



Centurion
UNIVERSITY
Shaping Lives...
Empowering Communities...

COTTON HARVESTING

Basic requirement



Centurion
UNIVERSITY

Shaping Lives...
Empowering Communities...

Capable of picking mature cotton seed (cotton seed surrounded by lint)

Minimum waste

No damage to the fiber, plant, un-opened boll

Cotton should have minimum leaves, stems, weeds & other foreign material entwined with lint.

The above requirements depend on

- ❖ **How gently the plant is handled when passing through the picker**
- ❖ **Use of suitable picking elements**
- ❖ **Synchronization of speed of moving picker parts and the forward speed.**

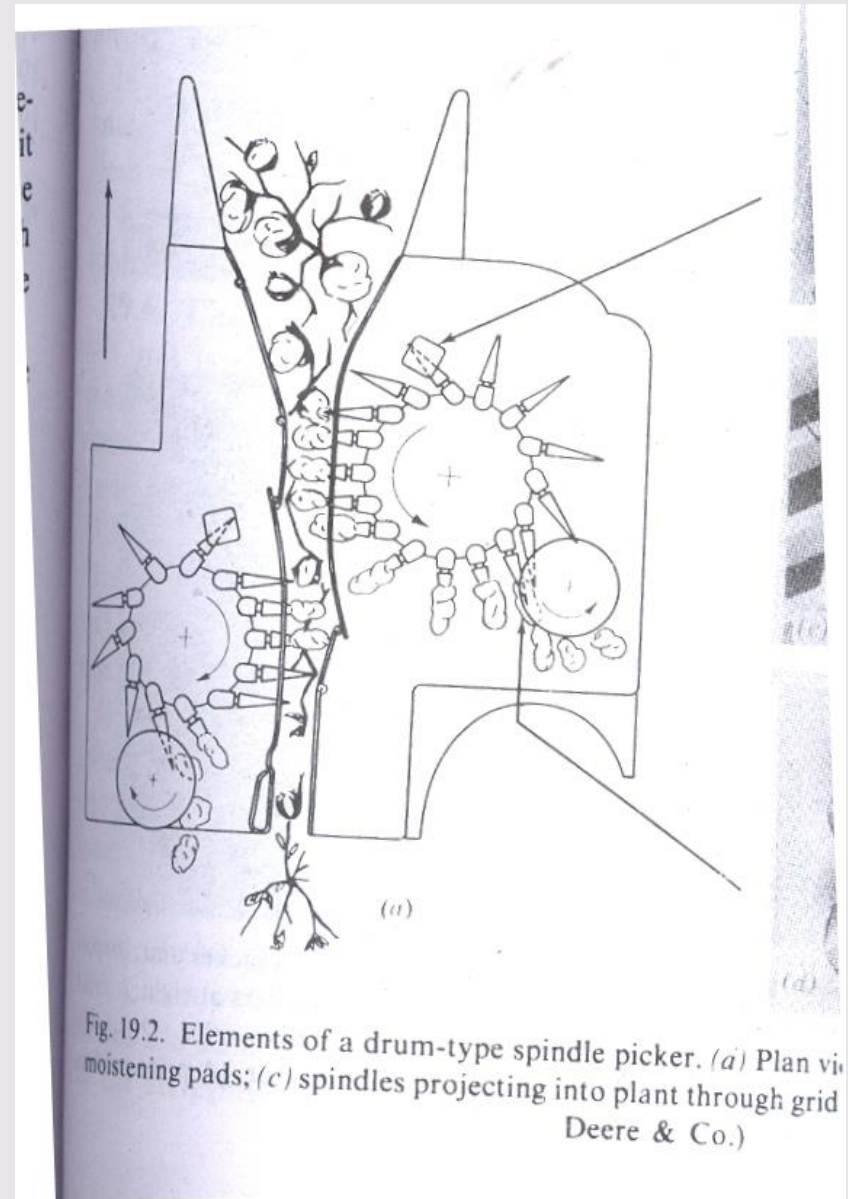


DRUM TYPE PICKER SPINDLE

Principle

The revolving spindle penetrates the cotton plant and wind the seed cotton from the ball.

And retreating to the doffing zone.





