

BANANA FIBRE EXTRACTION MACHINE DETAIL

Dual Roller Crusher

- Rollers will be fast enough to maintain the normal time of extraction, so the speed of rollers should be 500rpm.
- Rollers will provide sufficient crushing force to squeeze out water and loosen the stem so that the fiber does not break and impurities are removed.
- Feed size is not more than 10mm and clearance gap can be 5-6 mm and gap between beater blade and breast plate should be around 1-2 mm



Fig2.2 Dual Roller Crusher

Scraper

- The speed of the roller cannot be 500 rpm or near that, this simply throws away your stem so fast that it does not even enter the scraper for beating.
- For good beating the speed of the roller should be kept near 100 rpm.
- The distance between rollers should not be too small this will allow crushing but your stem will stick to the roller if it has thin size.
- Keep scraper near the roller so that the stem does not have to travel long distances to reach scraper or provide some thin plate till the beating region.

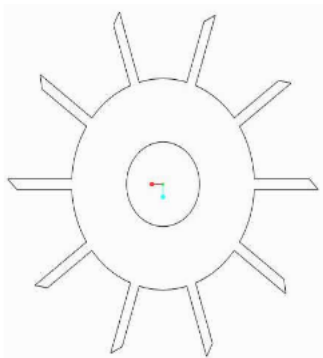


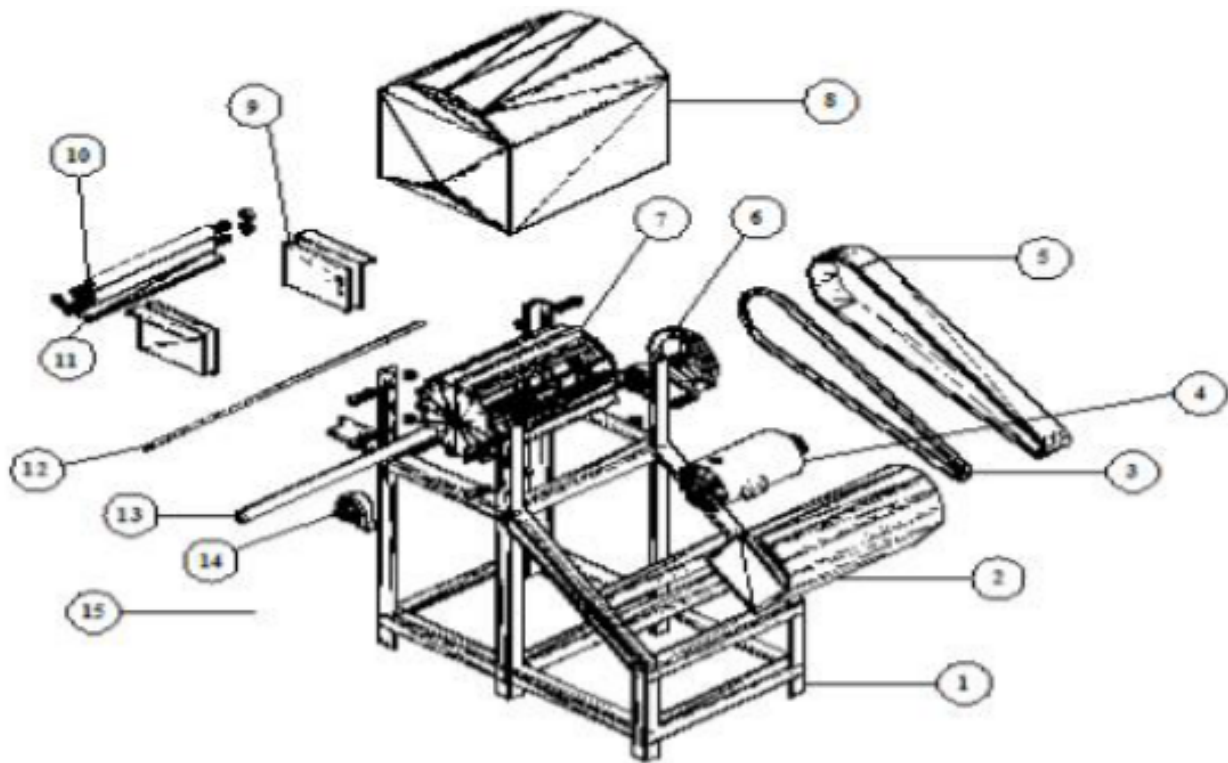
Figure 2.3 Scrapper

Speed reduction mechanism

- For speed reduction we employed a mechanism with a pulley with large diameter mounted on another shaft and a gear
- set with a reduction ratio of 1/6.
- The feed speed is reduced because of this mechanism which results in good beating.



Exploded view of the machine



Components

1. Frame
2. Motor cover,
3. Belt,
4. Motor,
5. Belt cover,
6. Pulley,
7. Roller drum,
8. Drum compartment,
9. Guide,
10. Inlet,
11. Tissue scrubbing bar,
12. Outlet,
13. Shaft,
14. Bearing,
15. Switch

Components with details(Summary)

- 1.5 hp single phase asynchronous motor to rotate the drum
- The rotary drum has a 1 1/2 inch shafting, 8 mm wall plate and a 1 1/2 x 1 1/2 inch x 1/4 inch thick angle bar serves as depulper while spinning at approx. 400 rpm.
- The diameter of the drum is 476 mm including the blade.

- The frame was made of angle bar 2 x 2 inches measuring 700 mm (L) x 700 mm (W) x 820 mm (H), the cover was made of a 1.4 mm thick BI sheet.
- The drive pulley has a diameter of 3 inches while the drive has a diameter of 12 inches, v-groove type pulley.
- The bin serves as the collector of pulp to lessen the mess in the workplace.

Note : the distance between the blades and the fixed shaft shall be equal. It is advisable to machine the blades after installation to ensure the alignment.

Inside of the View of Drum.

