

* Drilling Equipments - drills and drills carrying Equipments

Drills :- The mechanical devices & used for drilling holes in the tunnel heading are known as drills.

• Drills are made up of high carbon steel

• Types of drills

following types of drills are commonly used :-

- ① Jack hammer
- ② Drifters.

① Jack hammers :-

• These drills break the rock to small pieces by impact from repeated blow

• The number of blow per minute are 2000

Types of Jack Hammer

Jack hammers is of three types :-

- ① Light weight jack hammer
- ② Medium weight jack hammer
- ③ Heavy weight jack hammer

• Jack hammer requires on an average 2 to 2.3 cm of compressed air per minute at a pressure of 5.5 to 7 kg/cm²

• A light jack hammer can drill 3 to 4 cm diameter holes upto 2 meters deep.

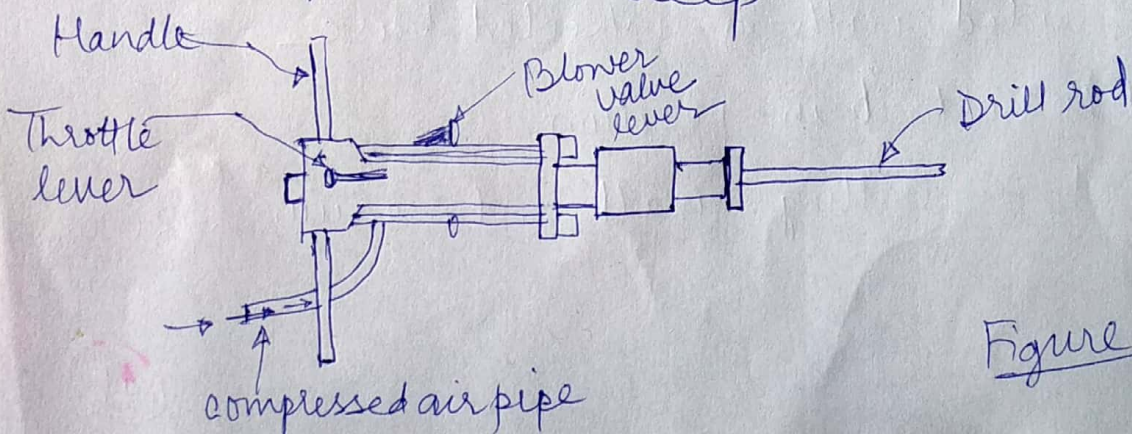


Figure Jack Hammer

⊛ Drill Carrying Equipments :-

- The equipment used for carrying the drills while drilling hole in the tunnel heading is known as drill carrying equipment.
- The following equipment is required for carrying the drills:-
 - (a) Support for mounting drills
 - (b) Drill carriage
 - (c) Drill jumbo

(a) Support for mounting drills :-

- usually columns are used to support for mounting drills
- These columns consists of steel pipe supports, struttled ~~to~~ between roof and floor of the tunnel

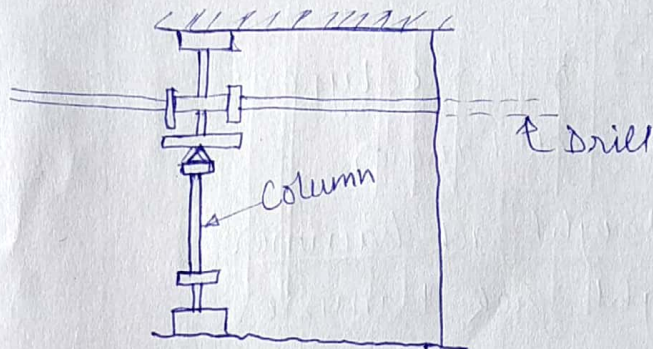


Fig. :- Drill mounted on a column

(b) Drill carriage :-

- It is a portable carriage which is used for carrying drills, mounted on its cradle
- It is provided with a wheeled base
- A strut to hold it in position
- It is used for drilling small and medium size tunnels

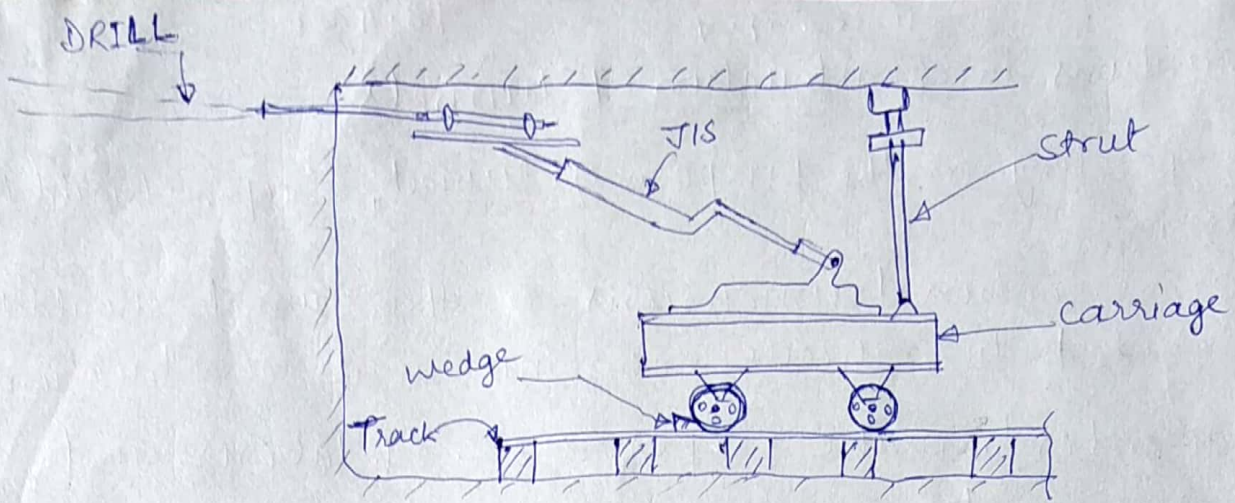


Fig. A drill carriage during drill operation

(C) Drill Jumbo

- It is a movable steel frame type drill carriage
- It is fully equipped for drilling the heading of a tunnel.
- It consists of a number of platforms, known as decks to support drills as shown in figure :-

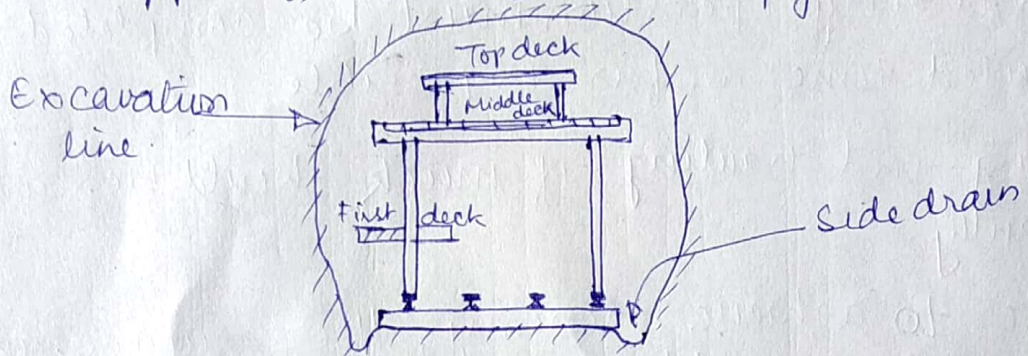


Fig. :- Drill Jumbo.

- For drilling large size tunnels, drill jumbo are commonly used.