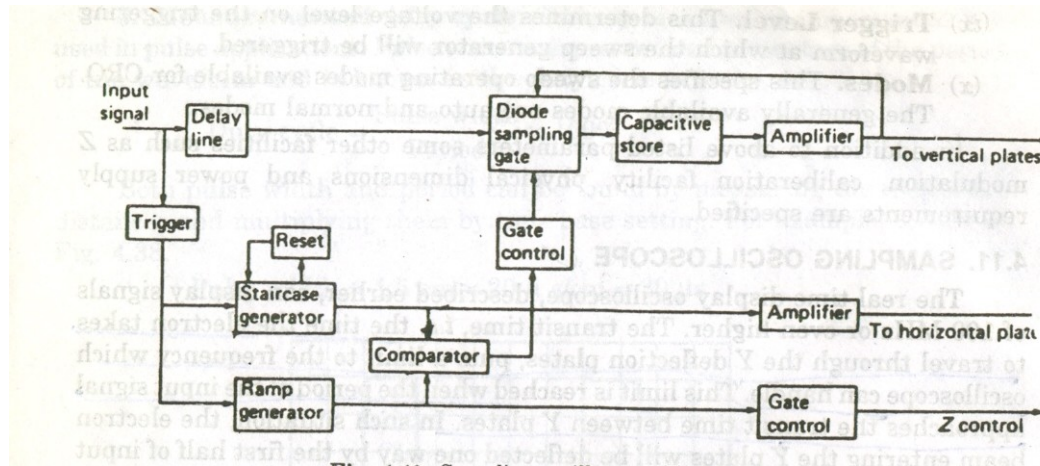
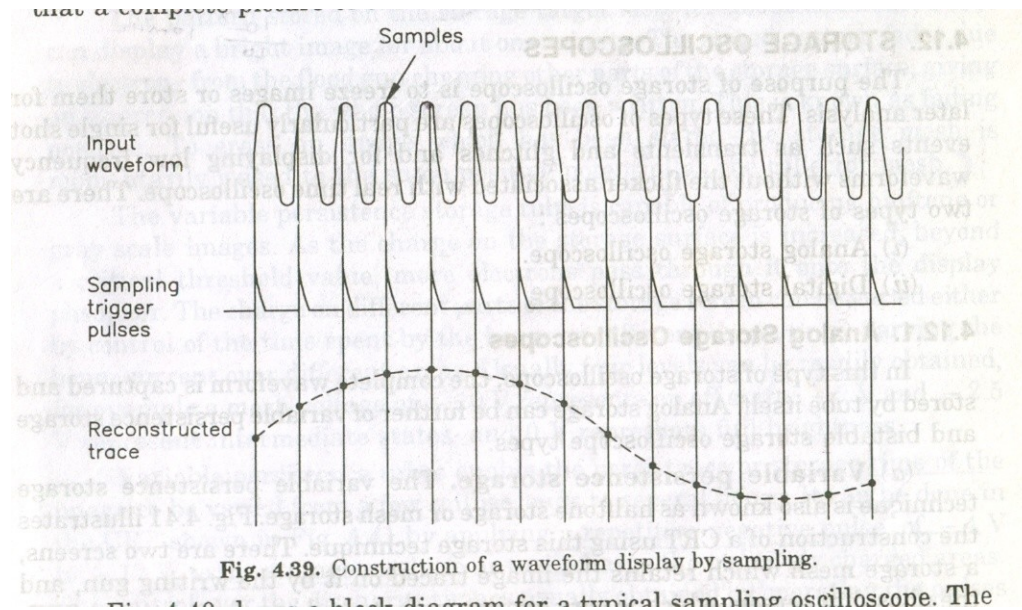


