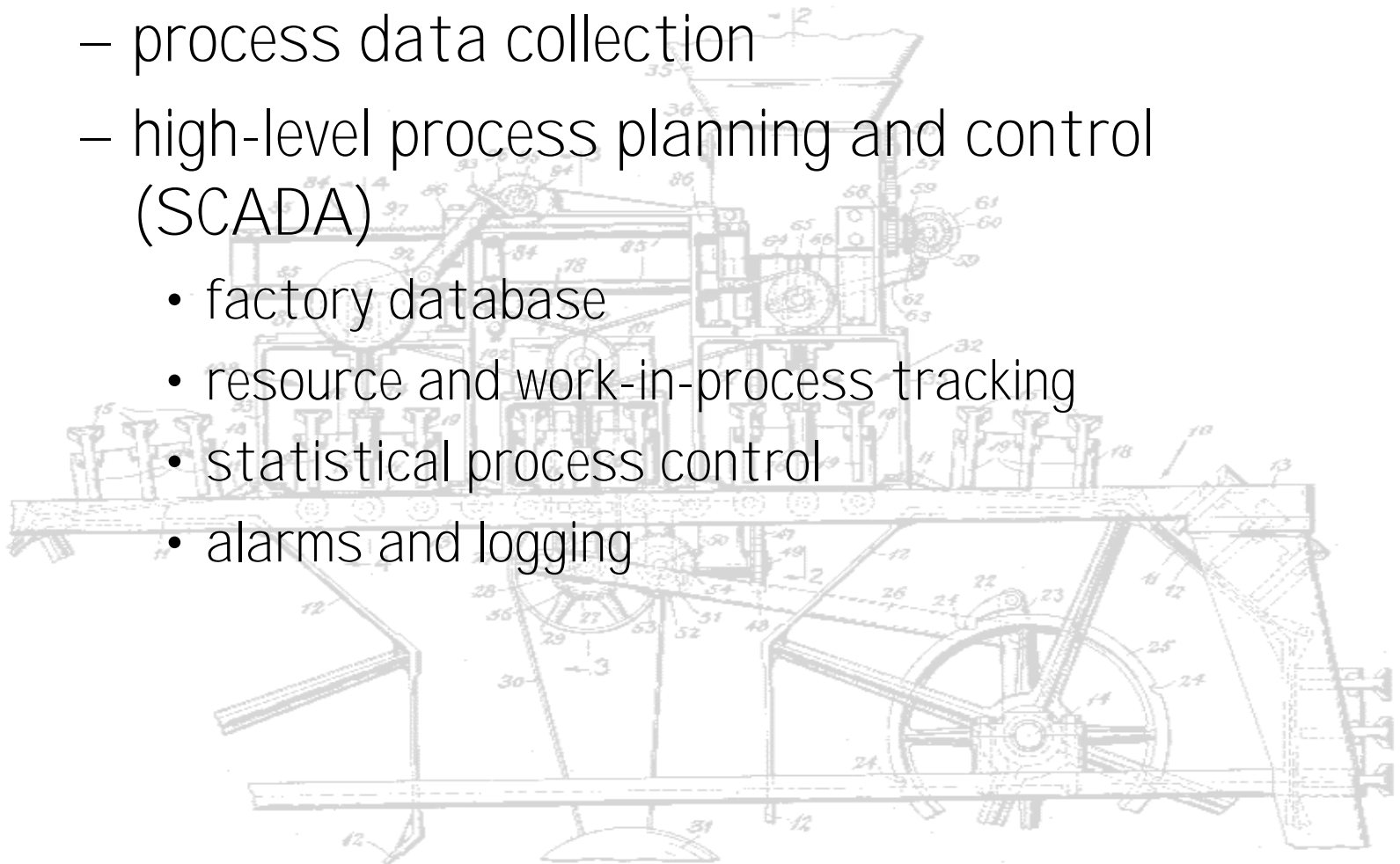


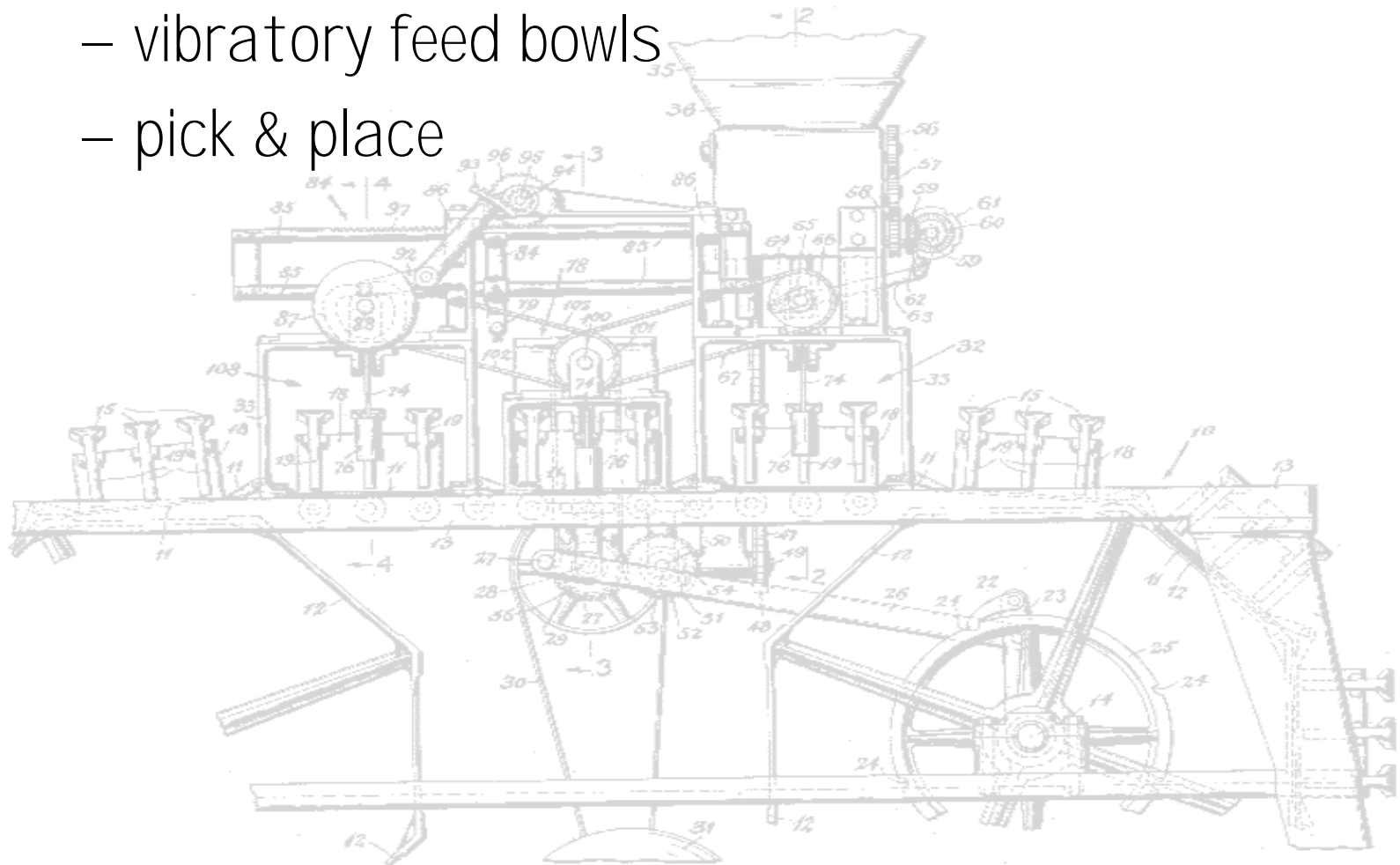
HMI AND OTHER TLA's

- Human Machine Interface (formerly MMI)
 - operator interface
 - process data collection
 - high-level process planning and control (SCADA)
 - factory database
 - resource and work-in-process tracking
 - statistical process control
 - alarms and logging

