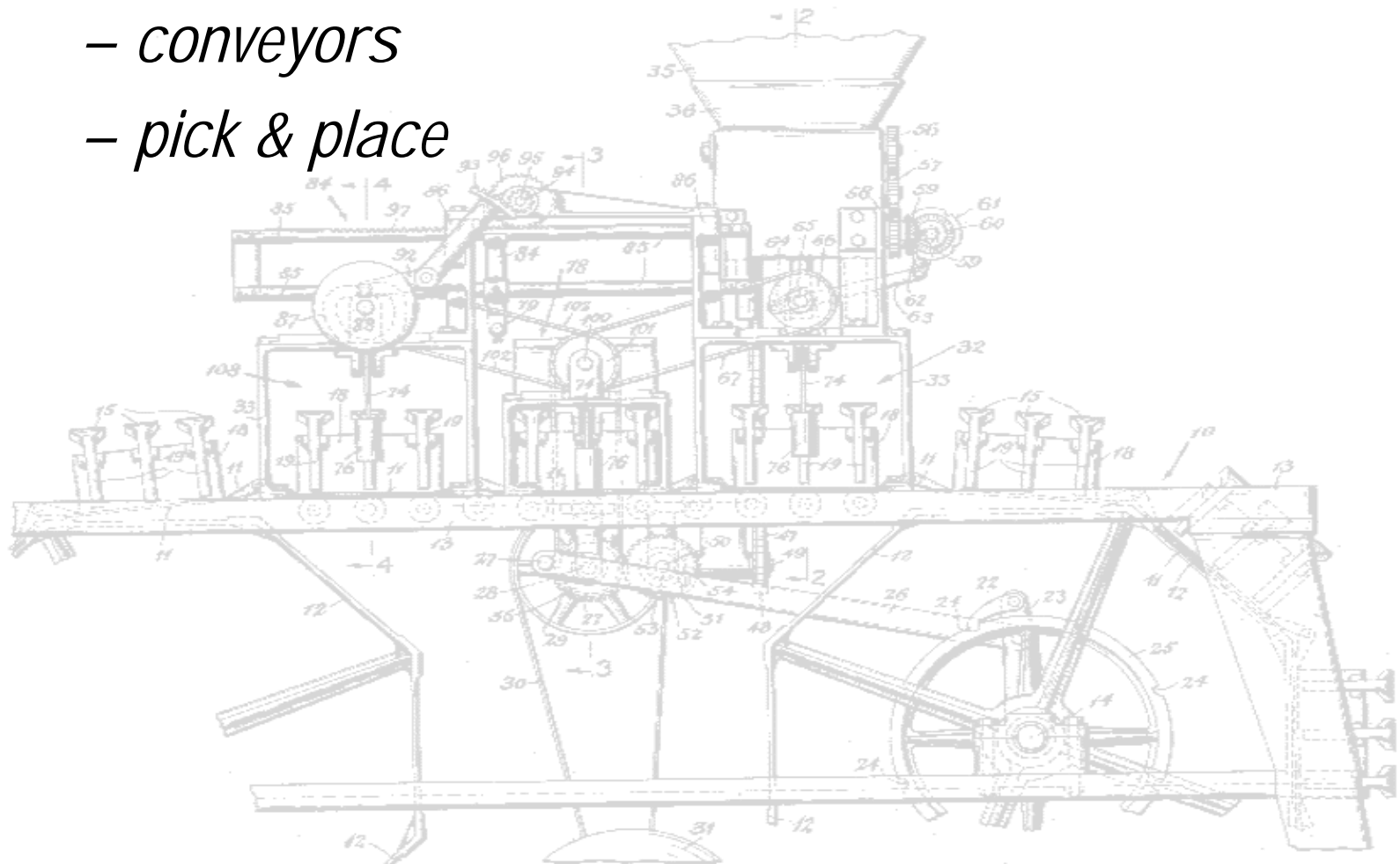
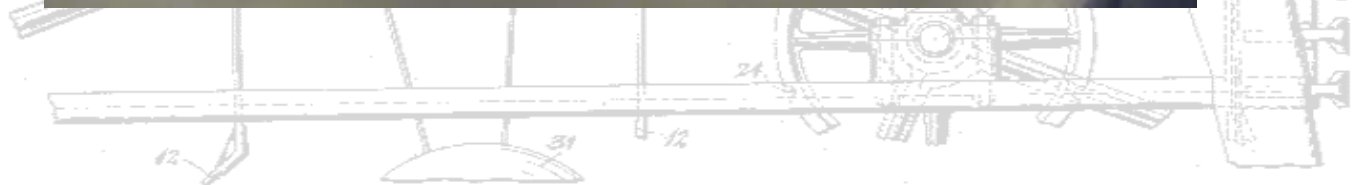
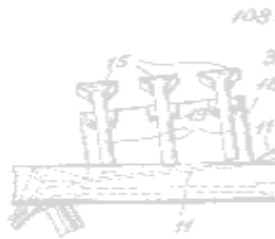