# Sampling oscilloscope



# Sampling oscilloscope



# Storage oscilloscope

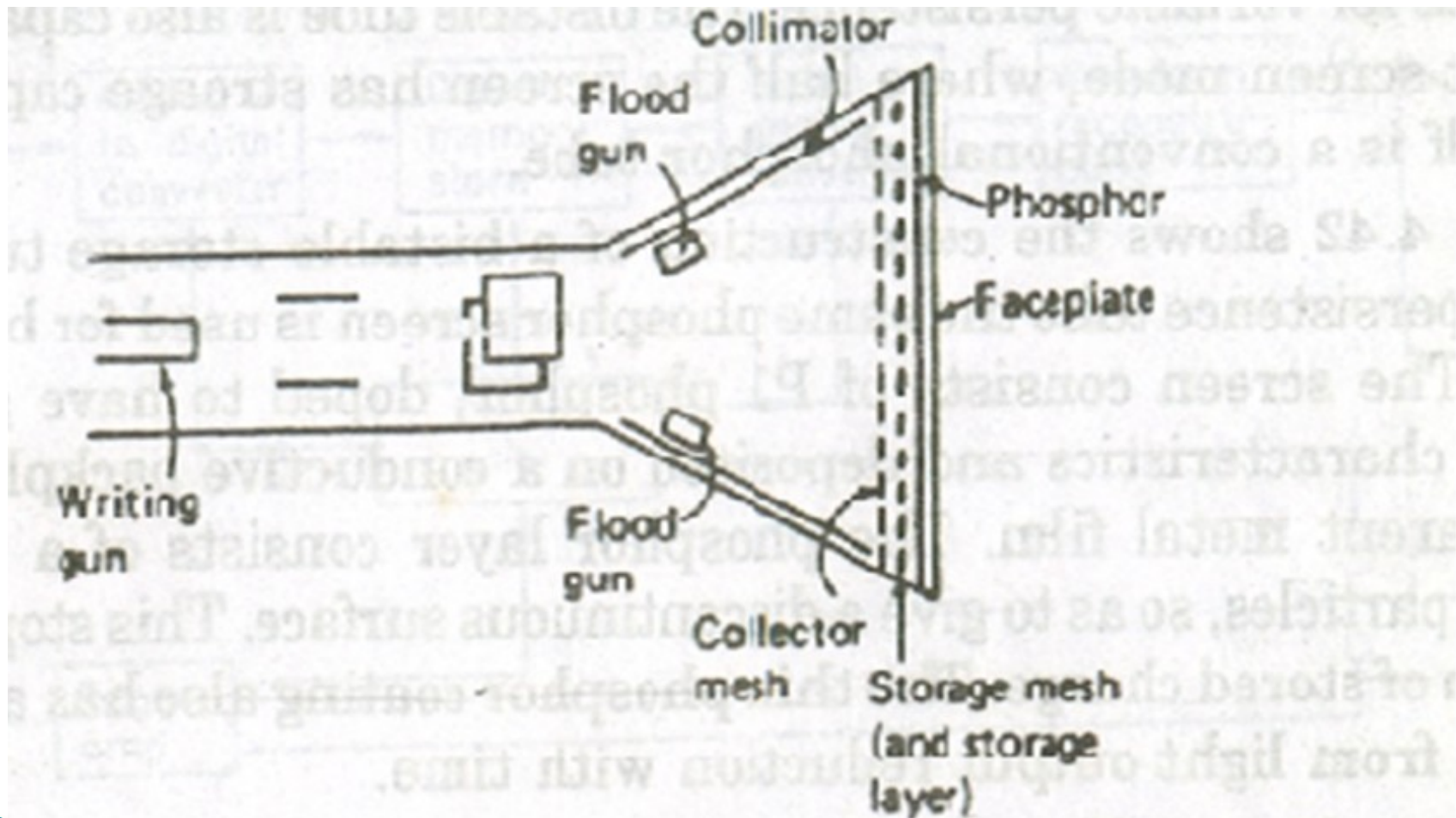
- ▶ The purpose of storage oscilloscope is to freeze images or store them for later analysis. These types of oscilloscopes are useful for single shot events such as transients ,glitches.
- ▶ Types of storage oscilloscopes are:
  1. Analog Storage oscilloscope
  2. Digital Storage oscilloscope

# Analog Storage oscilloscope

- ▶ Analog Storage oscilloscope are of two types:
  1. Variable persistence storage.
  2. Bistable Storage oscilloscope.

The principle of secondary emission storage is applicable to both variable persistence storage and bistable Storage oscilloscope.

# Variable persistence oscilloscopes



Construction of a variable persistence storage tube.

## contd.....

- ▶ Writing gun is at high -ve potential.
- ▶ Flood gun at a few volts -ve
- ▶ Collector mesh is at about 100v +ve
- ▶ Storage mesh is at gnd potential or a few volts  
-ve

# Variable persistence oscilloscopes

contd.....