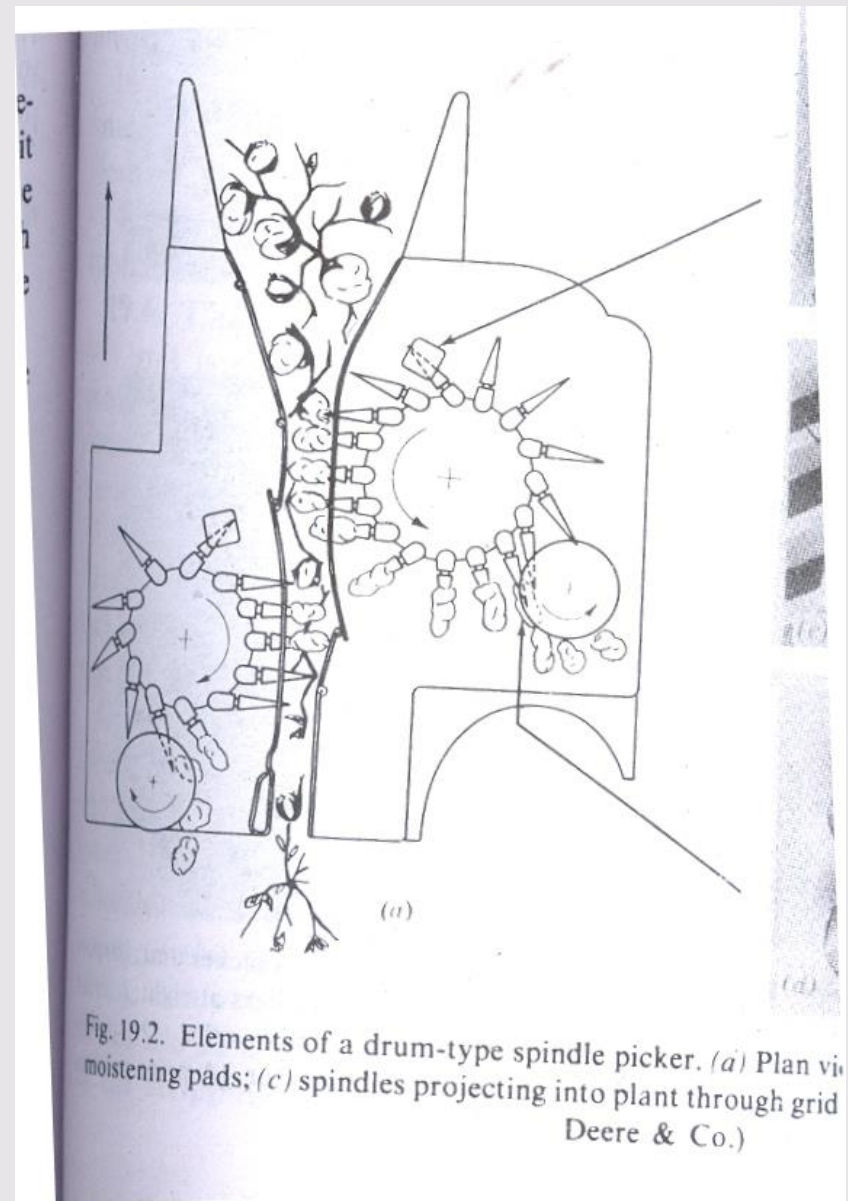
DRUM TYPE PICKER SPINDLE

The speed of the spindle in the picking zone is same as forward speed of the machine (3.2 -5.6 km/h)

The rotating spindle penetrate straight into the cotton plant from the side of the row by cam and follower.

Picks the open boll

Withdraws straight out to the side with minimum disturbance to the plant.