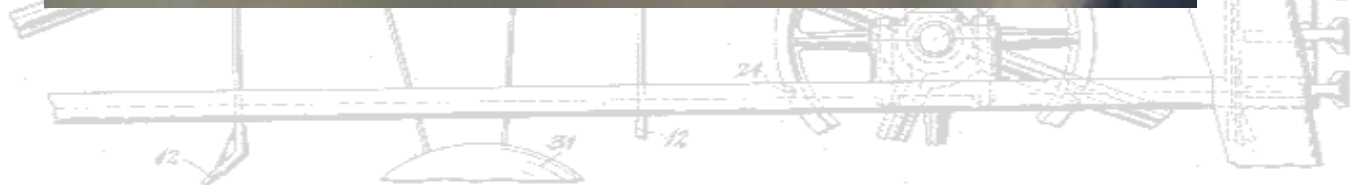
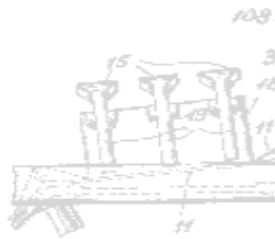


PUTTING IT ALL TOGETHER

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



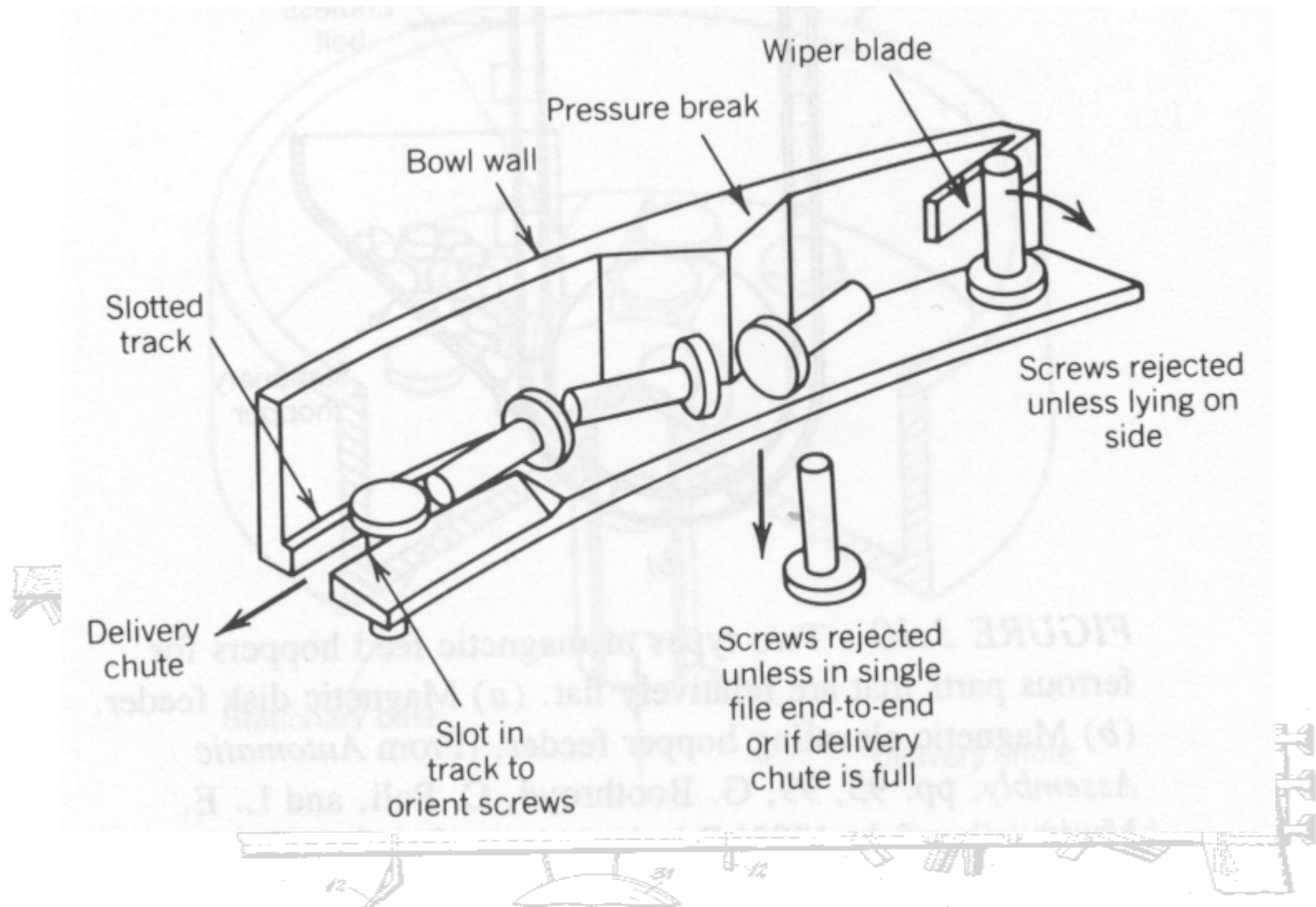
BOWL FEEDERS