CARE & FEEDING OF MACHINES

- *Feeding parts*
 - *vibratory feed bowls*
 - *conveyors*
 - *pick & place*



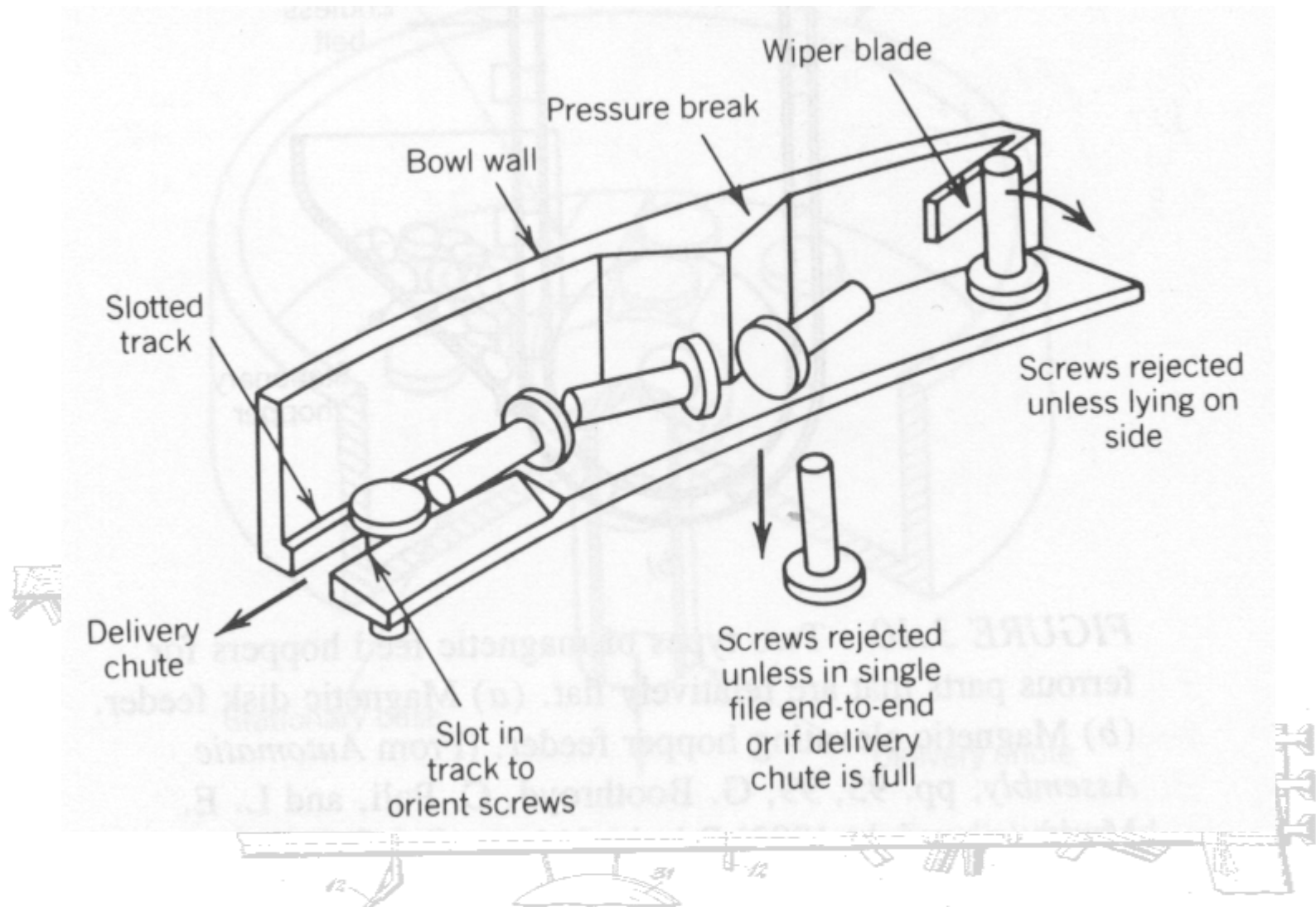
BOWL FEEDERS