DRUM TYPE PICKER SPINDLE

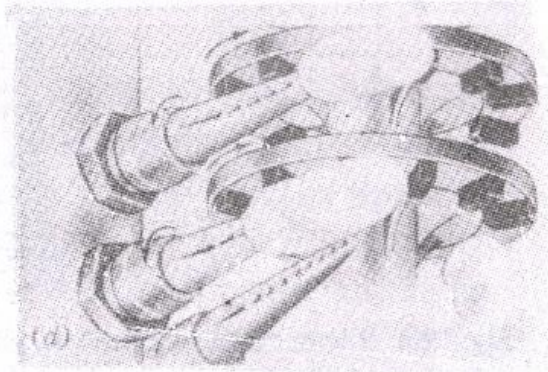
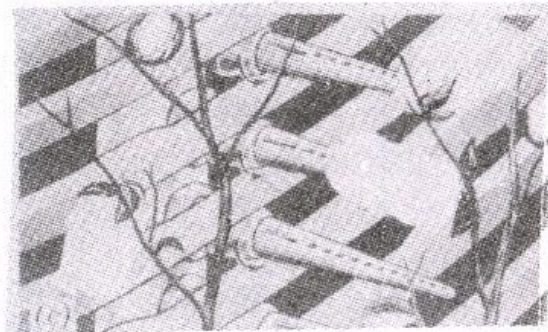
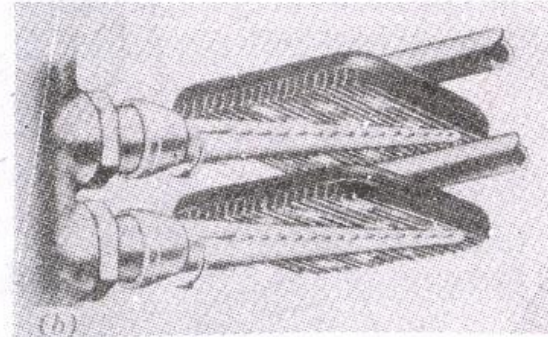
Spacing of spindles is 38x38 mm so that they can slip past the un-opened bolls

Mostly spindles are tapered

Arranged on bars in vertical drums or on vertical slats attached to endless chain belts

3-4 longitudinal rows of sharp barbs for picking the cotton

Tapered shape facilitates removing the cotton in doffing zone.



a) Plan view of picking drums; *b*) spindle-rough grid section; *d*) doffers. (Courtesy of .)



DRUM TYPE PICKER SPINDLE

RPM of the spindle varies from
1850 (F.S of 2.9 km/h) –
3250 (F.S of 5 km/h

For fluffy bolls, efficiency
increases when rpm
increases.

At low speed cotton left at
burs; high speed cotton
thrown by the spindle

In knotty bolls (open before
maturity) picking efficiency
increases with rpm.

Higher spacing, picking
efficiency decreases.

