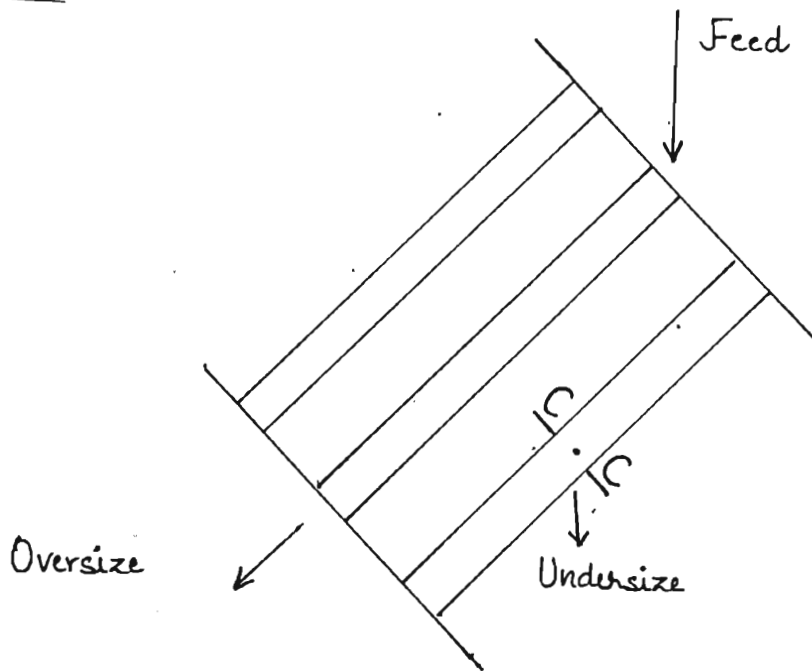


Types OF SCREENING EQUIPMENTS

- The screening equipments can be classified based largely on size of the material as the screens may be called upon to pass grains ranging from several mm in diameter to 200-mesh.
- Grizzlies (fixed inclined screens)
 - Trommels (revolving screens)
 - Shaking and vibrating screens
 - Oscillating screens.

GRIZZLY



Construction :-

It is a grid of parallel metal bars set in an inclined stationary frame, with a slope to 30° to 45° which is parallel to the bars length. The length of the bar may be upto 3m and spacing b/w the bar is 50 to 200mm. It is generally made of manganese to reduce wear. Usually, the bar is shaped such that its top is wider than bottom and hence, made fairly deep for strength without being choked by the lumps passing part way through.