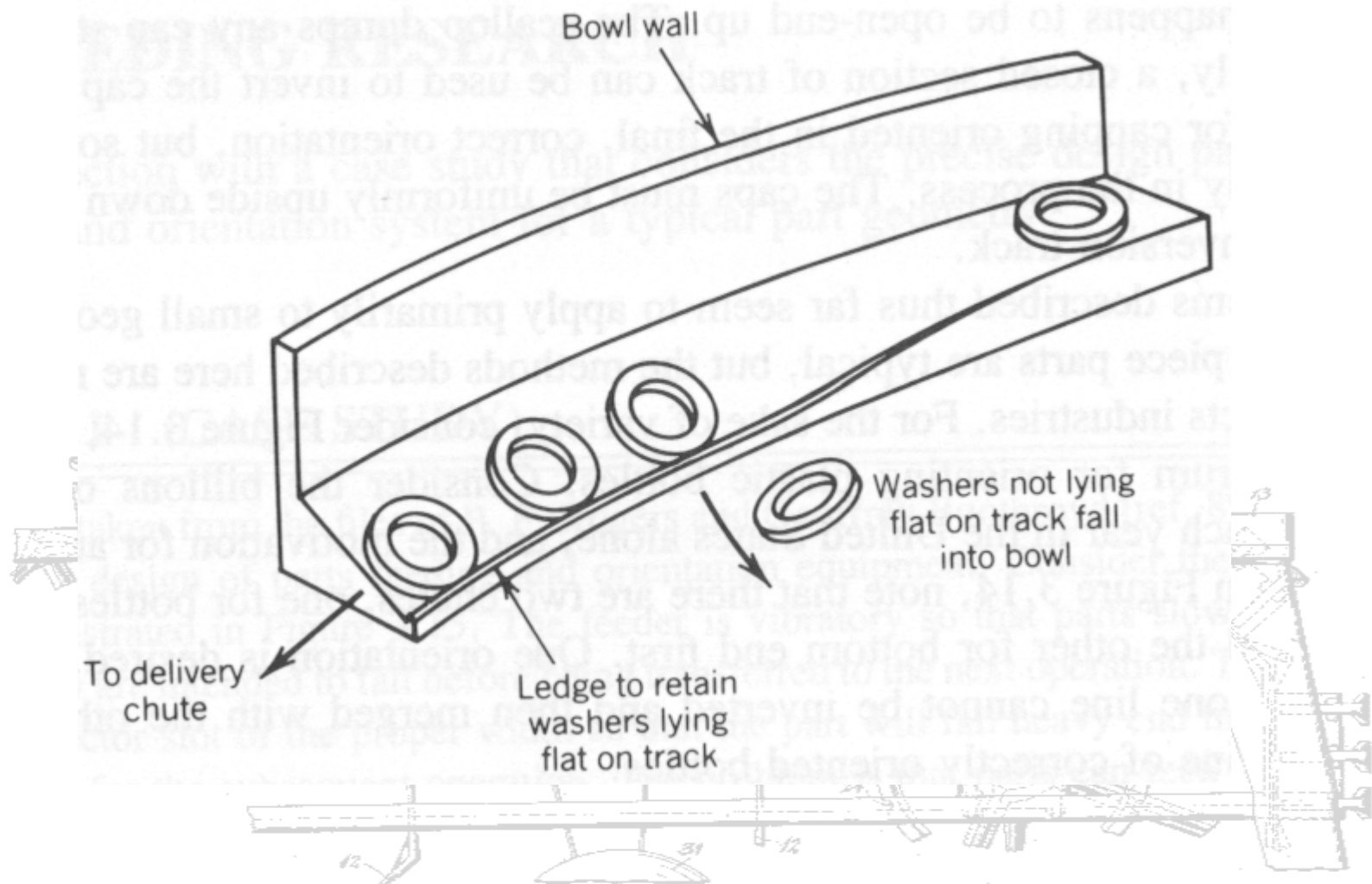
BOWL FEEDERS



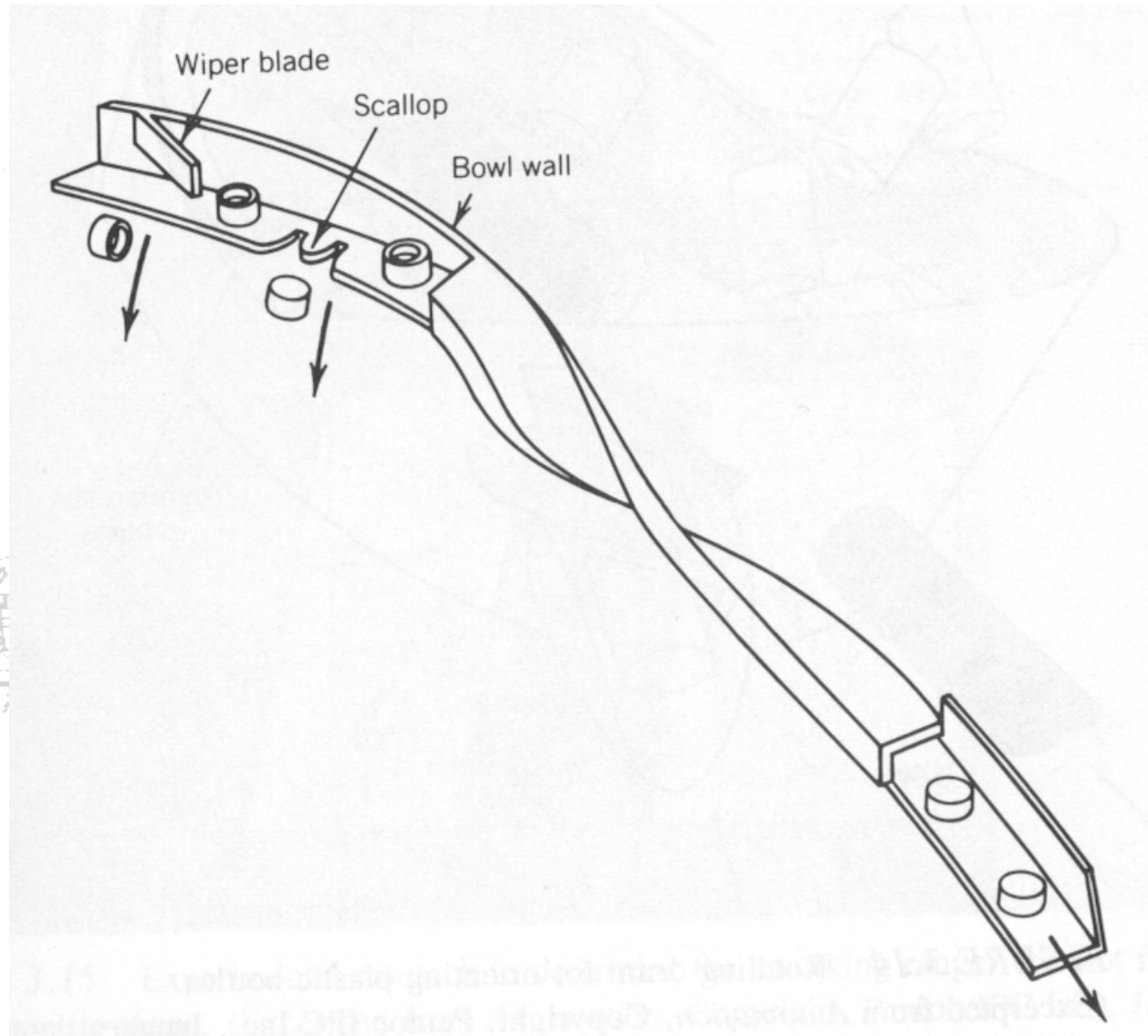
BOWL FEEDERS



BOWL FEEDERS

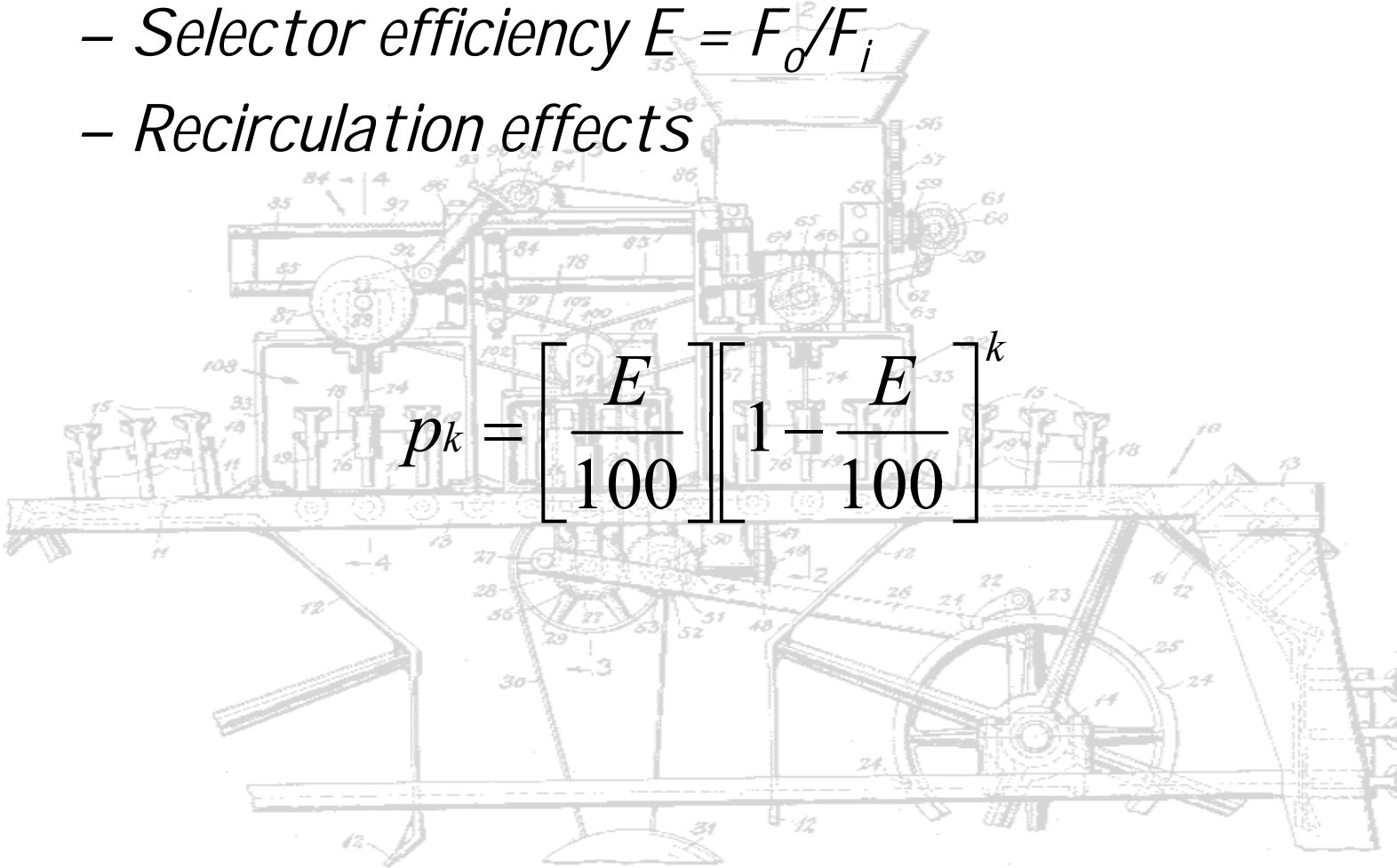