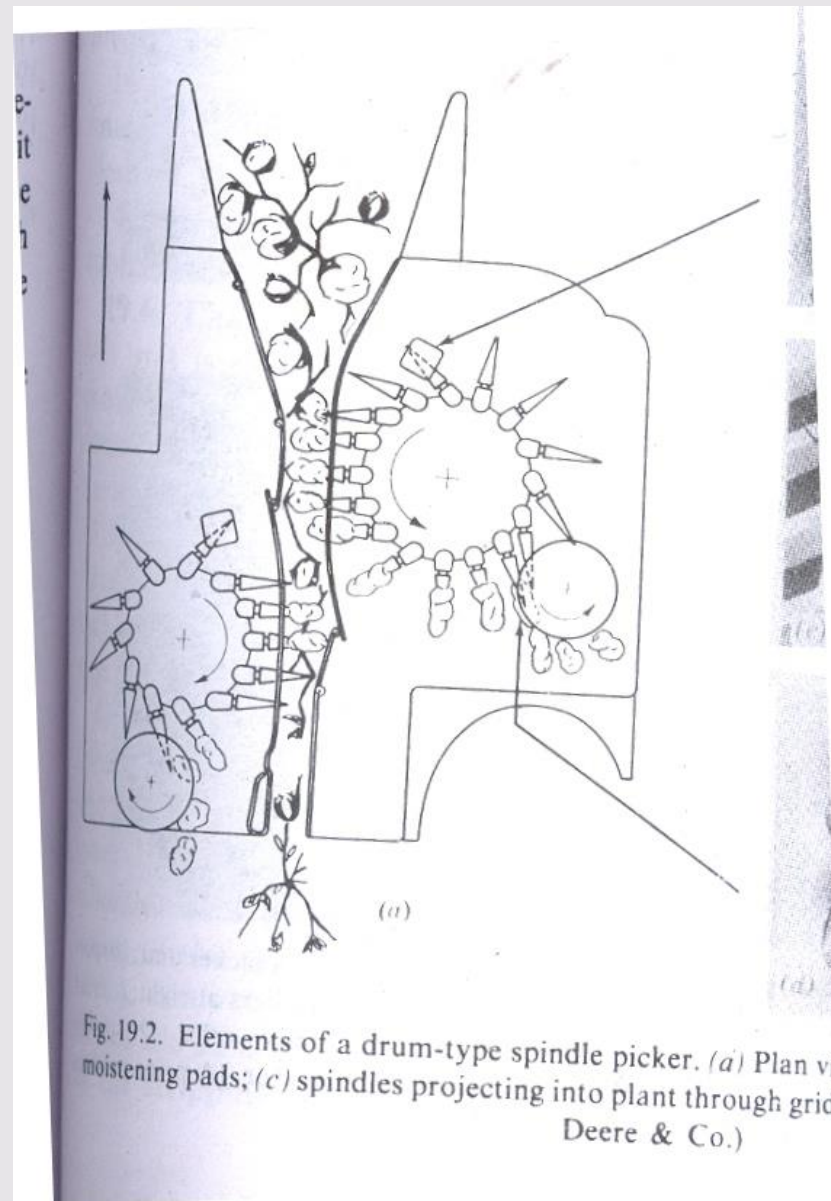


Fig. 19.2. Elements of a drum-type spindle picker. (a) Plan view showing moistening pads; (c) spindles projecting into plant through grid (Deere & Co.)



CHAIN BELT TYPE PICKER SPINDLE

Same principle

Spindle are straight

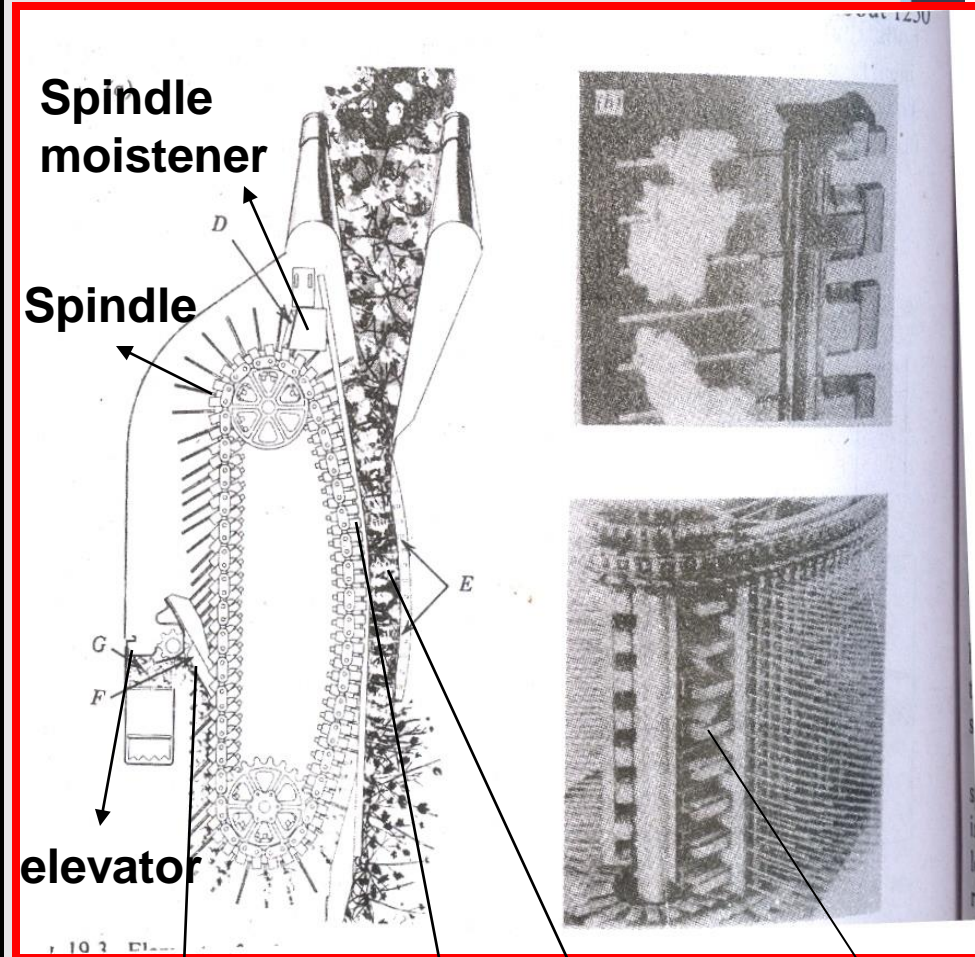
It permits the spindle to remain in the picking zone for a longer period