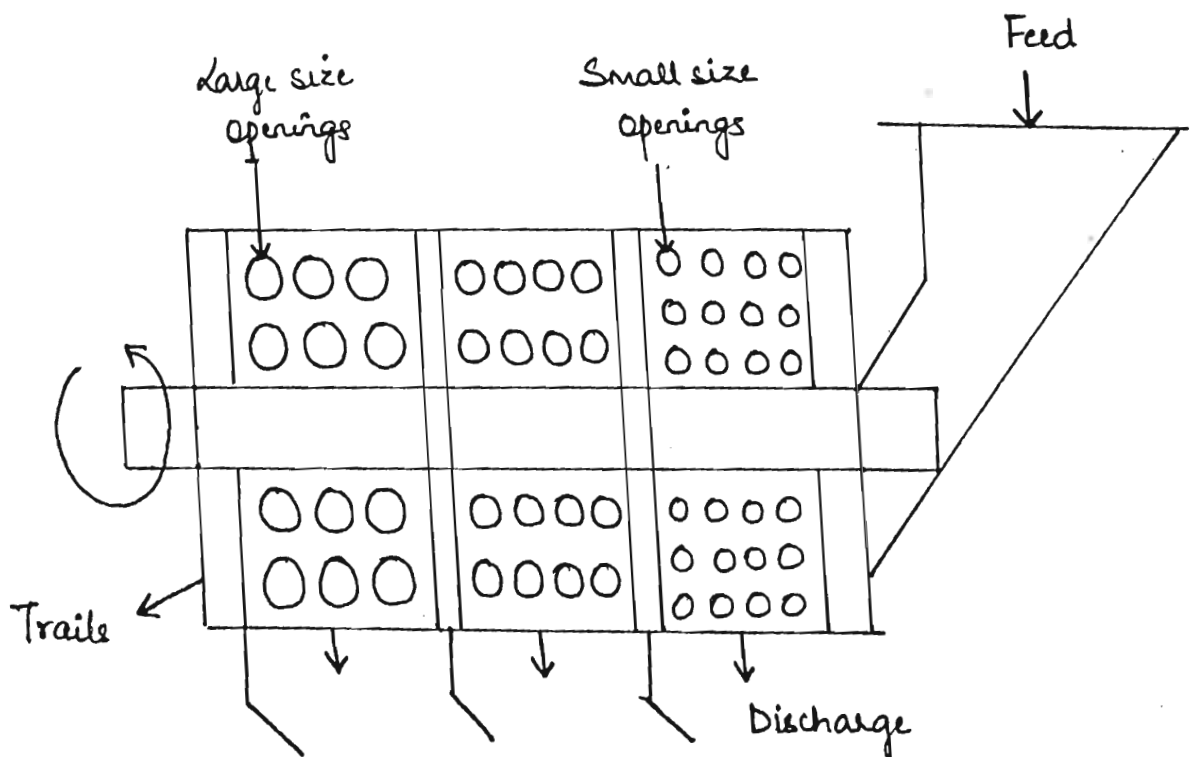
Working :-

Very coarse feed as from primary crusher is fed at upper end of the grizzly. Large chunks rolls and slide down the opening in the bars fall through the grid into separator collector.

If the angle of inclination to horizontal is greater, greater the output but the lower is the screen efficiency. Static inclined woven-metal screens operate in a same way as separate particles 12 to 100mm in size, usually adopted for material.

The grizzly find its greatest application in the separation of undersize from a feed to the primary crusher. It requires less power and is least expensive to install and maintain. The openings have tendency to get blocked, the labour to remove is high. Also, it is difficult to change the size of the openings in the bars.

TROMMELS



Construction :-

1. Trommels are revolving screens consist of a cylindrical frame surrounded by wire cloth or perforated plate (acts as screening surface). It is open at one or both ends, and inclined at a slight angle to horizontal so material is advanced by the rotation of the cylinder. The perforations in the screening surface may be of same size throughout or may be different in which case small size section is near the feed end and is driven through feed gear mechanism. Feed point at upper end, the undersize product discharge below the screening surface and oversize discharge at opposite end. (lower end).

Working :-

The material to be screened is fed at the upper end and gradually moves down the screening surface towards the lower end. In doing so, the material passes over apertures of gradually increasing size. If the cylinder is provided with 3 diff. size perforated screen then we get four fractions. The finest material is collected as underflow in the compartment near feed end and oversize material is withdrawn from the discharge end. Such type of arrangement is usually adopted for smaller capacities.

With this type of Trommel, there is a tendency of blockage and the screen with the finest opening being the weakest is subjected to heaviest wear. The operating speed is 30 to 50% of the critical speed.

For the separation of a given material into several size fractions several Trommels are operated in series. The first one have the coarsest perforations so that it produces coarsest finished product which is delivered to next Trommel and so on. If the equipment is used for more finer separation then the cylinder may be covered with fine wire instead of perforated plate called a reel.