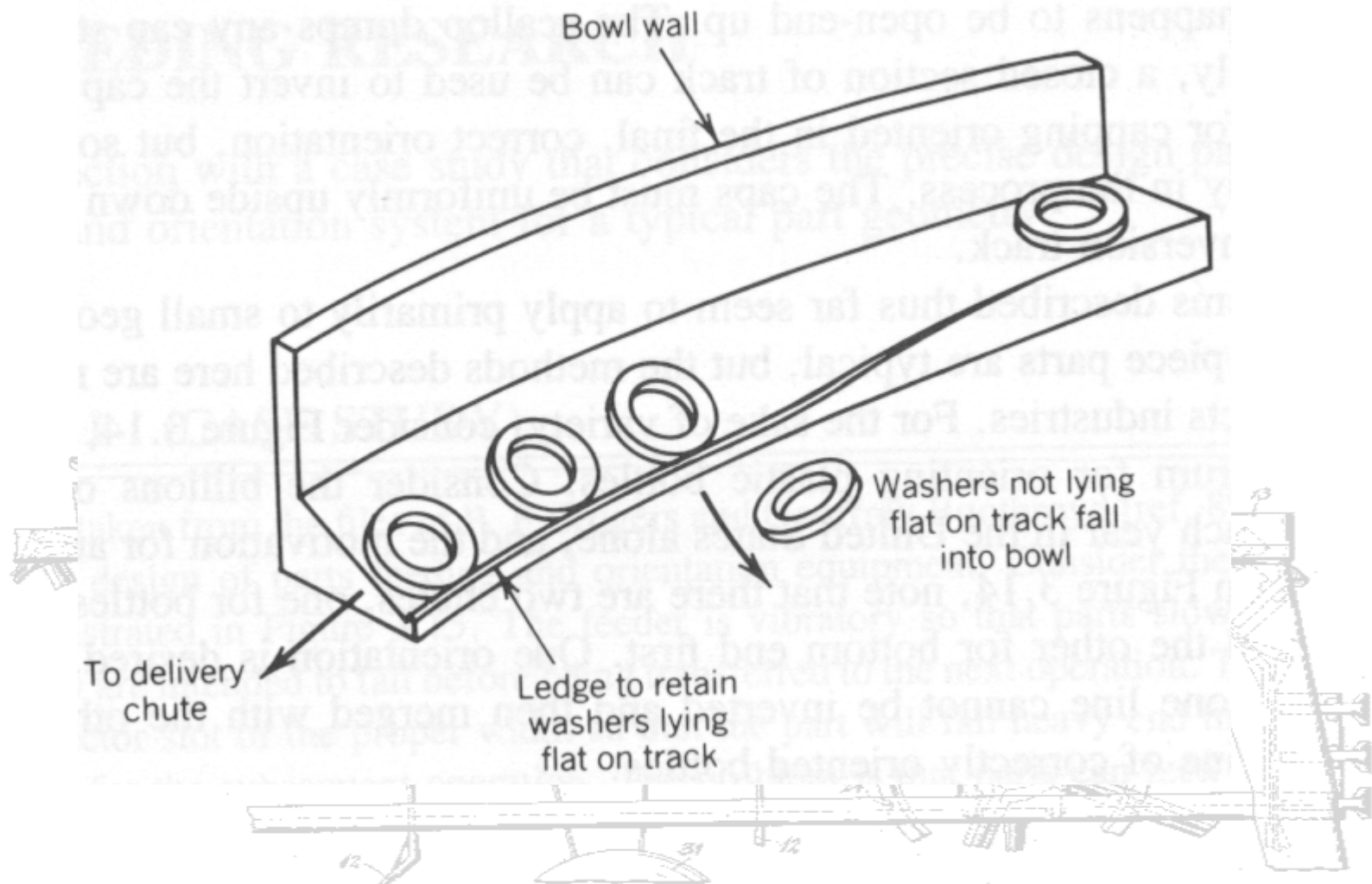
BOWL FEEDERS



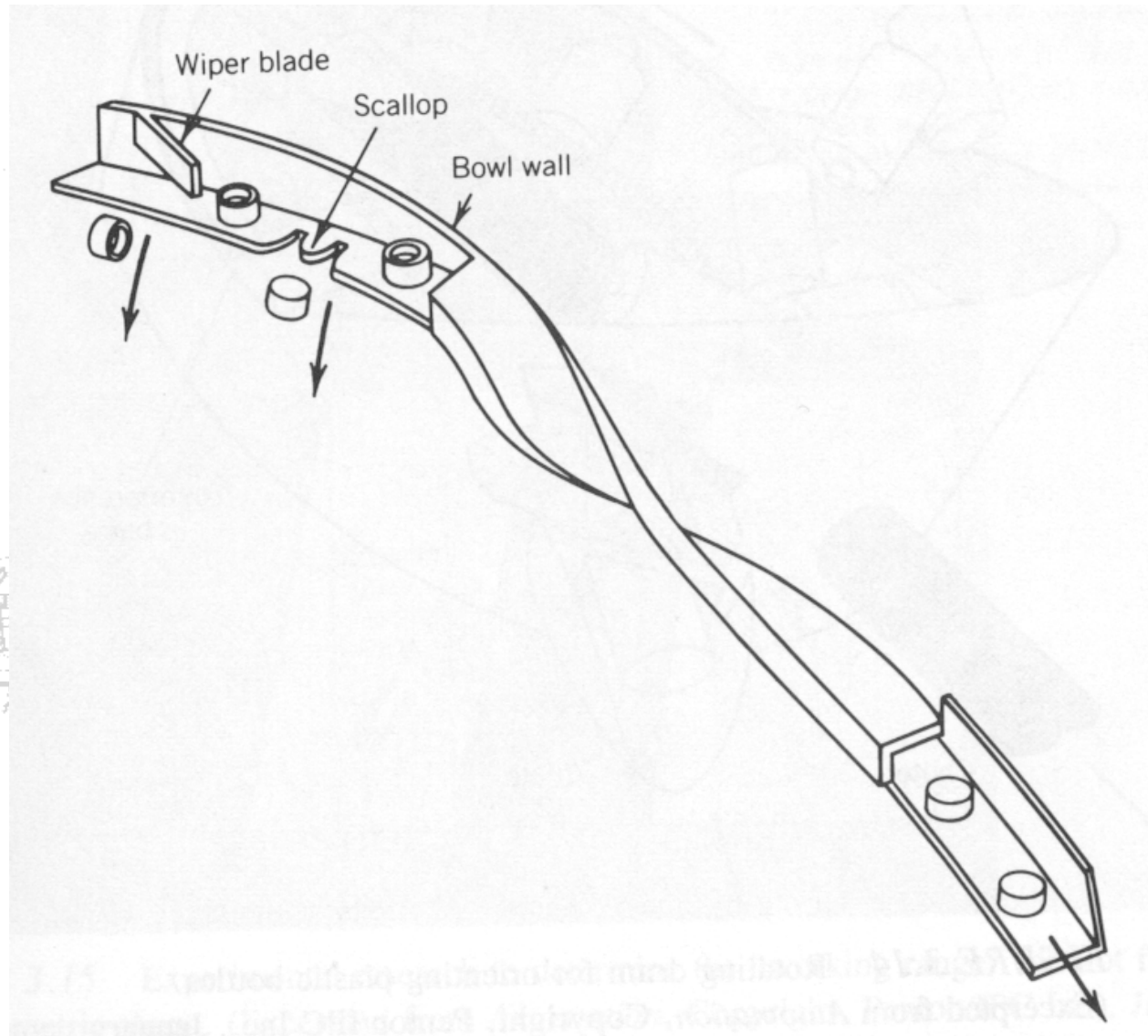
BOWL FEEDERS



BOWL FEEDERS

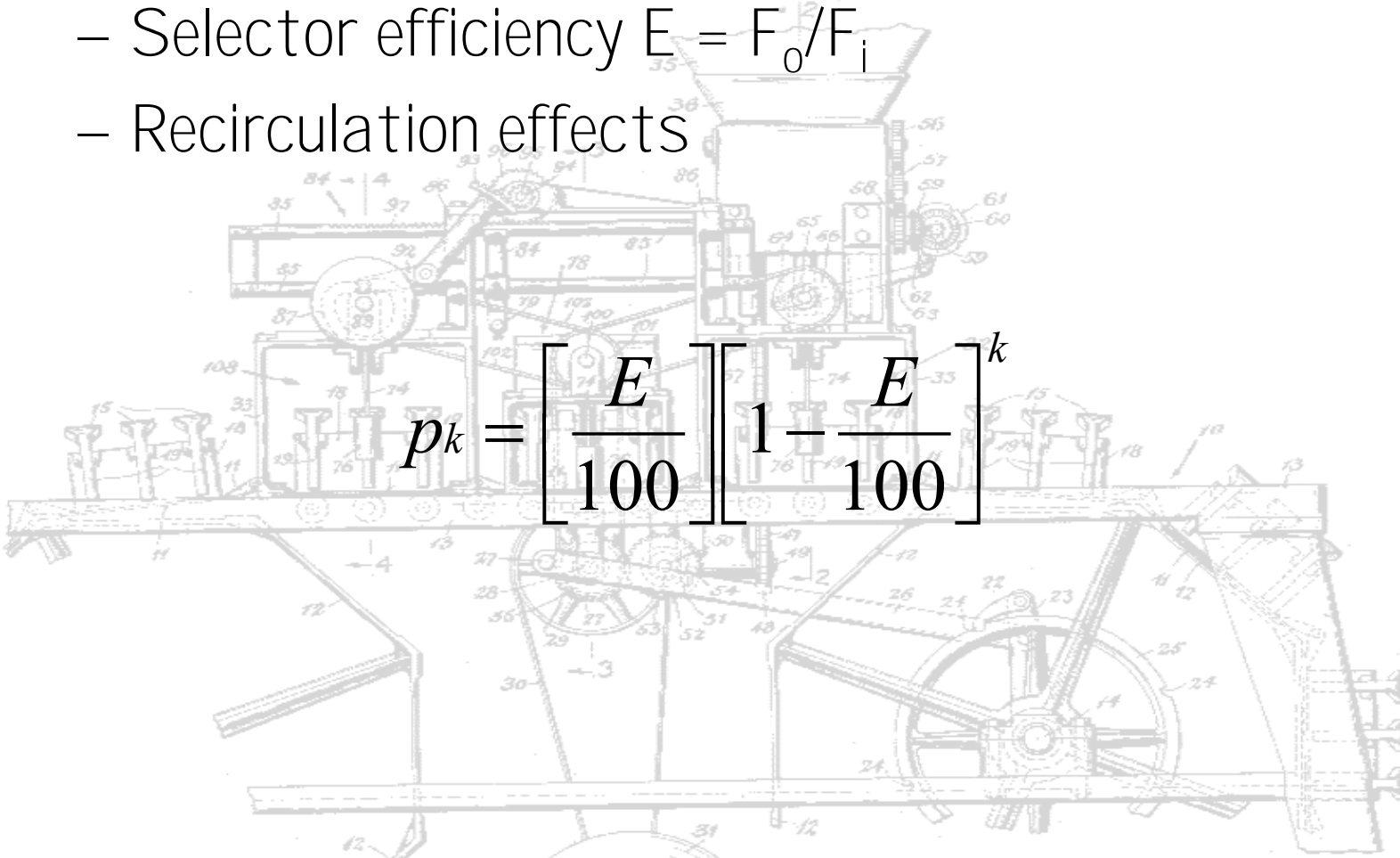


BOWL FEEDERS



BOWL FEEDERS

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



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, with the feeder's input at the top and output at the bottom. The mechanism includes a large drive wheel on the right, a series of smaller gears and rollers in the center, and a collection area on the left. The drawing is a cross-sectional view, showing the internal components and their arrangement.

$$p_k = \left[\frac{E}{100} \right] \left[1 - \frac{E}{100} \right]^k$$