3- Crier's Elevators:-

- The working blades are sharp, pointed& triangular in shape just like a claw, forming an angle with the shank of elevators.
- These are pair instrument mesial& distal (right& left) designed to fit the root surface on mesial& distal.
- It is mostly used for removal of lower molars and for elevation of impacted teeth after surgical exposure of the bifurcation of the tooth.

4- Winter’s Crier’s Elevator:-

- In which the working end is the same that of Crier's elevator, but the handle is in right angle to the shank, so it is called Winter’s (T-bar) cross-bar handle elevator.

- Winter’s elevators are very powerful& great force may be applied or generated (sufficient to fracture the mandible), so the use of this elevator with great care to avoid fracture of the jaw.

5- Apexo Elevators:-

- The working blade is long, the margins are sharp, there are 3 apexo, 2 angled& 1 straight (mesial, distal, straight).

- The blade forming an angle with the shank, this elevator is used mainly for removal of apical fragments of root deeply present in the socket of the lower jaw especially molars. Push it between the socket& the root to loosen the fractured tip and remove it from the socket.

6- War-wick James Elevators:-

- It is a light duty elevator. It is like Cryer's elevator, also there are 2 angled (mesial& distal) and one straight.

- The blade is short and the end is rounded and the handle is flattened, it is used for extraction of retained roots, deciduous teeth, anterior lower teeth, and with less resistance area (exo of upper 8)

Guiding Principles for Use of Elevators

1) Never use an adjacent tooth as a fulcrum, unless that tooth to be extracted itself in the same visit, and the fulcrum should always be bony one (alveolar bone).
2) An elevator should always be supported to avoid slippage and injury to the patient.
3) Avoid the use of excessive force if the tooth/root resist luxation, by gentle rotation, then stop, look for the obstruction to elevation and deal with it.

Guiding Principles for Use of Elevators

4) The direction of force should be such that the roots are not directed toward major structures such as the maxillary antrum.
5) An elevator should never be used “blind” in the socket.
6) If an application point is not present, then this should be created by careful removal of bone.
7) Elevators should always be sterile& sharp.

Guiding Principles for Use of Elevators

8) The sharp edges of the working blades are placed between the alveolus and the root surface gently rotated apically along the long axis of the elevator to luxate or displacing the tooth or root.

Complications of Use of Elevators:

Although elevators are very useful instruments for facilitating extraction of teeth, but misuse or misjudgment may lead to some complications, part of it may be serious:-

1) **Injury to the soft tissues:** like injury to the tongue, floor of the mouth, soft& hard palate, cause by slippage of elevator during its use.
2) **Wrong application of force or excessive force:** may lead to fracture of jaw especially the lower jaw at the angle of the mandible, also excessive force may lead to crushing of alveolar bone and fragmentation.

Complications of Use of Elevators:

3) **Fracture of maxillary tuberosity** especially in extraction of upper 8.
4) **Uncontrolled force** may lead to displacement of roots into maxillary sinus, infratemporal fossa, buccal soft tissue, submandibular space or inferior dental canal.
5) **Use of elevator in periapical area of abcessed tooth** may cause spread of infection to the surrounding tissue.

Complications of Use of Elevators:

6) **Tip of instrument (working blade) may be fractured** and remain in the socket causing postoperative infection or delay healing, so always check the tip of instrument after use.

So most problems with elevators arise from:-

A. Miss-judgment of amount of force exerted.

B. Improper positioning of the elevator.