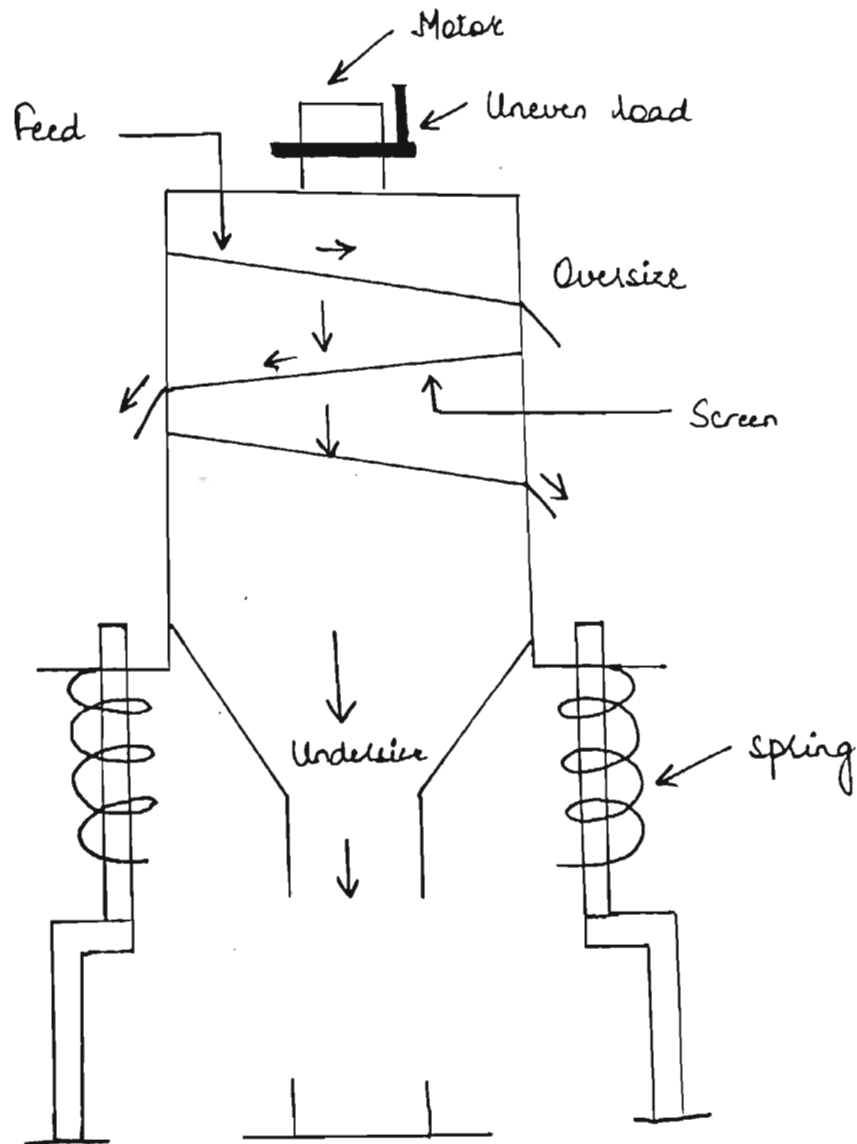
VIBRATING SCREENS

Electrically
vibrated
screen
the

These are the screens which are rapidly vibrated in small amplitude, keep the material moving and prevent binding as far as possible. They are commonly used in industry where large capacity and high efficiency are desired. Their capacity of producing finer size particle is so high that it can replace all the other equipment if efficiency is of prime importance. The vibrating screens can be further classified as —

- Mechanically vibrated screens
- Electrically vibrated screens

Mechanical vibrations are usually transmitted from high speed eccentrics to the casing and from there to the screen so that whole assembly is vibrated.



usually vibrated screens usually transmitted from the duty solenoids directly on the screen so that only screen vibrated.

vibrating screens are mounted in multideck fashion & correct screen at the top, either horizontally or inclined upto 45°. They have accuracy of sizing, increased capacity and low maintenance cost.

Principle of Operation of vibrating screens :-

The vibrations are given to the screen to effect the separation of solid particles. Proper selected frequency and amplitude keeps the capacity constant.

The material to be separated is fed from the top and simultaneously, the screens are vibrated. at a frequency of 1000 to 3500 per minute. Due to vibrations the particles on the screen kept moving and due to inclination, oversize material travels along the screen and is collected separately. The undersize material passes through the screens and are collected. Four fractions are obtained in 3 deck screen.

