Bangladesh University of Engineering and Technology

Course Number: **IPE 432**

Course Title: Machine Tools Sessional

Experiment Number: **4**

Name of the experiment(s): **Study of Different Components of Turret Lathe**

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SUBMITTED BY:

Student Name: Akib Abdullah Khan

Student ID: 1610170

Department: ME

Section: C_{24}

Department of Industrial and Production Engineering (IPE), BUET

IPE 432 (Machine Tools Sessional)

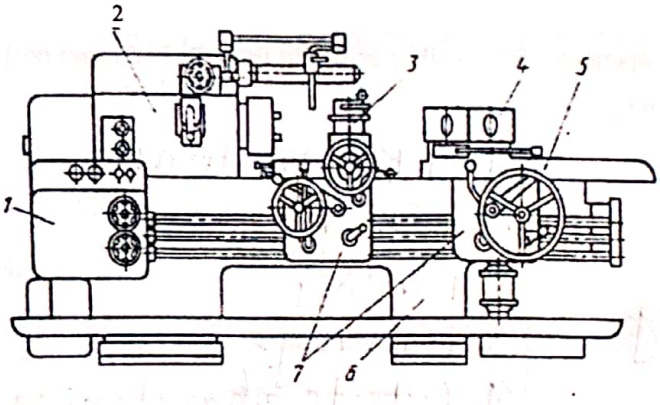
Experiment No.:04 (Study of Different Components of Turret Lathe)

Student No.: 1610170 Name: Akib Abdullah Khan

Group No.: C24 Date of Submission: 04/05/21

Note: While answering the following questions, consider the Turret Lathe studied in this experiment.

1. Label the schematic diagram of the turret lathe shown in Figure 1.



1.	Feed gearbox
2.	Headstock
3.	Cross slide
4.	Bed turret
5.	Turret slide
6.	Bed
7.	Capstan wheel

Figure 1

2. Write down the specifications of the turret lathe.

Machine name : Turret Lathe
Model No : LHT32
3ϕ induction motor, 3hp at 1430 rpm
Spindle speeds : 4 ; 450, 810, 1280, 1800

3. Write down the advantages of turret lathes as compared to conventional lathes.

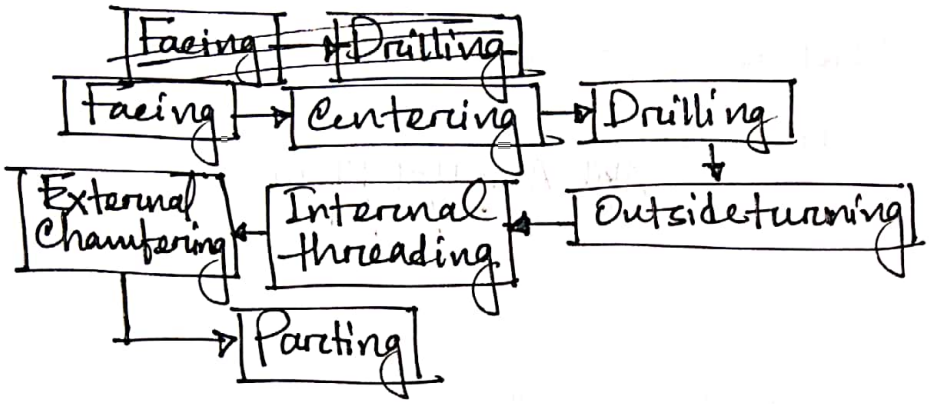
i) Use of collet chucks reduce material consumption and thus production cost.

ii) Multiple tool holders make the operations time efficients and makes it favorable for batch productions.

iii) Both cross slide and turret slide can be used simultaneously, which makes complex operations easier.

iv) Permanent machine setup can be done before batch production. which reduce time and effort.

4. Show the machining sequence for the component shown in Figure 2 by means of a flow diagram.



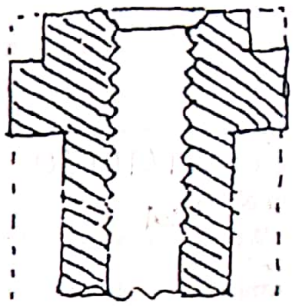


Figure 2

5. What types of machining operations are usually carried out from the bed turret position and from the tool post turret position?

