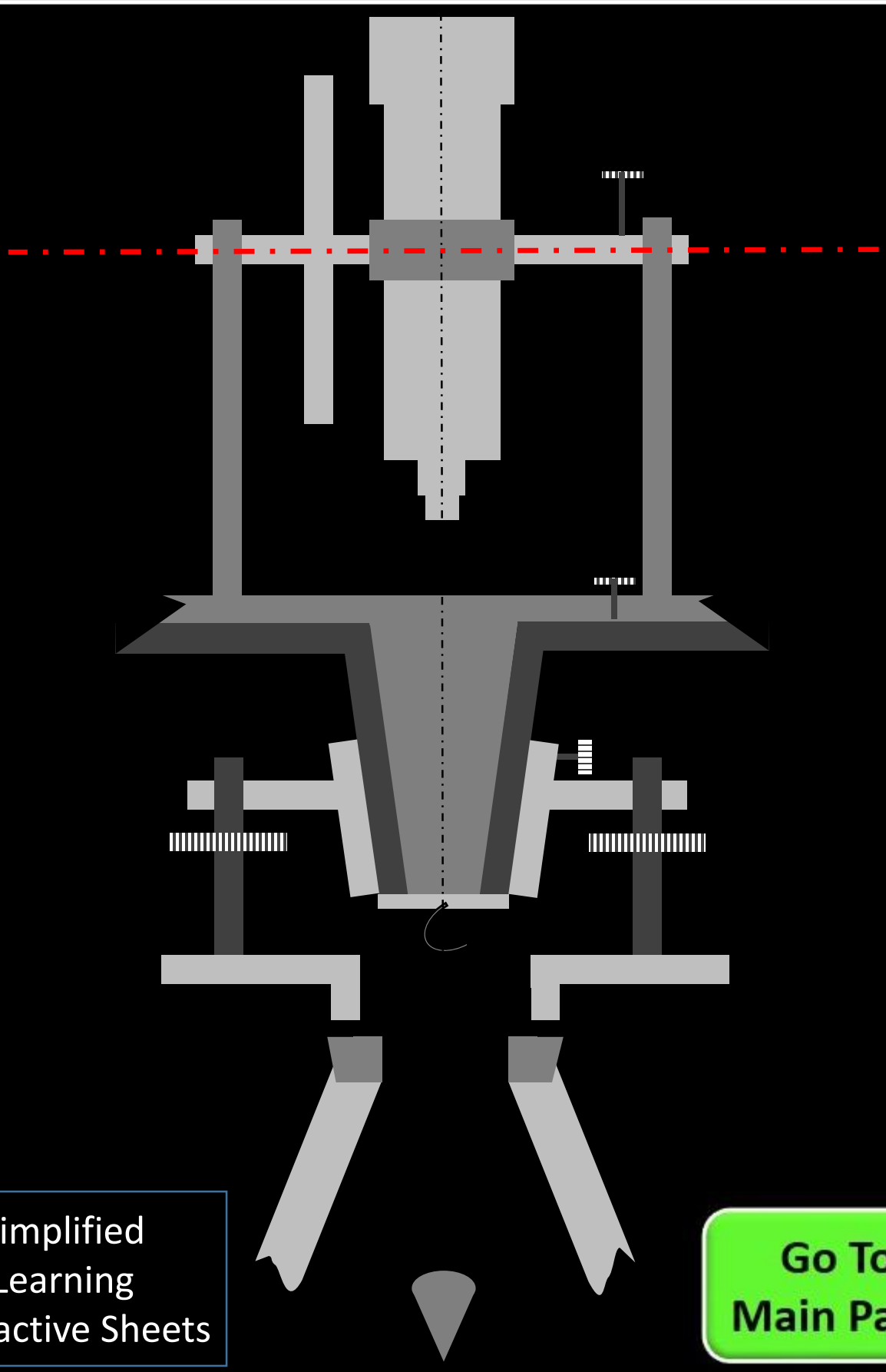
Trunnion Axis:

Also known as horizontal axis

Telescope is rotated horizontally w.r.t. this axis



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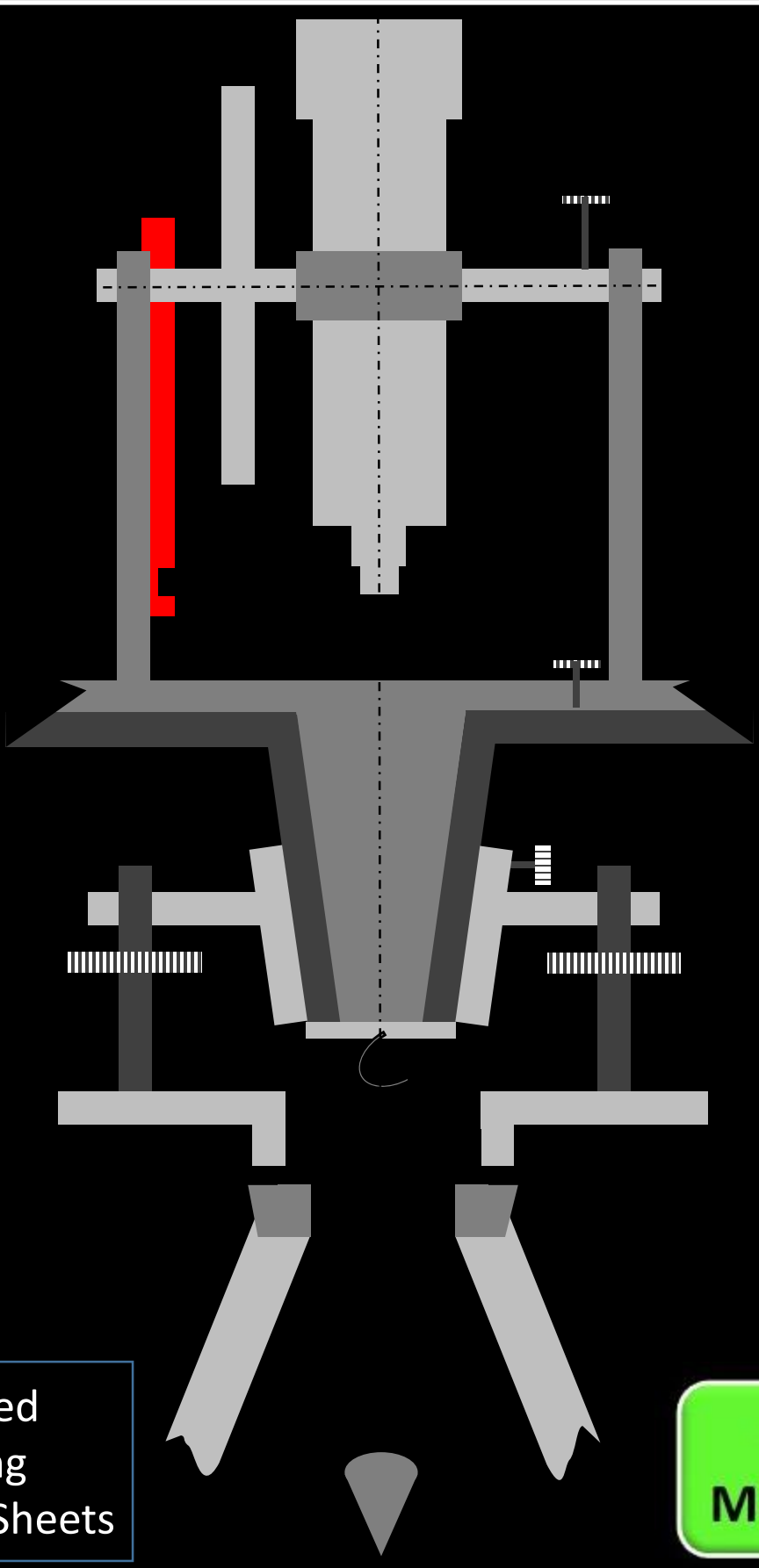
Vernier Frame:

A.k.a. Index Frame or T Frame

Consist of clipping arm and Vernier (Index) arm

Verniers are fitted on 2 extremities of index arm to read the vertical circle



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Vertical Circle:

A circular graduated arc attached to trunnion axis of telescope

Telescope can be positioned accurately in vertical plane with this vertical circle

