

Microtome.

Microtome (Gr: Micro - small, tome - to cut) is a machine for cutting the tissue into very small thin sections for purely histological purpose. or for applied studies.

The first cutting instrument was made by ~~the~~ ~~inventor~~ ~~of~~ Cunnning in 1790. In 1835 Pritchard prepared the table model which could cut the material into sections by two handed knife. These instruments were called cutting machines, until Cavalier introduced the name microtome in 1839. sliding microtome were developed in 1798 and rotary microtomes in 1883 and 1886. The Spencer Lens company manufactured first clinical microtome in 1901.

Broadly speaking, there are 3 categories of the microtomes:

- (a) Freezing microtome.
for unembedded tissues.
- (b) sliding or celloidion microtome
- (c) Paraffin microtome (two types)
 - (i) Rocking type.
 - (ii) Rotary type.

Rotary microtome.

This microtome has heavy base, on which all the parts are present. There is a central axis having an arrangement in its front to fix the block holder. There are two grooves in which the razor holder can be moved. The razor or the knife is mounted on a pair of arms with the help of screws. The razor can be placed at a desired angle.

The Block peg:

It is a short wide rod having the expanded circular flat head on which paraffin tissue-block is fixed. This block peg is fixed in the space, which is a simple clamp operated by screws.

The circular drive wheel with a handle drives the axle forward. The advance wheel has lock. With the knife in the fixed position, the sections of known thickness will be removed from the face of the block each time the advance wheel is turned once. The rear part of this microtome has a circular grooved disc which moves anticlockwise.

Microtome Accessories are:

(i) Microtome razor or knife:

3 types.

(a) plane edged knife

(b) Biconcave knife edged knife.

(c) The plane-concave edged knife.

(a) The main portion of the knife is plain edged - such a knife is used for frozen sections and paraffin blocks.

(b) Both the sides of the knife have concave surfaces. This knife is used to cut the paraffin block into sections.

(c) one side of the knife is square or flat ground and other side is hollow ground. The knife is used for cutting the celloidin and paraffin blocks into sections.

(ii) The knife Backs:

This is a slotted steel tube which fits over the back of the knife. It is necessary to use the knife backs during honing because the use of the back maintains the desired angle of 30° with the surface of the hone.

(iii) Handle :

This carries the knife in its front threaded end. The handle has a screw at its rear end. The handle used for holding the knife while honing.

(iv) safety razor blade holder: -

The safety razor blades used some times in a holder attached to the knife.