Bed turret position:

1. Centering
2. Drilling
3. Internal threading
4. Reaming
5. Boring
6. Internal chamfering

Tool Post Position:

1. Facing
2. Parting
3. Turning
4. Outside chamfering
5. Knurling

6. What is meant by permanent setup in a turret lathe? Why is permanent setup recommended?

Permanent setup in a turret lathe means a setting up tools for ~~various~~ all operations involved in a machining process before a batch production.

Permanent setup is ~~recommendedda~~ recommended as it enables the process to be continuous and time efficient, which makes the process suitable for batch production. It makes the production ~~cost~~ economic, too.

7. Which types of chucks are used on turret lathes? Why?

Collet chucks are generally used on turret lathes as, they are
i) ~~It is~~ simpler as ~~it does not have~~ they do not have jaws.
ii) they reduces material consumption of the tools
iii) they overcome the runout problem : deformation in long workpieces due to cantilever action

8. How is the longitudinal movement of a turret lathe controlled?

The longitudinal movement of a turret lathe is controlled by a rack and pinion mechanism between ram and saddle. Stoppers are used to limit the feed.

9. Draw the schematic diagrams of the internal top views of the following parts,

(i) Ram (ii)

Saddle

(i) Ram:

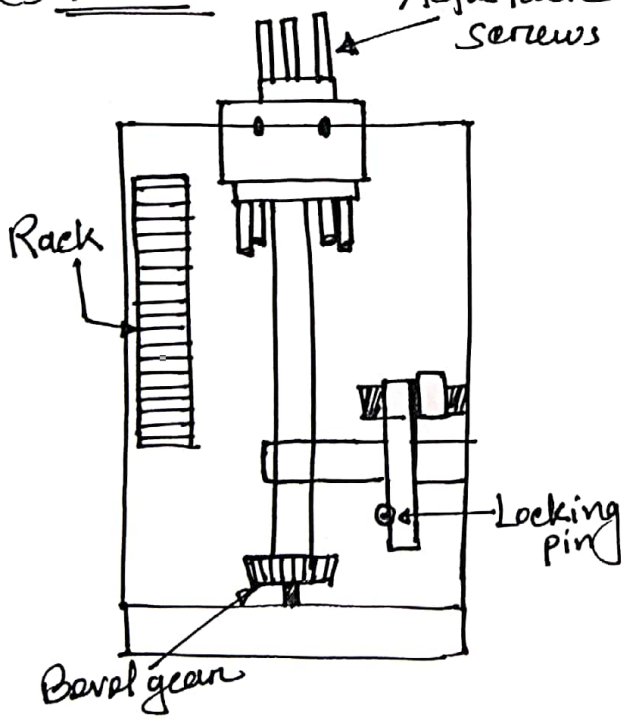


Fig: Top view of ram

(ii) Saddle:

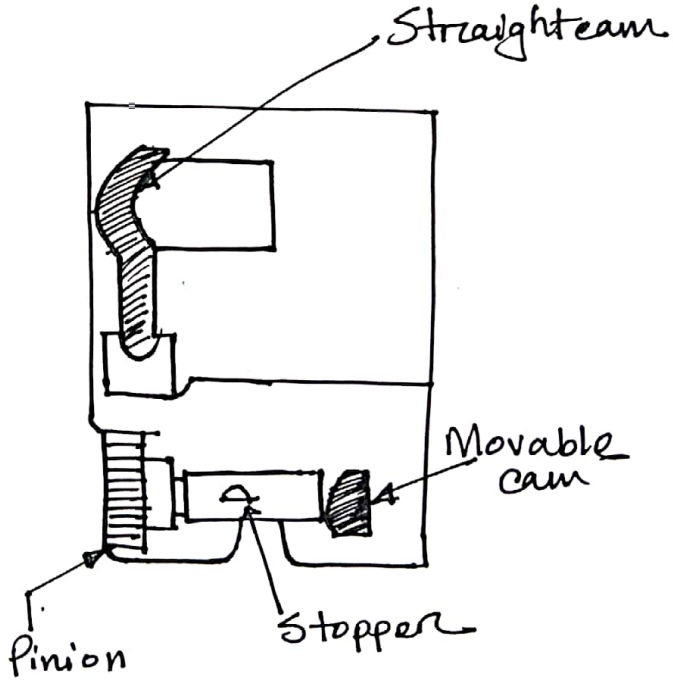


Fig: Top view of saddle.