BOWL FEEDERS



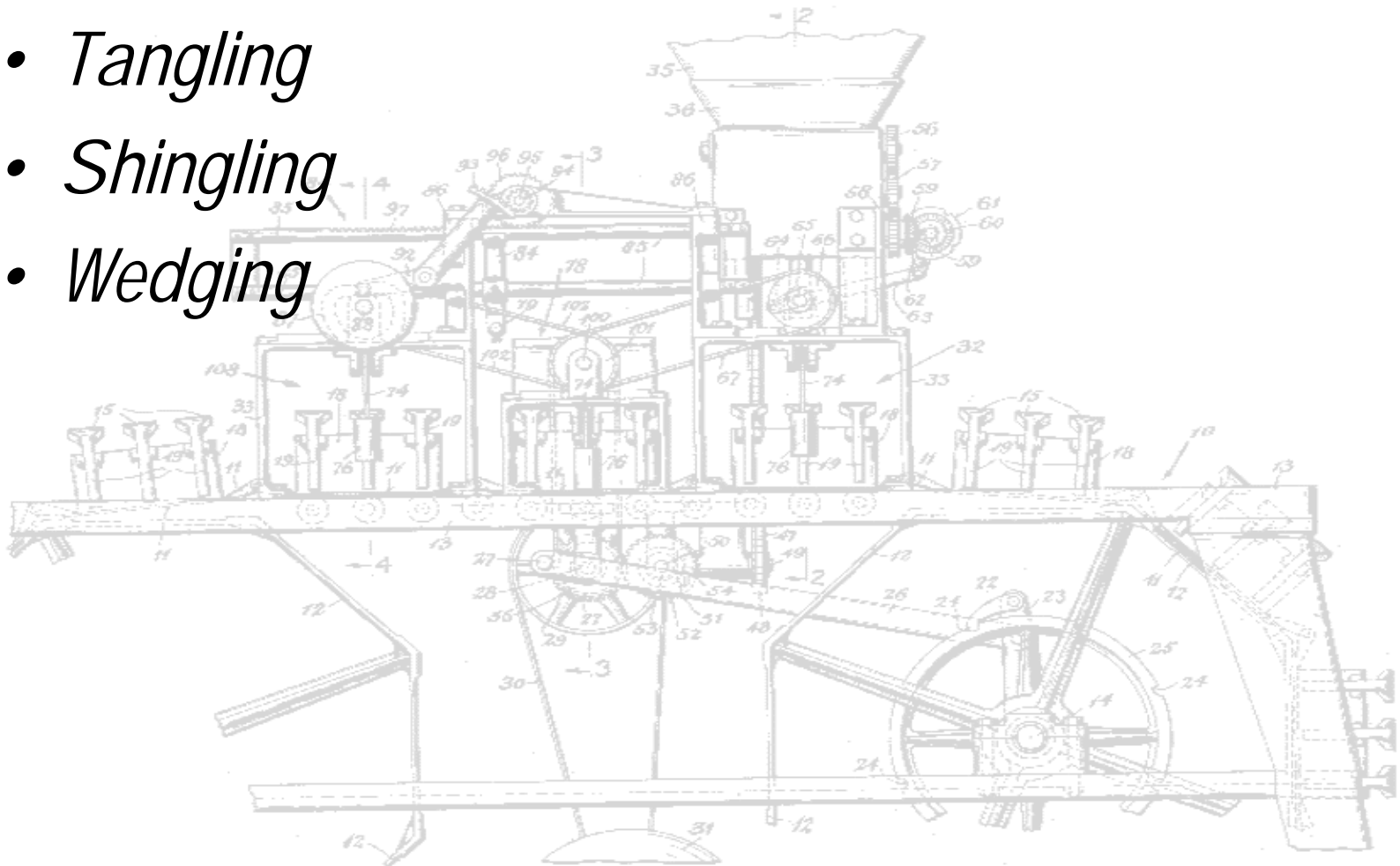
BOWL FEEDERS

- *Design Factors*
 - *Part symmetry*
 - *Selector efficiency $E = F_o/F_i$*
 - *Recirculation effects*