80 vertical slats; each with 16 spindles (Total = 1280)

Each spindle slat is pivoted between lower and upper chain

The drive rollers on the chain maintains the spindle in a position normal to the curvature of the drive rails

When the spindle approaches stripper bar, the spindles angle back for stripping.



Spindle stripper bar

Spindle picker zone

Drive rollers



Centuri
UNIVERSITY
Shaping Lives...
Empowering Communities

CONVENTIONAL COTTON PICKER

448

PRINCIPLES OF FARM MACHINERY

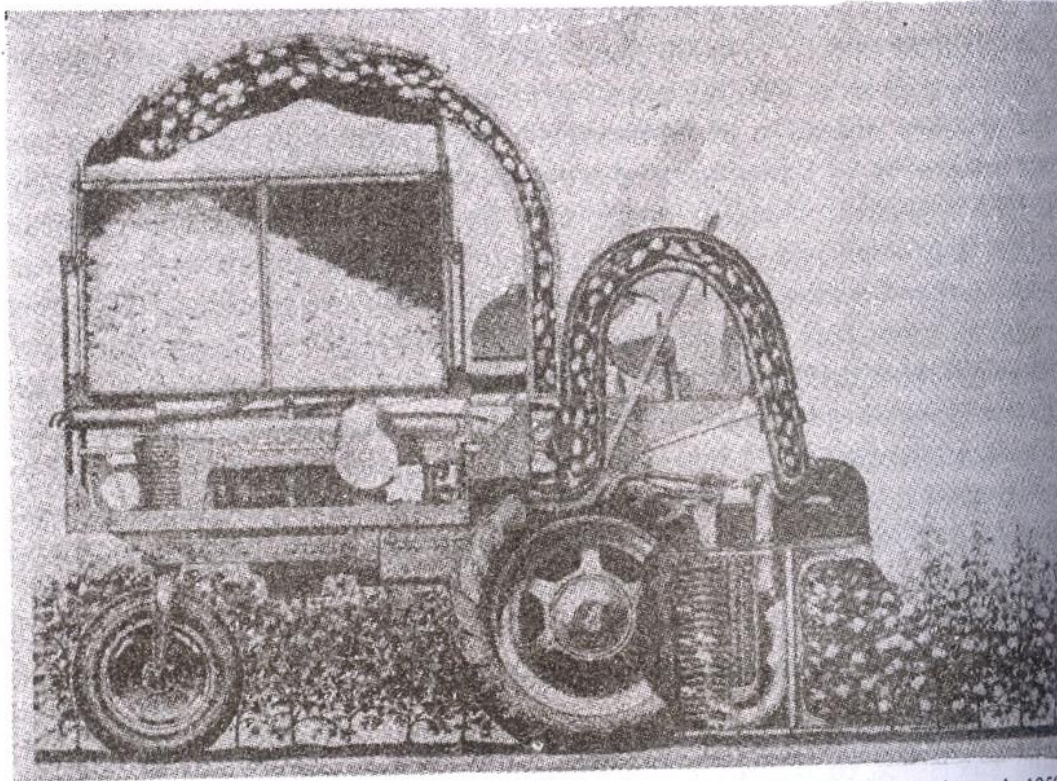


Fig. 19.1. Typical arrangement for a mechanical cotton picker. A model from the early 1950s is depicted, but the basic arrangement is similar on present-day pickers. (Courtesy of International Harvester Co.)



Cer
UNI
Shaping
Empowe



COTTON PICKER AT WORK



Centurion
UNIVERSITY

*Shaping Lives...
Empowering Communities...*



**Case IH Module Express 625
picks cotton and simultaneously
builds cotton modules.**