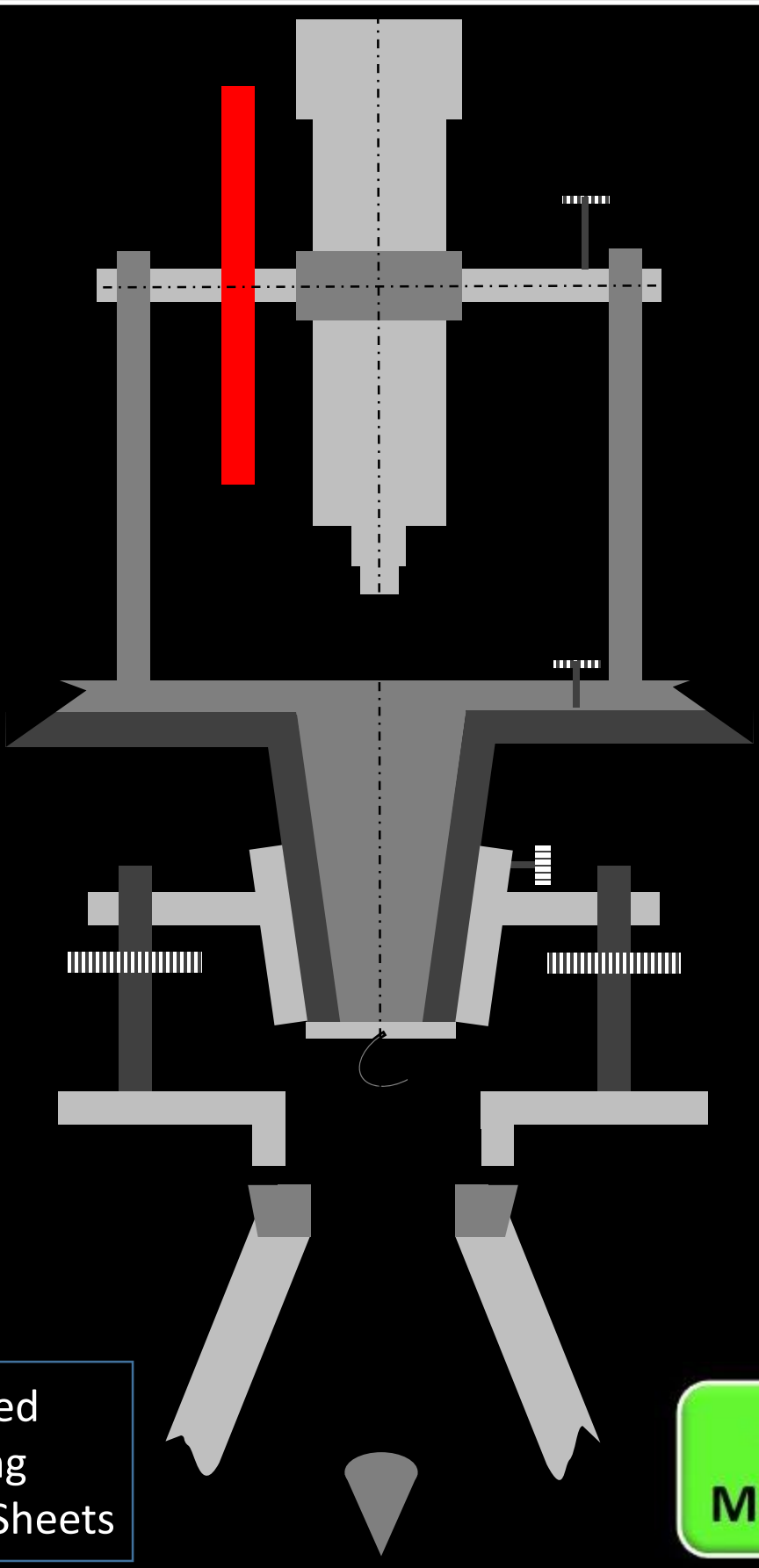

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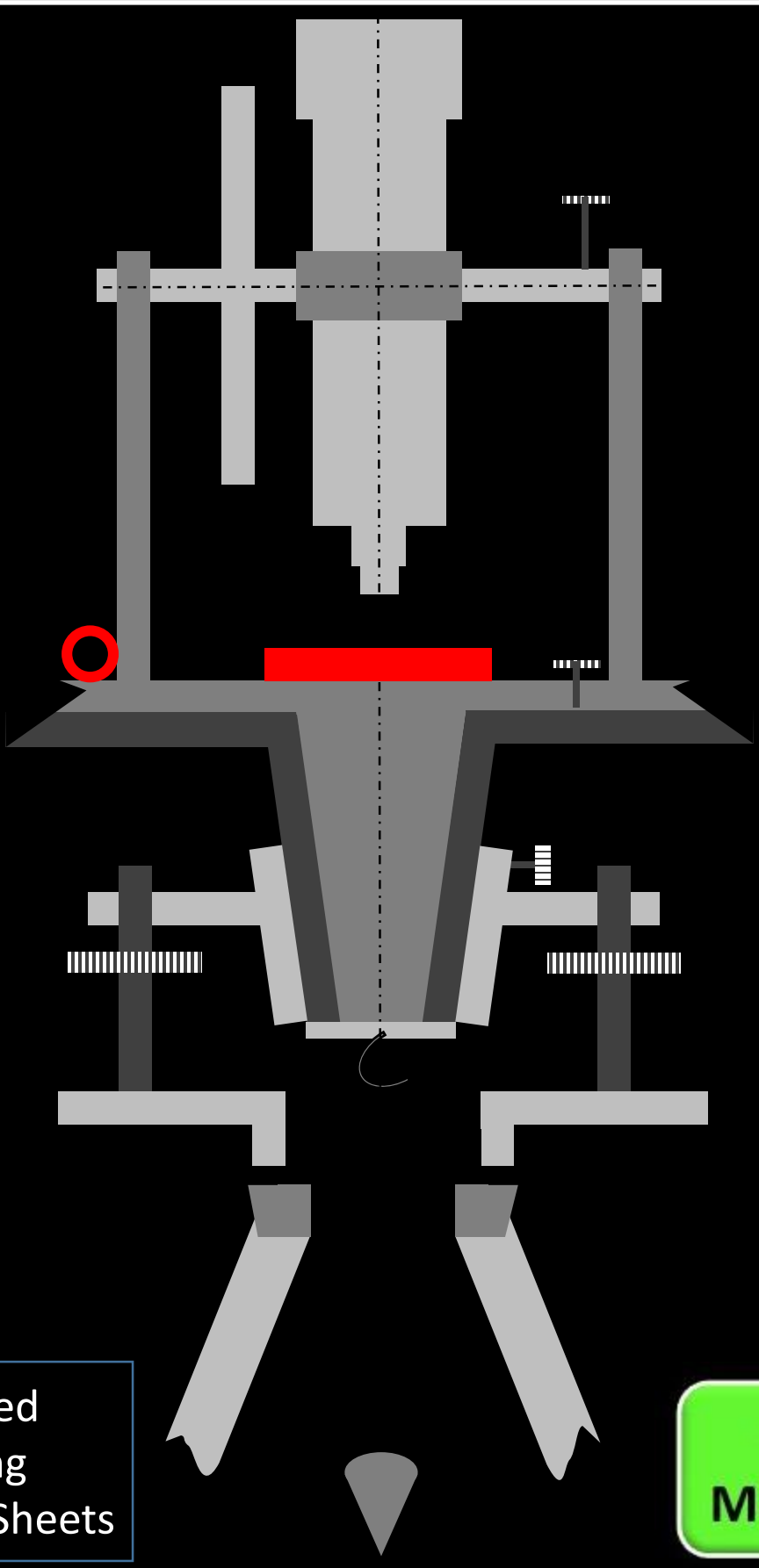
Plate Levels:

Fitted on upper plate

2 plate levels are provided right angles to each other

Centred by using foot screws



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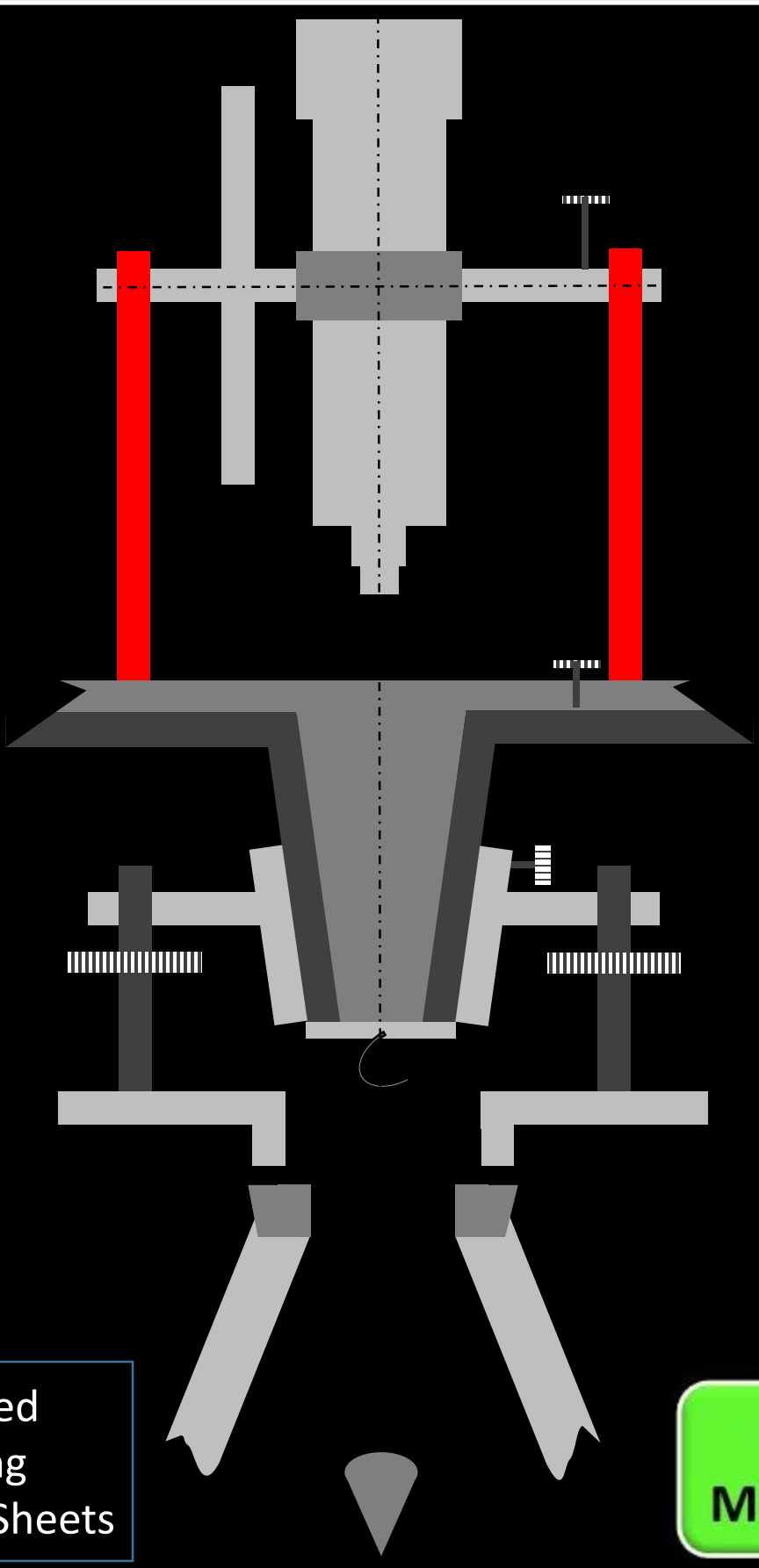
Standards:

A.k.a. A-Frame since it resembles the letter A

Mounted on upper plate

Standards support the trunnion axis of



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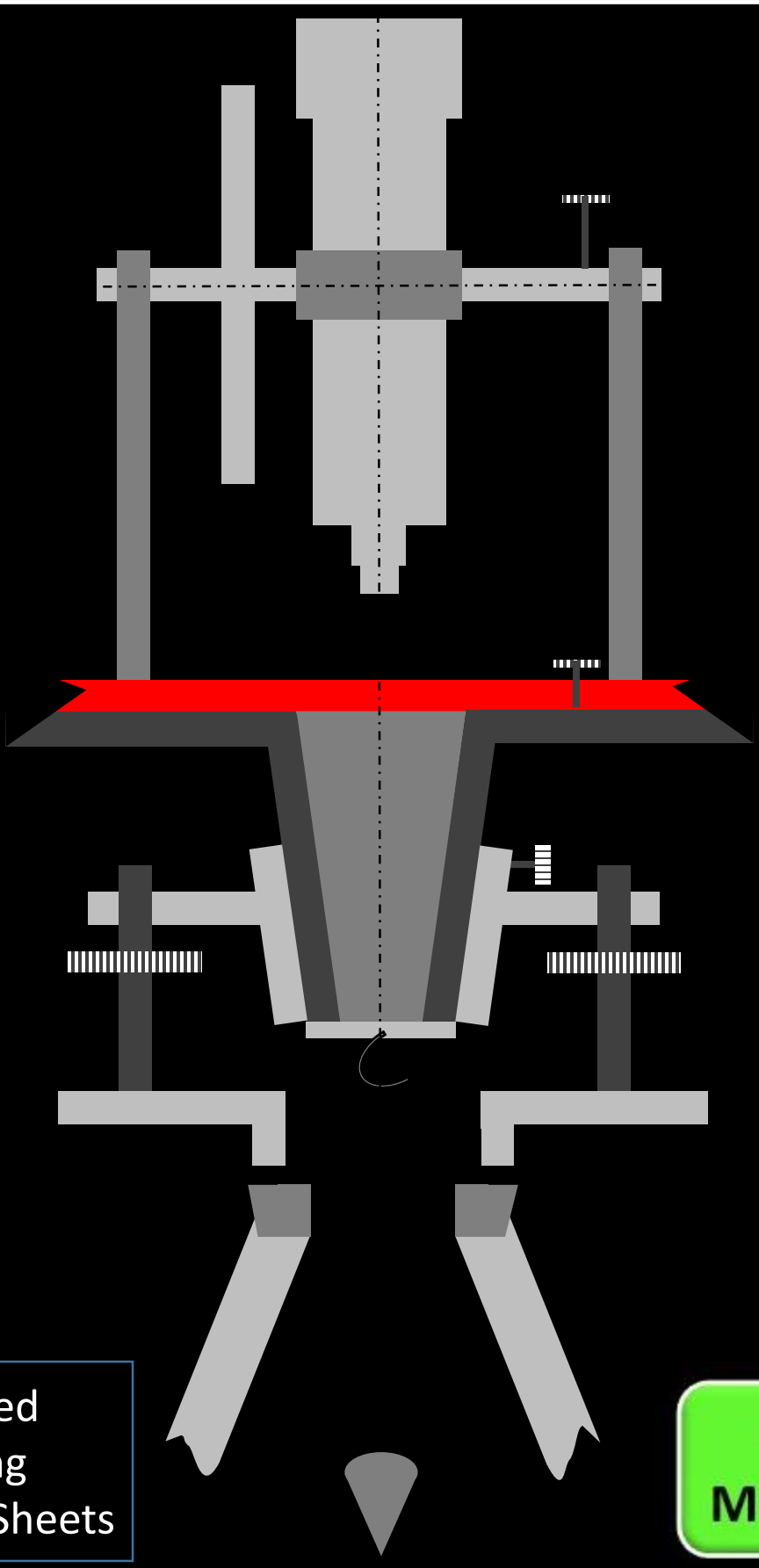
Upper Plate:

A.k.a. Vernier plate

Carries upper clamp screw and tangent screw

Upper plate supports the Standards

Instrument can rotate by clamping and unclamping the screws fitted on this plate



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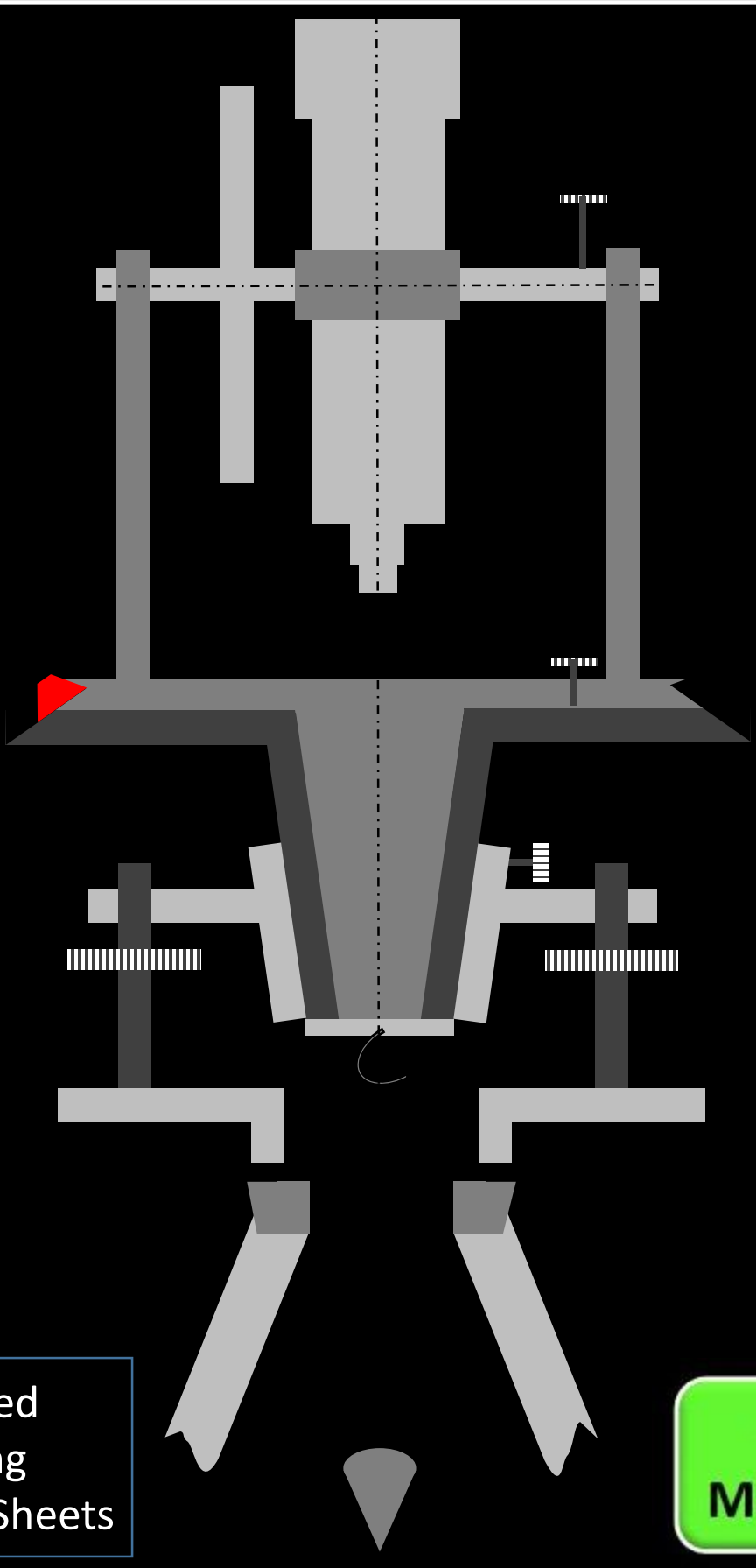
Horizontal Plate Vernier:

Provides Vernier reading



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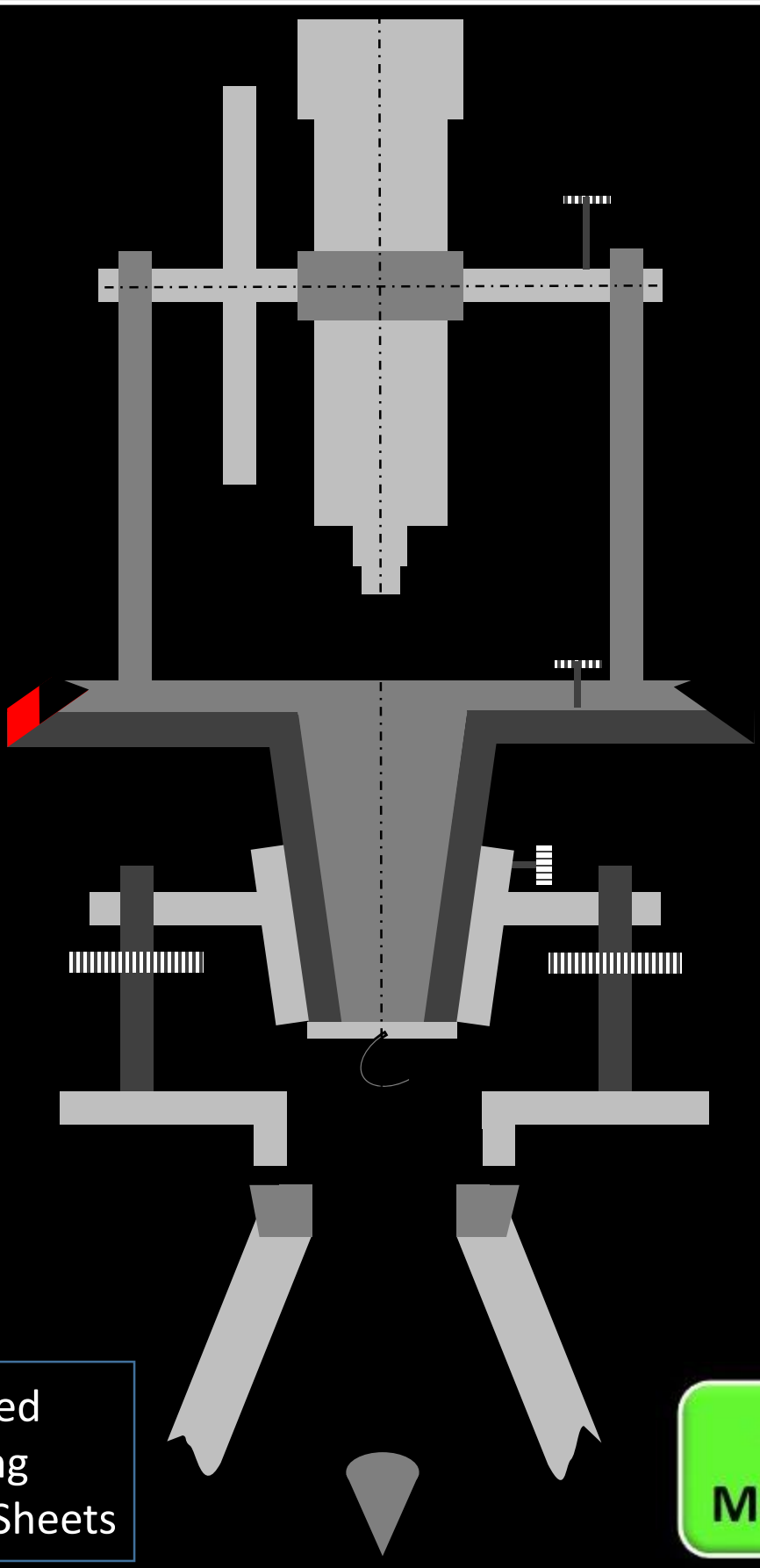
Horizontal Circle:

Rotation of intrument takes place along this component's plane



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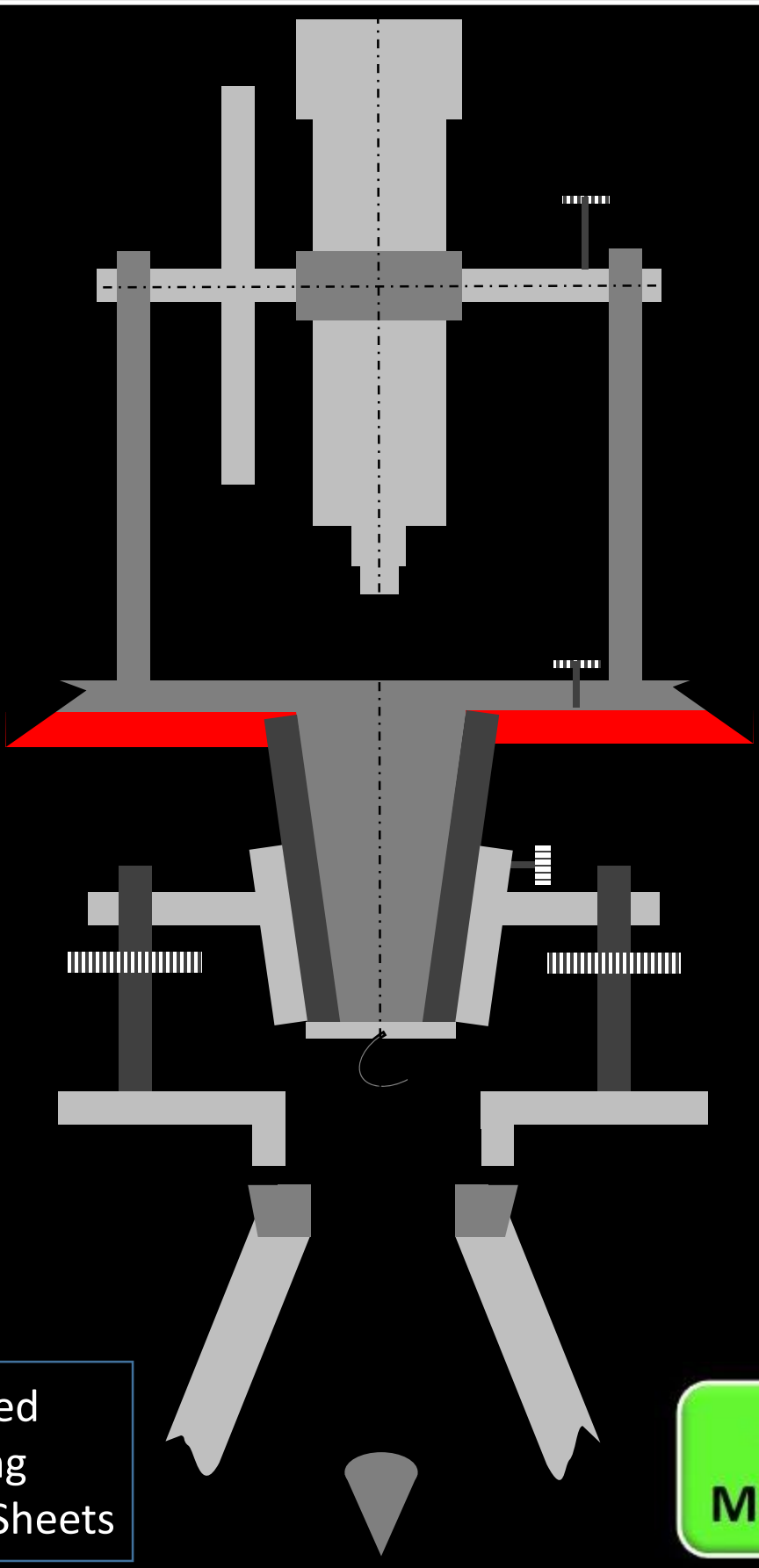
Lower Plate:

A.k.a. scale plate

It can be made to rotate by clamping and unclamping related screws

Theodolite is represented by lower plate's size



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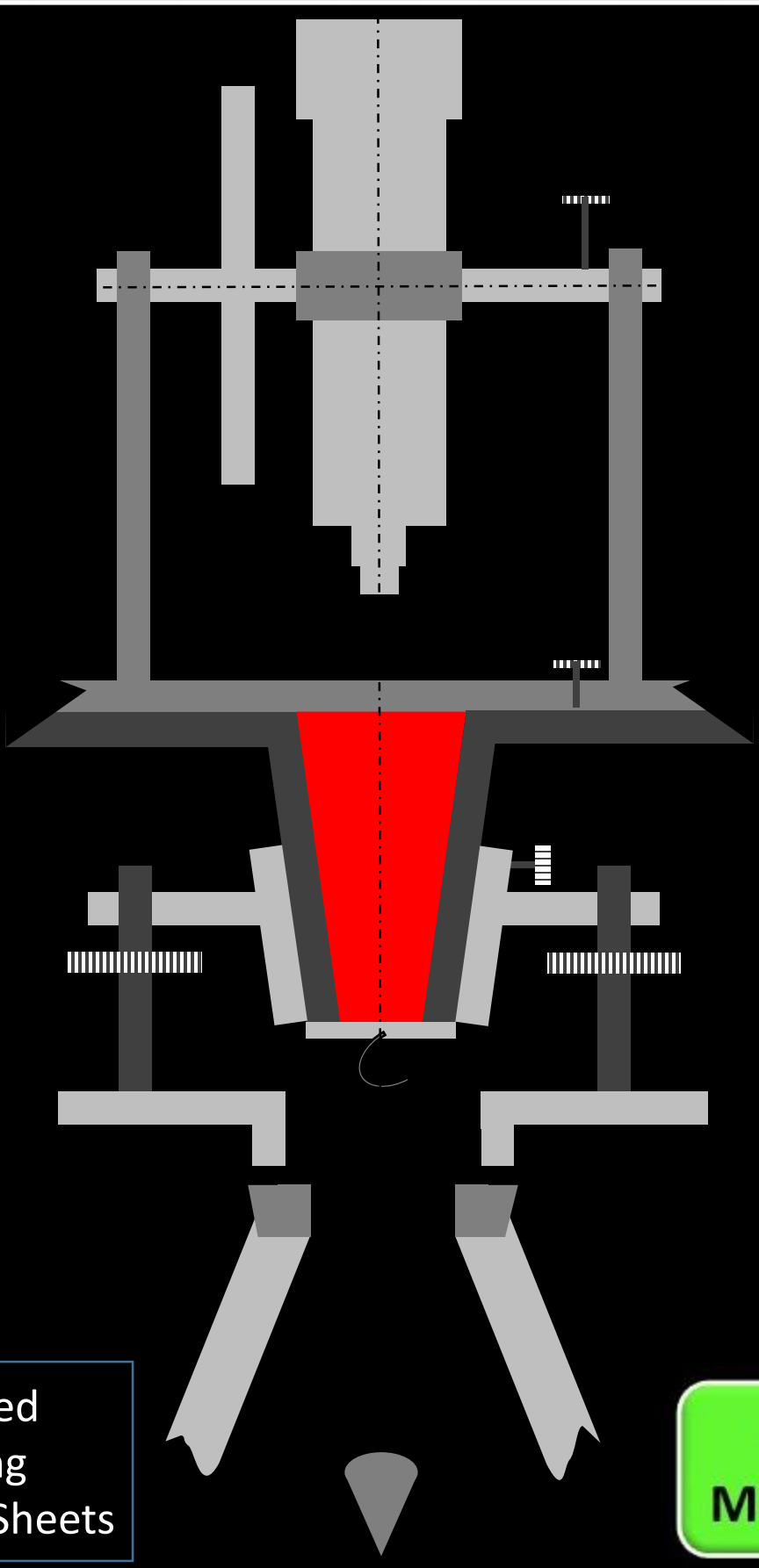
Inner Axis:

A.k.a. Inner spindle/upper axis

Its solid and conical

It carries Vernier (upper) plate



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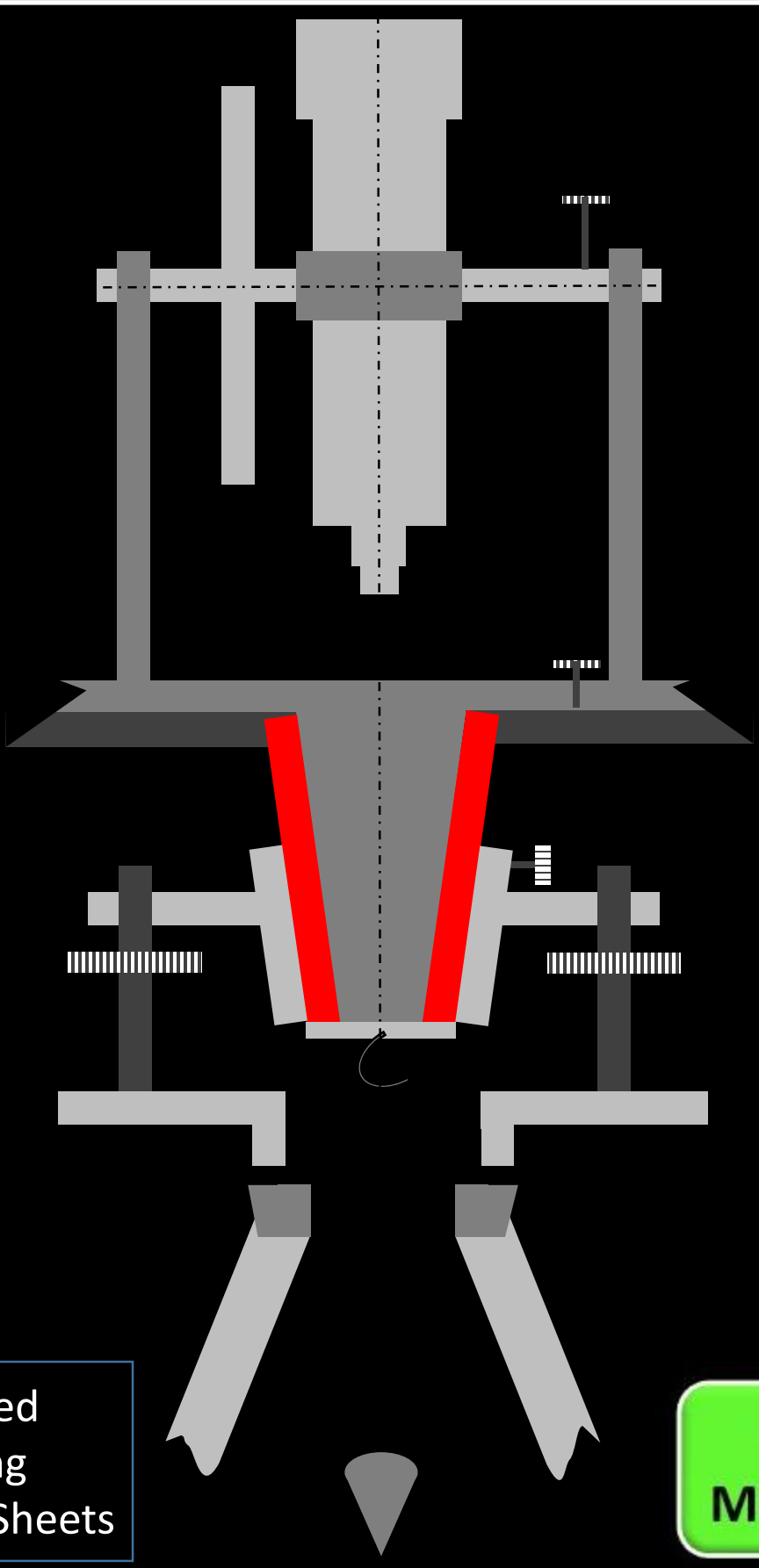
Outer Axis:

A.k.a. lower axis

Carries scale (lower plate)



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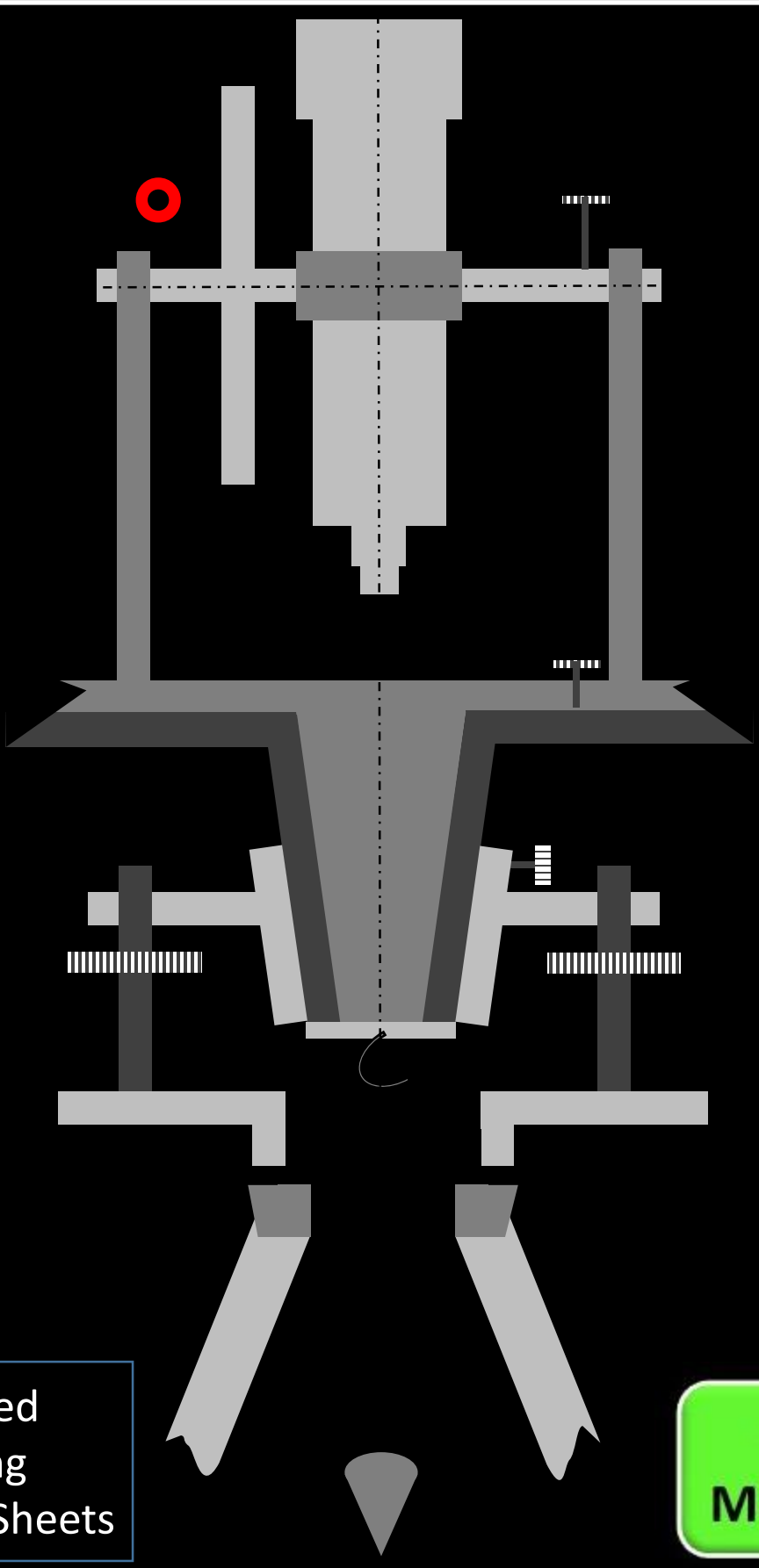
Altitude Level:

It's a long sensitive bubble tube

It's positioned on the top of index frame



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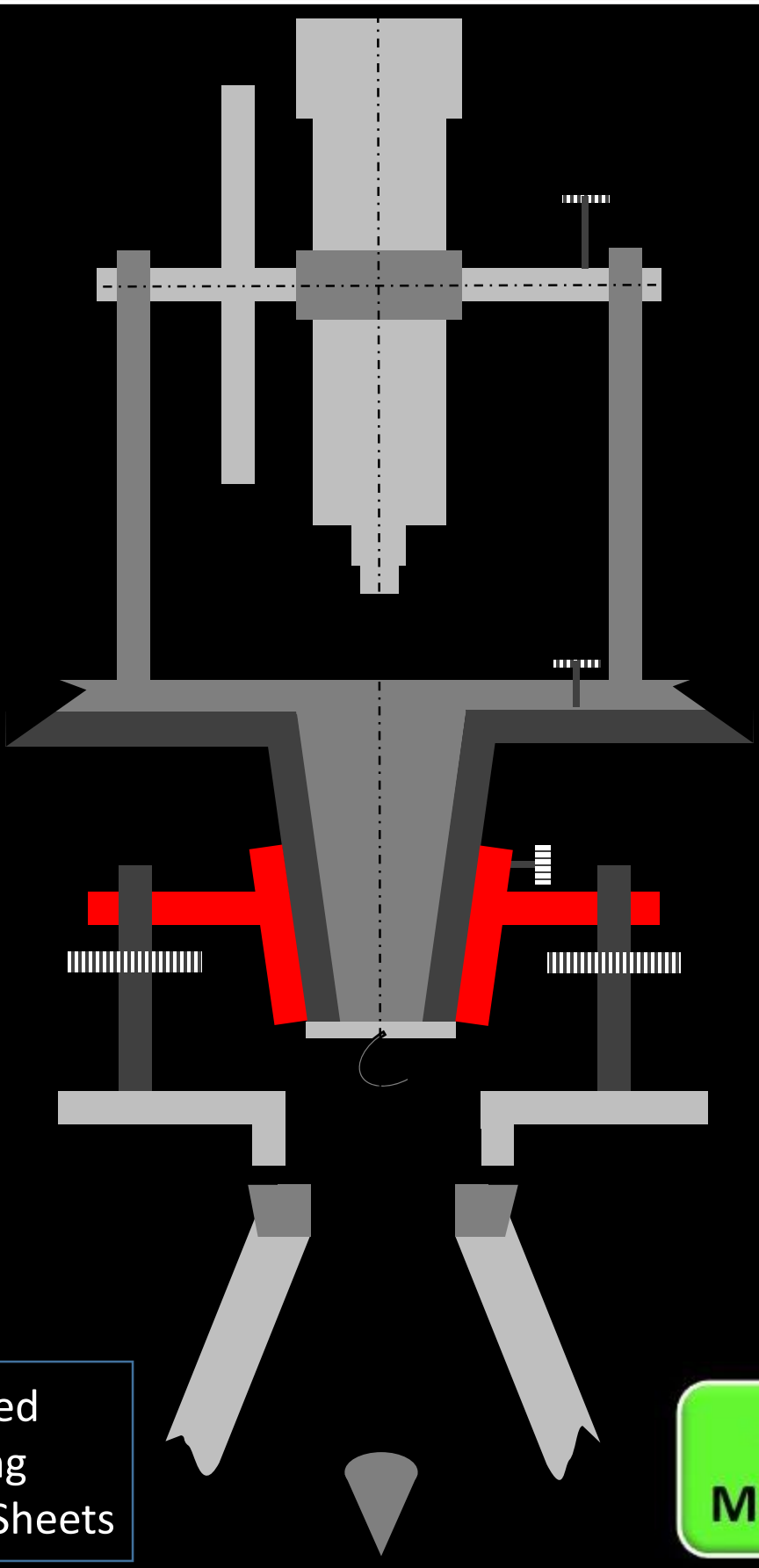
Levelling Head:

Consists of 2 parallel triangular plates called as tribrach plates

Function of levelling head is to support main part of instrument, attach theodolite to tripod and to provide a mean to level the theodolite



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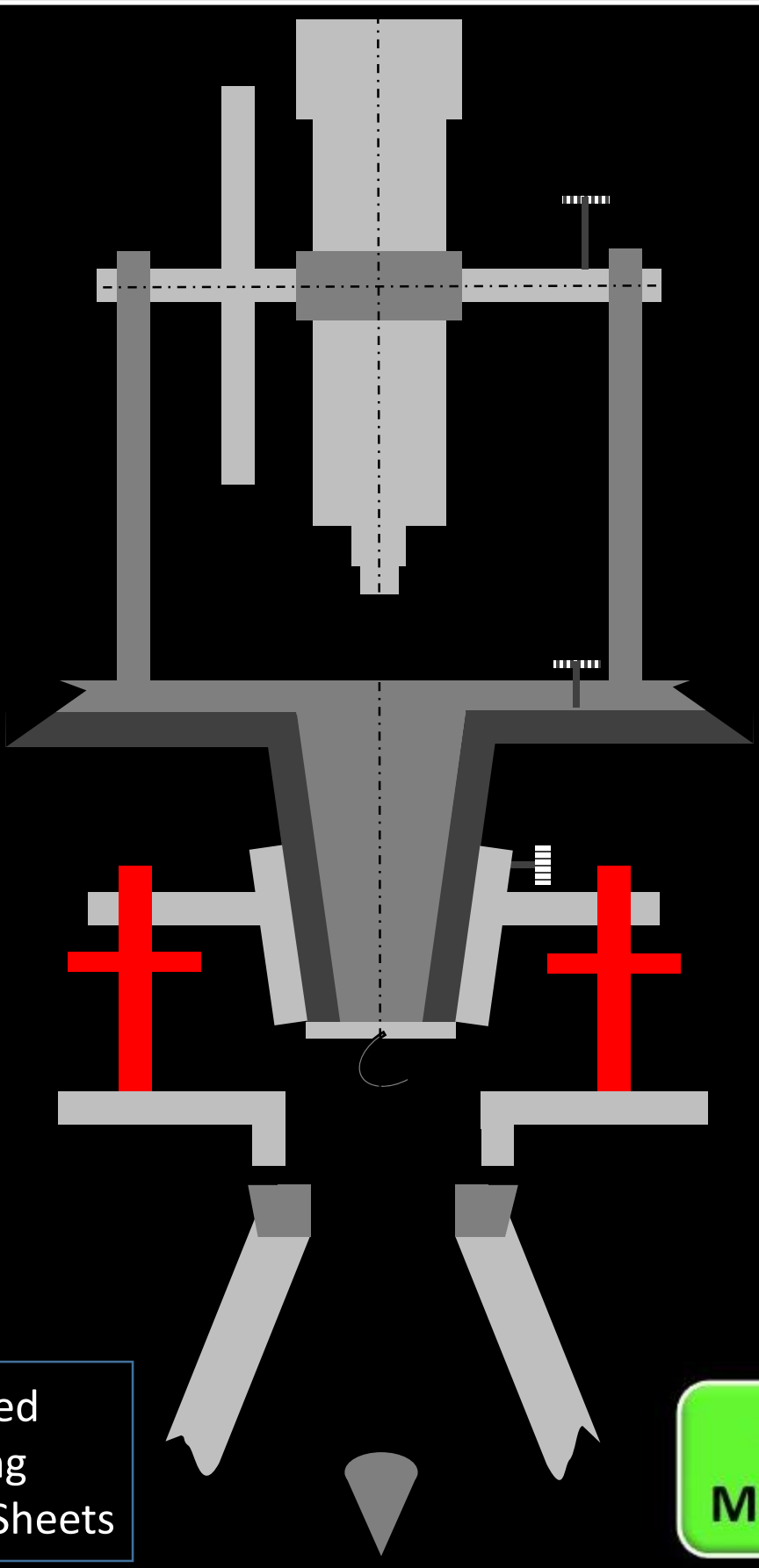
Levelling Screw:

To level the theodolite by adjusting them



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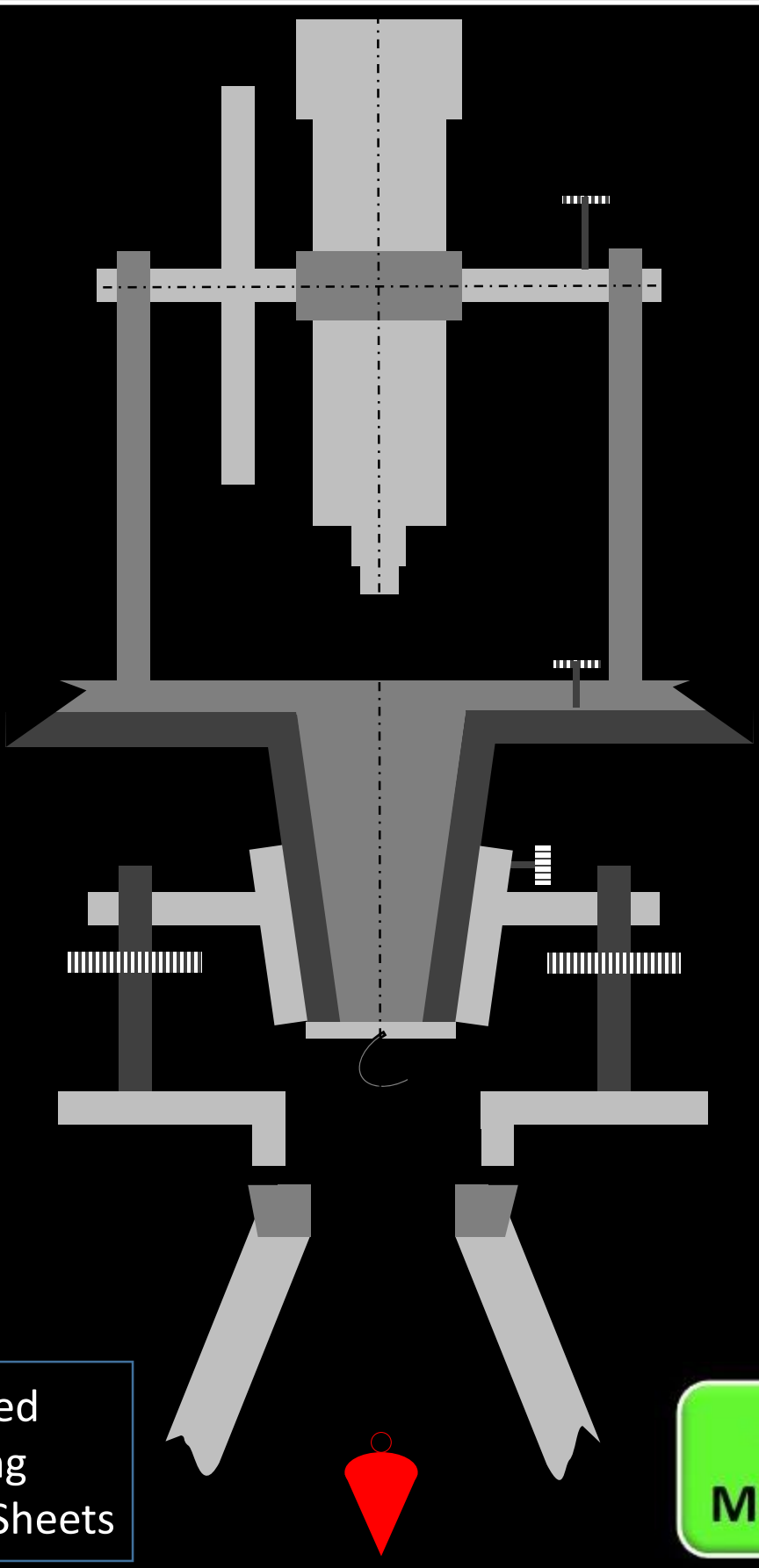
Plumb Bob:

To centre the instrument over station mark



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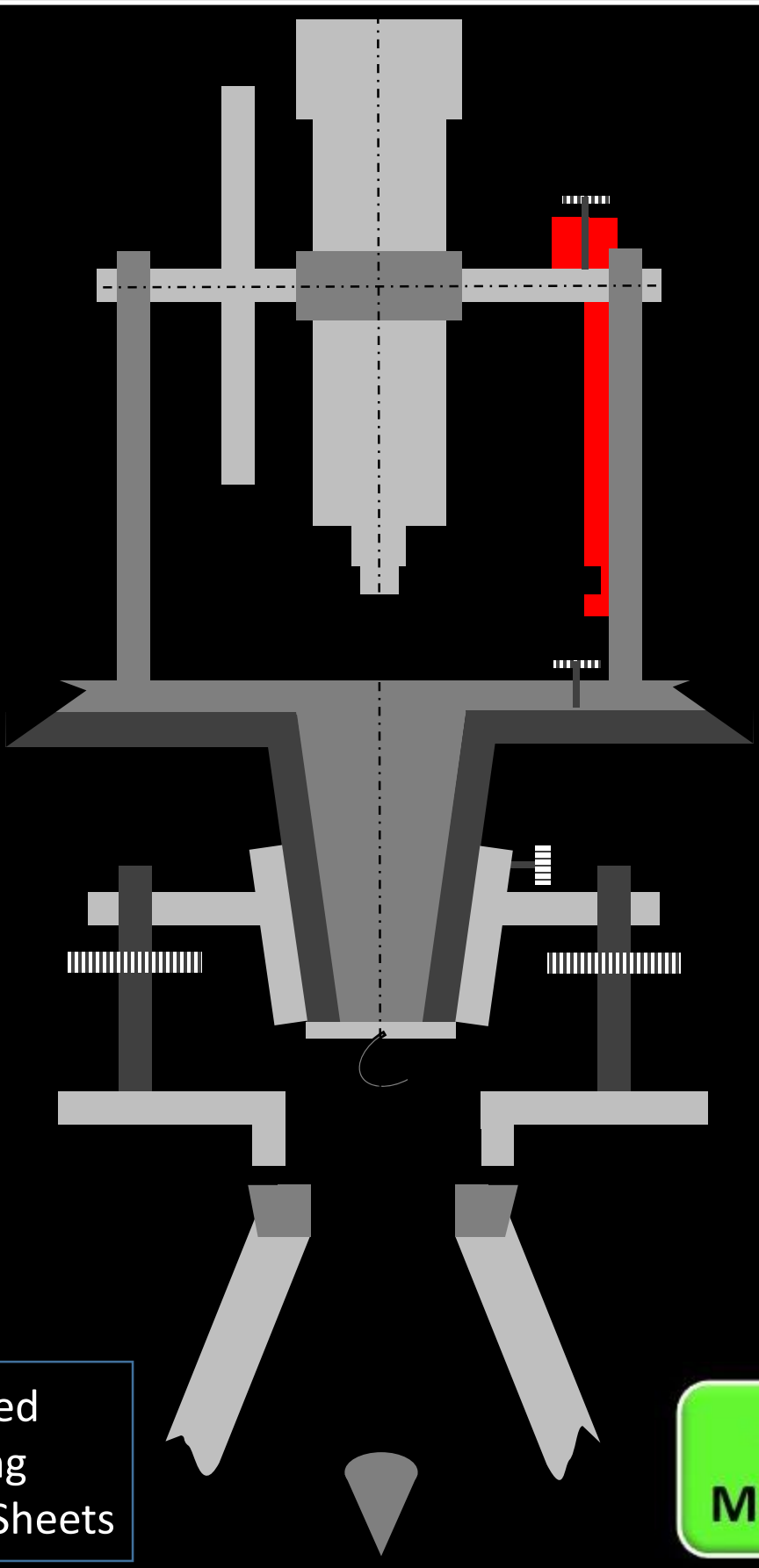
Arm of vertical circle clamp:

Fixed to A-frame

Holds the clamp



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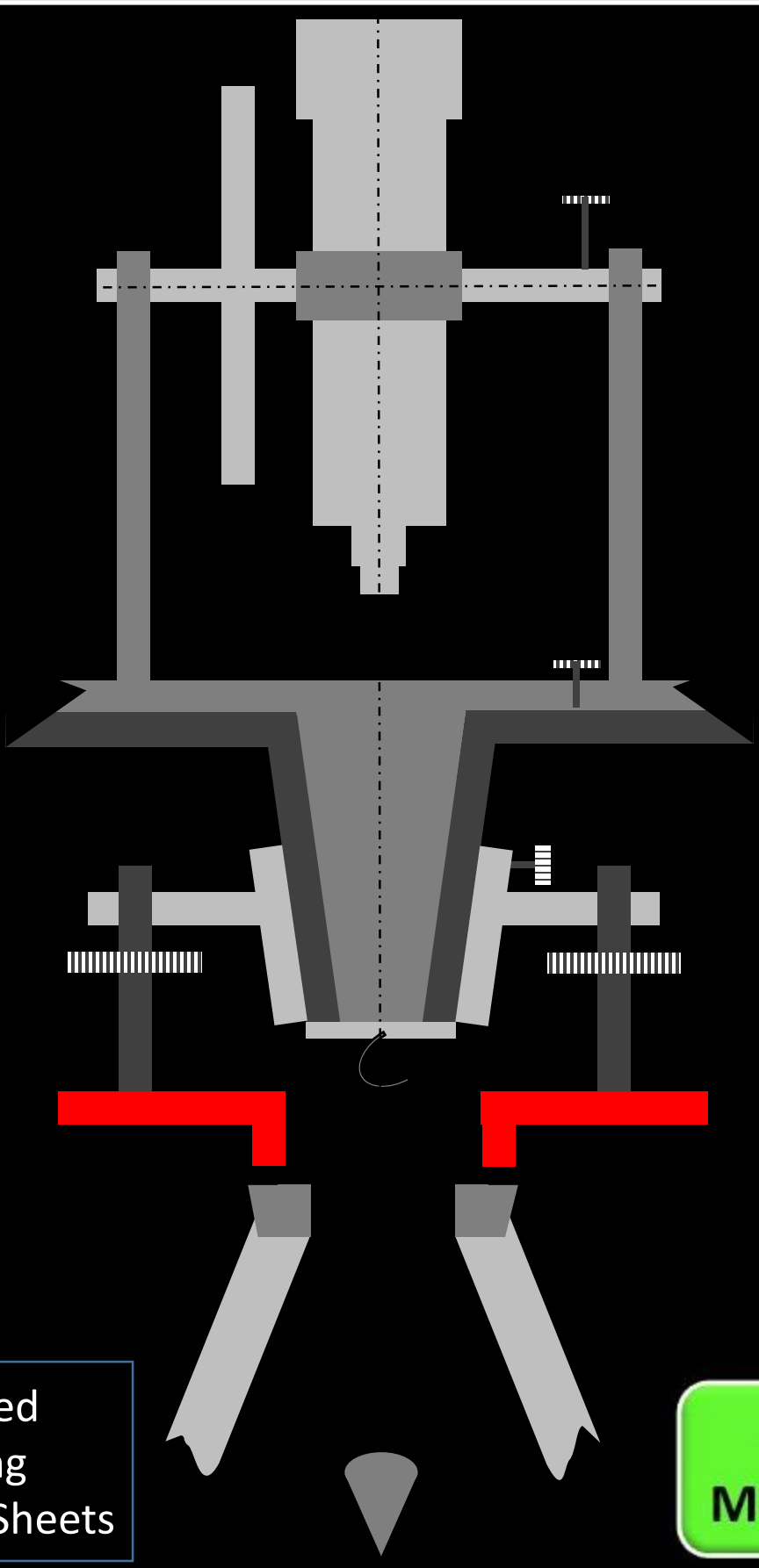
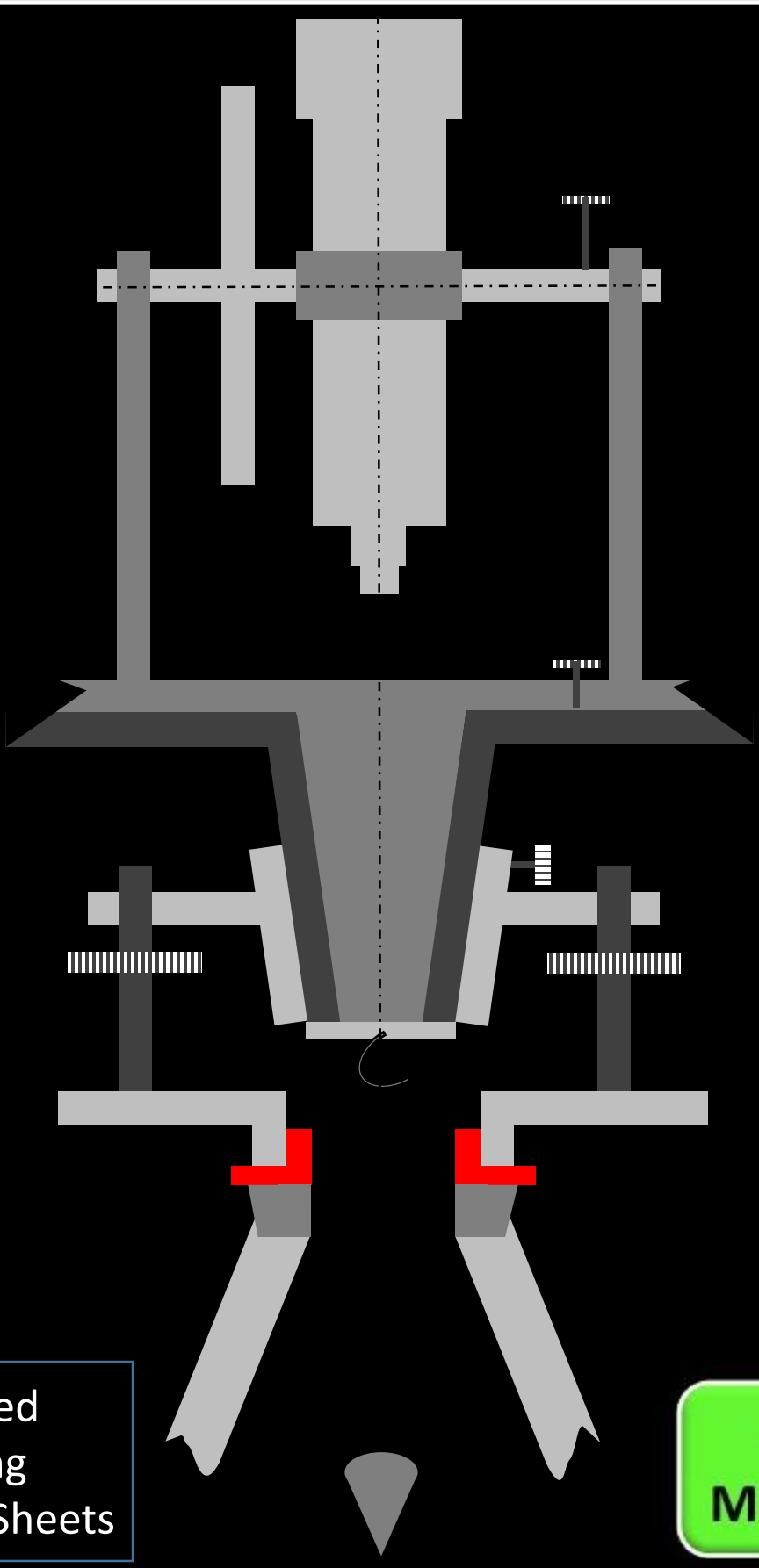
Foot Plate:

Holds the levelling screw



Tripod Head:

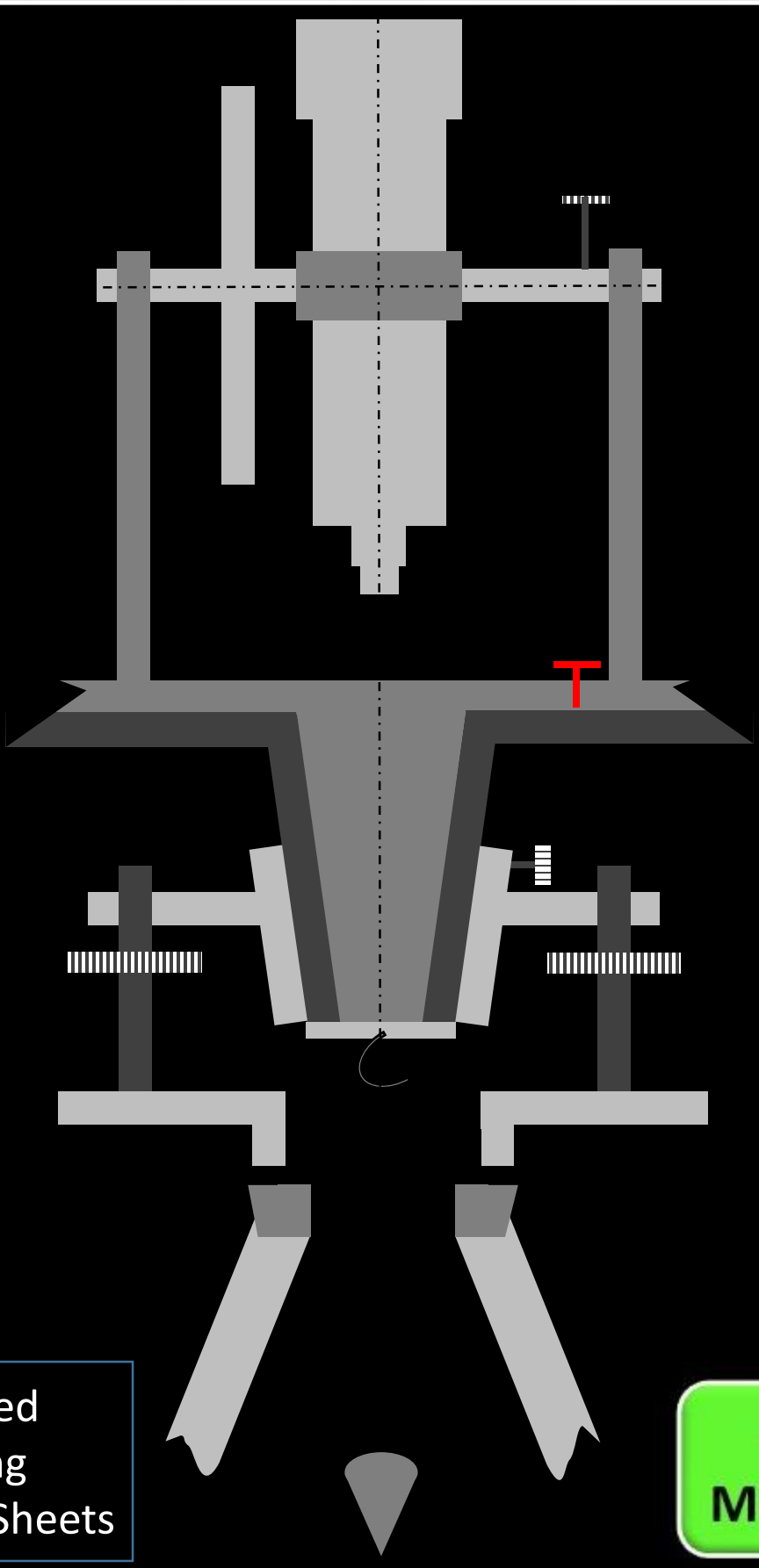
Holds the screw to which the foot plate of levelling head can be screwed



Upper Clamp:

Attached to upper plate

When tightened, inner spindle gets fixed with outer spindle and thus upper plate gets fixed in position