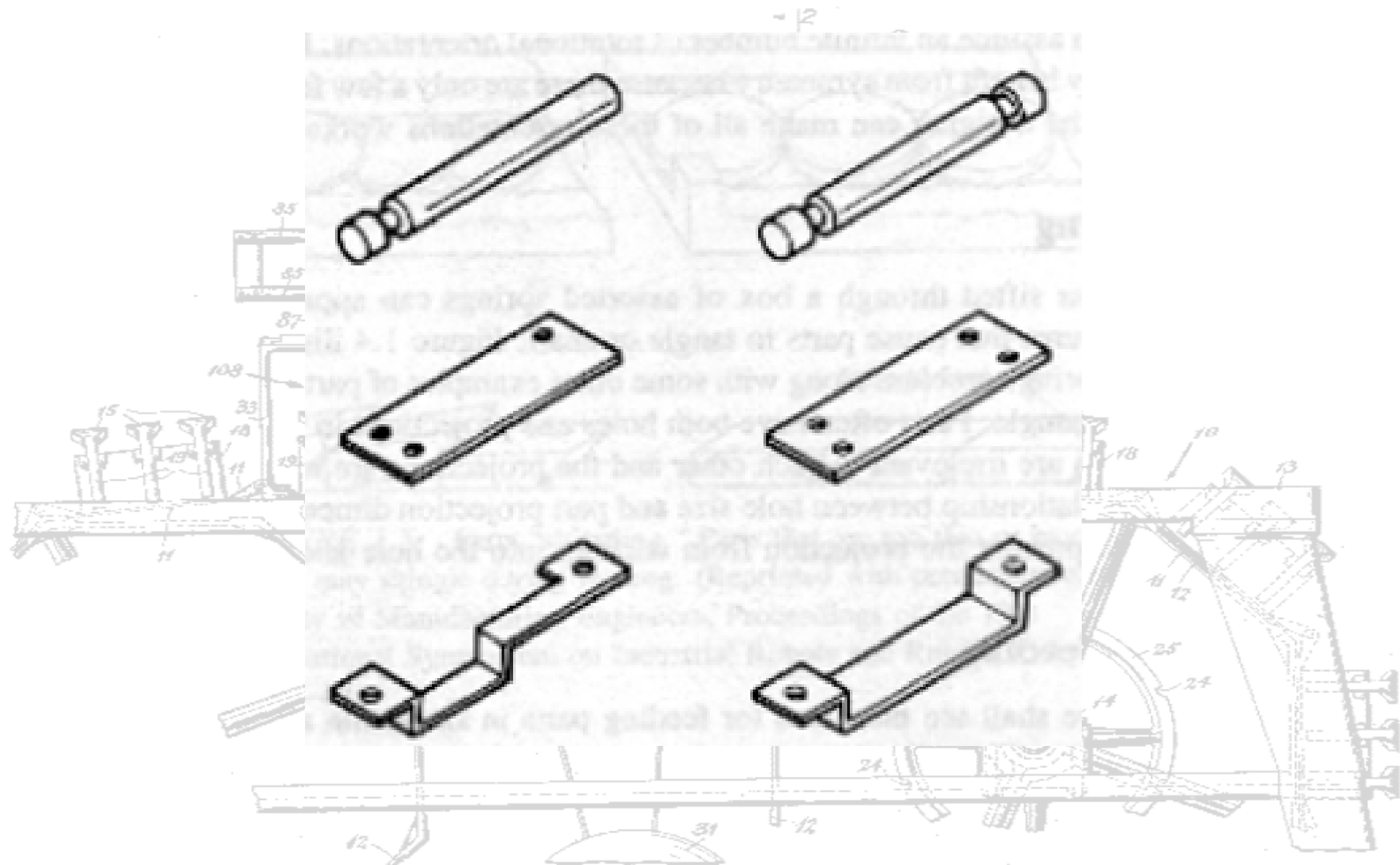
$$p_k = \left[\frac{E}{100} \right] \left[1 - \frac{E}{100} \right]^k$$
A detailed technical drawing of a bowl feeder mechanism, showing various components like gears, rollers, and structural frames, labeled with numbers. The drawing is oriented horizontally and serves as a background for the text and equation.

DESIGNING PARTS FOR FEEDING

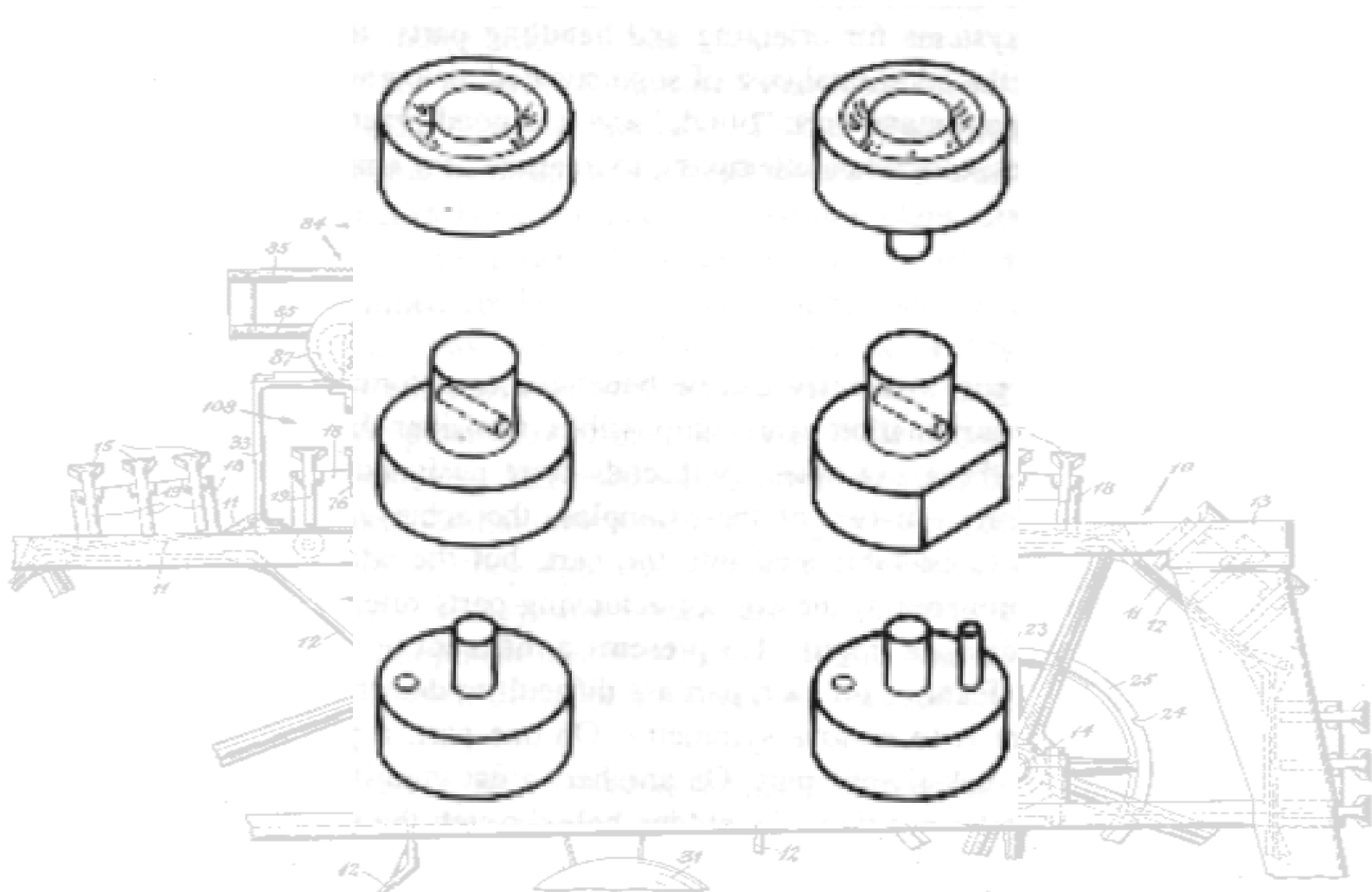
- *Symmetry*
- *Asymmetry*
- *Tangling*
- *Shingling*
- *Wedging*