- ▶ This technique is also known as **nanosec Storage or Mesh Storage.**
- ▶ It consist of 2 screens:  
1.Storage Mesh 2.Phosphor screen

## CONTD.....

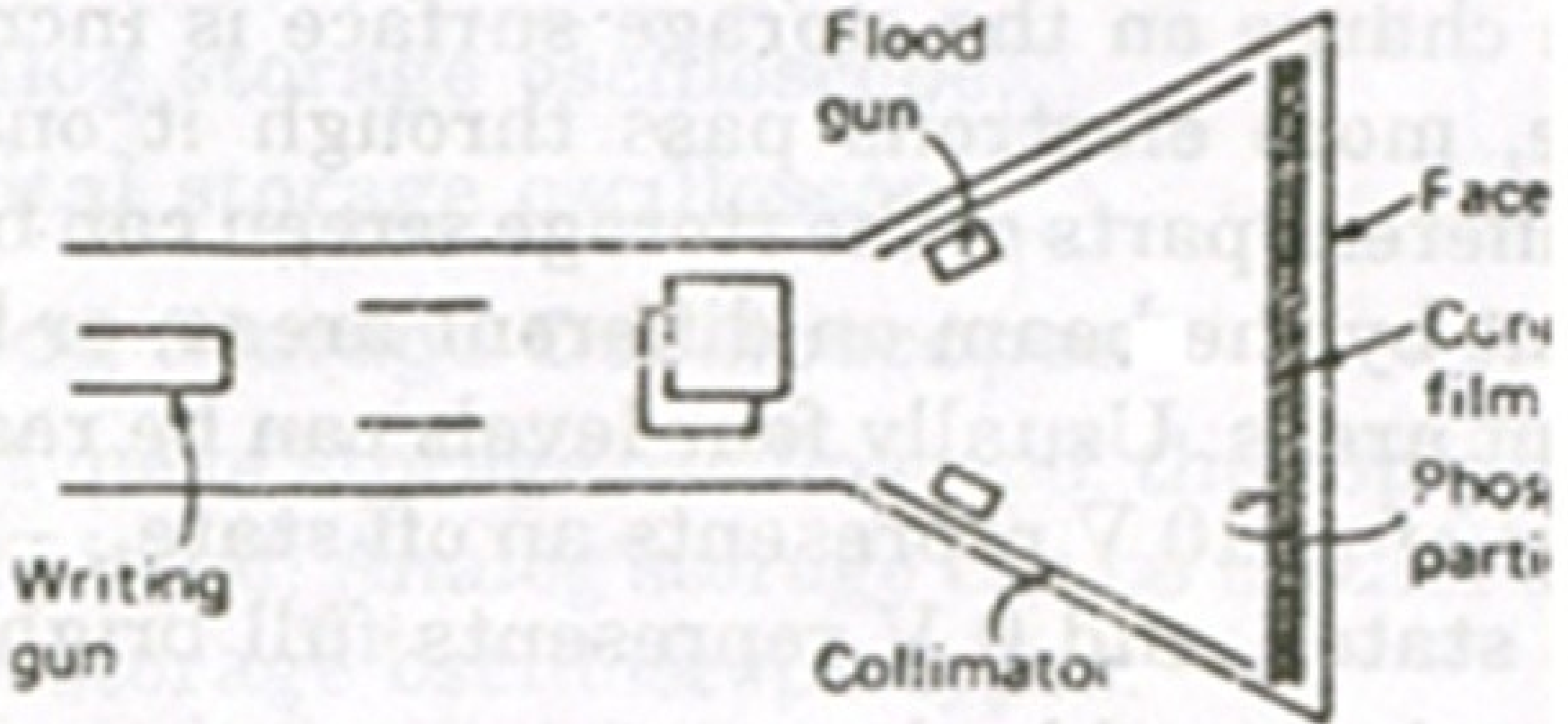
- ▶ The stored pattern fades due to electrons from the flood gun charging other parts of the storage surface, given an impression that the whole pattern has been written. This is known as Fading Positive.

### Applications:

- ▶ For storage of an entire waveform of a slow moving signal, which then fades before the next trace is written.
- ▶ It can also be used to store several traces before the first one fades, so as to see how the signal changes with time.



# Bistable storage Oscilloscope



# Bistable storage oscilloscope contd.....

- ▶ The Bistable storage tube is between two & ten times slower than a variable persistence tube.
- ▶ It is capable of much longer storage times, measured in hours rather than in minutes as for variable persistence.
- ▶ It is also capable of operating in a split screen mode, where half the screen has storage capability and other half is a conventional phosphor screen.
- ▶ Here the same phosphor screen is used for both storage & display.

# Bistable storage oscilloscope contd.....

- The phosphor layer consists of a thin coating of scattered particles, so as to give a discontinuous surface.
- It stops the boundary migration of stored charge.
- The thin phosphor coating also has a short life since it suffers from light output reduction with time.
- The conductive film is held at a low positive potential, so as to attract a cloud of low energy to penetrate the phosphor and are gathered by the collimator.