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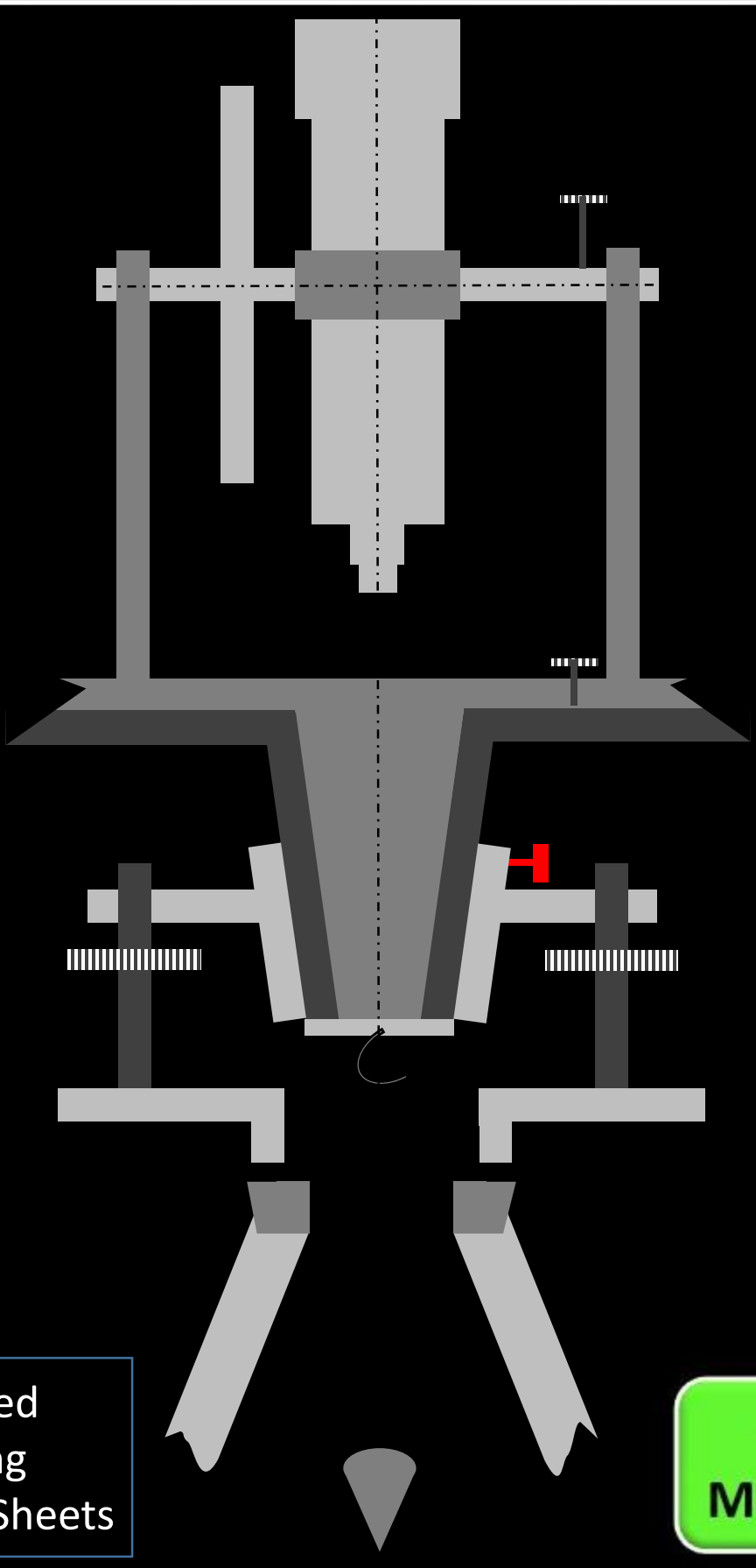
Lower Clamp:

Attached to lower plate

When tightened, outer spindle gets fixed with tribrach and thus lower plate gets fixed in position



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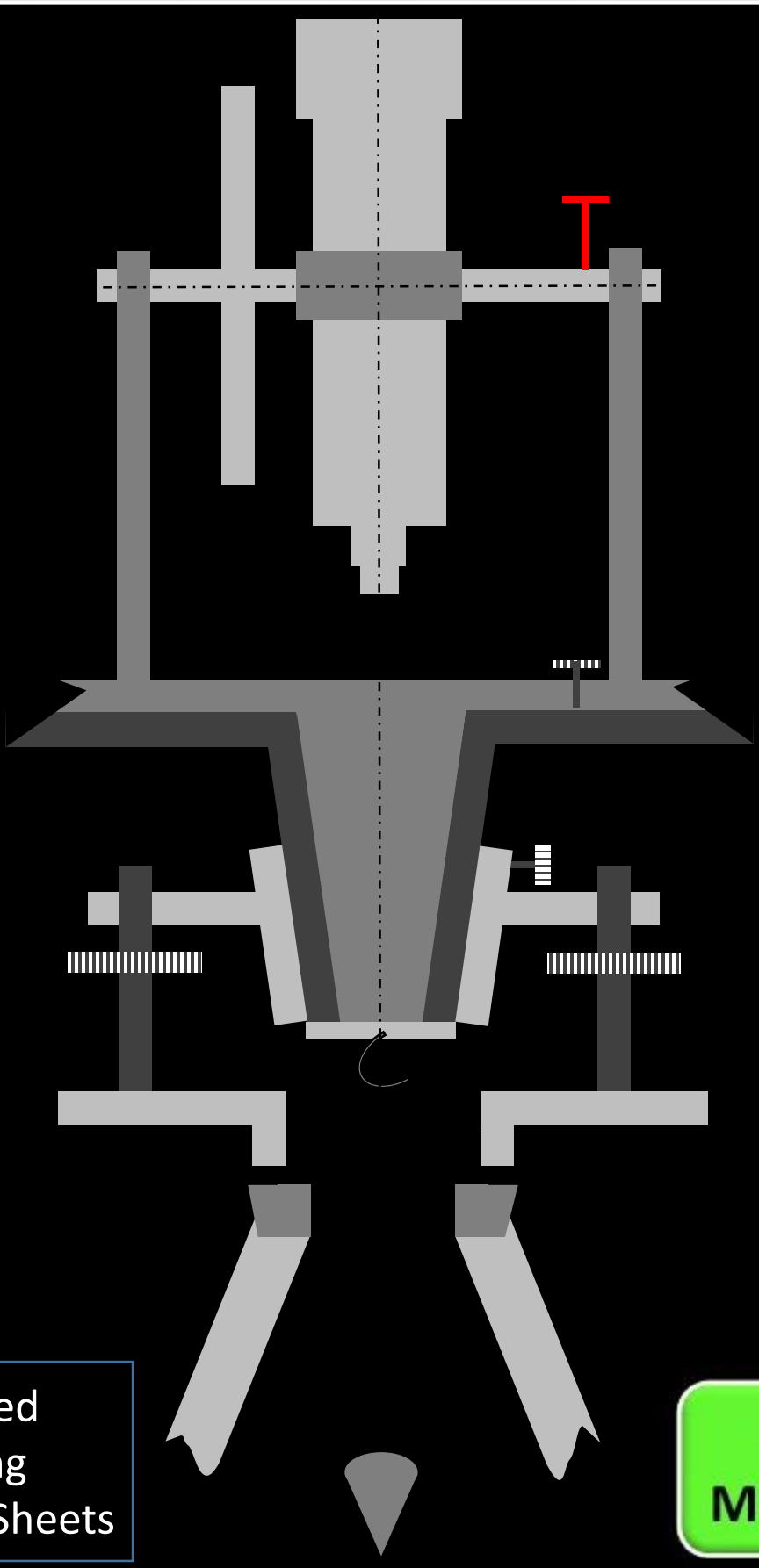
Vertical Circle Clamp:

Used to clamp the telescope in any plane and at any vertical angle



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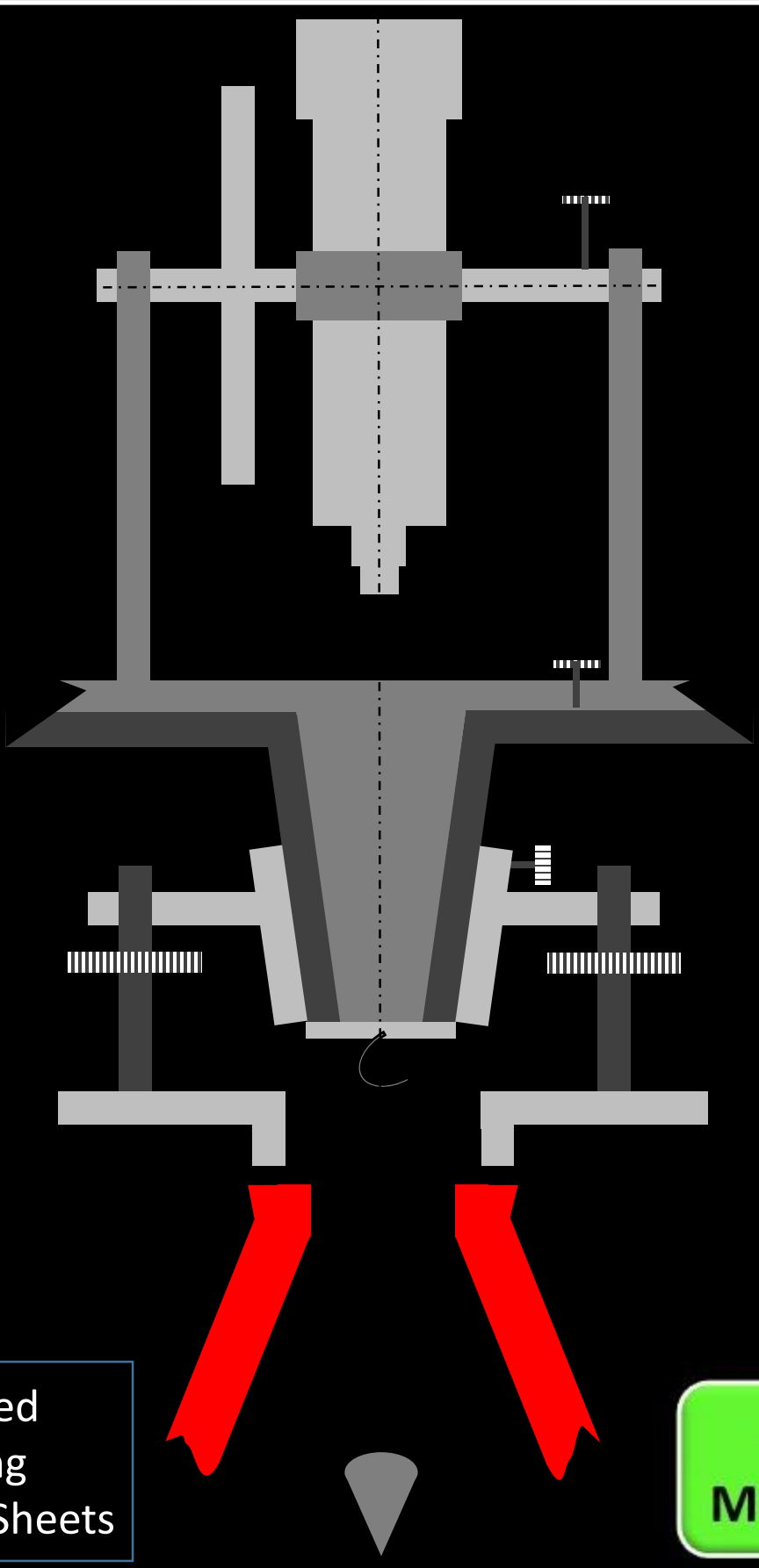
Tripod:
Supports the device



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