SYMMETRY



ASYMMETRY

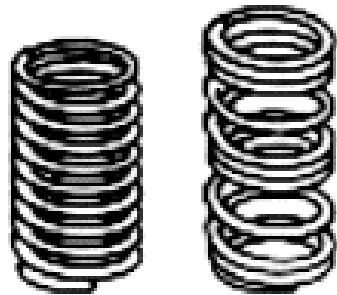


TANGLING

Difficult to feed



Preferred



Opening less than wire diameter prevents nesting

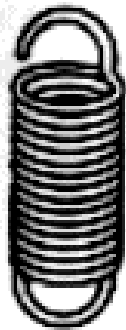
Difficult to feed



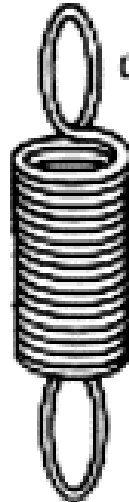
Preferred



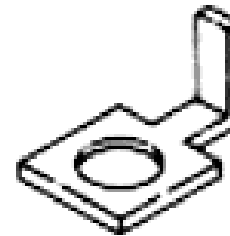
Open ends



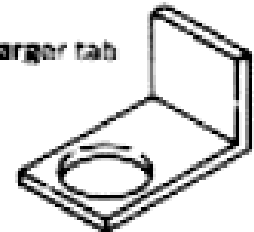
Closed ends



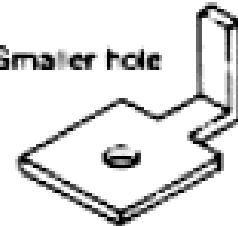
Tight coils prevent nesting



Larger tab

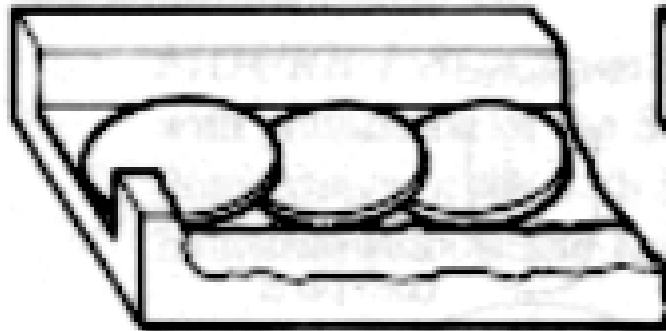


Smaller hole

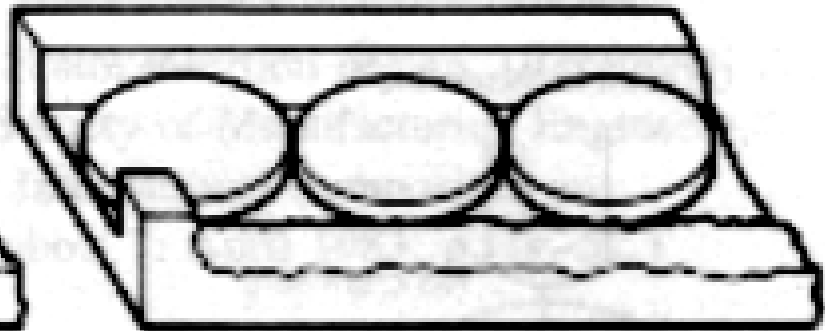


SHINGLING

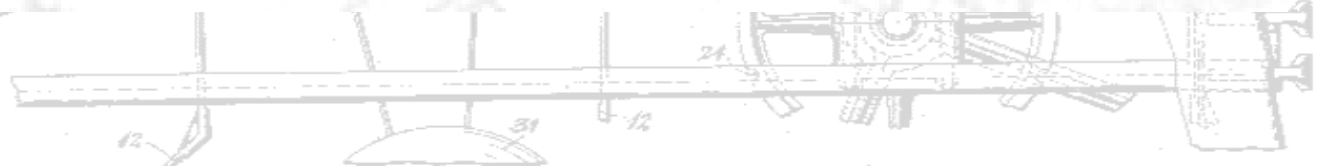
Difficult to feed



Preferred

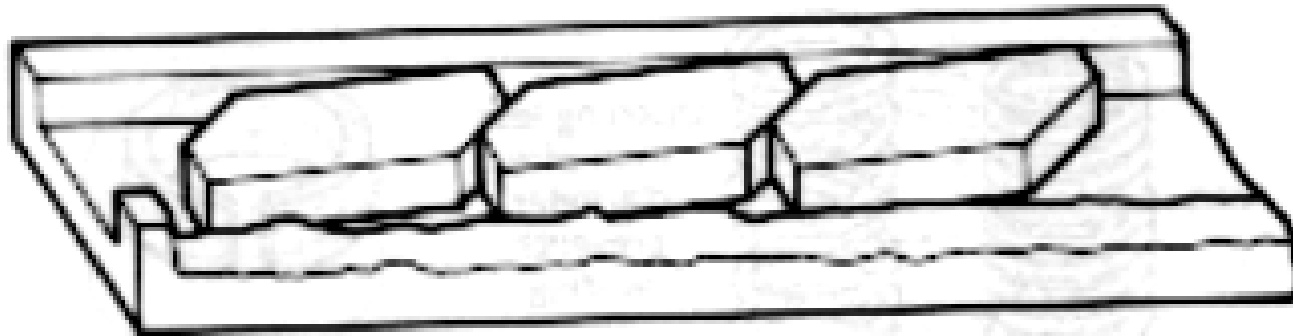


Flat on end of part



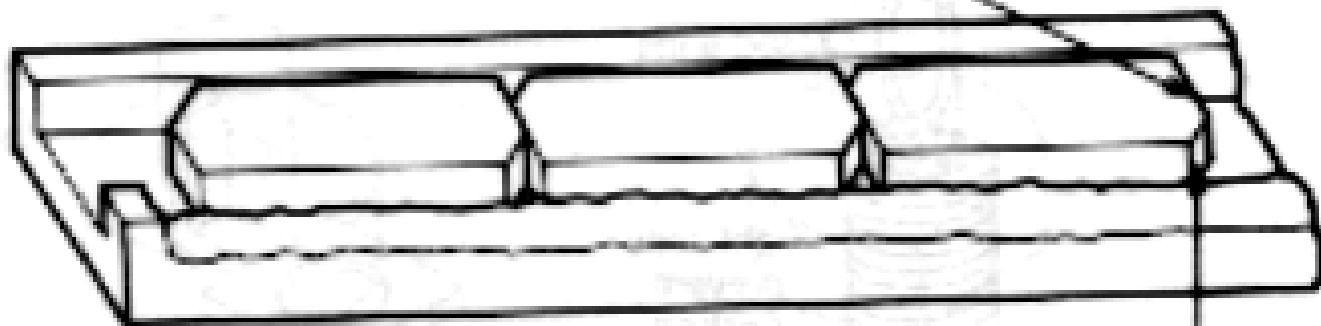
WEDGING

Difficult to feed

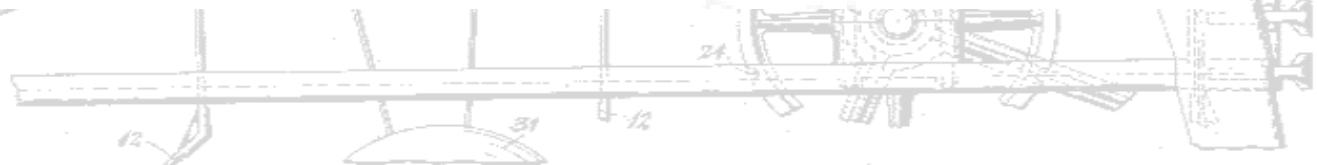


Preferred

Larger flat

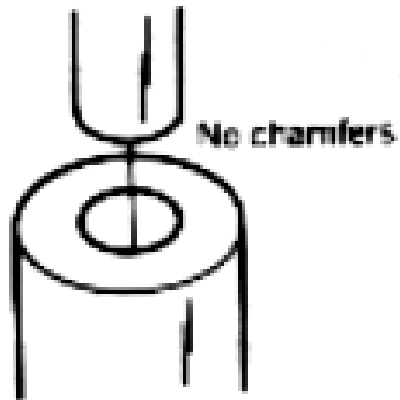


Smaller angle

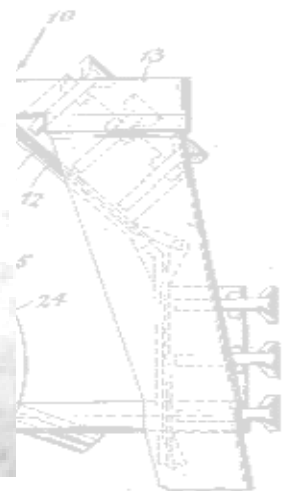
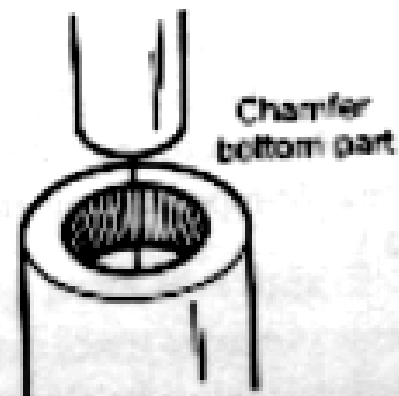
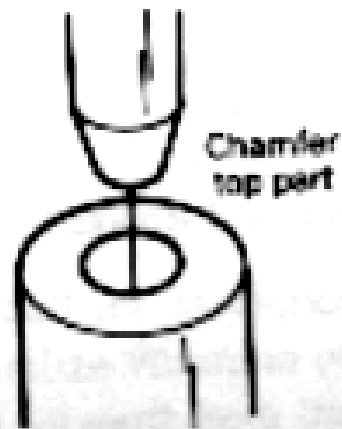
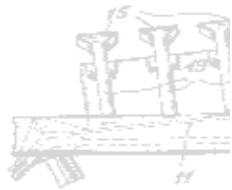
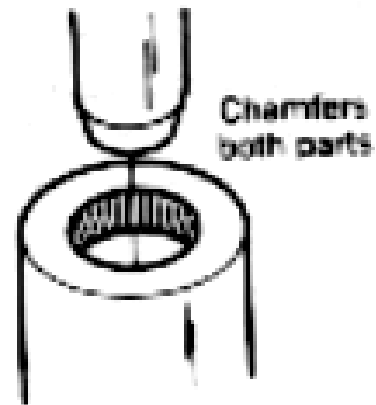


DESIGNING FOR INSERTION

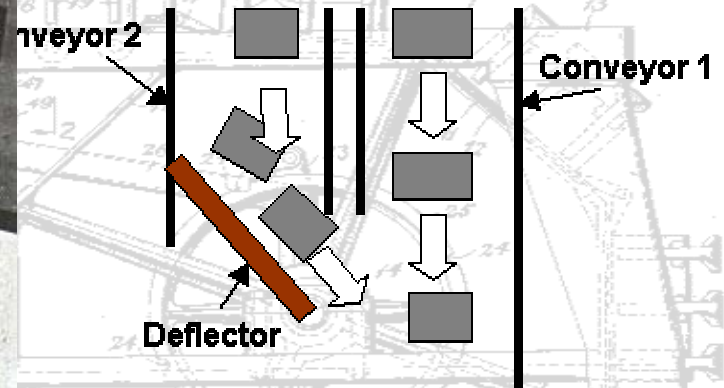
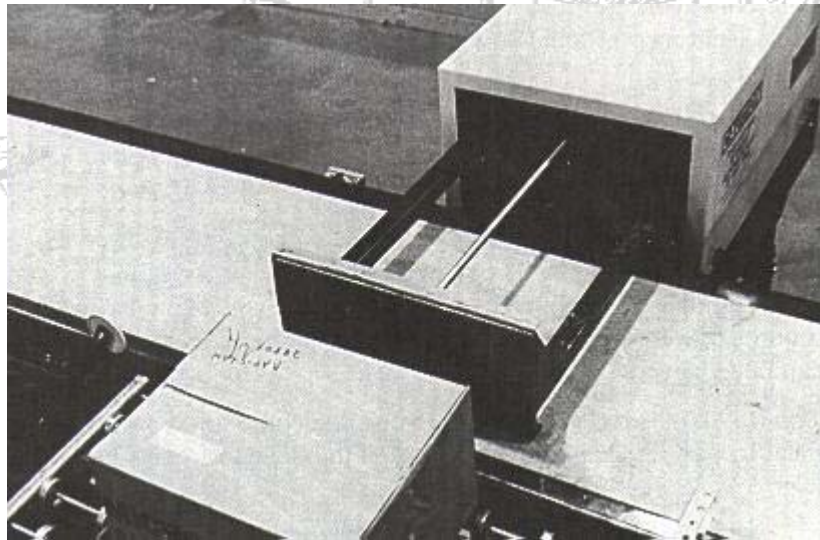
Difficult to assemble



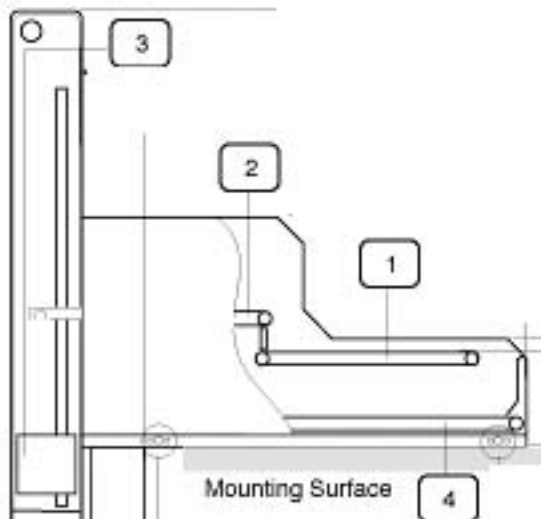
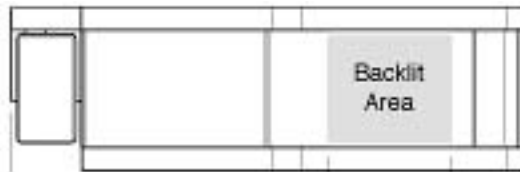
Preferred



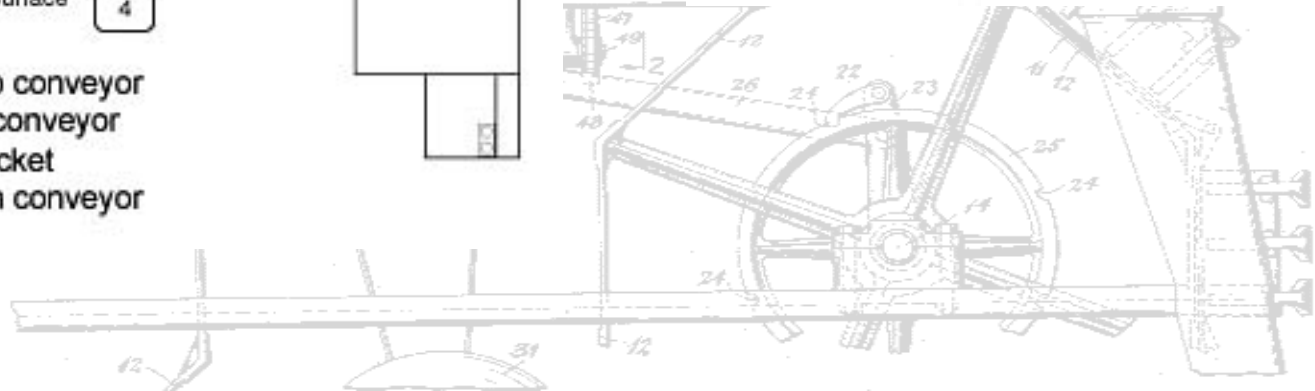
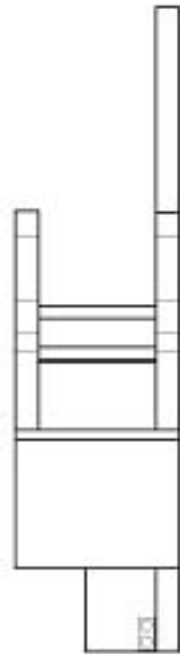
FEEDING PARTS - CONVEYORS



CONVEYORS



- 1. Pickup conveyor
- 2. Feed conveyor
- 3. Lift bucket
- 4. Return conveyor



OTHER FEEDER MECHANISMS

